MAPPING DATA LITERATURE, TECHNOLOGY LITERATURE, AND HUMAN LITERATURE IN COOPERATIVE ECONOMIC EDUCATION STUDENTS IN THE ERA OF THE INDUSTRIAL REVOLUTION 4.0

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Article Info	Abstract
	This study aims to analyze the level of data literacy, technological literacy, and human literacy as new literacy initiated by the Ministry of Research, Education and Technology for Cooperative Economic Education Students, State University of Jakarta, class of 2017-2019. The population in this study were all students of the 2017-2019 Economic Education study program. This research is a descriptive study with a mix method approach. Data collection techniques in this study were in the form of tests and interviews. The results of the test scores will be converted into a scale of 100 and divided into three categories, namely, high/good (75-100), moderate/enough (56-75), and low (1-55). The results of this study indicate that the level of data literacy ability of UNJ Cooperative Economics Education students is still relatively moderate with a total average score of 56.39. Meanwhile, the level of technological literacy is in the high/good category with a total average score of 92.9. Furthermore, for the last literacy, human literacy is included in the moderate/enough category with a total average value of 74.41.

Abstrak

Penelitian ini bertujuan untuk menganalisis tingkat literasi data, literasi teknologi, dan literasi manusia sebagai literasi baru yang digagas Kemenristekdikti pada Mahasiswa Pendidikan Ekonomi Koperasi Universitas Negeri Jakarta angkatan 2017-2019. Populasi dalam penelitian ini adalah seluruh mahasiswa program studi Pendidikan Ekonomi 2017-2019. Penelitian ini merupakan penelitian deskriptif dengan pendekatan mix method. Teknik pengumpulan data dalam penelitian ini berupa tes dan wawancara. Hasil nilai tes akan diubah menjadi skala 100 dan dibagi menjadi tiga kategori, yaitu tinggi/baik (75-100), sedang/cukup (56-75), dan rendah (1-55). Hasil penelitian ini menunjukkan bahwa tingkat kemampuan literasi data mahasiswa Pendidikan Ekonomi Koperasi UNJ masih tergolong sedang dengan total skor rata-rata 56,39. Sedangkan tingkat literasi teknologi berada pada kategori tinggi/baik dengan total skor rata-rata 92,9. Selanjutnya untuk literasi terakhir, literasi manusia termasuk dalam kategori sedang/cukup dengan total nilai rata-rata 74,41.

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INTRODUCTION

Industry 4.0 is a term used to describe the 4th industrial revolution. This term was coined in Germany at the Hannover Fair in 2011 (KEMKONINFO, 2019). The Industrial Revolution 4.0 has a unique difference with the three previous industrial revolutions, where the 4.0 industrial revolution was first sparked only in the form of ideas. However, the German government took this idea seriously and soon made it official.

The Industrial Revolution began with the 1.0 industrial revolution which was marked by the invention of the steam engine which was used to replace human and animal power. Then there was the industrial revolution 2.0 which was marked by the application of the concept of production and utilization of electric power. Then the industrial revolution 3.0 which was marked by the use of technology in industrial activities. The era of the industrial revolution 3.0 is the beginning of the emergence of the digital revolution era, which combines innovation in the fields of electronics and information technology. In the industrial revolution 4.0 there was a big leap in the industrial sector, because manufacturing technology had entered the trend of automation and data exchange (Hermann, Pentek, & Otto, 2016).

The trends that occurred in the industrial revolution 4.0 have brought very fast changes in various aspects of human life, both in the economic, political, social, cultural, and other fields. One of the areas that was affected quite significantly was the field of Science and Technology (IPTEK). Because, this industrial revolution instills intelligent technology that can be connected to various areas of human life

The rapid development of science and technology is certainly a challenge for various countries, especially Indonesia. One of the challenges of the rapid development of science and technology is increasing unemployment. The application of artificial intelligence or artificial intelligence is one form of the development of science and technology (Tjandrawinata, 2016). One such application is the use of robots to replace human labor so that it is cheaper, more effective, and efficient.

ANTARANEWS.COM - Finance Minister Sri Mulyani said, "Currently, in the United States (US), there is an experiment in which the car does not use a driver. If later the experiment is successful and can be sold, there will be cars that no longer need a driver. Driver jobs will be lost" (Leis, 2017).

Based on this statement, we can conclude that an increase in unemployment will occur in drivers if the driverless car experiment is successful. In the same news article, Sri Mulyani also said that "Indonesia is one of the ones that must think the most about the impact of technological developments because in the next 15 years the population could reach 280 people, and it could increase again.

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reached 300 million people" Unemployment is still a challenge and even tends to be a threat to the state of Indonesia. According to the Central Statistics Agency (BPS) Indonesia's open unemployment rate in February 2019 was 6.82 million people or 5.01% of the 136.18 million workforce (BPS, 2018). Indonesia is also predicted to experience a demographic bonus in 2030-2040 where the population of productive age is more than the non-productive population. The total population of productive age is estimated at 64% of the total population of Indonesia, which is estimated at 297 million people (BAPPENAS, 2017). This proves that apart from unemployment, global competitiveness is also a real challenge for Indonesia.

In facing the challenges of unemployment and global competition, it is necessary to improve the quality of human resources. Quality human resources are expected to be able to compete with the wider community, especially in the world of work. The World Bank launches that the job market requires multi-skilled graduates forged by education units and systems, both secondary education and higher education (WorldBank, 2019).

In the field of education, quantity is no longer the main indicator in achieving success, but the quality produced. One of the educational institutions that have a role to improve the quality of human resources is a university. This is in line with Law No. 2 of 1989 article 16 paragraph 1 which reads:

Higher education is a continuation of secondary education which is held to prepare students to become members of the community who have academic and professional abilities who can apply, develop and create science, technology, and the arts.

Therefore, higher education is believed to be a means that is able to create graduates who have the abilities, skills, and expertise that can be applied when entering the world of work. In addition, higher education also has the goal of creating quality human resources so that they can face technological advances and competition in the world of work in this 4.0 industrial revolution era (RISTEKDIKTI, 2018). This is in line with the functions and objectives of higher education as stated in the Constitution of the Republic of Indonesia No. 12 of 2012 article 5 which reads:

"Higher education aims to develop the potential of students to become human beings who believe and fear God Almighty and have noble character, are healthy, knowledgeable, capable, creative, independent, skilled, competent, and cultured for the benefit of the nation."

The government realizes that every year education must always innovate and evaluate the education system in accordance with the changing times. As it is today, in the last 20 years there has been a shift in the education system towards ICT (Information Communication and Technologies) or digital-based. This is one form of education in the

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era of the industrial revolution 4.0 in which there is institutional governance and human resources (Söderström, From, Lövqvist, & Törnquist, 2012).

To produce competitive graduates, in facing the industrial revolution 4.0, the government has prepared several things in the education sector, especially at the university level. One of the things that the government has prepared is the idea of new literacy. This new literacy idea was presented at the National Working Meeting (Rakernas) of the Ministry of Research, Technology and Higher Education (RISTEKDIKTI) on January 17, 2018 at the University of North Sumatra student arena. This new literacy idea was prepared by RISTEKDIKTI to face the industrial revolution

4.0 because old literacy based on calistung (read, write, count) is considered less suitable as student capital to face the world of work in the era of the industrial revolution 4.0 (RISTEKDIKTI, 2018). This new literacy consists of data literacy, technological literacy, and human literacy.

The first literacy is data literacy. Data literacy is the ability to read, analyze, and use information (Big Data) in the digital world (Aoun, 2017).

Harvard Business Review in Davenport & Patil (2012) states that the sexiest job in the industrial revolution 4.0 era is data scientist. This shows that data literacy is a skill that will be very useful in finding work in the era of the industrial revolution 4.0.

The next literacy is technological literacy. According to Aoun (2017) technological literacy is the ability to understand how machines work, technology applications (coding, Artificial Intelligence, & Engineering Principles). The Secretary Commission on Achieving Necessary Skills (SCANS) and the American Association of School Administrators listed the competence to use computers and other technologies as 21st century skills. The report emphasized that technological literacy is an important component of job readiness, citizenship and life skills (Lemke, 2002).

The last literacy is human literacy. Human literacy is an ability in the fields of humanities, communication, and design (Aoun, 2017). Students' technical abilities also need to be instilled in human aspects through human literacy (Anggresta, 2019). Human literacy needs to be taught to students so that they have abilities that cannot be done by robots. Therefore, human literacy is one of the skills that need to be possessed by students in preparing themselves to enter the world of work.

Based on the description of the background of the problem above, the authors are interested in conducting research with the title "Mapping of Data Literacy, Technology Literacy, and Human Literacy for Cooperative Economic Education Students in the Era of the Industrial Revolution 4.0"

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METHOD

This study uses a mix method research with a quantitative descriptive approach. The population in this study were all students of the 2017-2019 Cooperative Economics Education study program, State University of Jakarta. As for determining the type of sample in this study, namely the probability sampling technique with the simple random sampling method. Probability sampling is a sampling technique that provides equal opportunities or opportunities for each element (member) of the population to be selected as a member of the sample. The method used in this sampling technique is simple random sampling, namely the sampling of population members is carried out randomly, without regard to the strata contained in the population (Siyoto & Sodik, 2015). Based on the sampling criteria as mentioned above, the number of samples used in this study was 70 students/respondents.

Data collection techniques using tests and interviews. The test used in this study was in the form of an objective test with multiple choice types, namely tests carried out using measurements that had been carried out. In this study, the data collection technique with the test method was used for all independent variables, namely data literacy (X1), technological literacy (X2), and human literacy (X3). The next stage is the interview. Interviews in this study are only for deepening information. The interview subjects in this study were 2 students on each variable. The selection of interview subjects was done by randomly selecting respondents who had high and low scores.

While the data analysis technique, where the data that has been collected from the distribution of the test is then analyzed with a descriptive approach. Descriptive analysis in this case is used to answer the researcher's questions about how high the level of data literacy, technological literacy, and human literacy in students is. Data analysis in this study uses statistics by presenting data through the mean or average formula. This technique is done by tabulating the data into a table and then calculating the percentage. Then it is analyzed and interpreted into sentences as explanations. After knowing the average of the respondents' answers, it was changed to a swimming scale of 100 then a rating scale was made as follows:

Tabel 1 skala penilaian

No	Skor Responden	Kategori Skor
1	75 – 100	Tinggi / baik
2	56 – 75	Sedang / Cukup Baik
3	1 – 56	Rendah / Kurang

Sumber : Arikunto (2010)

THEORETICAL STUDY

Data Literacy

Definition of Data Literacy

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Data literacy or data literacy consists of two words, namely, literacy and data.

Literacy according to the Ministry of Education and Culture in the Big Indonesian Language Dictionary (KBBI) consists of two definitions, namely, (1) the ability to write and read; (2) knowledge or skills in certain fields or activities (Kemendikbud, 2016). Meanwhile, data according to the Merriam-Webster Dictionary in (Guler, 2019) consists of three basic definitions, namely, (1) factual information (such as measurements or statistics) used as the basis for reasoning, discussion, or calculation; (2) information in digital form that can be sent or processed; (3) the results of information by tools that include useful and irrelevant or redundant information and must be processed to be meaningful.

Crusoe (2016) defines data literacy as a person's skills to understand what data is, how data is collected, analyzed, visualized, disseminated, and understand how data is used effectively and efficiently. Another opinion was expressed by Aoun (2017) who states data literacy as the ability to read, analyze and use information (big data) in the digital world. Based on some of these opinions, it can be concluded that data literacy is a person's ability or skill in using data as information and making it as knowledge to solve problems.

Standard Data Literacy Skills and Competences (DLSC)

There are many standards for data literacy skills and competencies. One of them was developed by Ridsdale et al (2015) with the title "Strategies and Best Practices for Data Literacy Education". In the report, the standard of data literacy skills and competencies is divided into five indicators, namely; (1) conceptual framework; (2) data collection; (3) data management; (4) data evaluation;

(5) application data. Based on the Standards for Data Literacy Skills and Competences (DLSC) developed by Ridsdale et al., (2015), the researchers simplified the data literacy standards in this study into 4 indicators, namely conceptual framework, data collection, data processing, and data application.

LITERACY TECHNOLOGY
Understanding Technology Literacy
The International Technology Education Association (ITEA) in Hasse (2017) defines technological literacy as the ability to use, manage, assess, and understand technology. Another opinion defines technological literacy as the ability to know about what technology is, how technology works, the use of technology, and how technology can be used efficiently and effectively to achieve certain goals (Lemke, 2002). Meanwhile, according to Maryland Technology Education State Curriculum in ETS (2007) technological literacy is the ability to use technology tools appropriately and effectively to access, manage, integrate, evaluate, create, and deliver
information. Based on some of these opinions, it can be concluded that technological

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literacy is the knowledge or skills possessed by a person to use digital media and technology to search, find, and access information effectively and efficiently.

Standards for Technology Literacy

The International Technology Education Association (ITEA) suggests that individual standards for technological literacy are organized into five main categories, namely the nature of technology, technology and society, design, abilities for the technological world, and the designed world. Based on the technological literacy standards put forward by the International Technology Education Association (ITEA) above, the researchers simplified the appropriate technological literacy indicators for cooperative economic education students in this study into 3 indicators, namely understanding basic concepts, how to use technology, and attitudes..

HUMAN LITERACY

Definition of Human Literacy

According to the Ministry of Research, Technology and Higher Education, human literacy is a skill so that humans can function well in their environment and can understand interactions with fellow humans. Another opinion was expressed by Muhamad Nasir as the former Minister of Research, Technology and Higher Education (Menristekdikti) at The World Education Forum 2018, Nasir explained that human literacy is a skill to interact well, not rigid, and can take a human approach by implementing good communication, and must also master creative and innovative design. Meanwhile, Aoun (2017) explains that human literacy is a human skill to be able to interact, communicate, and become human in accordance with human nature in this digital era. Based on some of these opinions, it can be concluded that human literacy is a person's ability in the scope of communication and humanities (how humans should act).

Human Literacy Instrument

The human literacy instrument was adopted from the book Robot-Proof Higher Education in the Age of Artificial Intelligent (Aoun, 2017) which consists of three indicators, namely Humanities, Communication, and Design. Humanities or humanism Big Indonesian Dictionary is a school that aims to revive a sense of humanity and aspire to a better life association (KBBI, 2016). This understanding is in line with one of the goals of education, namely to humanize humans. Furthermore, communication or communication, research published by NACE (2019) that the ability to communicate is one of the most needed skills in job readiness. Therefore, communication skills are very important for anyone to have in particular

student. The last instrument is design or design. "Designing" in this case means creating something creative and innovative in order to create new jobs. This is

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necessary because the industrial revolution 4.0 has a large enough impact on life. One of the affected aspects is employment. As a result of the rapid development of technology, many jobs that initially used human power turned into using machines.

RESULTS AND DISCUSSION

Data Literacy

The results of the research on the level of data literacy in Cooperative Economics Education students for the 2017-2019 class as a whole can be seen in the following table:

Tabel 4. 1 Tingkat Literasi Data Secara Keseluruhan

Statistik Deskriptif	Skor Literasi Data (skala 100)
Minimum	11,76
Maksimum	88,24
Mean	56,39

Sumber: Data diolah oleh peneliti

Based on table 4.2 the lowest value of the total respondents is 11.76 and the highest value is 88.24. This shows that the lowest score was obtained by respondents who could only answer 2 questions correctly out of 17 questions asked with a score of 11.76. Meanwhile, the highest score was obtained by respondents who could answer 15 questions correctly with a score of 88.24. The average (mean) score of respondents is 56.39 which shows that the level of data literacy in cooperative economics students for the 2017-2019 class is at a moderate/enough level (56-75).

The following is a table of data literacy levels for 2017-2019 economic education students:

Tabel 4. 2 Kategori Tingkat Literasi Data

Kategori	Jumlah	Persentase (%)
Tinggi / baik (76-100)	9	12,9%
Sedang / cukup (56-75)	32	45,7%
Rendah / kurang (1-55)	29	41.4%
Total	**70**	**100%**

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Source: Data processed by researchers

Based on table 4.3 above, it can be concluded that the data literacy level of cooperative economic education students for the 2017-2019 class is 9 (12.9%) students in the high or good category, 32 (45.7%) and students in the moderate or sufficient category, 29 (41.4%) in the low category with a total of 70 students as respondents. The high and low level of data literacy can also be seen from the percentage level of the number of respondents who answered correctly in each of the data literacy indicators. In the data literacy variable section, four indicators will be presented. These indicators include the conceptual framework, data collection, data processing, and data application. Each of these indicators consists of several sub-indicators and questions. The following is a breakdown of the percentage of respondents who answered correctly in each data literacy indicator in cooperative economic education students class 2017-2019:

Tabel 4. 3 Persentase responden yang menjawab benar pada literasi data

Indikator	Sub Indikator	Butir Pertanyaan	Tingkat Literasi Data		
			Rendah (1-55%)	Sedang (56-75%)	Tinggi (76-100%)
Kerangka Konseptual	Pemahaman tentang data	1			87%
		2			77%
		3	54%		
		4		63%	
Rata-rata				70,25 %	
Pengumpulan Data	Mencari dan mengidentifikasi sumber data yang potensial	5			86%
		6			77%
		7			76%
		8	46%		

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	Kemampuan mahasiswa untuk membaca dan menafsirkan data	9		59%	
		10		56%	
		11		64%	
Rata-rata				**66%**	
Mengolah Data	Kemampuan mahasiswa untuk mengolah data	12	31%		
		13	40%		
		14	16%		
Rata-rata			**29%**		

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Penerap an Data	Kemampuan mahasiswa untuk mengemas ulang data	1 5	36%		
		1 6	33%		
		1 7		59%	
	Rata- rata		**43%**		

Sumber: Data Diolah peneliti

Based on table 4.4 above, it can be seen the percentage of respondents who answered correctly on each question item on average. The conceptual framework indicator is the first indicator with an average of 70.25%, this means that data literacy on the conceptual framework indicator is in the medium category. Furthermore, there is an indicator of data collection with an average of 66%, this means that data literacy on this indicator is included in the medium category. The third indicator is processing data with an average of 29%, this means that data literacy on this indicator is included in the low category. The last indicator is the application of data with an average of 43%, this means that data literacy on this indicator of data application is in the low category. In table 4.4 it is also known that the level of data literacy in cooperative economic education students for the 2017-2019 class is the lowest in the data processing indicator with an average of 29%. While the highest level of data literacy is in the conceptual framework indicators with an average of 70,25%.

Technology Literacy

The results of the research on the level of technological literacy in Cooperative Economics Education students for the 2017-2019 class as a whole can be seen in the following table:

Tabel 4. 4 Tingkat literasi teknologi secara keseluruhan

Statistik Deskriptif	Skor Literasi Teknologi (Skala 100)
Minimum	61,1
Maksimum	100
Mean	92,9

Sumber: Data diolah peneliti

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Based on table 4.5 above, it can be concluded that the lowest score of technological literacy in cooperative economic education students 2017-2019 is 61.1 and the highest score is 100. This shows that the lowest score of technological literacy was obtained by students who managed to answer 11 questions correctly out of 18 total about. While the maximum score is obtained by students who are successful

answer all questions correctly. The average (mean) score of respondents is 92.9 which shows that the technological literacy level of cooperative economic education students for the 2017-2019 class is in the high category (76-100).

The following is a table of categories of technological literacy levels for economic education students class 2017-2019:

Tabel 4. 5 Kategori tingkat literasi teknologi

Kategori	Jumlah	Persentase (%)
Tinggi (76-100)	67	95.7%
Sedang (56-75)	3	4.3%
Rendah (1-55)	0	0%
Total	**70**	**100%**

Sumber: Data diolah peneliti

Based on table 4.6, it can be concluded that 67 (95.7%) are in the high category, and 3 (4.3%) are in the medium category with a total of 70 students as respondents.

The high and low level of technological literacy can also be seen from the percentage level of the number of respondents who answered correctly in each of these technological literacy indicators. In this technological literacy variable, three indicators will be presented. These indicators include understanding the basic concepts, use of technology, and attitudes. Each of these indicators consists of several sub-indicators and questions. The following is an analysis of the level of technological literacy in cooperative economic education students for the 2017-2019 class:

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Tabel 4. 6 Persentase responden yang menjawab benar pada literasi teknologi

Indikator	Sub Indikator	Butir Pertanyaan	Tingkat Literasi Data		
			Rendah (41-60%)	Sedang (60-79%)	Tinggi (>79%)
Memahami konsep dasar	Mahasiswa mampu memahami konsep dasar tentang teknologi	18			96%
		19			96%
		20			97%
		21			99%
	Rata-rata				**97%**
Penggunaan Teknologi	Mahasiswa mampu menggunakan teknologi secara efektif untuk	22			94%
		23			91%
		24			80%
	meningkatkan produktivitas	25			97%
	Kemampuan mahasiswa untuk berkomunikasi dan menjangkau dunia luar	26			94%
		27			96%
		28			94%
	Rata-rata				**92%**
Sikap	Kemampuan mahasiswa untuk memahami etika dalam menggunakan teknologi	29			94%
		30			90%
		31			90%

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	Kemampuan mahasiswa untuk meminimalisir penyalahgunaan teknologi	32			96%
		33			91%
		34			96%
		35			84%
	Rata-rata				**92%**

Source: Data processed by researchers

Based on table 4.7, it can be seen the percentage of respondents who answered correctly on each indicator on average. The basic concept indicator is the first indicator as well as the highest indicator with an average of 97%, this means that technological literacy on basic concept indicators is in the high category. Furthermore, there are indicators of technology use and attitudes which have an average of the same magnitude, namely 92%, this means that indicators of technology use and attitudes are also in the high category.

Human Literacy

The results of research on the level of human literacy in Cooperative Economics Education students class 217-2019 as a whole can be seen in the following table:Tabel 4. 7 Tingkat literasi manusia secara keseluruhan

Statistik Deskriptif	Skor Literasi Teknologi (Skala 100)
Minimum	34,78
Maksimum	91,30
Mean	74,41

Sumber: Data diolah peneliti

Based on table 4.8 above, it can be concluded that the lowest score of human literacy in cooperative economic education students 2017-2019 is 34.7 and the highest score is 91.30. This shows that the lowest score of human literacy

obtained by students who only managed to answer 8 questions out of 23 total questions. While the maximum score was obtained by students who managed to answer 21 questions correctly out of 23 total questions. The average (mean) score of respondents is 74.41 which shows that the level of human literacy in cooperative economic education students for the 2017-2019 class is in the

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medium category (56-75).

The following is a table of categories of human literacy levels of human literacy in economic education students class 2017-2019:

Tabel 4. 8 Kategori tingkat literasi manusia

Kategori	Jumlah	Persentase (%)
Tinggi (76-100)	36	51,4%
Sedang (56-75)	27	38,6%
Rendah (1-55)	7	10%
Total	70	100%

Sumber: Data diolah Peneliti

Based on table 4.9, the level of human literacy in cooperative economic education students class 2017-2019 is 36 (51.4%) students in the high category, 27 (38.6%) students in the medium category, and 7 (10%) students in the low category with the total respondents were 70 students.

In this section on human literacy variables, three indicators will be presented. These indicators include understanding the basic concepts, use of technology, and attitudes. Each of these indicators consists of several sub-indicators and questions. The following is an analysis of the level of technological literacy in cooperative economic education students for the 2017-2019 class:

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Tabel 4. 9 Persentase responden yang menjawab benar pada literasi manusia

Indikator	Sub Indikator	Butir Pertanyaan	Tingkat Literasi Data		
			Rendah (1-55%)	Sedang (56-75%)	Tinggi (76-100%)
Humanities	Peduli orang lain	36			97,1%
		37			80%
		38		70%	
	Pengendalian diri	39		65,7%	
		40			85,7%
		41			95,7%

Sumber : Data diolah oleh peneliti

	Rata-rata				82,4%
Communication / Komunikasi	Kepemimpinan	42		71,4%	
		43			87,1%
		44			77,1%
	Kerja dalam tim	45	54,3%		
		46			95,7%
		47			78,6%
	Komunikasi yang baik	48			97,1%
		49			87,1%
		50			78,6%
	Rata-rata				80,8%
Design / Desain	Kreatif & Innovatif	51	0,9%		
		52		70%	
		53			84,3%
		54	54,3%		
	Entrepreneurship / kewirausahaan	55			97,1%
		56			78,6%
		57	0,6%		
		58			91,4%
	Rata-rata			59,7%	

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Based on table 4.10, an analysis of primary data that has been processed by researchers is presented from the results of research tests that use 23 questions to determine the percentage of respondents who answered correctly on each indicator on average. The humanities indicator is the first indicator as well as the highest indicator with an average of 82.4%. Furthermore, there is a communication indicator with an average of 80.8%. This means that the indicators of humanities and communication are in the high category. While the design indicators only get an average of 59.7%. This means that the design indicators are in the medium category.

CONCLUSION

Based on the analysis of research data on the level of data literacy, technological literacy, and human literacy in students of the Cooperative Economics Education study program, Jakarta State University class 2017-2019, it can be concluded as follows:

1. In the first literacy, namely data literacy, the results of this study indicate that the level of data literacy in the 2017-2019 UNJ Cooperative Economics Education students is at a score of 56.39 or it can be said that the level of data literacy is included in the medium category (56-75) .

2. Furthermore, the second or technological literacy, the results of this study indicate that the technological literacy level of the 2017-2019 UNJ Cooperative Economics Education students is at a score of 92.9 or it can be said that technological literacy is included in the high category (75-100).

3. The last literacy is human literacy, the results of this study show that the level of human literacy in the 2017-2019 UNJ Cooperative Economics Education students is at a score of 74.41 or it can be said that human literacy is included in the medium category (56-75).

Based on the conclusions above, the researcher conveys the suggestions obtained from the research results as follows:

1. For students, students should be able to apply knowledge about data literacy, technological literacy, and human literacy that they already have into their daily lives. And students are expected to continue to

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explore things about technological literacy, human literacy, especially data literacy which tends to be low compared to other literacy.

2. For universities, should continue to develop and improve literacy for students, especially data literacy. Like starting to make big data and coding courses a compulsory subject for students

3. For further researchers, it is hoped that their research can be more focused so that they can dig deeper into each literacy and examine the factors that affect the level of data literacy, technological literacy, and human literacy.

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