Chapter Four:
The New Psychology

PSY 495: History and Systems
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The New Psychology

The structure of psychology
- Hierarchy of mental systems
  - Lowest level
  - Midlevel
  - Highest level

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
- *Contributions to the Theory of Sensory Perception*
  - "experimental psychology"
- *Lectures on the Minds of Men and Animals*
- Content areas of psychology
- Reprinted a bunch
- 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
  - *Philosophische Studien (Philosophical Studies)*
- 1950’s & 1960’s:
  - Ideas incorporated into modern cognitive psychology

Wilhelm Wundt
- 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.

**Principle of Heterogeneity of Ends**
- Occurs due to developmental changes that occur in individuals and 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.

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

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 construed in volitional terms

Wilhelm Wundt
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

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

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

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**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

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**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

**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

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

Wundt's Legacy

Other Developments in German Psychology

- 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.

- Research with nonsense syllables
  - 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.

- 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.

- 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

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

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

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

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

Wurzberg Laboratory
- Karl Marbe
- Henry Watt
References

