PERSONALITY

- Gordon Allport defined Personality as "the dynamic organization within the individual of those Psycho-Physical Systems that determine his unique adjustments to his environment".
- Personality can be defined more specifically as "**how a person affects others, how he understands and views himself and his pattern of inner and outer measurable traits**."
- **Personality is**

ꕥA unique set of characteristics

ꕥRelatively stable over time

•Personality: Some Terms

- **Personality**: a person's internally based characteristic way of acting and thinking
- **Character**: Personal characteristics that have been judged or evaluated
- **Temperament**: Hereditary aspects of personality, including sensitivity, moods, irritability, and distractibility
- **Personality Trait**: Stable qualities that a person shows in most situations
- **Personality Type**: People who have several traits in common

DETERMINANTS OF PERSONALITY

Personality is the result of both heredity and environment and also the situation.

- **HEREDITY**: physical appearance
  temperament
  energy level
  biological rhythms
- **ENVIRONMENT**: culture i.e. early conditioning
- **SITUATION**

TYPE AND TRAIT APPROACHES TO PERSONALITY

Cattel (1973) identified 16 source traits/ personality traits. These traits were found to be generally steady and constant sources of behavior.

1. reserved- outgoing
2. less intelligent- more intelligent
3. affected by feelings- emotionally stable
4. submissive- dominant
5. serious- happy go lucky
6. expedient- conscientious
7. timid- venturesome
8. tough minded- sensitive
9. trusting- suspicious
10. practical- imaginative
11. forthright-shrewd
12. self assured- apprehensive
13. conservative- experimenting
14. group dependent- self sufficient
15. uncontrolled- controlled
16. relaxed- tensed

THEORIES OF PERSONALITY

Carl Jung identified three basic assumptions in theory:

1. Personalities are developmental in that they are influenced by past and hopes for the future.
2. All people have the potential for growth and change.
3. Personality is the totality of a person's interacting sub systems.

Types of Personality Theories

- **Humanistic Theories**: Focus on private, subjective experience and personal growth.

- **Trait Theories**: Attempt to learn what traits make up personality and how they relate to actual behavior.

- **Personality Theory**: System of concepts, assumptions, ideas, and principles proposed to explain personality.

- **Psychodynamic Theories**: Focus on the inner workings of personality, especially internal conflicts and struggles.

- **Social-Cognitive Theories**: Attribute difference in personality to socialization, expectations, and mental processes.

Eysenck's Three Factor Theory

Hans Eysenck, English psychologist, believed that there are three fundamental factors in personality:

- **Introversion** versus **Extroversion**
- **Emotionally Stable** versus **Unstable (neurotic)**
- **Impulse Control** versus **Psychotic**

The first two factors create 4 combinations, related to the four basic temperaments recognized by ancient Greeks:

- **Sanguine** (extroverted + stable): cheerful, hopeful
- **Choleric** (extroverted + unstable): hot-tempered, irritable
- **Melancholic** (introverted + unstable): sad, depressed
- **Phlegmatic** (introverted + stable): sluggish, calm

Galen's Personality Theory

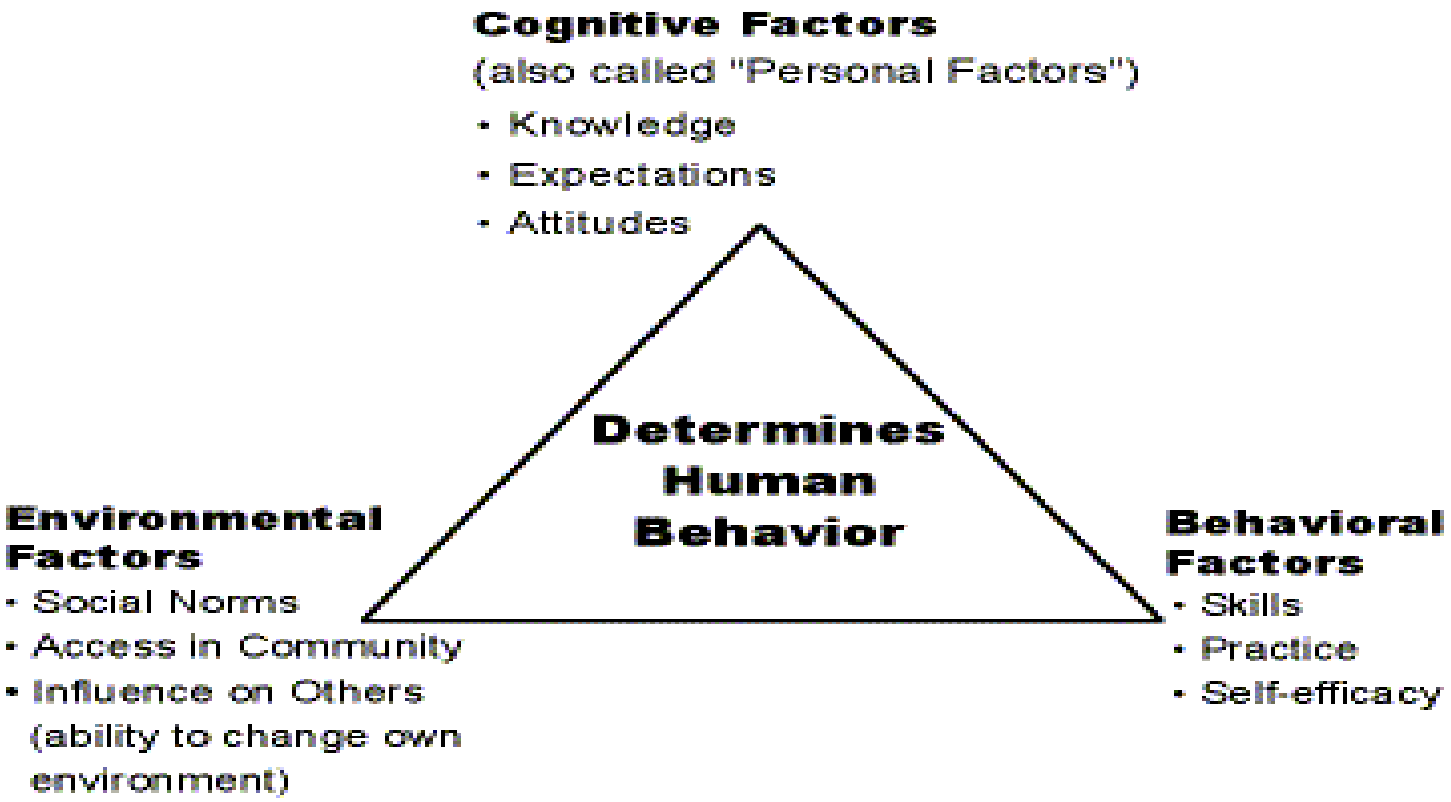
Humor	Fluid
Choleric	yellow bile
Melancholic	black bile
Sanguine	blood
Phlegmatic	phlegm

Psychodynamic Theory by Sigmund Freud

Stage	Age Range	Development Task	Associated Personalty Traits
Oral	0—18 months	Moving from infantile dependency toward autonomy	Dependency
Anal	18—36 months	Learning to exercise control over one's body, one's impulses, and other people	Obsessiveness
Oedipal	5—6 years	Mastering competitive urges and acquiring gender role related behaviors	Competitiveness
Latency	6 years—puberty	Investing energy in productive, rewarding tasks and activities	---
Genital	Puberty onward	Mature sexuality (sexuality blended with intimacy)	---

Note: Dashes indicate that no associated character traits exist for that stage (fixation in the latency and genital periods does not play a role in classical psychoanalytic theory).

Bandura's Social Cognitive Theory



EMOTIONS

The term ‘emotion’ is derived from the Latin word ‘emovere’ which means to stir up, agitate, excite or move.

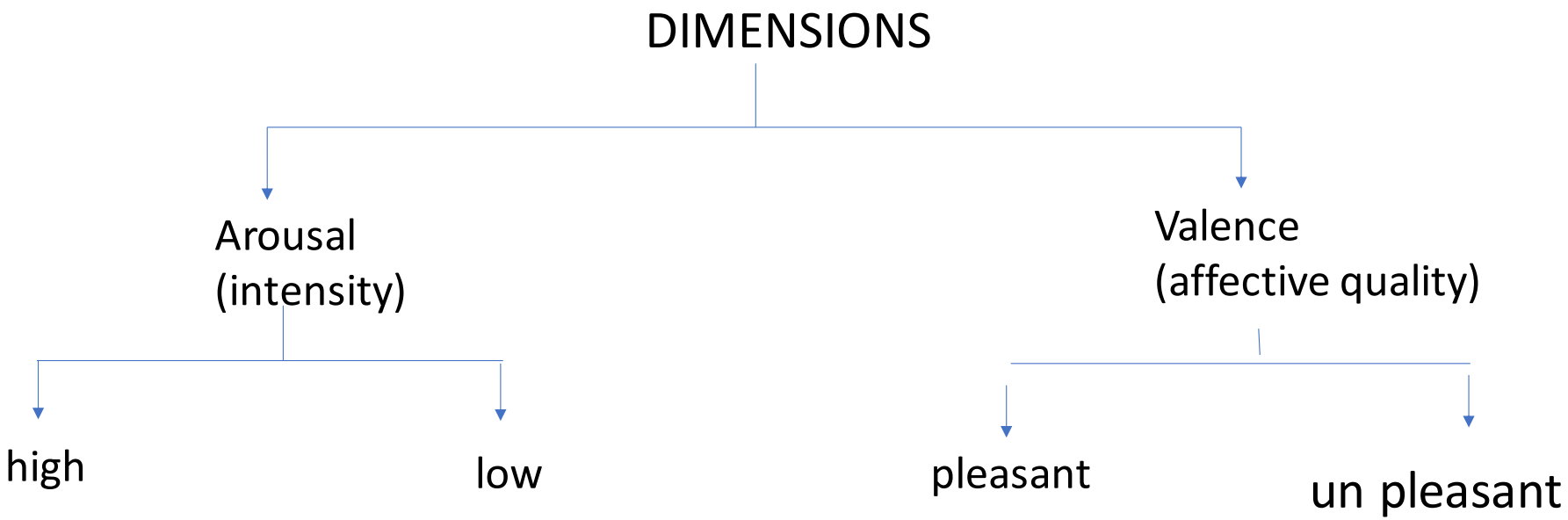
Emotions involve:

- subjective experience
- affective reactions

<u>Each emotion has three basic aspects:</u>

1. **COGNITIVE ASPECT**: thoughts, beliefs, expectations
2. **PHYSIOLOGICAL ASPECT**: involves physiological activation like an increase in BP, pulse rate and respiration when one is in fear or anger.
3. **BEHAVIOURAL ASPECT**: facial expressions, bodily postures and tone of voice vary with anger, joy and other emotions.

Dimensions and Development of Emotions



Important Features of Emotions

- One experience an emotion when any of the basic needs are not satisfied or challenged. One also experience positive emotion on satisfaction of a need.
- Under the influence of an emotion you experience physiological changes such as facial expressions, gestures etc.
- Thinking, reasoning, memory and other psychological functions are affected by emotions.
- During an emotional state tremendous amount of energy is released which helps facing critical situations.
- Both maturation and learning play an important role in development and expression of emotions.
- The experience of emotion can first increase your performance to some extent but if heightened and prolonged it will decrease the level of performance.

Emotion and Physiology

Physiological activity is controlled by autonomic nervous system's

- sympathetic (arousing)
- parasympathetic (calming) divisions

ORGANS RELATED WITH EMOTIONAL EXPERIENCE ARE:

1. **Adrenal glands**: secrete adrenaline which prepare the organism for emergency reactions.
2. **ANS**: 2 parts: sympathetic(emotional arousal) and parasympathetic(normal state)
3. **Hypothalamus**: sends impulses to muscles and glands

Three Ways to Measure Emotions

- Body/Physical
  - blood pressure
  - heart rate
  - adrenaline levels
  - muscle activity when smiling, frowning, etc.
  - neural images
  - posture
  - tears
  - perspiration
  - lie detector readings

- **Thoughts (observed indirectly through)**
  - spoken and written words on rating scales
  - answers to open-ended questions on surveys and during interviews
  - responses to projective instruments, sentence stems, etc.
  - self-assessments or perceptions regarding the behavior and intentions of others
  - other cognitive operations such as rational/logical thinking

- Behavior
  - facial expressions
  - activity level
  - alertness
  - screaming
  - laughing
  - smiling
  - aggression
  - approach/avoidance
  - attention/distraction
  - insomnia
  - anhedonia

Expression of Emotions

- **Startle Response:** rapid closing of eyes and widening of the mouth
- **Facial Expressions:** eye, nose, lips and forehead twist and twitch and take different shapes.
- **Vocal expressions:** voice trembles and breaks when you are sad, you groan when you are in pain, your voice is loud and high pitched in anger.
- **gestures and postures:** sorrow: slump your face

  joy: hold your head high

  fear: either run or rooted to the spot

Types of emotions

HUMAN TEMPERAMENT

Temperament is **an individual's characteristic level of emotional excitability or intensity** and is typically recognized within the first few weeks after birth.

It is often assumed to be an early indication of personality, though personality combines temperament with experiences to shape life long traits.

Nine Temperamental Traits

- **Activity Level**:
child's idle speed or how active the child is generally.
- **Biological Rhythms or Regularity**:
predictability of biological functions like appetite and sleep. As grown ups irregular individuals are more likely to adapt to careers with unusual working hours.
- **Approach/Withdrawal**:
refers to child's characteristic response to a new situation or strangers.
- **Intensity of Reaction**:
energy level of a response whether positive or negative. Does the infant react strongly and loudly to everything? Intense children are more likely to have their needs met but may be exhausting to live with.
- **Sensory Threshold**:
how sensitive a child is to a physical stimuli? It is the amount of stimulation needed to produce a response in the child. Highly sensitive individuals are more likely to be artistic and creative.

Adaptability:
relates to how easily the child adapts to transitions and changes, like switching to a new activity. A slow to adapt child is less likely to rush into dangerous situations and may be less influenced by peer pressure.

Distractibility:
degree of concentration and paying attention displayed when a child is not particularly interested in an activity. This trait refers to the ease with which external stimuli interfere with ongoing behavior. High distractibility is seen as positive when it is easy to divert a child from an undesirable behavior but seen as negative when it prevents the child from finishing school work.

Persistence:
the length of time a child continues in activities in the face of obstacles. e.g. a puzzle. When a child persists in an activity he is asked to stop, he is labeled as stubborn. When the child stays with a tough puzzle he is seen as being patient. The highly persistent child is more likely to succeed in reaching goals. A child with low persistence may develop strong social skills because he realizes other people can help.

Mood:
tendency to react to the world primarily in a positive or negative way.
(pessimistic or optimistic)

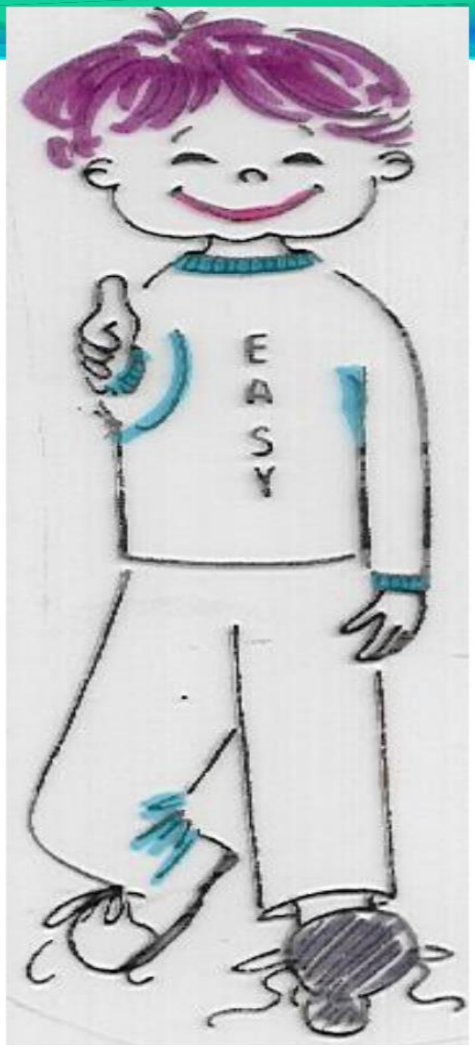
Three Types of Kids

- Easy
- Slow-to-warm-up
- Difficult

Easy

- Happy, cheerful
- Adapts easily
- Smiling and friendly
- Optimistic
- Moderately active
- Cooperative
- Relaxed, easy going

Moderate emotions



Slow-to-warm-up

- Timid
- Fearful
- Anxious
- Tense
- Shy

Uncooperative

Difficult

- Very emotional
- Resists changes
- Moody
- Pessimistic
- Very active
- Quick trigger temper

Fidgets and wiggles

HAPPINESS

Overall happiness is the degree to which an individual judges the overall quality of his/her own life as a whole favorably.

The key terms in this definition may be elucidated as follows:

- **DEGREE:** denotes more or less of something
- **INDIVIDUAL:** describe the state of an individual person only
- **SUBJECTIVE**
- **JUDGEMENT:** assessing past experiences and estimating future experiences and estimating average quality of life.

Components of Happiness

- HEDONIC LEVEL OF AFFECT(AFFECTIVE COMPONENT)

It is the degree to which various affects that someone experiences are pleasant in character.

- CONTENTMENT(COGNITIVE COMPONENT)

Degree to which an individual perceives his/her aspirations are met.

The Meaning of Life

Theories about the meaning of life can be divided into two types: subjective and objective

1) **Subjective**

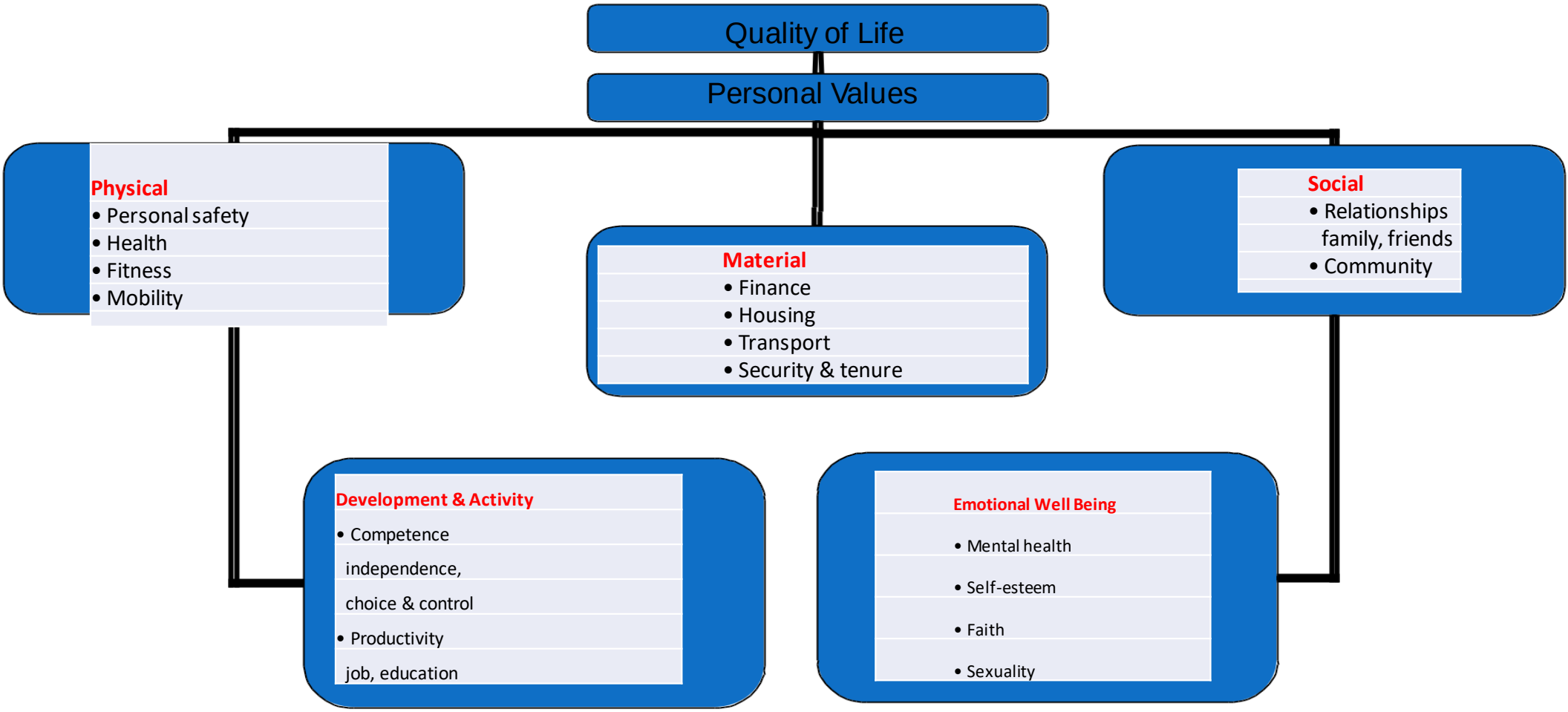
To have a meaningful life = to feel that one has a meaningful life

In other words, what is valuable/meaningful is one's own personal happiness or a sense of fulfillment or psychological health.

2) **Objective**

Meaning exists outside of ourselves. Some things have value beyond how they benefit us or how they make us feel.

Renwick & Brown's Conceptualization



Eight Main Conceptual Categories for Understanding the Concept of Quality of Work Life

- **Adequate and fair compensation:** refers to a just and fair balance between effort and reward.
- **Safe and healthy working conditions:** work environment should be free from hazards or other factors responsible for health and safety of the employees.
- **Development of human capacities:** refers to the use of skills and abilities of the employees autonomously and requires immediate feedback to take corrective action.
- **Growth and security:** career opportunities of the employees in the job which finally lead to the personal growth and security.
- **Social integration in work organization:** refers to the self esteem and self identity of the employee that should be free from prejudice based on sex, caste, race, creed and religion.
- **Constitutionalization in work organization:** this refers to the "rule of law" and should also ensure zero violation of the constitutional guarantee by executive or organization decision making body.
- **Work and total life space:** means demands of work, like late hours, frequent travel etc. which are both psychologically and socially very costly to the employee or his/her family.
- **Social relevance of work life:** refers to the organization's lack of concern for social causes like waste disposal, low quality products, over aggressive marketing and employment practices make workers depreciate the value of their work and career which effects their self esteem.

PERSPECTIVES ON KNOWLEDGE, SCIENCE AND TECHNOLOGY

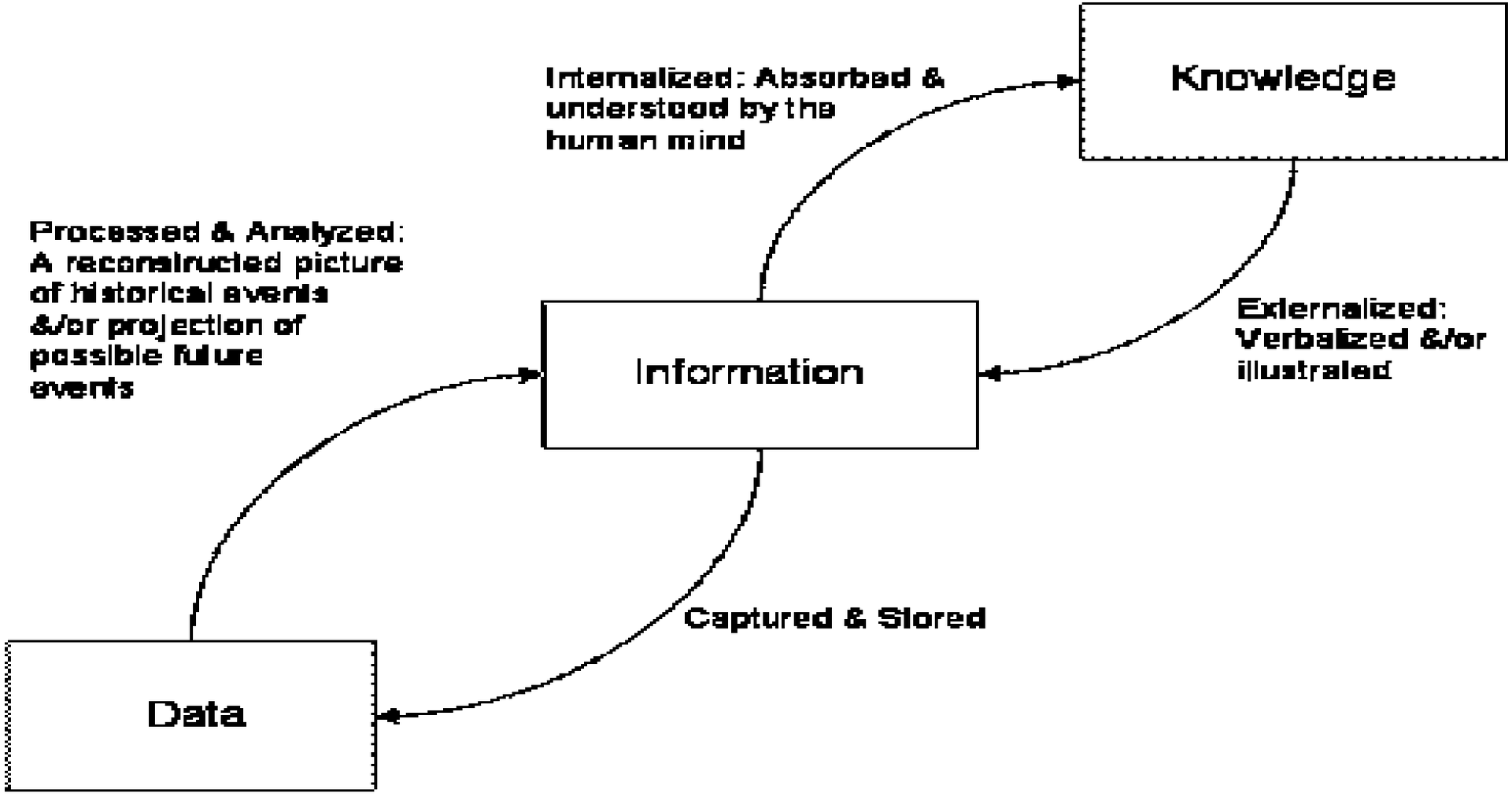
UNIT 3

KNOWLEDGE

- **Definition 1:** justified true belief. Can be justified by facts.
- **Definition 2:** information in context. Coherent with a larger system (rational) and can be useful in decision making and problem solving (pragmatic).
- **Definition 3:** understanding based on experience.
- **Definition 4:** capacity for effective action.

Human knowledge is encoded and communicated in a natural language (e.g. English, Hindi). Knowledge helps us to solve problems.

KNOWLEDGE SYNTHESIS



Data, Information, and Knowledge

- **Data:** Unorganized and unprocessed facts; static; a set of discrete facts about events
- **Information:** Aggregation of data that makes decision making easier
- **Knowledge** is derived from information in the same way information is derived from data; it is a person's range of information

DATA

Data is a set of unorganized information; a quantification or measurement of the real world by a set of variables.

Data are recorded as:

- **Symbols** include words (text/verbal), numbers, diagrams and images(still/video) which are the building blocks of communication.
- **Signals** include sensor/sensory readings of light, sound, smell, taste and touch.

CHARACTERISTICS:

1. Raw materials of information
2. Distinct piece of information
3. Data must be disorganized or unprocessed

INFORMATION

Information is a message that contains relevant meaning, implication, or input for decision and/or action. Information comes from both

- *current(communication)*
- *historical(processed data) sources.*

Information must:

1. be something
2. provide new information
3. be true
4. be about something

CHARACTERISTICS:

- Resultant version of some data
- Always be processed or organized
- It is the context in which data is taken

KNOWLEDGE

Knowledge is information put into a specific context.

Knowledge is the:

1. cognition or recognition (know-what)
2. capacity to act (know-how)
3. understanding (know-why)

CHARACTERISTICS:

- General awareness or possession of information, facts, ideas, truths or principles.
- Clear awareness or explicit information e.g. of a situation or fact.
- All the information, facts, truths and principles learned throughout time.
- Familiarity or understanding gained through experience or study.

TYPES OF KNOWLEDGE

- Episodic knowledge
  - Refers to our biological memory reflecting not only what happened, but also where and when it happened.
  - It means that the memories of our childhood days, our first day in school or cell phone number of our loved ones are all example of episodic knowledge.
- Semantic knowledge
  - In contrast to episodic knowledge, deals with memories and information that are not tied to our personal biographies.

The organized knowledge about facts,

- concepts and generalizations including their
- associations form part of our semantic knowledge.

Types of semantic knowledge

DECLARATIVE KNOWLEDGE - deals with the statement of truth, it also deals with what we know about the world.

PROCEDURAL KNOWLEDGE- is the knowledge about how things are to be done.

CONDITIONAL KNOWLEDGE- if the declarative knowledge accounts for knowing *what* and
procedural knowledge accounts for knowing *how* then,
conditional knowledge account for knowing *when.*

Varieties and Types of Knowledge

- **A posteriori**: “from the latter”. Extends from experience or empirical evidence- Operant Conditioning
- **A priori**: from causes to the effect- Classical Conditioning
- **Dispersed knowledge**: information about a topic is fragmented with no single source of truth.
- **Domain knowledge**: describes the knowledge, skills and abilities of experts in a particular field.
- **Empirical knowledge**: stems from quantitative and qualitative observations, measurements and experiments.
- **Encoded knowledge**: represented as data such a document, database etc
- **Explicit knowledge**: can be articulated in a natural knowledge such as French or Japanese.

contd

- **Known unknown**: knowing that you don't know is a form of knowledge that is useful in decision making.
- **Meta knowledge**: knowledge about knowledge such as bibliographic data.
- **Procedural knowledge**: it is often difficult to encode or make explicit.
- **Propositional knowledge**: statements of fact.
- **Situated knowledge**: highly specific knowledge
- **Tacit knowledge**: few individuals achieve mastery of a particular skill

Knowledge can also be divided into:

- **MENTAL KNOWLEDGE**: knowledge on the surface which pieces things together but never knows the whole and never knows the depths.
- **SUBLIMINAL KNOWLEDGE**: instinct in animals. knowledge that perceives everything and remembers everything ,even when we are not mentally conscious.e.g. Greek scholar and uneducated servant.
- **SUPRAMENTAL KNOWLEDGE**: it is always knowledge of the whole, not just the parts and it automatically sees the solution to any problem. Moving to the supramental consciousness is long and difficult path. It is a path of yoga.

• INTUITIVE KNOWLEDGE

Sir Aurobindo defines intuition as reason without the influence of the senses. Intuition is a direct knowledge, a direct experience of something else.

Different types of intuition:

1. **Spiritual intuition**: the surface personality surrenders to the psychic and the psychic surrenders to the supramental. If we have sincerity and purity of consciousness, we can always know intuitively which things are true and which are false.
2. **Mental intuition**: mental intuition is with a little bit of vital enthusiasm. E.g. Einstein discovered in his intuition the relationship between mass and energy. While Archimedes, the ancient Greek philosopher, was bathing, he suddenly figured out the relationship between the mass of water in his bathtub and the weight of his body which was displacing the water.
3. **Vital intuition:** if someone knows who is calling on the phone even before they pick up the receiver, that is vital intuition.
4. **Physical intuition:** animals have physical intuition. It is a natural sense that tells them what is good for them to eat. They can also sense danger approaching.

SCIENCE

Science is the knowledge we get from study, experiment and observation

We use **science** to make our lives **easier**

Technology & Society

What is Technology?

Technology is the application of scientific knowledge of materials & processes to benefit people.

Technology can be

1. Any human made object
1. Knowledge or skills needed to operate a human – made object
1. A system of people & objects used to do a particular task

Understanding the Social Construction of Technology

- Both technical processes and social processes shape technological development.
- **Thus, what we think of as 'technology' is produced through many factors, including:**
  - Behaviors of individuals and groups
  - Economy and markets
  - Consumer needs and wants

How is technology shaped?

- The development of technology is affected by society and its changing values, politics, and economics.

A. Social Forces that Shape Technology

- If consumers fail to buy a product, companies usually will not spend additional money on that type of technology.
- People will support the development of technologies that agree with their personal values, directly and indirectly.

B. Economic Forces that Shape Technology

. Federal Government

- One way in which funds are allocated for research and development of technology is through the federal government.

Private Industries

- Industries budget a portion of their profits for research and development.

C. Responsible Technology

Environmental Issues

- Sometimes the consequences of technology are known, but the benefits are perceived to outweigh the risks.
- Sometimes the benefits of technology are known immediately, but the consequences are not known for a period of time.

Consumers and voters have a responsibility to weigh the benefits and consequences of technology.

- Example: The Chernobyl Accident → The worst technological accident in modern times occurred on April 26, 1986, at the Chernobyl nuclear power plant in the Ukraine.

→ An accumulation of radioactive fallout in the upper layers of soil has destroyed important farmland.
→ Groundwater and surface waters were contaminated.

Moral and Ethical Issues

- Ethical issues in science pose questions and establish rules about how scientific hypotheses should be tested and how society should use scientific knowledge.

Ethics help scientists establish standards that they agree to follow when they collect, analyze, and report data.

What is the Nature of Human Knowledge?

- **Positivism** – accepts as knowledge only that which can be verified by the scientific method (objective / rational).

- **Social construction theory** – knowledge stems from the interpretations, beliefs and meanings shared by groups of people (subjective).

Engineers

A researcher responsible for bringing technology to the Consumer is called an Engineer.

Technological problems often create a demand for new scientific knowledge.

The Essence of Your Engineering Career

- Engineering is one of the most important professions in society.
  - As engineers we *don't just build things and develop processes*.
  - We build things and make processes *in order to better society*.
- In order to make society better we have to reflect constantly on the products and processes that we make.

Social Responsibility

- One main connection between ethics and engineering comes from the impact that engineered products and processes have on society.

- Engineers have to think about designing, building, and marketing products that benefit society.

- Social Responsibility requires taking into consideration the needs of society.

Typical Ethical Issues that Engineers Encounter

- Safety
- Acceptable risk
- Compliance
- Confidentiality
- Environmental health
- Data integrity
- Conflict of interest
- Honesty/Dishonesty
- Societal impact
- Fairness
- Accounting for uncertainty, etc.

Professional Responsibility

- Ethics has a second connection with engineering.
- It comes from the way in which being socially responsible puts duties and obligations on us individually.
- Ethics fits into engineering is through professional responsibility.

Professional Obligations

- Engineers shall be guided in all their relations by the **highest standards of honesty and integrity.**
- Engineers shall at all times **strive to serve the public interest**.
- Engineers shall **avoid all conduct or practice that deceives the public**.
- Engineers **shall not disclose, without consent, confidential information concerning the business affairs or technical processes** of any present or former client or employer or public body on which they serve.
- Engineers **shall not be influenced in their professional duties by conflicting interests**.
- Engineers **shall not attempt to obtain employment or advancement or professional engagements by untruthfully criticizing other engineers** or by other improper or questionable methods.
- Engineers **shall not attempt to injure maliciously or falsely, directly or indirectly the professional reputation, prospects, practice or employment of other engineers.**
- Engineers **shall accept personal responsibility for their professional activities**.
- Engineers **shall give credit for engineering work to those to whom credit is due and will recognize the proprietary interests of others.**

Role-Responsibilities

ROLE	RESPONSIBILITY
Friend	Look out for the interests of your friend.
Athlete	Play your sport in a professional manner.
Employee	Perform the duties of your job.
Parent	Look after your children and their interests
Citizen	Follow the laws of the country in which you live.