

Chapter Four: The New Psychology

PSY 495: History and Systems
Dr. Rick Grieve
Western Kentucky University

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

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



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

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

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

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
- 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**
 - Guttural language
 - Nonsyntactical verbal language
 - Modern language

Wilhelm Wundt

- **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

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

• 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

• Wurzburg Laboratory

- Karl Marbe
- Henry Watt

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