A DATA SCIENCE PROJECT |

AI Awareness & Perception Among Youth in Academia

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WHAT?

Exploring the Attitudes and Perspectives of Students on AI

Main Objective:

A. Analyze the main variables influencing AI awareness and perception using statistical methods and visualization techniques.

B. Explore possible relationships between the variables.

WHY?

AI is eating the world

- More and more students are interacting with AI.
- Relying on AI poses risks like diminished autonomy, reduced critical thinking, and cognitive dependency,
- Insights on AI Awareness & Perception can guide and support education to mitigate these risks.
- As AISS students; understanding how people think and feel about AI is crucial for designing solutions that align with societal needs and values.

HOW?

The Magic of Data Science!

Focus

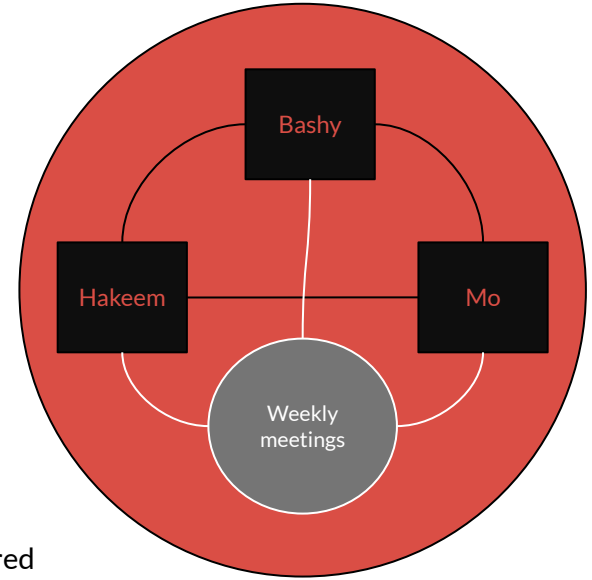
- AI knowledge
- Emotional responses
- Sources of information
- Perceived usefulness of AI
- Students' attitudes toward AI (e.g., trust, curiosity, fear)
- Demographic factors (e.g., gender, major)

Methods

- Pre Examining the data
- Exploratory Data Analysis (EDA)
- Correlation analysis
- Statistical methods
- K-means clustering

OUR TEAM WORK

Makes the Dream Work



Weekly Meetings:

- Coordination, direction-setting, and approach alignment.

Work Process:

- Each member worked on tasks independently, shared results, and selected the best outcomes during meetings.

Collaboration at the Start:

- Jointly reviewed dataset features to align with project objectives and select key variables for analysis.

THE DATA

Dataset Preparation

Source: Dataset sourced from Kaggle, survey-based, well-structured.

Initial Checks:

- 91 entries and 15 variables
- Verified no missing values, duplicates, or outliers using Python.

Minor Adjustments Made:

- Set "ID" as the index and renamed it to "Student_ID" for clarity.
- Retained original variable names despite minor inconvenience.

Outcome: Dataset required minimal preparation and was ready for analysis.

THE DATA

Data Dictionary 📕

- **Q1_AI_knowledge**: On a scale of 1 to 10, how informed do you think you are about the concept of artificial intelligence?
    - **1**: Not informed at all
    - **10**: Extremely informed
- **Q2.AI_sources**: What sources do you use to learn about the concept of artificial intelligence? (1-Yes, 0-No):
    - **1**: Internet
    - **2**: Books/Scientific papers
    - **3**: Social media
    - **4**: Discussions with family/friends
    - **5**: I don't inform myself about AI
- **Q3: Perceptions of AI (Agreement Scale)**:
    - **Q3#1.AI_dehumanization**: AI encourages dehumanization.
    - **Q3#2.Job_replacement**: Robots will replace people at work.
    - **Q3#3.Societal_benefits**: AI helps solve problems in society (e.g., education, medicine).
    - **Q3#4.AI_rule_society**: AI will rule society.

THE DATA

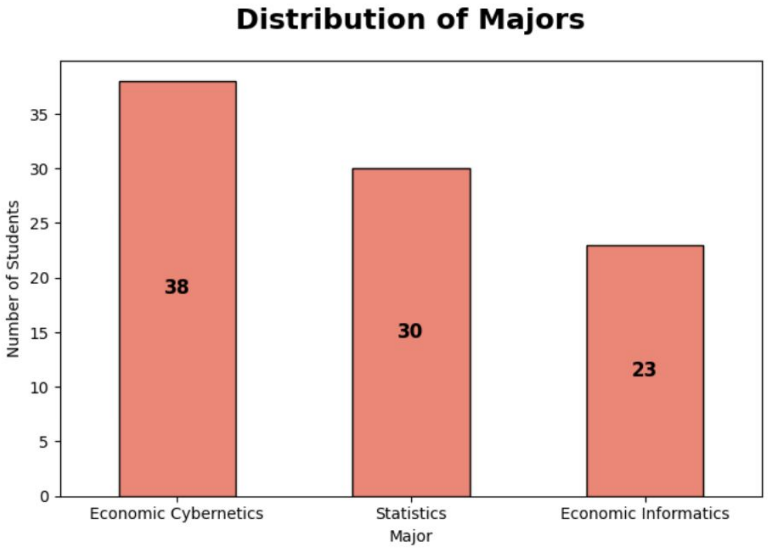
Data Dictionary 📕

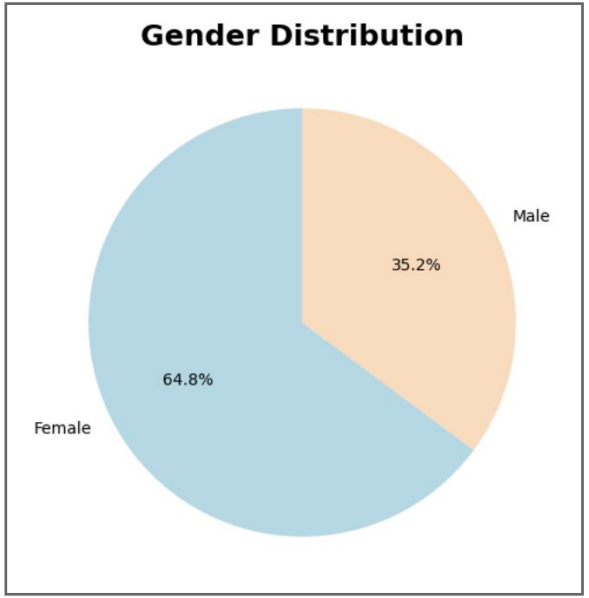
- **Q5.Feelings**: Emotional response to AI:
  - **1**: Curiosity
  - **2**: Fear
  - **3**: Indifference
  - **4**: Trust
- **Q6.AI_impact_areas**: In which areas do you think AI would have a big impact?
  - **1**: Education
  - **2**: Medicine
  - **3**: Agriculture
  - **4**: Constructions
  - **5**: Marketing
  - **6**: Public administration
  - **7**: Art
- **Q7.Utility_grade**: On a scale of 1 to 10, how useful do you think AI would be in the educational process?
  - **1**: Not useful at all
  - **10**: Extremely useful
- **Q12.Gender**: Respondent gender:
  - **1**: Female
  - **2**: Male

RESULTS

Q12 & Q14: Basic Demographics

EXPLORATORY DATA ANALYSIS

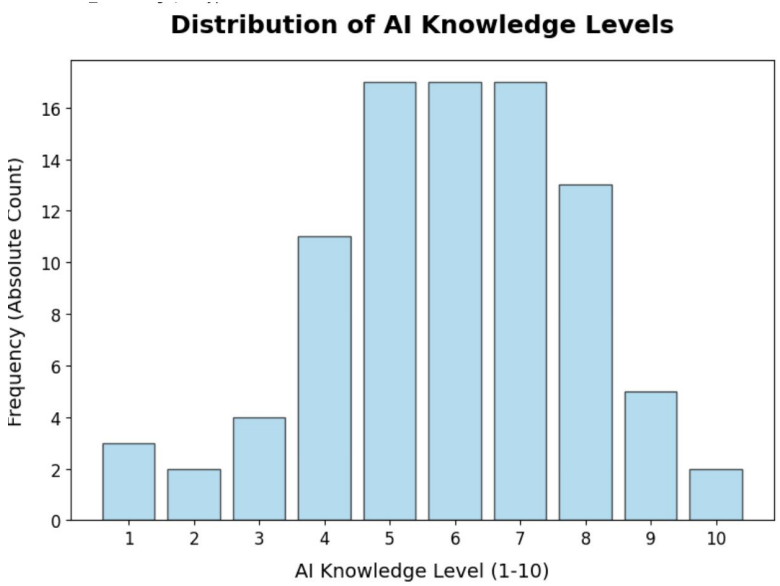




RESULTS

EXPLORATORY DATA ANALYSIS

Q1: AI Knowledge Among Students

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std       1.970044
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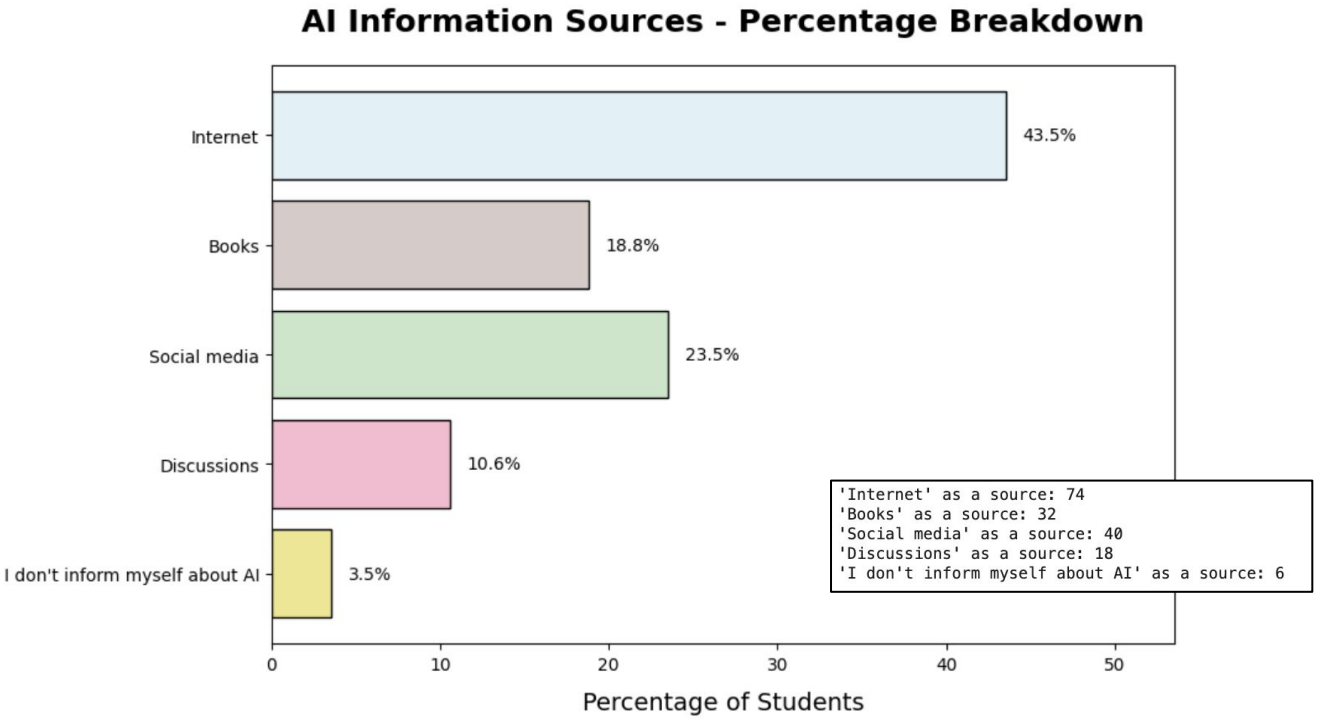
25%       5.000000
50%       6.000000
75%       7.000000
max      10.000000
Name: Q1.AI_knowledge, dtype: float64
```

RESULTS

EXPLORATORY DATA ANALYSIS

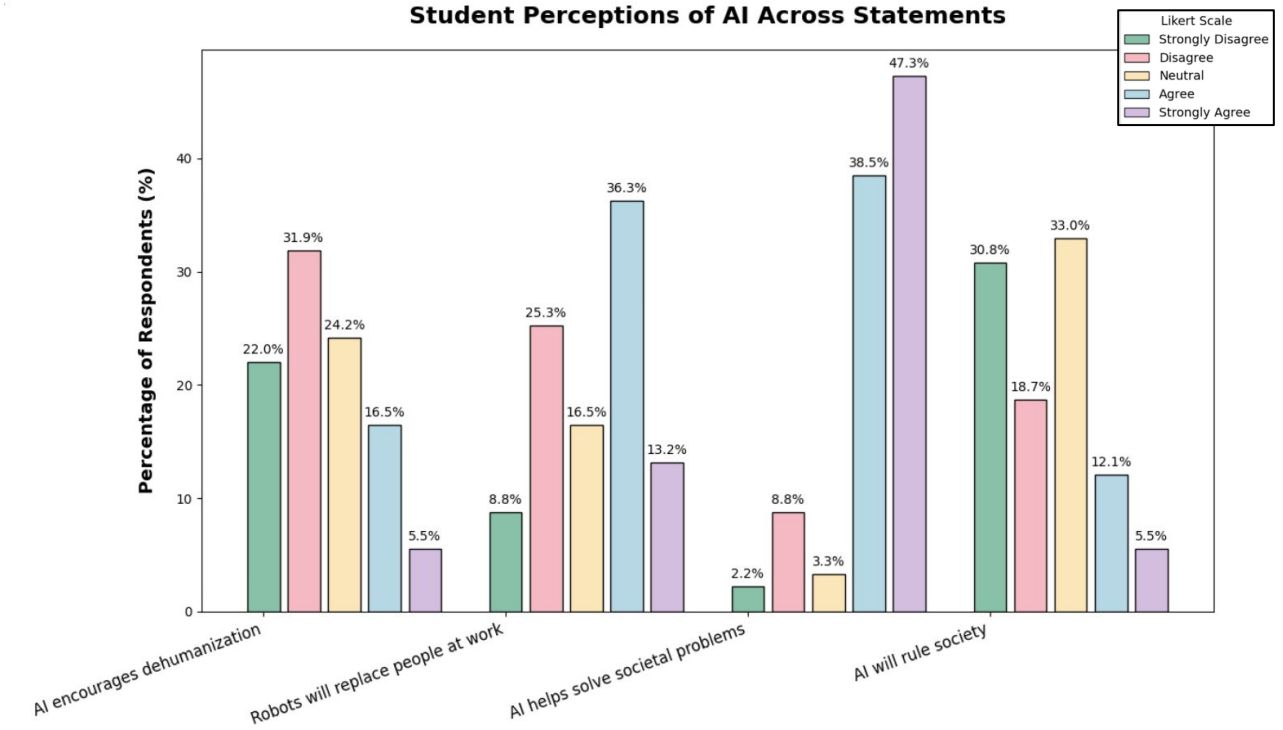
Q2: Sources Of Knowledge For Students



RESULTS

EXPLORATORY DATA ANALYSIS

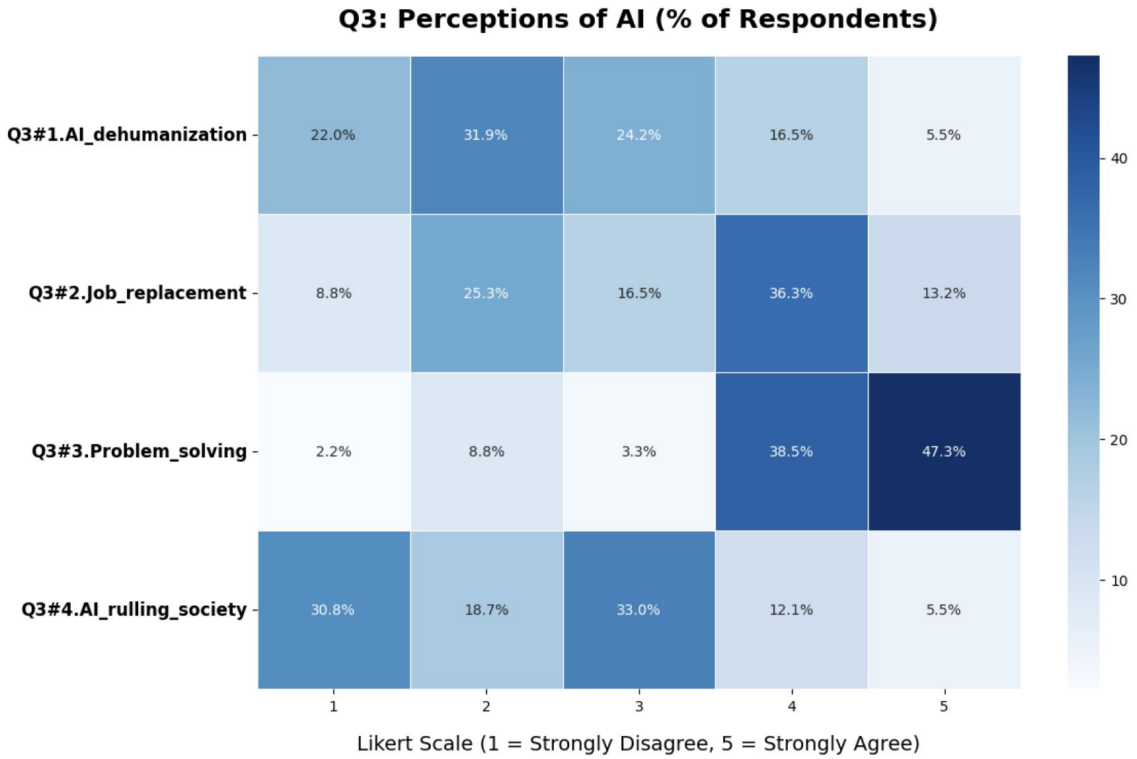
Q3: Perception Of AI Among Students



RESULTS

EXPLORATORY DATA ANALYSIS

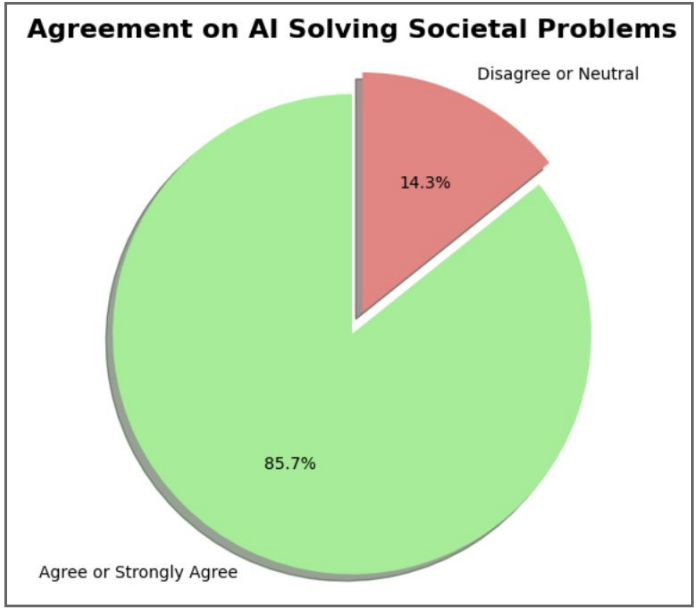
Q3: Perception Of AI Among Students



RESULTS

EXPLORATORY DATA ANALYSIS

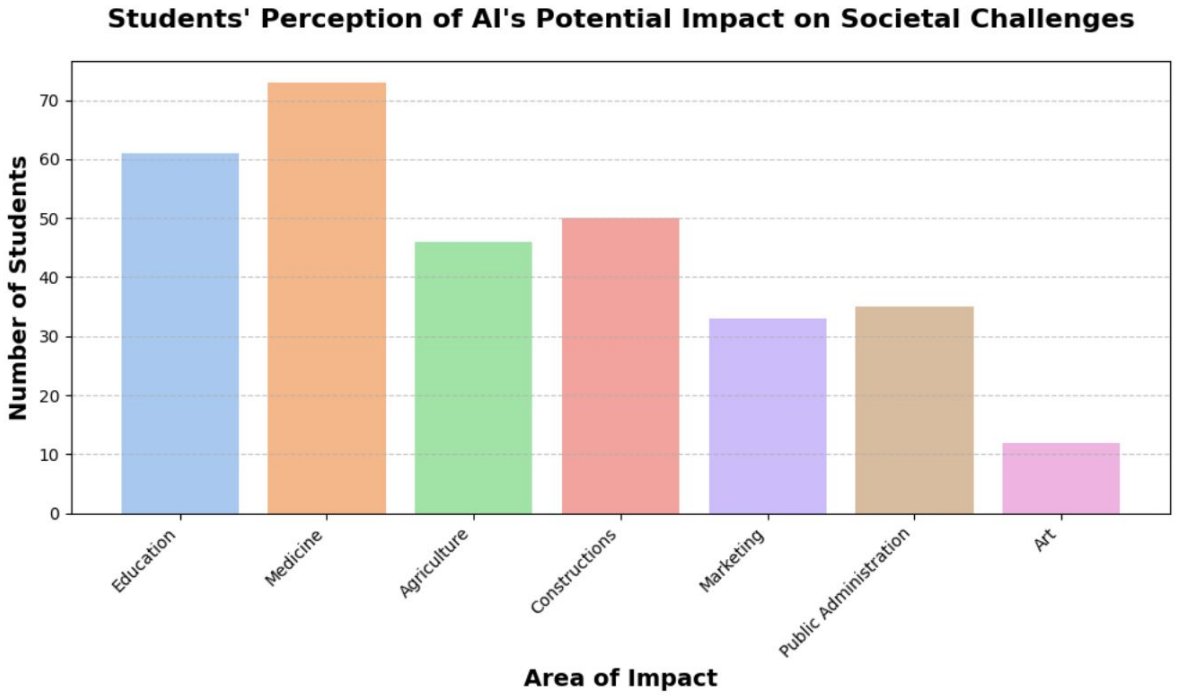
Q3: Perception Of AI Among Students



RESULTS

EXPLORATORY DATA ANALYSIS

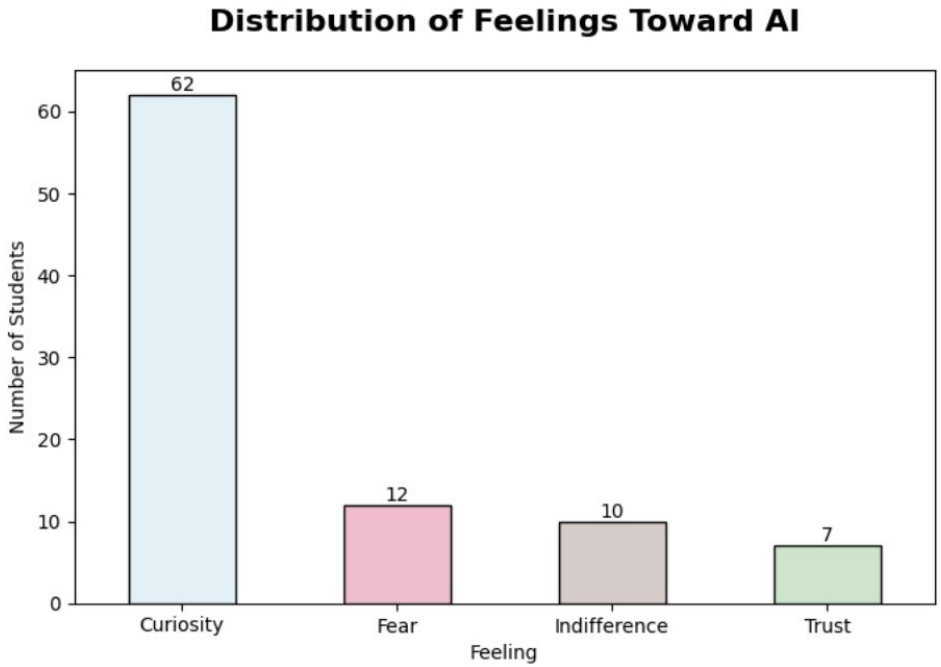
Q3: Perception Of AI Among Students



RESULTS

EXPLORATORY DATA ANALYSIS

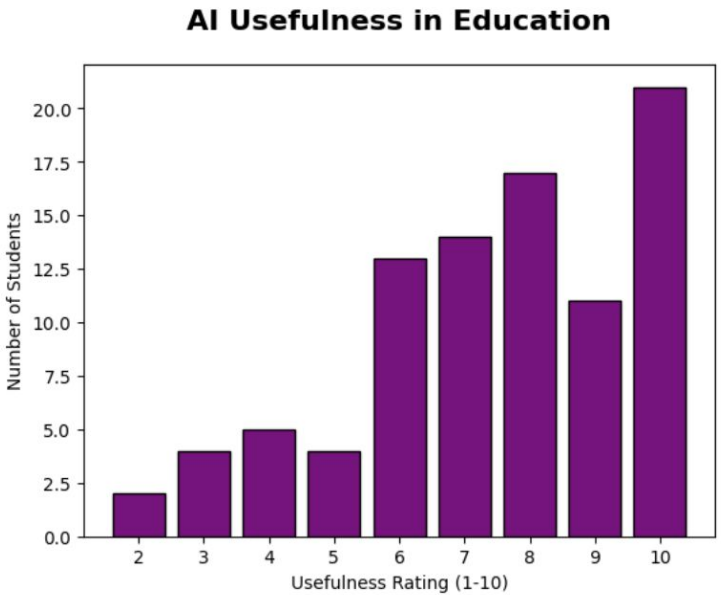
Q5: Sentiment Towards AI Among Students



RESULTS

EXPLORATORY DATA ANALYSIS

Q7: How Useful Do Students find AI in education?

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25%       6.000000
50%       8.000000
75%       9.000000
max      10.000000
Name: Q7.Utility_grade, dtype: float64
```
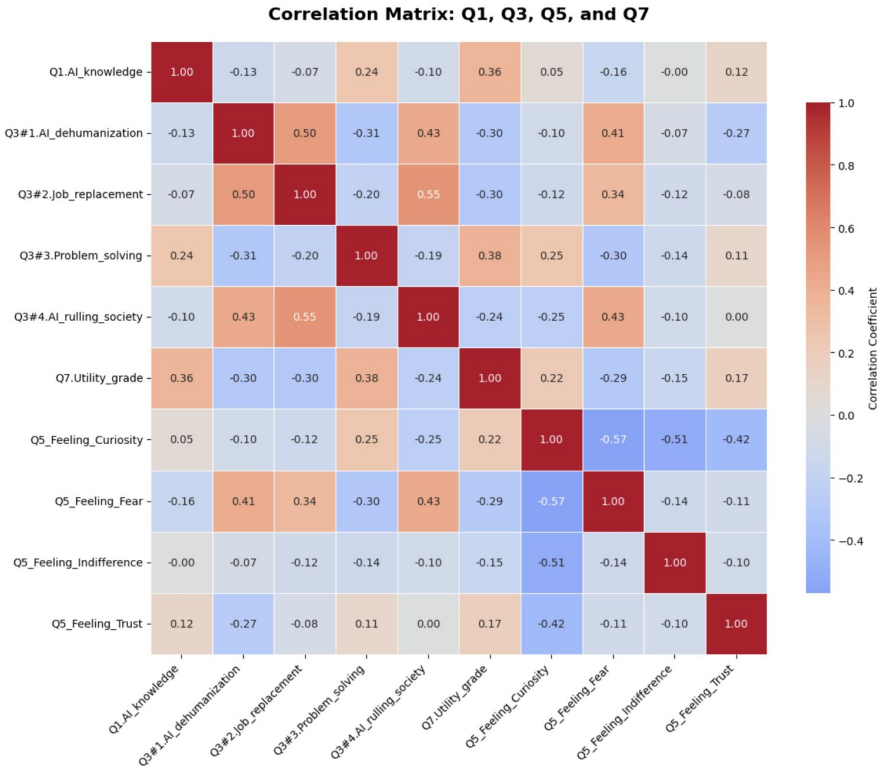

RESULTS

CORRELATIONS

Correlation Matrix: Q1, Q3, Q5, and Q7



RESULTS

CORRELATIONS

AI Knowledge Scores (Q1) – Source of Information (Q2)

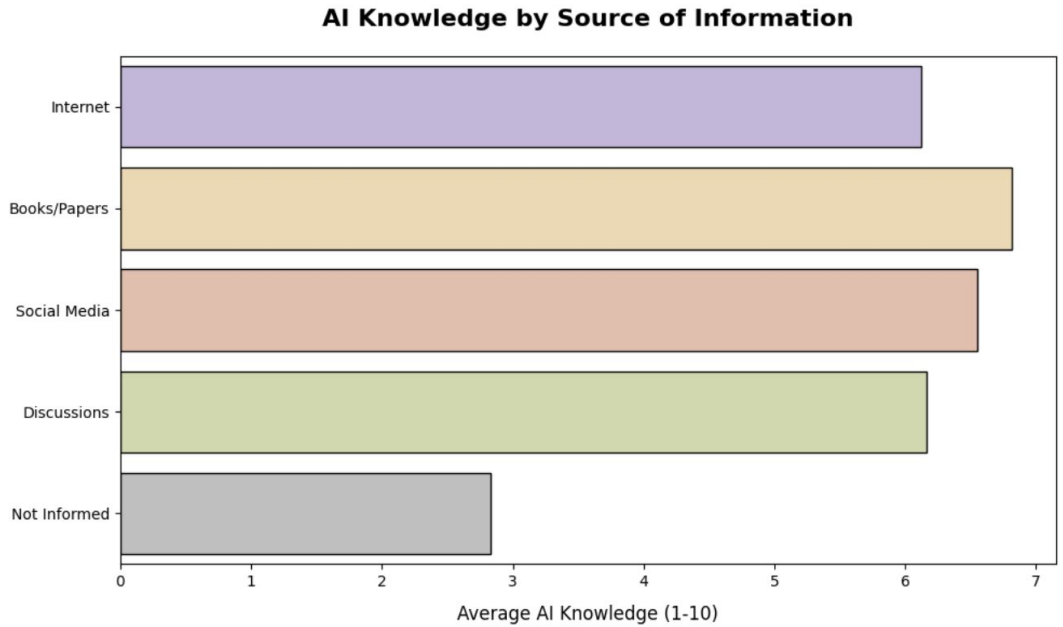
Q2.AI_sources	Q1.AI_knowledge
Books/Scientific papers (physical/online format)	7.000000
Books/Scientific papers (physical/online format);Social media;Discussions with family/friends	7.000000
Discussions with family/friends	2.000000
I don't inform myself about AI	2.833333
Internet	5.280000
Internet;Books/Scientific papers (physical/online format)	6.800000
Internet;Books/Scientific papers (physical/online format);Discussions with family/friends	6.500000
Internet;Books/Scientific papers (physical/online format);Social media	6.666667
Internet;Books/Scientific papers (physical/online format);Social media;Discussions with family/friends	7.000000
Internet;Discussions with family/friends	4.500000
Internet;Social media	6.500000
Internet;Social media;Discussions with family/friends	6.428571
Social media	6.000000

dtype: float64

RESULTS

CORRELATIONS

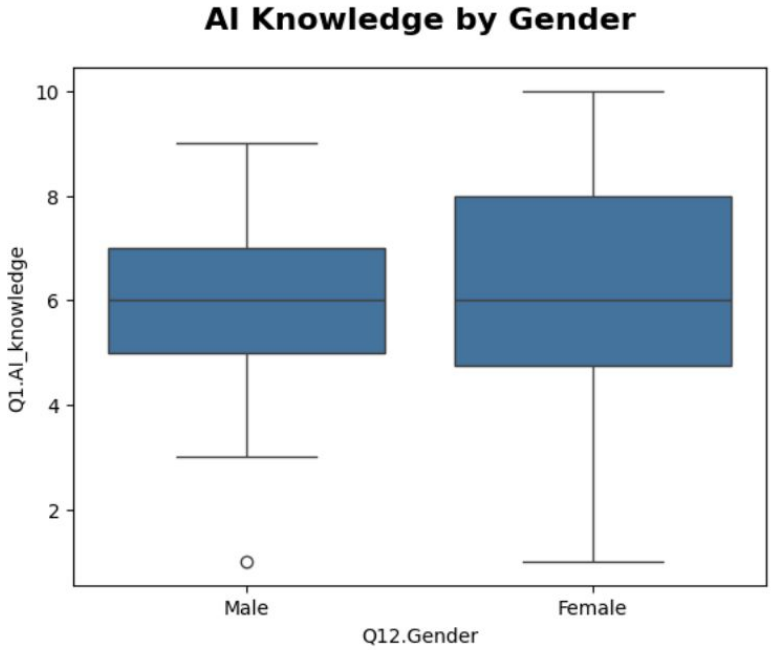
AI Knowledge Scores (Q1) – Source of Information (Q2)



RESULTS

CORRELATIONS

AI Knowledge (Q1) by Gender (Q12) and Major (Q14)

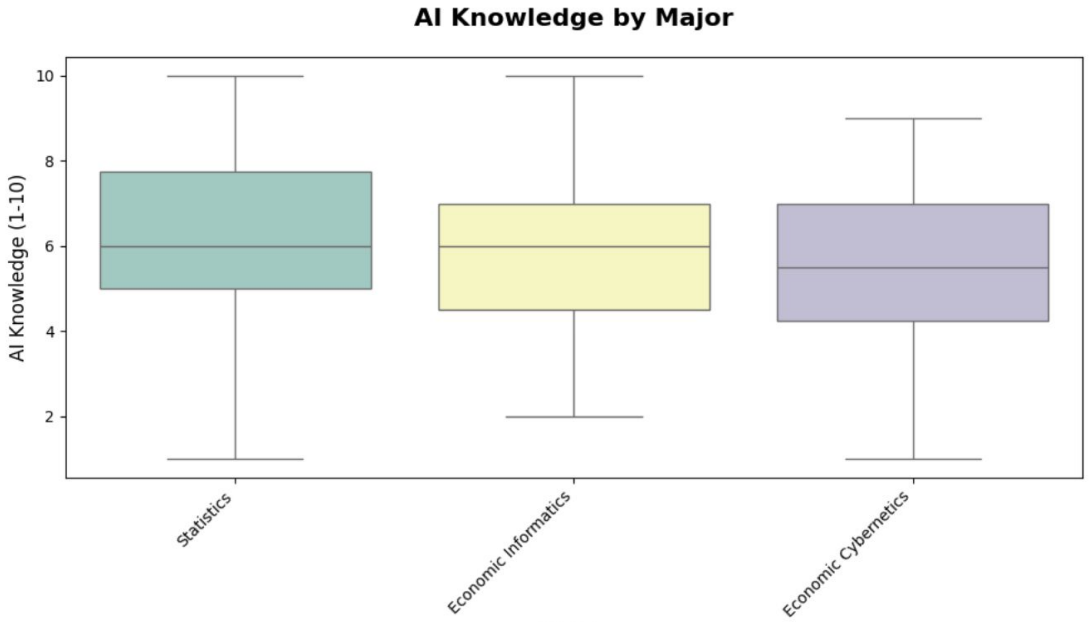


T-statistic: -0.20098263986334788, P-value: 0.8411707529940903

RESULTS

CORRELATIONS

AI Knowledge (Q1) by Gender (Q12) and Major (Q14)

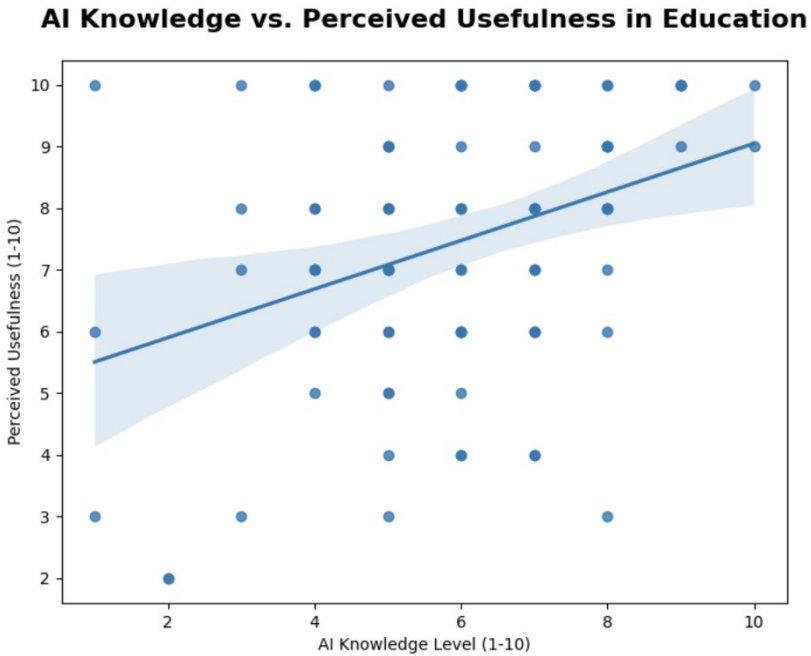



```
T-test Results for comparisons:
Statistics vs Economic Informatics: t = 0.05, p = 0.957
Statistics vs Economic Cybernetics: t = 1.52, p = 0.133
Economic Informatics vs Economic Cybernetics: t = 1.25, p = 0.216
```

RESULTS

CORRELATIONS

AI Knowledge (Q1) – AI Utility (Q7)

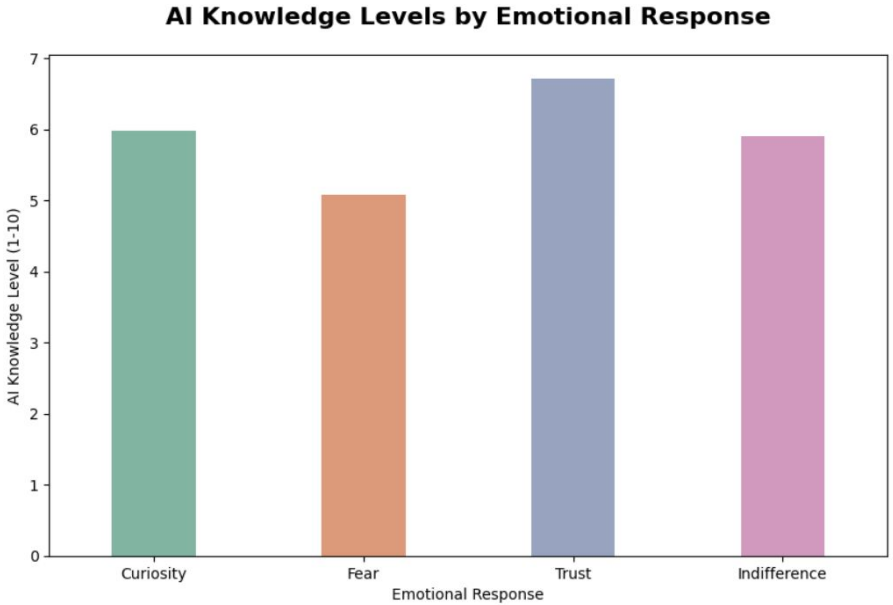


Pearson's correlation: 0.36
P-value: 0.000

RESULTS

CORRELATIONS

AI Knowledge (Q1) – AI Sentiments/Feelings (Q5)

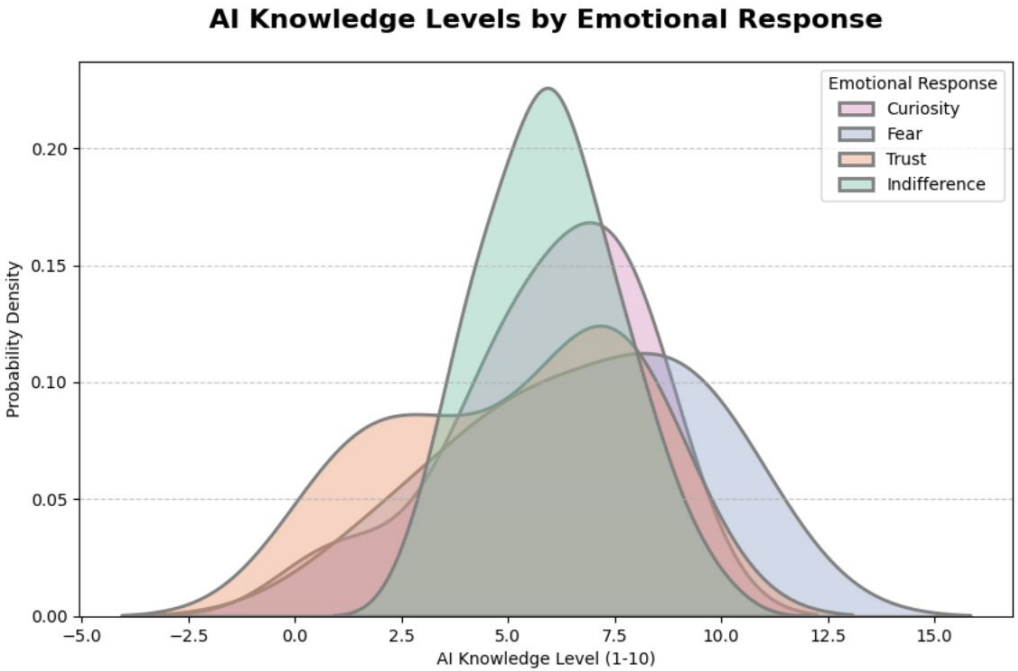



```
ANOVA Test Results
F-statistic: 1.127089304772213
p-value: 0.34264578558472786
No statistically significant differences between groups.
```

RESULTS

CORRELATIONS

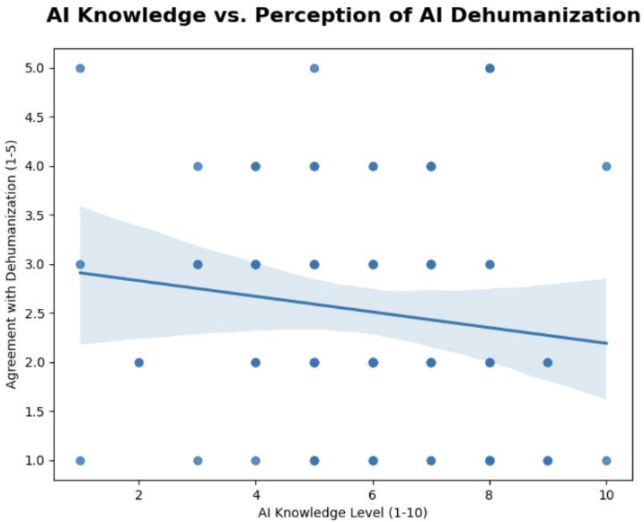
AI Knowledge (Q1) – AI Sentiments/Feelings (Q5)

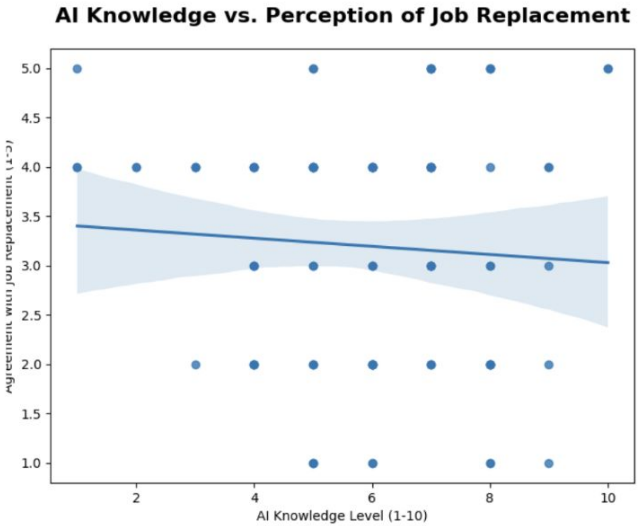


RESULTS

CORRELATIONS

AI Knowledge (Q1) – AI perception (Q3)

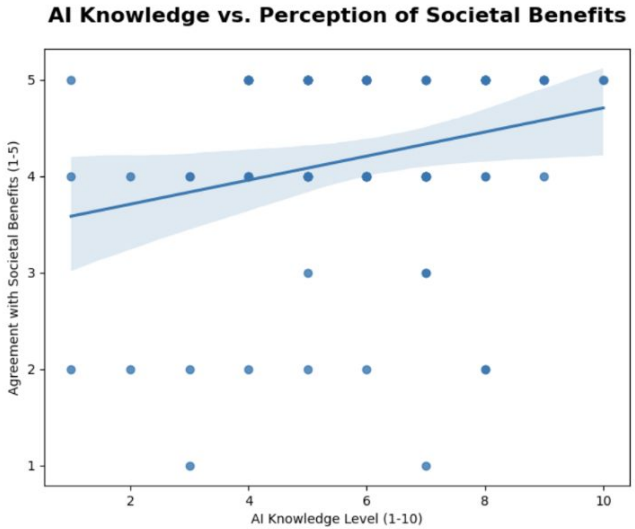


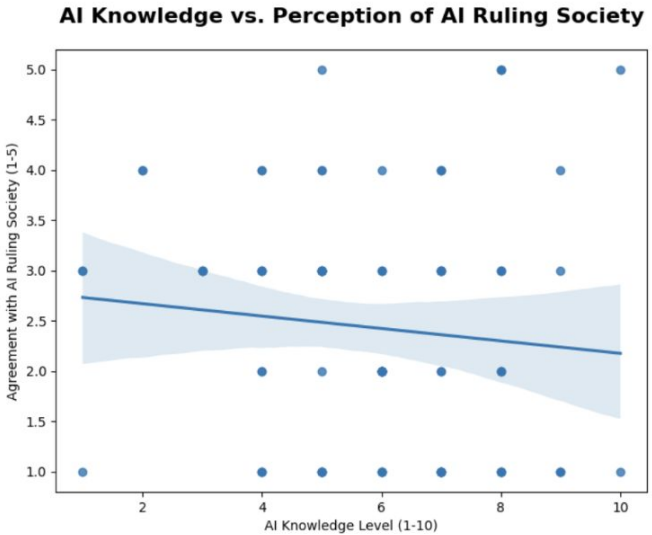


RESULTS

CORRELATIONS

AI Knowledge (Q1) – AI perception (Q3)

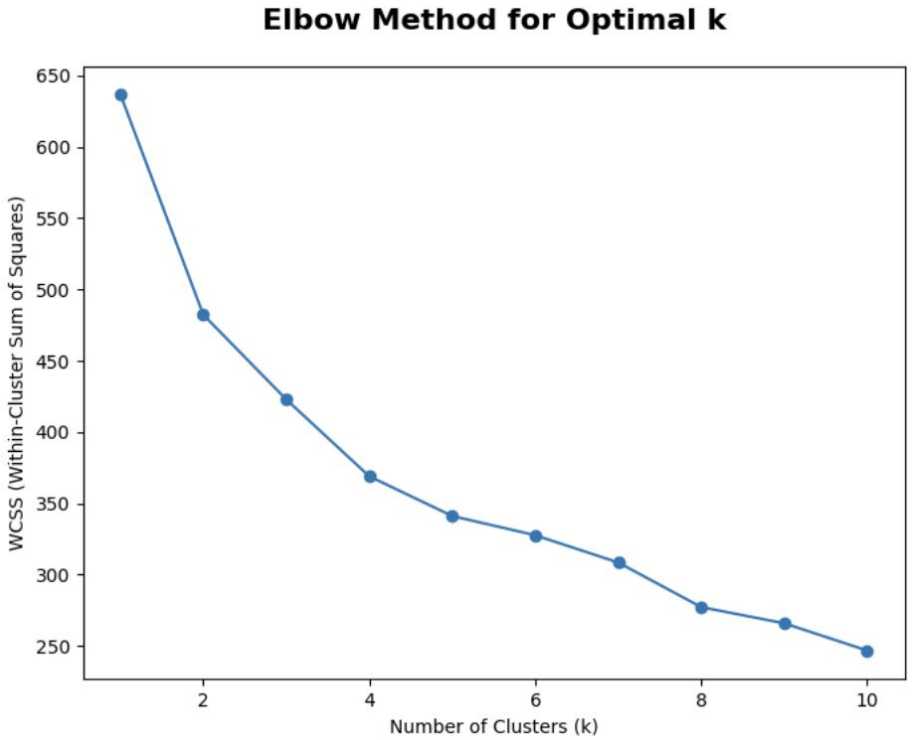




RESULTS

CORRELATIONS

K-means Clustering : *AI Knowledge (Q1) – AI perception (Q3) – Utility grade (Q7)*



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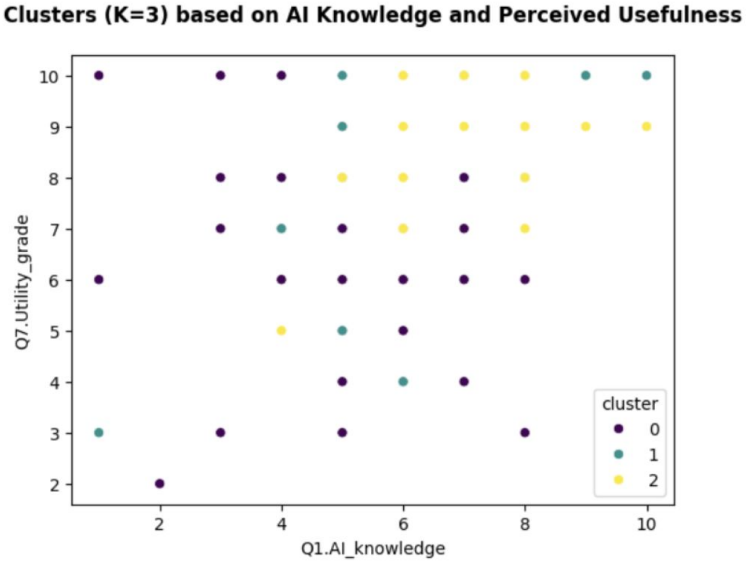
K-means Clustering : *AI Knowledge (Q1) – AI perception (Q3) – Utility grade (Q7)*



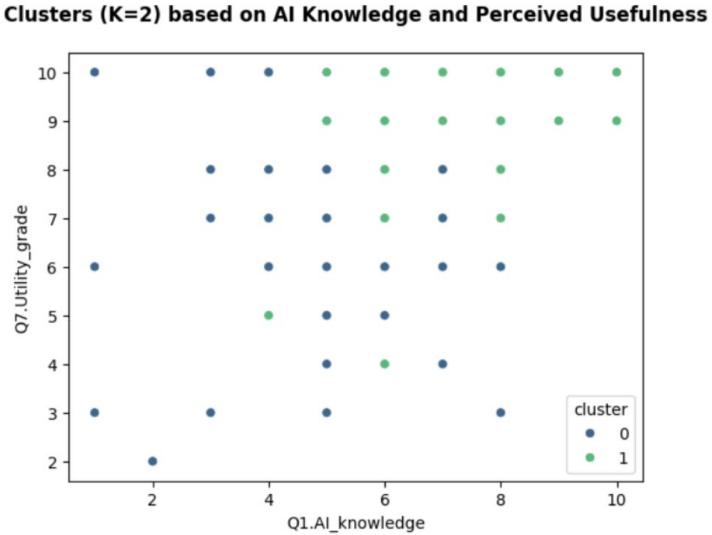
Cluster Means (K=3):

cluster	Q1.AI_knowledge	Q3#1.AI_dehumanization	Q3#2.Job_replacement	Q3#3.Problem_solving	Q3#4.AI_rulling_society	Q7.Utility_grade
0	5.102564	3.282051	4.076923	3.769231	3.25641	6.333333
1	6.600000	1.800000	2.666667	4.266667	2.00000	7.800000
2	6.486486	2.000000	2.486486	4.621622	1.72973	8.459459

RESULTS

CORRELATIONS

K-means Clustering : *AI Knowledge (Q1) – AI perception (Q3) – Utility grade (Q7)*



Cluster Means (K=2):

cluster	Q1.AI_knowledge	Q3#1.AI_dehumanization	Q3#2.Job_replacement	Q3#3.Problem_solving	Q3#4.AI_rulling_society	Q7.Utility_grade
0	5.022727	3.181818	3.977273	3.704545	3.090909	6.227273
1	6.744681	1.893617	2.468085	4.659574	1.808511	8.574468

CONCLUSION

Summary of Key Insights

- Students seem curios and optimistic about AI's role in solving societal challenges and enhancing education.
- Digital media (Internet/social media) was the most common source of AI knowledge, followed by books/papers.
- Students accessing diverse sources, particularly books/papers, reported higher AI knowledge.
- Curiosity as the dominant emotional response.
- Moderate correlation (r=0.36) between AI knowledge and perceived usefulness of AI in education.
- Clustering analysis more or less confirmed the previous statements.

CONCLUSION

Challenges and Future Directions

Limitations:

- Homogeneous sample of analytical majors.
- Small dataset limits broader applicability.
- The insights are not really generalizable.

Looking Ahead:

- Expand participant diversity across majors, institutions, and cultures.
- Use larger datasets to explore more practical objectives such as: why students engage, or not, with AI and identify AI tools they find most valuable.