Embodied Rituals: Physical Performance and Supernatural Agents

Nicholas J Shaman, MA
Rebekah A Richert, PhD
University of California, Riverside
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Religious Cognition

• Religious Cognition
  – Concepts of Supernatural Beings
    • Properties of God
  – Supernatural Causal Systems
    • Magic
  – Memories of Religious Rituals
    • Encoding of ritual experience
Religious Cognition

- Religious Cognition
  - Ordinary, but special
  - Acquisition through same cognitive processes
  - But, differ on a few properties
    - Ex. Ghosts
    - Ex. Magic
    - Ex. Rituals
Religious Cognition

• Acquisition of Information\(^1\)
  – Direct experience and observation
  – Active engagement with the environment
  – Maturational processes
  – Cultural experiences

1) Case, 1998
Religious Cognition

• Cultural Experiences
  – Contributes greatly to acquisition of religious information
  – Religious experiences
    • Eg., beliefs, practices, organizations
    • Eg., Religious Rituals
Religious Rituals

• Religious Rituals
  – Physical actions intended to
  – Cause some change and
  – Communicate religious information to fellow believers and supernatural agents
  – Within a specific religious context
Religious Rituals

• Cognitive Theories of Rituals
  – Competence theories\(^1\)
  – Memory theories\(^2\)
  – Embodiment theories\(^3\)

1) McCauley & Lawson, 2002  
2) Whitehouse, 2002  
3) Barsalou, Barbey, Simmons, & Santos, 2005
Religious Rituals

- Competence Theories\(^1\)
  - Set of cognitive mechanisms used to interpret and reason about religious rituals
  - Intuitive, and underlies competence
    - Made manifest when confronting errors
  - Inclusion of supernatural beings differentiates rituals from everyday actions

1) McCauley & Lawson, 2002
Religious Rituals

• Memory Theories¹
  – Rituals primarily exist in two forms
  – Doctrinal Rituals
    • High Frequency, Low Arousal
    • Procedural Memory System
  – Imagistic Rituals
    • Low Frequency, High Arousal
    • Episodic Memory System

– These types of rituals are easily remembered

1) Whitehouse, 2002
Religious Rituals

• Embodied Theories¹
  – Physical actions of rituals are part of religious information
    • Rituals are bodily metaphors for mental states
      – Eg., Meditation, Kneeling in Prayer
    • Rituals are memory enhancers for religious beliefs
      – Eg., Actions are cues to remember information

¹ Barsalou, Barbey, Simmons, & Santos, 2005
Religious Rituals

• Empirical Research
  – Competence Theories
    • Adults share intuitions on the efficacy of different rituals\(^1\)
    • Judgments of efficacy change throughout childhood\(^2\)
  – Memory Theories
    • Greater meaning-making and reflection when arousal of a ritual is high\(^3\)
  – Embodiment Theories
    • Current Study!

1) Barrett & Lawson, 2001 \hspace{1em} 2) Richert, 2006 \hspace{1em} 3) Richert, Whitehouse, & Stewart, 2005
Embodied Cognition

- Embodiment Thesis\(^1\)
  - Features of cognition are deeply dependent upon characteristics of the physical body
  - Physical body plays a causal or constitutive role in cognitive mechanisms

1) Wilson, & Folgia, 2011
Embodied Cognition

• Concepts and Actions
  – Physical actions can affect concepts
    • Mimicking the musculature of a smile induces positive affect\(^1\)
  – Concepts can affect physical actions
    • Priming concept of “elderly” causes individuals to walk more slowly\(^2\)

1) Strack, Martin, & Stepper, 1988    2) Bargh, Chen, & Burrows, 1996
Summary

• Religious concepts are acquired through everyday cognitive mechanisms
  – While differing on one or two properties

• Physical actions play a causal role in the cognitive mechanisms associated with concepts
Study 1: Hypothesis

• How do physical actions play a causal role?
  – During the acquisition process
  – Performance of religious rituals leads to the acquisition of different religious concepts than observation of religious rituals
Study 1: Method

- **Participants**
  - 161 undergraduate students
    - Gender
      - 55% Female, 45% Male
    - Ethnicity
      - 36% Asian, 34% Hispanic, 13% Caucasian, 7% African American, 10% Other
    - Religion
      - 32% Roman Catholic, 22% Protestant Christian, 7% Buddhist, 16% Other, 23% Atheist/Agnostic
    - Perceived Religiosity
      - Not at all [-2], Average [0], Very [+2]
      - Mean = -0.44, SD = 1.10

- **Conditions**
  - Performance
    - N = 82
  - Observation
    - N = 79
Study 1: Method

• Procedure
  – Ritual Learning
    • Participants are taught a novel religious ritual in a laboratory setting

  – Assessment
    • Memory of ritual
    • Efficacy judgments of ritual
Study 1: Method

- Novel Rituals
  - Simulates acquisition of religious information through rituals
  - Provides experimental control
  - Lacks ecological context
Study 1: Method

- Ritual Learning
  - Performance
    1. Observe the ritual being performed
    2. Learn the beliefs associated with ritual
    3. Observe the ritual again
    4. Practice ritual under guidance
    5. Perform ritual

- Ritual Learning
  - Observation
    1. Observe the ritual being performed
    2. Learn the beliefs associated with ritual
    3. Observe the ritual again
    4. Observe the ritual again
    5. Observe the ritual again
Study 1: Method
Study 1: Method

- Archeologists have found out about an ancient religious ritual. (1) This ritual is from Ancient Greece. (2) The purpose of the ritual is to improve a person’s memory. (3) The ritual involves transferring the special properties of grapes to a special cup. (4) The person drinks from the cup to improve their memory. (5) A plate of grapes is placed in the center of the table, which symbolizes the mind. (6) A thyrsos is an Ancient Greek wand that transfers the specialness of the grapes to the cup by tapping the cup two times. (7) The special cup is moved from the East side of the plate to the West side of the plate to symbolize the movement of the sun. (8) Only the left hand is used to hold the cup and the thyrsos to symbolize the side of the body associated with memory. (9) The special cup should only be held by the top, not the handles because the handles are reserved for the Greek gods. (10) After the person drinks from the cup, it must stay near the person for 5 minutes to have the full effect.
Study 1: Method

• Procedure
  – Assessment
    • Memory of ritual
      – Free recall of religious belief
      – Number of components remembered (1-10)
    • Efficacy judgments of ritual
      – Efficacy of ritual if mistakes are made
      – Rating of five mistakes averaged (Greek, Thyrsos, Tapping, Right Hand, Handle)
      – Rating: “No-Definitely” (-2) to “Yes-Definitely” (+2)
Study 1: Results

• Reliability
  – Memory: Free Recall
    • 2 Coders on 40% of participants
    • 92% average agreement

• Demographics
  – No effect of gender, ethnicity, religious affiliation, or perceived religiosity
Study 1: Results

Memory of Ritual

\[ t(159) = 0.987, \ p = 0.325, \ r = 0.08 \]
Study 1: Results

t(159) = 0.759, p = 0.449, r = 0.06
Study 1: Discussion

• Hypothesis
  – Performance of religious rituals leads to the acquisition of different religious concepts than observation of religious rituals

• No evidence found to support this hypothesis

• Suggests physical actions play a different role
Study 2: Hypothesis

- How do physical actions play a causal role?
  - During the retrieval process
  - Acquisition of different religious concepts leads to the different performance of ritualized behavior
Study 2: Method

- 113 undergraduate students
  - Gender
    - 52% Female, 458% Male
  - Ethnicity
    - 37% Asian, 24% Hispanic, 15% Caucasian, 24% Other
  - Religion
    - 31% Roman Catholic, 18% Protestant Christian, 7% Buddhist, 15% Other, 29% Atheist/Agnostic
  - Perceived Religiosity
    - Not at all [-2], Average [0], Very [+2]
    - M = -0.57, SD = 1.05

- Conditions
  - Full Ritual Description
    - N = 36
  - Brief Ritual Description
    - N = 37
  - Neutral Description
    - N = 40
Study 2: Method

• Procedure
  – Ritual Learning
    • Participants are taught a novel religious ritual in a laboratory setting
    • Different ritual descriptions
  – Assessment
    • Ritualized Behavior
    • Efficacy judgments of ritual
Study 2: Method

• Procedure
  – Ritual Learning
    • Same as Study 1
    • Ritual Description
      – Full Ritual Description
        » Same as Study 1
      – Brief Ritual Description
        » Archeologists have found out about an ancient religious ritual. The purpose of the ritual is to improve people’s memory. The archeologists do not know anything else about the ritual.
      – Neutral Description
        » Sociologists think that setting a dinner table according to proper etiquette has an effect on people. They want to know what the psychological effect of conforming to etiquette is.
Study 2: Method

• Procedure
  – Assessment
    • Ritualized Behavior
      – Participant sets up ritual to be performed again
        » Deception used
      – Ritualized behavior measured (Left Hand, Top of Cup, East Side)
    • Efficacy judgments of ritual
      – Efficacy of ritual if mistakes are made
      – Rating of five mistakes averaged (Greek, Thyrsos, Tapping, Right Hand, Handle)
      – Rating: “No-Definitely” (-2) to “Yes-Definitely” (+2)
Study 2: Results

• Reliability
  – Behavior: Implicit Performance
    • 2 Coders on 40% of participants
    • 94% average agreement

• Demographics
  – No effect of gender, ethnicity, religious affiliation, or perceived religiosity
Study 2: Results

Ritualized Behavior

- Full
- Brief
- Neutral

$t_{\text{contrast}}(110) = 1.934, p = 0.056, r = 0.183$
Study 2: Results

Efficacy of Ritual

\[ t(44) = 2.742, \ p = 0.009, \ r = -0.39 \]
Study 2: Discussion

• Hypothesis
  – Acquisition of different religious concepts leads to the different performance of ritualized behavior

• Evidence was found to support this hypothesis

• Suggests physical actions play a role during the retrieval process
Discussion

• Summary of Results
  – Study 1
    • No effect of performance on memory
    • No effect of performance on efficacy
  – Study 2
    • Trending significant effect of ritual description on ritualized behavior
    • Significant effect of ritual description on efficacy
Discussion

1. Does performing the actions of a ritual influence the form of the religious knowledge?
   – No, the ritual was not better remembered or conceptualized differently

2. Does the form of the religious knowledge influence how the actions of a ritual are performed?
   – Yes, implicit performance of the ritual was greater when the ritual was connected to a supernatural being
Discussion

• Did the physical body have a causal role in how religious information was acquired?
  – Performing of the ritual did not affect how it was remembered or conceptualized
  – But, the form of the religious knowledge did affect implicit performance
Discussion

• Study 1
  – Performance does not differ from observation during the acquisition process

• Study 2
  – Ritualized behavior is evoked in different degrees during the retrieval process, dependent upon the ritual concept
• Other findings

  – Competence Theories
    • When participants confronted errors in the novel ritual, had intuitions about its efficacy
    • Participants judged the ritual to be less effective the more they considered it to be a religious ritual

  – Memory Theories
    • The novel ritual was low frequency and low arousal, thus, participants had low memory of the ritual
• Future Directions
  – Test acquisition of religious knowledge in different age groups
  – Test acquisition of religious knowledge in an ecologically valid context
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