

# **Chapter Four:**

## **The New Psychology**

PSY 495: History and Systems  
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### **Wilhelm Wundt**

- **Biographical history notes not in your book**
  - It is estimated that Wundt wrote over 50,000 pages in his lifetime
    - That's 2 pages per day
  - Wrote his autobiography
    - Revised it
    - Allowed himself to die
  - Original training was as M.D.

### **Wilhelm Wundt**

- Worked at Heidelberg while Helmholtz was there
- Moved to Zurich and then Leipzig
  - Founded psychological laboratory in Leipzig in 1879
- Began answering philosophical questions using physiological methods
  - Brass instrument psychology

### **Wilhelm Wundt**

- Students flocked to Leipzig until the turn of the century
- Proved psychology could be productive
  - Could build a body of knowledge
- 1950's & 1960's:
  - Ideas incorporated into modern cognitive psychology

### **Wilhelm Wundt**

1. **Theoretical Orientation**
  - Not necessarily integrated
  - Some ideas cannot be precisely articulated
  - Rejected positivism

- Psychologists should construct theory from phenomena
- Construction of theory produces a hunt for data
  - Scientific research looks for underlying causal relationships that are logically coherent

## **Wilhelm Wundt**

- Idealist
  - Perceptual content is simply the subjective appearance behind which real objects hide
- Distinguished between natural science and psychology
  - Natural science
    - Studies objective things in the outside world
  - Psychology
    - Studies immediate experience

## **Wilhelm Wundt**

- Dualist
  - Major focus was on mental processes
  - Examined behavior that reflected mental processes
- Voluntarism
  - All psychic activity is influenced by the will
  - Cognitive processes never occur in a vacuum
    - Always influenced by the motives of people
    - Humans are not rational organisms

## **Wilhelm Wundt**

- Apperception
  - The process by which a mental event enters the focal area of consciousness
  - Manifestation of volition
- Creative synthesis
  - Mental constructions from component processes always produce novel consequences
    - Whole is different than the sum of the parts
      - Did not explain why this happened
    - Created a number of subsidiary principles to explain creative synthesis

## **Wilhelm Wundt**

- Principle of Psychological Relations
  - There is an innate level of organization operating in the human mind that prevents psychical phenomena from being reduced to a level that would destroy an organism
    - Allows for the elementary processes of the mind to occur in an organized fashion rather than a series of discrete events

- Principle of psychological contrasts
  - Opposing mental experiences intensify each other
  - Thus experiences are relative, not absolute

## **Wilhelm Wundt**

- Principle of Heterogeneity of Ends
  - Occurs due to developmental changes that occur in individuals social groups
    - Emergent unanticipated results, not originally planned for, will inevitably occur
- Principle of Mental Growth
  - Mental development occurs in a manner similar to embryological development
- Principle of Development Toward Opposites
  - Cyclical patterns of development characterize both individuals and society

## **Wilhelm Wundt**

- Activities tend to fluctuate between two opposite extremes
- One type of mental experience increases the tension to operate in the opposite manner

## **Wilhelm Wundt**

1. **3 Programs of Study**
  - Cognitions, emotions, and motivations were his subject matter
    - Goal was to isolate each construct for study and then see how each was integrated

## **Wilhelm Wundt**

- Emotion drives cognition and motivation drives them both
- Voluntary attentional processes are the units of consciousness
- All psychological constructs need to be be construed in volitional terms

## **Wilhelm Wundt**

1. **Program of Study #1**
  - Understanding Immediate Experience
    - This is the program that Wundt for which is typically recognized
    - Goals:
      - Determine the elements of consciousness
      - Determine the mechanisms responsible for synthesis

- Discover the laws guiding synthesis
- Examined inputs for conscious experience
  - Memory and sensory input

## **Wilhelm Wundt**

- Mind is a generalization
  - Totality of conscious experience at any given moment
- Mind is activity
  - Elements of consciousness are activities
    - Therefore, you cannot see them in immediate conscious experience
      - All elements are tied together
  - Need to isolate experiences in order to study them

## **Wilhelm Wundt**

- 3 sources of experience
  - Outside world
  - Memory
  - Feeling
- Sensations
  - Derived from 2 sources
    - Outside world
    - Memory
  - Have 2 qualities
    - Intensity
    - quality

## **Wilhelm Wundt**

- Tridimensional theory of feelings
  - Pleasure/displeasure
  - Tension/relaxation
  - Excitement/depression
- Subjects for experiments were also experimenters and vice versa
- Introspection
  - Examination of one's own mind to inspect and report on personal thoughts and feelings

## **Wilhelm Wundt**

- Wundt's rules:
  - Observers must be able to determine when the process is to be introduced
  - Observers must be in a state of readiness or strained attention

- It must be possible to repeat the observation several times
- It must be possible to vary the experimental conditions in terms of the controlled manipulation of the stimuli
- Observers must complete 10,000 practice introspections

## **Wilhelm Wundt**

### 1. **Program of Study #1**

- **Understanding Immediate Experience**
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  - **Goals:**
    - Determine the elements of consciousness
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    - Discover the laws guiding synthesis
  - **Examined inputs for conscious experience**
    - Memory and sensory input

## **Wilhelm Wundt**

- **Apperception**
  - The process by which a mental event enters the focal area of consciousness
  - How mental events are organized
  - Manifestation of volition
  - How do we end up with coherent and meaningful ongoing conscious experiences?
    - Experience is more than the sum of the individual constituents
    - Voluntary creative process and what we get out of it is a logical flow of thought

## **Wilhelm Wundt**

- Immediate experiences organize spatially and temporally
  - This association is contributed by the person
- Organization is independent, constructive and under voluntary control

### 1. **Program of Study #2**

- **Identifying specific cognitive processes involved in the various kinds of information processing**
  - Focus on selective attention, automatic and controlled attentional processes, chunking, and an attempt to isolate the various processing components

## **Wilhelm Wundt**

- Isolate various cognitive processing states and measure their duration
- Subtraction method

- a = simple reaction time
- b = two choice reaction time
- c = single response time with a decision
- $b - a$  = the time it takes to discriminate between two stimuli and make a response
- $c - a$  = time it takes for discrimination alone
- $(b - a) - (c - a)$  = time to make a choice response
- $b - c$  = time to make a choice response

## Wilhelm Wundt

- Ability to isolate processing stages gave temporal parameters
  - 5 processing stages
    - Electrical stimulation from eye to brain
    - Stimulus perceived and enters the range of consciousness
    - Stimulus is selectively attended
      - Apperception
    - Choose to execute response
    - Motor response carried out
  - Rationale
    - If you can create two tasks that differ by one aspect, you can measure selective attention

## Wilhelm Wundt

- Lab completed a number of studies like this
  - Very easy to insert new tasks into the chain and determine how long it took to perform the inserted task

### 1. Program of Study #3

- Folk Psychology
  - A lot of data from this program was... fabricated
  - Examined cultural history
  - Construction of knowledge in the context of cultural history

## Wilhelm Wundt

- Goal for this program was to move from the lab to the field and see how knowledge was constructed in the real world
  - Cannot study intellectual process in the lab
- Divided culture into 4 groups/periods:
  - Primitive period
  - Totemic/tribal culture
  - Age of gods and heroes
  - Modern culture

## Wilhelm Wundt

- Each culture has its own group mind
- Wundt felt that the German culture was the top of the hierarchy
- Important mechanisms in the development of culture
  - Dynamics as motives
    - Motives change as a result of intended and unintended consequences
    - The ends that result many times are not embedded in the original purpose
    - There are always remnants of the purposes no matter how far removed from them you are

## **Wilhelm Wundt**

- Examined how myth develops
  - Basic motives for myth
    - Fear of death or sickness
  - Engenders a belief in magic and demons
  - This belief is seen when a person dies
  - Fear gives rise to myth
    - Because of association of fear of death and terror of sudden illness
  - Now being sick arouses fear of demons
  - Leads to the rise of both demonic and protective magic

## **Wilhelm Wundt**

- Soon get proliferation of objects to protect against different types of magic
- More and more items appear and some begin to be decorated
  - Guess what? It's art!
- Clothing begins to ward off demons
- Shaman comes about in tribal culture
- Also examined the development of language
  - Gutteral language
  - Nonsyntactical verbal language
  - Modern language

## **Wilhelm Wundt**

- Emotion gives rise to cognition
  - Earliest forms of language arose to express emotion

## **Other Developments in German Psychology**

1. **Herman Ebbinghaus (1850-1909)**
  - First to examine learning and memory
  - Influenced by Fechner

- Research on learning
  - Before Ebbinghaus—worked backwards
  - Ebbinghaus started with initial association
    - Could control the conditions under which the association was learned
    - Made the research more objective

## **Other Developments in German Psychology**

- Over 5 years, he carried out a series of carefully controlled studies using himself as the only subject
- Found that the difficulty of learning material could be measured by the number of trials needed to learn it.
- Research with nonsense syllables
  - Nonsense syllables
    - Syllables presented in a meaningless series to study memory processes

## **Other Developments in German Psychology**

- Recognized problem with using stories or poetry to study memory
  - Meanings or associations are already formed
  - Can facilitate learning
  - Therefore, Ebbinghaus used a meaningless series of syllables to examine learning
- Studied the difference between the speed of memorizing lists of syllables vs. the speed of memorizing lists of material that had meaning
  - Easier to memorize that which had meaning

## **Other Developments in German Psychology**

- Length of material to be learned effects the number of repetitions
- Ebbinghaus forgetting curve
  - Material is forgotten rapidly in the first few hours and then levels off after that
- *On Memory* (1885)
  - Research was so exacting that it continues to be cited in psychology textbooks 100+ years after this book was published
- Other contributions to Psychology

## **Other Developments in German Psychology**

1. Georg Elias Muller (1850-1934)



- First to work in memory after Ebbinghaus
- Thought Ebbinghaus made the learning process seem too mechanical and automatic
  - People are more active in learning
- Association by contiguity cannot explain learning

## **Other Developments in German Psychology**

- Conscious attitudes such as readiness, hesitation, and doubt influence learning
- Interference theory of learning
  - The act of forgetting results from learning new material that interferes with the ability to recall previously learned material
    - Proactive interference
      - Past learning interferes with learning something new
    - Retroactive interference
      - New learning interferes with recalling already learned information

## **Other Developments in German Psychology**

1. **Frantz Brentano**
  - *Psychology from an Empirical Standpoint* (1874)
  - Precursor of Gestalt psychology
  - Goal of psychology: observation
  - Act Psychology
    - Focus on mental activities, not mental contents

## **Other Developments in German Psychology**

- Consciousness is an activity directed toward a goal
  - Required a different method of study
1. **Carl Stumpf**
    - Wundt's major rival
    - *Psychology of Tone* (1883, 1890)
    - Phenomenology
      - Introspective method that examined experience as it occurred; did not try to break it down into parts

## **Other Developments in German Psychology**

- Another influence on Gestalt psychology
  - Interested in music and acoustics
  - Berlin Association for Child Psychology
  - Theory of emotion
    - Reduced feelings to sensations
1. **Oswald Kulpe**
    - Another Wundt opponent

## **Other Developments in German Psychology**

- *Outline of Psychology* (1893)
  - Differences w/Wundt
  - Systematic Experimental Introspection
  - Imageless thought
    - Meaning in thought can occur w/o any sensory or imaginal component
1. **Wurzberg Laboratory**
    - Karl Marbe
    - Henry Watt

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