COMPUTING/ICT/COMPUTER SCIENCE

INFORMATION PROCESSING AND IT'S ROLES IN SOCIETY

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The Role of Information in Society

- Information is part of our everyday life. Students, workers, leaders, and communities depend on information to make decisions. However, not all information leads to correct understanding. Sometimes, wrong or incomplete information can confuse people and lead to bad decisions.

- Information, misunderstanding, and radicalization: This topic helps us understand what information really means, how it influences human thinking, and why misunderstanding information can lead to serious social problems. It also introduces how information can shape opinions, beliefs, and actions—both positively and negatively.

What Is Information?

- Information can be defined as **facts, data, or knowledge** about something or someone. It helps us to learn, understand situations, and make decisions.

- Examples of information include:

- News reports

- Lecture notes

- Text messages

- Social media posts

- Examination results

- Information can be **correct or incorrect**, and this is why we must be careful when using it.

Traditional and Modern Views of Information

Traditionally, information was seen as simple facts written in books or spoken by teachers. In modern society, information has changed.

Today, information is:

- Organized
- Shared very fast
- Used for a purpose
- Often meant to influence people
- Modern information is found mostly on digital platforms like the internet and social media.

Manual vs Electronic Information Processing

Manual Information Processing

- Performed by humans using paper and pen
- Slow and error-prone
- Difficult to store and retrieve
- Examples: Manual record books

Electronic Information Processing

- Performed by computers and IT systems
- Fast and accurate
- Easy storage and retrieval
- Supports large data volumes
- Examples: Computerized school records, ATM systems

The Importance of Context

- Context means the **situation or background** in which information is given.

- The same information can mean different things depending on the situation. Without context, information can easily be misunderstood.

- For example, hearing "there is fire" without knowing where or why can cause panic. Context helps people understand information correctly.

Information and Decision-Making

People use information to make decisions every day, such as:

- Choosing a course of study
- Voting in elections
- Responding to emergencies

Good decisions are made when information is:

- Accurate
- Complete
- Well understood
- Wrong or incomplete information often leads to wrong decisions.

Information in the Media

- The media is one of the biggest sources of information today. This includes:
- Television
- Radio
- Newspapers
- Social media
- Many people rely on headlines instead of full stories. This can lead to misunderstanding because headlines do not always explain the full issue.

What is Disinformation

- Definition: Disinformation is false information deliberately created and shared to deceive, manipulate, or cause harm.
- ➡️ The sender knows it is false.
- Key Characteristics
- False information
- Intentional deception
- Often politically, financially, or socially motivated
- Carefully designed to look credible
- Example
- A fake news website publishes
- "Election results changed secretly at midnight"
- to influence public opinion.

The publisher knows it is false and shares it intentionally.

Misinformation

Definition: Misinformation is false or inaccurate information shared without the intention to deceive.

The person sharing it believes it is true, but it is not.

- Key Characteristics

  False or misleading

  Shared accidentally

  No harmful intent

- Common on social media and messaging apps
- Example: Someone forwards a WhatsApp message saying
- "Drinking hot water cures COVID-19"
- because they believe it is helpful.

The information is false, but the sender did not intend to mislead.

Effects of Misinformation

When people receive wrong information:
- They may react emotionally instead of logically
- They may make poor decisions
- They may spread the wrong information to others
- This is why critical thinking is very important, especially for students.

Information and Radicalization

- Radicalization happens when people adopt **extreme ideas or beliefs**. One major cause is exposure to one-sided or misleading information.

- When people receive repeated emotional or violent messages without full explanation, they may begin to see the world in a "good versus bad" way.

Meaning of Radicalization

Radicalization means moving towards extreme views, often without understanding the full situation

It usually happens when:
- People receive incomplete information
- They do not question what they hear
- They rely on emotions instead of reasoning
- Young people are often more affected because they are active users of social media.

Information Processing

Information processing is the manipulation of data to produce useful information; it involves the capture of information in a format that is retrievable and analysable. Processing information involves taking raw information and making it more useful by putting it into context.

Information processing means processing new data, which includes a number of steps: acquiring, inputting, validating, manipulating, storing, outputting, communicating, retrieving and disposing.

Common Processing Activities:

- Calculation (e.g., total, average)
- Sorting (e.g., arranging names alphabetically)
- Classification (grouping similar data)
- Summarization (generating totals and reports)
- Validation (checking correctness of data)

Impact of Information Processing on Modern Society

The marketplace has become increasingly complex with escalating availability of data and information

Impact on Education: CBT, Online Registration, E-Learning and Virtual Classrooms, Digital libraries and research databases

Education is now more flexible, accessible, and efficient for both students and institutions.

Impact on Banking and Finance: Banking services are faster, more secure, and available 24/7.

Impact on Business and Commerce: Businesses can make faster, data-driven decisions and improve customer service.

Effects of Information Processing

Information generates ideas and drives decisions. Documents are driven by regulatory compliance, plus the need to communicate with customers, suppliers and employers- while dealing with multimedia, business process solutions, and related investments. Questions that should be considered include the following:

- What techniques, procedures and methods are used to share useful information?

- What are the capabilities and limitations of hardware and software?

- How can speed of operation, functionality and capability be increased?

- What ways will an organisation and individual use the information; for example, will the information be used to support strategic, tactical or operational decisions and to inform persuade, educate or entertain users

- What techniques are used for representing the design of solutions and output, including input-process-output charts, or storyboards; what techniques-such as hyperlinks, buttons, icons, table of contents, index, or page numbering- are used for navigating complex documents

John Locke's View on Knowledge

John Locke was a philosopher who believed that:

- Humans are not born with ideas
- Knowledge comes from experience and learning
- People must think and reflect before accepting ideas
- According to him, misunderstanding happens when people accept ideas without proper reasoning.

Importance of Information Processing

Information processing is important because it:
- Supports decision making
- Improves efficiency and productivity
- Reduces errors
- Enhances record keeping
- Enables automation of business processes
- Supports real-time operations

Examples of Information Processing Systems

- School management systems
- Banking and ATM systems
- Hospital information systems
- Payroll systems
- Inventory management systems
- Online shopping platforms

Feedback and Control

Feedback is information returned to the system to improve or control future processing.

Examples:

- Error messages prompting re-entry of data
- Confirmation messages after form submission
- Reports used by management to adjust decisions
- Control ensures that the system operates correctly and efficiently.

Conclusion

- Information plays a powerful role in society. It shapes how people think, act, and make decisions. However, information must be:

- Correct

- Well explained

- Properly understood

- Education helps students develop critical thinking skills, which protect them from misinformation and misunderstanding.

- Information processing is the backbone of modern information systems. It involves collecting data, processing it, producing useful information, storing it, and using feedback to improve operations. Understanding information processing helps students appreciate how computer systems support organizations and everyday activities