INDUSTRY 4.0 TECHNOLOGIES SURVEY AMONG FACULTY AT SOUTHWESTERN PENNSYLVANIA COLLEGES AND UNIVERSITIES 2024

PennState
New Kensington

THE SURVEY WAS CONDUCTED BY PENN STATE NEW KENSINGTON MARCH 20 – 30, 2024.

FINDINGS ARE BASED ON 219 PARTICIPANTS FROM COLLEGES AND UNIVERSITIES LOCATED IN SOUTHWESTERN PENNSYLVANIA.

FOR DETAILED SURVEY INFORMATION, PLEASE CONTACT DR. RICHARD J. HARNISH (RJH27@PSU.EDU).

FOR DETAILS ON THE FUTURE READINESS PROGRAM, PLEASE CONTACT DR. SHIRLEY CAMPBELL (UUC1@PSU.EDU)

ATTITUDES TOWARD INDUSTRY 4.0 TECHNOLOGIES

USE IN TEACHING RESULTS

67%
Agreed or strongly agreed that Industry 4.0 Technologies will be useful in their teaching.

2 IN 3
Respondents agreed or strongly agreed that using Industry 4.0 Technologies is a good idea in teaching their subject area.

USE IN RESEARCH RESULTS

58%
Agreed or strongly agreed that Industry 4.0 technologies will be useful in their research.

1 IN 2
Respondents agreed or strongly agreed that using Industry 4.0 technologies in their research is a good idea.

CHALLENGES

34%
Agreed or strongly agreed that Industry 4.0 Technologies will be compatible with equipment they use in the classroom.

26%
Agreed or strongly agreed that Industry 4.0 technologies will be easy to teach.

40%
Agreed or strongly agreed that Industry 4.0 technologies will be compatible with equipment they use in their research.

CHALLENGES

32%
Agreed or strongly agreed that using Industry 4.0 technologies in their research will be easy.

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VALUE OF INDUSTRY 4.0 TECHNOLOGIES

71%
Agreed or strongly agreed that they would teach Industry 4.0 technologies if their college or university provides the needed support.

62%
Agreed or strongly agreed that the advantages of Industry 4.0 technologies outweigh the disadvantages of not using it.

84%
Agreed or strongly agreed that Industry 4.0 technologies will help their students in their future careers.

7 OUT OF 10
Respondents agreed or strongly agreed that they will benefit from Industry 4.0 technologies.

1 IN 2
Respondents agreed or strongly agreed that Industry 4.0 technologies will improve their students' critical thinking skills.

82%
Agreed or strongly agreed that introducing Industry 4.0 technologies to their students would improve their job prospects.

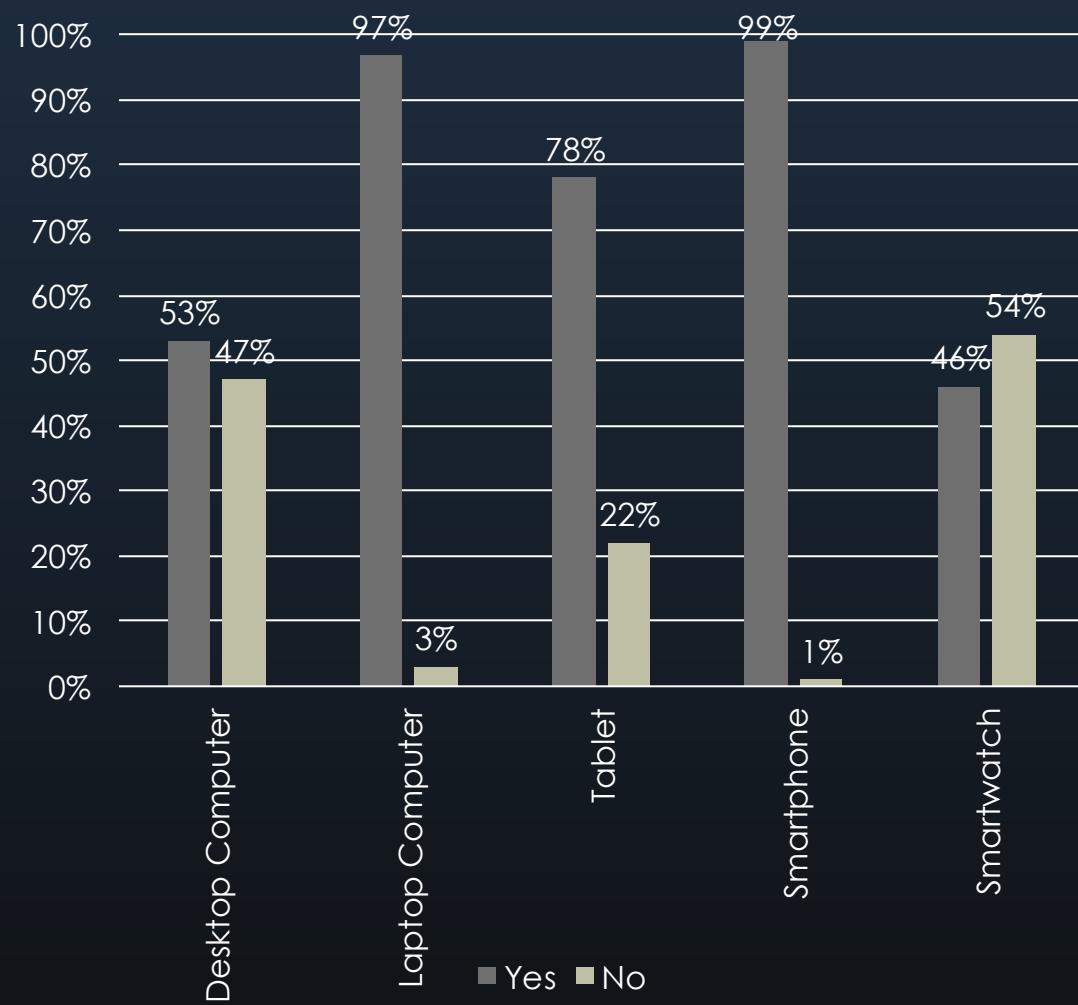## 64%
Agreed or strongly agreed that they would introduce Industry 4.0 technologies to help their students prepare for their careers
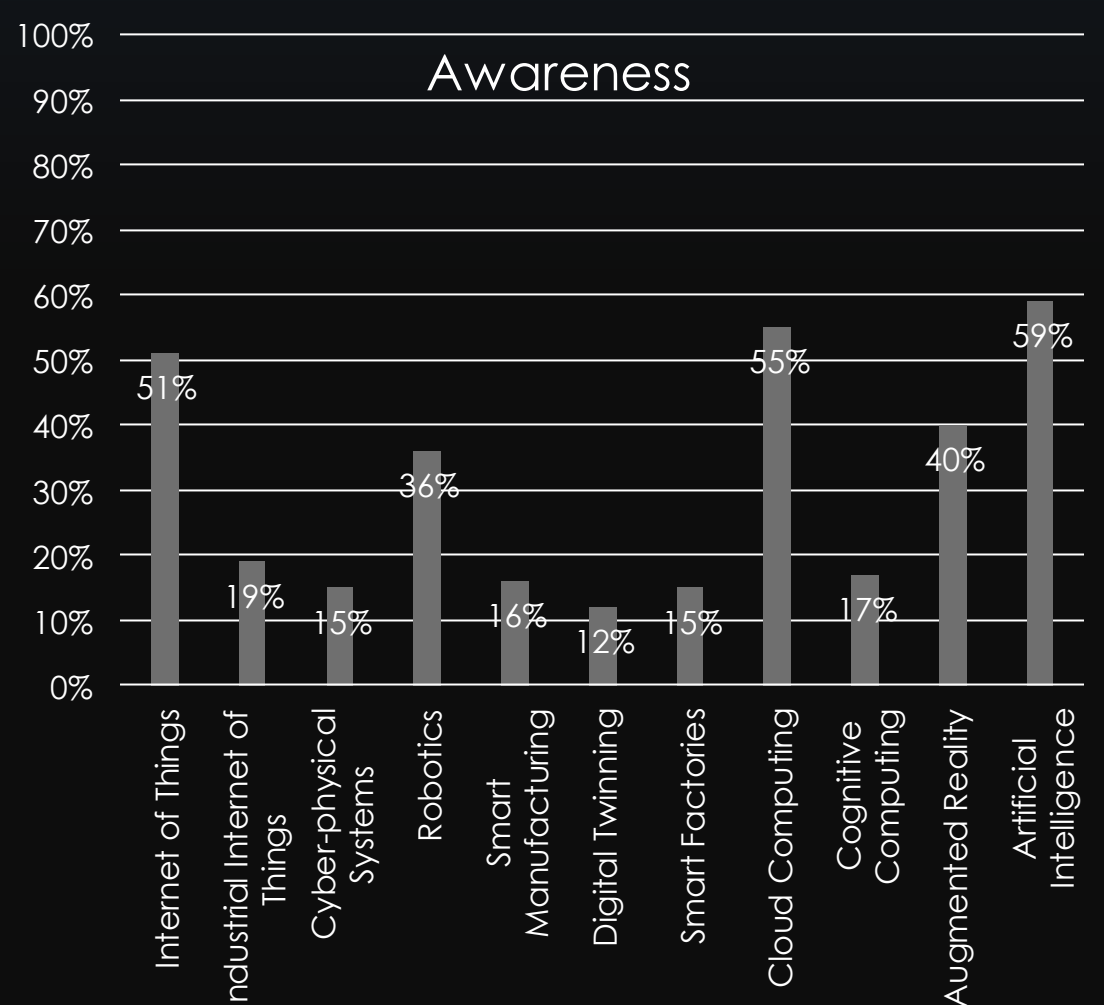
OWNERSHIP OF INDUSTRY 3.0 TECHNOLOGY AND KNOWLEDGE OF INDUSTRY 4.0 TECHNOLOGIES
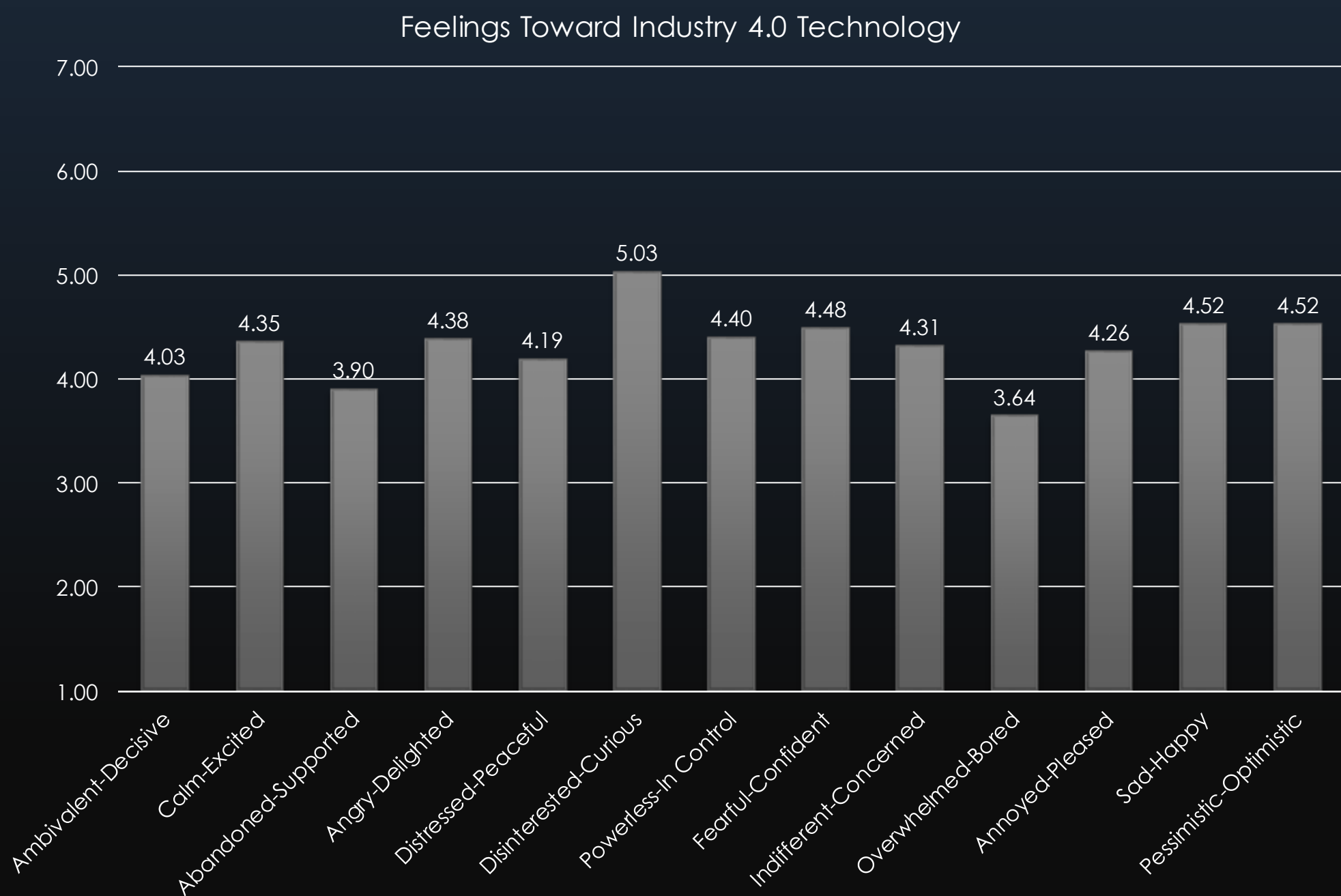

ALMOST ALL RESPONDENTS OWNED A LAPTOP COMPUTER AND A SMARTPHONE.

RESPONDENTS WERE MOST AWARE OF ARTIFICIAL INTELLIGENCE, CLOUD COMPUTING, AND THE INTERNET OF THINGS.

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FEELINGS TOWARD INDUSTRY 4.0 TECHNOLOGY

RESPONDENTS REPORTED FEELING OVERWHELMED AND ABANDONED WHEN THINKING ABOUT INTEGRATING INDUSTRY 4.0 TECHNOLOGIES INTO THE CURRICULUM.

Feelings Toward Industry 4.0 Technology

Category	Mean
Ambivalent-Decisive	4.03
Calm-Excited	4.35
Abandoned-Supported	3.90
Angry-Delighted	4.38
Distressed-Peaceful	4.19
Disinterested-Curious	5.03
Powerless-In Control	4.40
Fearful-Confident	4.48
Indifferent-Concerned	4.31
Overwhelmed-Bored	3.64
Annoyed-Pleased	4.26
Sad-Happy	4.52
Pessimistic-Optimistic	4.52

Means are based on a 7-point scale where a higher number indicates a more positive feeling.

HOWEVER, RESPONDENTS ALSO REPORTED FEELING CURIOUS WHEN THINKING ABOUT INTEGRATING INDUSTRY 4.0 TECHNOLOGIES INTO THE CURRICULUM.

ATTITUDES TOWARD INTEGRATING INDUSTRY 4.0 TECHNOLOGIES INTO THE CURRICULUM

70%
Disagreed or strongly disagreed that they would rather have a white board and markers when teaching than Industry 4.0 Technologies.

97%
Agreed or strongly agreed that they need to teach students how to use Industry 4.0 Technologies ethically and responsibly.

86%
Agreed or strongly agreed that not enough attention has been paid to the ethical issues surrounding Industry 4.0 Technologies.

7 OUT OF 10
Respondents disagreed or strongly disagreed that Industry 4.0 Technologies hinders the social aspects of teaching.

27%
Disagreed or strongly disagreed that Industry 4.0 Technologies will bring value to their discipline.

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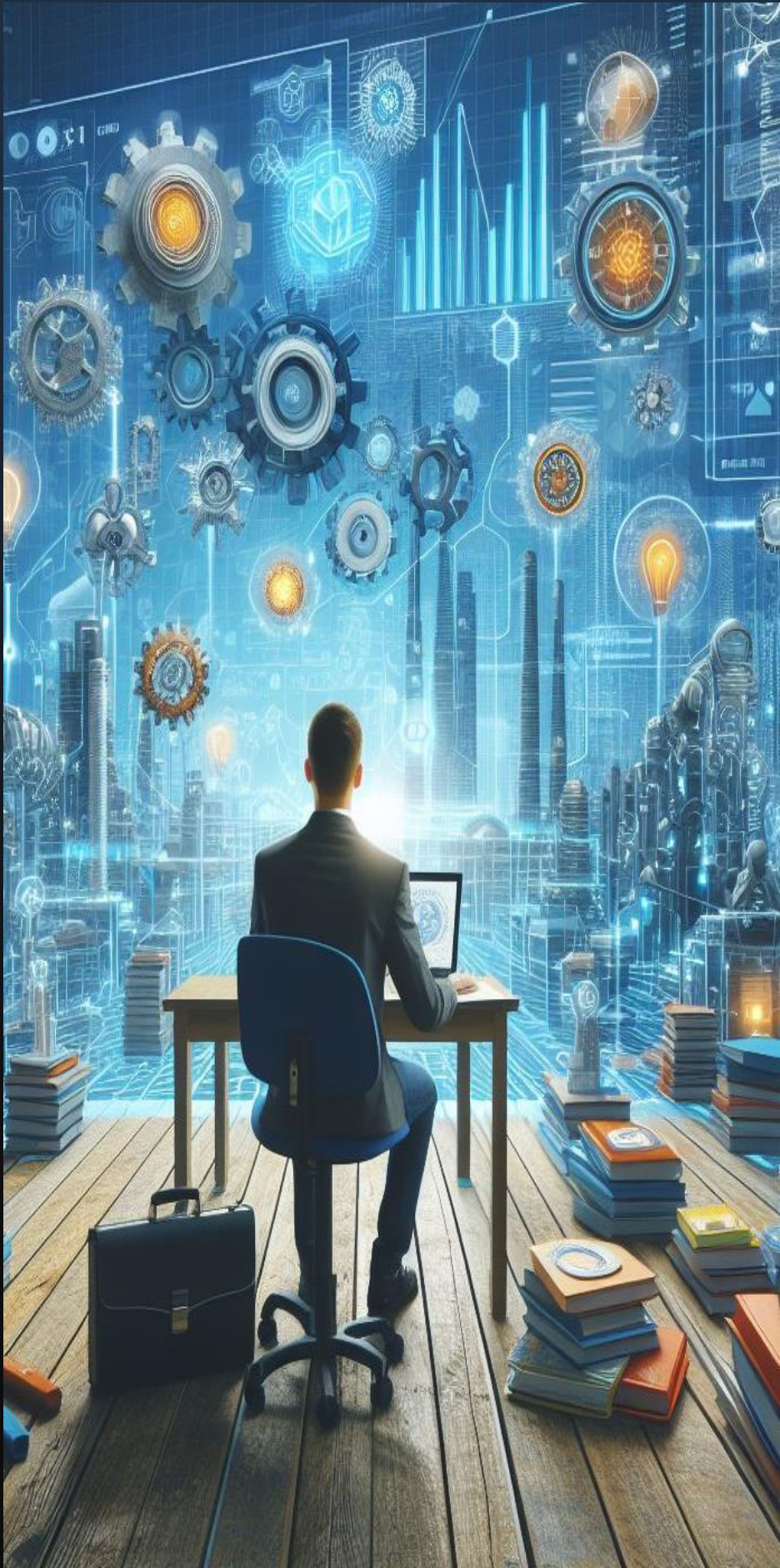
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WHO COMPLETED THE SURVEY?

GENDER

47% were men
46% were women
2% were third gender
4% preferred not to answer

EDUCATION LEVEL

18% had a master's degree
46% had a doctoral degree
5% had a professional degree
31% preferred not to answer

AGE

Mean 50, Standard Deviation 10

PRIMARY FIELD OF STUDY

27% Humanities
12% Social Sciences
17% Natural Sciences
11% Formal Sciences
33% Professional and Applied Sciences

RANK

22% Assistant Professor
29% Associate Professor
25% Professor
4% Chair, Distinguished, Endowed or University Professor
7% Assistant, Associate or Professor of Teaching/Instruction
1% Research Associate
3% Instructor
5% Lecturer
1% Other
2% Preferred not to answer