

The Experimental Psychology of Religious Processes

Michael Kelly writes:

As there is a healthy friction between experimentalists and clinicians, and also between those interested in spiritual issues and those who are more inclined towards clinical neuroscience, I thought your Special Interest Group on Spirituality at the College might be interested in this anthology on "Experimental Psychology of Religious Processes" which will soon be published by ITP (see Editor, mark.cliplinger@thopsonlearning.com). The Editor has provided permission to distribute the Table of Contents and Introductory Chapter on selected E-mail lists and related professional newsletters.

Respectfully,

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Introduction to the Experimental Psychology of Religious Processes

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This anthology is an introduction to published experimental reports on psychology processes related to religious experience. The articles were gathered together for use in a university course on the experimental psychology of religion. The anthology is not meant to be a comprehensive review, but to illustrate how the experimental approach might be useful for understanding psychological processes in religious, faith, and other spiritual experience. It contains none of the earlier studies cited in Deconchy's excellent review (1977) of this area. I now will briefly introduce the readings, and along the way comment on what might be meant by an experimental psychology of religious processes.

Why an experimental psychology of religious processes?

I have been tempted to use many other titles for this collection of readings. Other broad, non-sectarian, descriptors could be used. Spiritual is one possibility but it has connotations of non-religious traditions such that it has become a code word for humanistic/transpersonal approaches to the exclusion of theistic ones. Some of these nuances have been discussed recently in *The International Journal for the Psychology of Religion* [1999, 9(1), 1-44]. In the end I kept religion in the title because the psychology of religion has meaning historically to refer to a particular academic area of study. But I added *processes* to the title so to reflect an emphasis on qualities transcending any single faith tradition.

Within the context of contemporary psychology of religion, the most novel element in the title of this anthology is the word 'experimental', which substantially limits its scope. Experimental psychology refers historically to a particular methodological approach that attempts to provide more information about causal processes by the systematic and active manipulation of one or more variables. This approach to studying psychology is reflected in the titles of many academic journals, notably several published by the American Psychological Association. My thesis is simple: it may be fruitful to do more experimental investigations of religious processes, just as one can have an experimental psychology of other process domains in psychology (perception, memory, learning, emotion, personality, social behaviour). However there is no academic journal dedicated to reporting experiments on religious processes, spirituality, or faith-related issues and the current specialty journals on this topic seldom contain articles using this methodology.

The concept of processes for experimental psychologists has special meaning for these investigators, as the focus of the field has always been to get at causal mechanisms of complex systems. It follows that the experimental approach is typically reductive, since the effort is to analyse or reduce things into component operative mechanisms. Historically this has been a productive approach for scientists and there is no reason to suppose it might not also yield rich returns for religious processes. While the perils of extreme forms of reductionism are frequently raised in discussions of religious topics, the effort here is not to reduce all religious phenomena to physical-chemical properties (materialism), nor is there any commitment to deny emergent properties that may exist that can not be observed or understood at a lower level of

analysis. Nor is this an attempt to assert that experimentation is the only pathway for discovery.

There are important historical reasons for the absence of a strong experimental tradition within the psychology of religious processes. One factor certainly was the broad adoption of the law parsimony, what is often called Morgan's cannon (use the simplest explanation possible in interpreting observations). Within the incipient beginning of scientific psychology, all too often Morgan's cannon was used as a lever to argue that cognition (and certainly spiritual issues) had no meaningful role in determining behaviour. For example, if a person prays with someone, it might be argued that any resulting changes observed are simply from empathetic dialogue; thus the fact that they prayed together may have added nothing to the outcomes, and attributing the outcomes to prayer may not improve our understanding of those outcomes. Alternatively, the act of prayer may have characteristics that are special and important. This stripping of the incidental to lay bare the core of operative mechanisms makes for good science, but it also can be used as an agenda to control the content of science and the type of questions addressed. In the dominant behaviourism of the first half of this century there was little tolerance for experimentalists to build theoretical systems with ties to anything religious, spiritual, or anything sounding like it. Hence religious variables were seldom explored by experimentalists. However, the behaviourist banner that psychology is solely the science of 'behaviour' is no longer in vogue. Further, the great divide between the behavioural experimentalists and the so-called 'soft' approaches to psychology has changed since the rise of cognitive science during the last 30 years. Within the cultural evolution of cognitive psychology, the umbrella of what are acceptable topics has been growing. For example the terms 'beliefs', 'expectations', 'learned optimism' and 'hope' are now starting to have a rich empirical history within cognitive approaches to psychotherapy. Thus it is now not so far-fetched to suggest that the related term 'faith' is perhaps critical for psychotherapy to work (Seligman, 1991; Kirsch, 1999; Hubble, Duncan, & Scott, 1999). The bridge with cognitive sciences and cognitive-therapy research also brings a new era where hypothetical constructs like 'faith' are used but are also carefully operationally defined within a research context.

A second reason for the absence of a strong experimental tradition within the psychology of religious processes has been psychology's commitment to clarifying the distinction between statements that are testable based upon observations and statements with a moral imperative. This moral tradition within the emergence of psychology is often contrasted to the tradition of science in the first chapter of current introductory textbooks. However, many would argue now that at the very least this distinction is not simple, and may be arbitrary. This cornerstone of analytical or logical positivism, that religion deals with values, which are not testable, while science deals with propositions that are testable (Russell, 1961) is a handy approach for avoiding conflict. Clerics and scientists then have their separate domains and this has historically been a great device for avoiding conflict between academic and religious institutions. As a young student being introduced to scientific thinking, this was graphically illustrated to me by using two non-overlapping circles, one labelled 'Truth' and the other 'truth' with the small 't'. In the lead article to the present volume, Jones (1994) provides an excellent review of the merits of mixing religion and scientific psychology, arguing persuasively that these two circles are not distinct but overlapping, and should be interactive. Moreover, to continue with the graphical illustration, the borders of the overlapping circles are a bit fuzzy as to the extent of overlap; at the very least, being more in dispute than was thought by the *Zeitgeist* a few decades earlier, when logical positivism ruled without much dissent. The issue is how to proceed now that this Pandora's box is open. For example, institutional review boards for ethics in research

and grant-awarding authorities routinely must look at research through the lens of values and also the lens of good methodology for validating assertions. However the calculus for assessing these cost-benefit ratios typically is not specified.

An experimental psychology of religious processes is not a new idea. For example, a significant springboard for the development of experimental psychology was Gustav Fechner's insight into psychophysics (Weber's Law: sensation = $C \log$ stimulus), which he cast in a religious context (on October 22, 1850) though most history books chose to ignore this fact. Fechner saw psychophysics as connecting the spiritual to the material world. This is when experimental faith-based psychology began. However, Wilhelm Wundt, who most would call the true father of experimental psychology, had little use for Fechner's idiosyncrasies, which were considerable (like staring into the sun for sufficiently long nearly to cause him to go blind) (Bolles, 1993). Perhaps more importantly, there is nothing in Weber's Law that necessarily drives one to insert spirituality *per se* into it. (It is more parsimonious without it.) Nevertheless, the thought was significant. Fechner had one dutiful doctoral student, Rev. Ellwood Worcester, who upon getting his doctorate in psychology established a faith-based group psychotherapy program in Boston (Emanuel Movement) and hired the first drug abuse counsellor in North America. This was an important precursor to 12-Step approaches (Gifford, 1998; also see enclosed reading by Ouimette, Finney, & Moos, 1997). Unfortunately nothing of the German experimental science found its way into the Emanuel Movement and its successors, at least for nearly a century.

Putting 'Experiments' into the Psychology of Religion

The field called 'psychology of religion' is historically almost totally divorced from the experimental tradition, as the empirical methods used are nearly always those of quantitative and qualitative descriptions (and sometimes sophisticated correlation methods) but rarely based on controlled experiments. From the standpoint of science and causal analysis, this leaves much to be desired - somewhat like swimming with one's arms tied. As such, from the perspective of natural science, things have progressed slowly and when strong assertions have been made about the importance of introducing spiritual variables into science, it is perhaps not surprising that such declarations are met with equally strong opposition. Often these criticisms are valid, as all too often the assertions about the evidence for the importance of faith is subject to alternative interpretations based upon confounds in the research design. The essay by Sloan, Baggiola, & Powell (1999) was added to this anthology because of the authors' sharp, but constructive, rebuke of the methodology used to justify the assertion that spirituality is important or necessary for good medicine. A similar argument has been made in a recent review focusing upon experiments on distant intercessory prayer (Chibnall, Jeral, & Cerullo, 2001). However, these later authors also want to challenge whether the whole enterprise is viable from a Biblical standpoint. They view experiments to understand prayer and other aspects of faith as perhaps heretical and not consistent with the Bible. ('Ye shall not tempt the Lord thy God, as ye tempted him in Massah' (Deuteronomy 6:16 KJV) and 'It is said, Thou shall not tempt the Lord thy God' (Luke 4:14 KJV). Apart from the fact that experiments on the efficacy of prayer need not be based or dependent upon the Bible, it is perhaps worth noting that elsewhere the Bible says 'Test everything. Hold on to the good' (1 Thessalonians 5:22 NIV). Thus, as is often the case, interpretation depends where one looks in the Bible. And regardless of interpretation, it is doubtful anyone now would want to have one faith tradition as the determining source of what questions are appropriate for science.

Experiments on Faith-Based Cognitive Therapy

The two enclosed readings on religious-based cognitive therapy support the thesis that there may be utility for using faith concepts in cognitive-behavioural therapies. But as the meta-analysis in the review by McCullough shows, the jury is still out (Propst, Ostrom, Watkins, Dean, & Mashburn, 1992; McCullough, 1999). While his meta-analysis demonstrates that religious-based cognitive therapy for depression is as efficacious as that of a secular alternative, the absence of a difference between them can be taken to mean that adding a religion dimension to cognitive therapy is redundant (adds nothing more to efficacy). One very clever suggestion offered by McCullough is that there may be a substantial influence of religious-based cognitive therapy on relapse, which is certainly a very important problem facing therapists. If the positive beliefs that are being substituted for pathological ones are also tied to and practiced regularly within faith communities, then one might expect that this would increase a client's resilience.

Experiments on Prayer

Central to religious approaches to psychosomatics (behavioural medicine) is the hypothesis that prayer may have efficacy. Until recently there was but one controlled experimental study bearing upon this issue (Byrd, 1988), which is not reprinted here, as a second and closely related study bears upon its replicability (Harris, Gowda, Kolb, Strychacz, Vack, Jones, Forker, O'Keefe, & McCallister, 1999). This study by Harris et al. (1999) seemingly replicates the Byrd study, in that both studies found positive effects with heart patients; however the difficulty is that the positive influence of intercessory prayer on the key dependent measure in the Byrd study was not found by Harris et al. and a similar positive effect was only observed with a new/different dependent variable. Even then, the findings are perhaps more of statistical than of clinical magnitude. Thus, it is difficult to put much confidence in it as a replication and many might argue it is evidence of a failure to replicate. As this topic is growing fast, I have added the recent systematic review by Astin, Harkness, & Ernest (2000). But I have not added many more recent experimental studies to the present collection because of the need for replication of apparent positive results (for example Cha, Wirth, & Lobo, 2001). Again my intent here is to be illustrative rather than offering a comprehensive review. While the most optimistic stance about the efficacy of prayer is that the evidence from controlled experiments is equivocal, it is worth noting that null results can be useful if they lead other investigations to approach the topic in new ways, for example the influence of prayer on the person doing the praying (Pargament, 1997). There is far more to be investigated on this topic.

Experiments on Forgiveness

Forgiveness is another topic that is dear to many, if not most, faith traditions. This area has been greatly advanced by John Templeton's financial support of research. In this respect, a review article is reprinted here from one of his Foundation's books. This review describes some of the productive experimental work in this area (see article by Enright & Coyle, 1998). This is evidence that when financial support is provided for research, then considerable advances can be made. Progress in this area is also reflected by the fact that the National Institute of Health now supports research on alternative medicine.

Experiments on Empathy

To return to the topic of defining an experimental psychology of religious processes, it should be noted that forgiveness need not be identified with any theistic

tradition, though it is an important concept for most. Similarly, the overlapping concepts of altruism, empathy and compassion are part of most religions, but they are also of interest to those from faith traditions like humanism and otherwise. More broadly, there is a murky boundary line between what might be called faith-based research and what is not. Indeed, to some extent all explanations are faith-based - if for no other reason, because social research typically uses words with social meaning which link to a broader world view of some sort, and this view has imbedded within it assumptions (explicit or implicit) about the organization and purpose of the universe over space and time (Zerubavel, 1997; Schwartz, 1987). That such concepts are shared broadly by many different faith systems allows investigators to utilize them without being seemingly sectarian. The concepts of empathy and altruism certainly fall into this category, and may reflect a universal that transcends humans (see de Waal, 1996).

In making decisions on readings for this anthology, the problem I faced with choosing illustrative experimental research on empathy and altruism is that there are many excellent studies (a clear exception to my general assertion that the experimental tradition has been slow to impact theology). Perhaps no author is more responsible for creating this delightful 'problem' than Batson. If a philanthropist would give the equivalent of the Nobel Prize for experimental research on issues related to religion, Batson's productive efforts on empathy for three decades would make him a viable candidate. Limitations of space allow the present anthology to contain only one experimental report on empathy by Batson and his collaborators (Batson, Batson, Griffitt, Barrientos, Brandt, Sprengelmeyer, & Bayly, 1989). This study is an example of radical research in that it gets to the core of the matter - to the very important issue of whether some egoistic motivation might mediate altruism and empathy.

Experiments on Religiosity

One of the trademark symbols of correlation research on the psychology of religion has been the enduring effort to measure religiosity in some objective manner that is not confounded by qualitative differences between religious traditions. With this caution in mind, one of the few attempts to go beyond correlations and move towards assertions of causation (the purpose of experimentation) within this religiosity literature is reflected by two papers in the present anthology (Batson, Fink, Schoerode, Fultz, & Pych, 1986; Hood, Morris, & Watson, 1990). The first of these is notable because it relates to another enduring theme within the psychology of religion, the putative relationship between intolerance and religiosity. The second study is a good example because it reflects an effort to use a material manipulation, immersion in an isolation tank, to elicit changes in religious state. The magnitude of these effects interacted with pre-experimental personality differences in religiosity. Using physical manipulations to impact on religious experience is of course not new, but doing so with carefully crafted experiments is unfortunately all too rare (see Hood, 1995).

Experiments on the biopsychology of religious processes

The notion that religious life might have important neural foundations is not a new one, and much speculated upon in recent literature but without substantial direct evidence from research (Jeeves 1997; Ashbrook & Albright, 1999). One example of experimentally induced religious experience, which begins to make the tie to brain sciences, is the so called 'Good Friday' experiment performed by a psychiatrist, Pahnke, for his doctoral dissertation in theology at Harvard University. This double-blind, placebo-controlled, study used the ingestion of psilocybin as the independent variable, with divinity students as subjects and a sophisticated measure of mysticism as one of the dependent variables. Such use of botanicals is well documented in the history of religion

(Wasson, Kramrisch, Ott, & Ruck, 1996). The idea is common in the current folklore of psychedelic drugs, but the use of a well-designed experiment makes Pahnke's study a rare gem. The anthology contains a report of a long-term follow up to Pahnke's study, remarkably showing that the drug-induced changes in religious experience endured in the experiment's participants for 25 years (Doblin, 1991). A key issue in the Good Friday experiment is the apparent importance of the experimental setting - the basement of the Chapel at Boston College and the broadcasted service from upstairs. These dramatic spiritual effects were not seen in other psilocybin experiments by Pahnke, which involved more secular settings; however this inference asks for a between-experiment comparison, which is always tricky at best (for more discussion on this see Wulff, 1999; and also Hood, Spilka, Hunsburger, & Gorsuch, 1996). Since assessment of quality-of-life is starting to become recognized as necessary and desirable for understanding the influence of pharmaceuticals, one would like to hope that the impact on religious life might become a part of drug trials.

The idea is often thrown out that theism is a species-typical behaviour for humans; and in one rendition, this is taken to be evidence for an evolutionary factor giving rise to a readiness or 'preparedness' for such a cognitive capacity (Hinde, 1999). However the logic of such an assertion is flawed. Once most people believed in a flat earth and that the earth was the centre of the universe. We now hardly would use this fact as compelling evidence for humans having an evolutionary adaptation for such an out-of-date belief. While we do have evidence from twin studies for the heritability of religiosity, that is a separate issue than that of an evolutionary adaptation. Hinde and other sociobiological theorists could be right, but evidence for such assertions is historically been difficult to obtain.

These problems aside, there are other reasons for believing we can have an experimental neurobiological approach to some aspects of religious life. A very recent example (reproduced here) involves neuroimaging (MRI) showing that automatic emotional processing by the brain is selectively associated with certain types of moral judgments in those where the hypothetical situation is emotionally and personally engaging (Greene, Sommerville, Nystrom, Darley, & Cohen, 2002). The experimental manipulation in this study involved different examples of hypothetical moral dilemmas that were empirically classified previously as personal, or impersonal, or as non-moral dilemmas. These are dilemmas are of the type that philosophers use to get students to puzzle over. In two experiments the authors show that activity in the posterior cingulate gyrus (a portion of the limbic system) is elicited by dilemmas used as stimulus probes when the proposed solution to the hypothetical problem is a personal one (say, throwing someone in front of a train in order to save several others). While the portion of the brain important for emotion is reacting to these personally engaging moral dilemmas, there is a reduction in cortical activity in portions of the brain associated with working memory (middle frontal gyrus and parietal lobe). This provides a new perspective for empirically studying rational moral philosophy.

Two Examples of Quasi-Experimental Designs

There is other direct evidence to suggest neurobiology may be important for the interface of moral reasoning and social behaviour. One example (reproduced here) is the very recent study by Anderson, Bechara, Damasio, Tranel, & Damasio (1999) and the accompanying commentary in *Nature Neuroscience*, drawing the readers' attention to the paper's importance (Dolan, 1999). The Anderson et al. paper is particularly useful as an example in an instructional anthology, because it is not a true experiment but an example of a *quasi*-experiment. While the thesis of this volume is that more experiments are needed, it is not argued that other approaches are not productive. In addition, there

are topics where quasi-experimental designs are the only approach possible. This report by Anderson on the neuropsychology of moral-social behaviour is clearly such an example. In this case, the lesioned brains of two people injured at a very young age provide the independent (attributional) variable that is being related to later social/moral deficiencies. There is no way this ethically could ever be a true experiment, hence we are left with no other way to collect the evidence, at least directly with humans, than to use a quasi-experimental design. Putting aside the obvious problem of sample size, what makes this a compelling paper is the clever integration of this preliminary, quasi-experimental, evidence with other experimental, neuropsychological, and clinical evidence. It is truly an excellent job of triangulation with different kinds of evidence to make a strong case for an interpretation.

While the above report suffers from a small sample, the quasi-experimental design by Ouimette, Finney, & Moos (1997, in present anthology) does not have this difficulty. Until very recently, the efficacy of the 12-step approach for addictions was an open question. The study by Ouimette et al. together with two other randomised group studies (see their references) provide considerable evidence for the 12-step approach. In the Ouimette et al. study, it is notable that compared to the cognitive-behavioural treatment, a greater effect was shown for the religious cognitive therapy with the outcome measure of total abstinence from substance abuse. This reading also provides an excellent example on how to look for potential confounds when conducting quasi-experiment research.

Experiments on Meditation

The paper by Marlatt and Marques (1977) in this anthology is older than the others but it represents a significant attempt to experimentally demonstrate the usefulness of meditation in the treatment of excessive alcohol use. In a recent review on this topic, Marlatt (1999) sites this report as evidence that meditation has ‘...been found to be an effective intervention for reducing excessive drinking and alcohol problems in young-adult drinkers’ (page 81). I disagree with Marlatt's interpretation, but leave it to the reader to discern whether his conclusion is in keeping with the evidence presented in his experiment. In general, the controlled experiments on meditation typically have failed to control for expectation effects. When this is done, the studies appear to show no more benefit than relaxation (Smith, 1975, 1987). Shapiro (1984) has a good anthology of recent research in this area. Part of the problem in evaluating this topic is that there is not one meditation procedure, or acceptance of how much training is sufficient for mastery. By some accounts the content of what is meditated upon is not important and the technique will work with any simple stimulus. However, others have raised the hypotheses that the content of what is meditated upon may be critical (Batson, Schonenrade, & Ventis, 1993).

Summing up

Enjoy the readings. May your research designs be solid and your findings bountiful. I would enjoy hearing your comments on the anthology (mjkelly@hpu.edu; mjkelly47@aol.com). Hopefully the field will progress fast, and we will soon need another update of this area.

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