Quantitative method refers to a type of research that employs operations on numbers that represent variations in observations. Quantitative method allows for precise observation, measurement, and comparison of constructs deduced from theories, and forms hypotheses that can be proven or disproven when exposed to empirical reality. For a theological audience, a number of questions inevitably arise: Why should we be empirical in our approach to practical theology? When should we choose quantitative method? If we engage in such research, how do we go about it? If we pursue this kind of research, what makes it practical? Answers to these questions will clarify the function and aims of quantitative method in practical theology.

Why Be Empirical?

In its simplest expression, practical theology refers to the theological study of religious practice. Historically, practical theology has often been understood the other way around as the practical study of theology. For a long time practical theology was understood as the application of systematic theology to practical issues of the church and pastorate. The Latin notion of theologia applicata reflects this pragmatic approach that may still be valid and relevant in its own right. However, from a modern perspective this view neglects some crucial characteristics of theology. Systematic, or for that matter any kind of, theology is an interpretive practice itself that assumes all kinds of experiential and evaluative processes that differ in time and place. It can hardly be considered a body of knowledge that is given once and for all. In other words, to the extent that theology is considered a historical, hermeneutical, or contextual effort, theology cannot simply be regarded as a method of deductive reasoning. It also requires an inductive principle that does justice to the many characteristics that religious texts, beliefs, and practices display at different times and in different contexts. The theoretical
desire to account for experience is served academically by empirical procedures that adapt inductive and deductive means of gathering knowledge. These procedures involve observation, sensory-induced thinking, theoretical reflection, experiment, and evaluation. In using empirical methods, religious practice itself is one of the primary loci theologicorum (sites of theological understanding) to be explored.

Let me expound on this by addressing a rather unpractical question: What is practice? Practice refers to the performance of an activity, be it habitual or professional, usually according to a scheme or plan to realize certain objectives. Thus practice refers to agency or the capacity of actors to engage in social action. There are obvious scientific approaches to agency in the behavioral and social sciences. Behavioral sciences, like psychology or anthropology, study practices in terms of motives and consequences of actions in their adaptive relationship to social and cultural environments. Social sciences, like sociology or political science, may in addition account for the contextual structures and processes according to which groups, social systems, states, and so on operate. In the humanities, the academic field to which theology and religious studies belong, practices are also studied from the perspective of the human condition. The distinction between actus hominis (the actions of humans) and actus humanus (the human act) is significant. The latter takes into account the existential, moral, and religious meaning of a practice as consisting of intentional, freely chosen, and responsible acts. I do not mean to be overly philosophical here. But demarcating academic domains is crucial, if only to counter a frequently heard qualification that practical theologians who engage in (quantitative) empirical research are unqualified sociologists at best.

Empirical scholars in practical theology study a domain that is often left uncharted by behavioral and social scientists, namely the conceptual and empirical characteristics of moral and religious signification of practices. In other words, they interpret the moral and religious forms of meaning that are inevitably embedded in the lifeworld and that constitute our spiritual heritage and facilitate its communication and development. Theology as a discipline in the humanities has a place in the study of the “cultural complex,” that is, the shared conception of self-reflection over time that defines human identity.

By way of proposition, practical theology as a discipline within the humanities may be said to serve three functions. First, it has a symbolic function that concerns the keeping, caring for, and examining of the historical, cultural, and religious heritage, while taking account of the prevailing interests and networks that maintain and develop the tradition. Second, it has an instrumental function that refers to the relevance of religious heritage for current issues and problems that arise in culture and social institutions. Third, it serves a moral function that appeals to the formation of judgment with regard to this religious heritage, as religion demonstrates normative relevance for the processes of exploring meaning, finding identity, and judging core values of mind and society. These functions are also enacted in religious practices that emphasize the “human element” in life and that specify the spiritual opportunities to bestow life with a transcendent meaning. This threefold understanding of practical theology as part of the humanities supports a normative view of its purpose. Practical theology as an empirical discipline corresponds to practical reasoning. It helps to inter-
pret the existential, moral, and religious significance of texts, beliefs, and practices and it supports the clarification of our questions about what to accept and what to discard on rational grounds.

Nonetheless, scholars should not define the range of material objects studied by practical theology too narrowly. Researchers work at three levels. First of all, they study religious texts, beliefs, and practices at the micro level, the domain of practical theology's ancient habitat where ministers and pastors are expected to comfort the suffering, challenge the lazy, and instruct the smart. In a contemporary understanding of practical theology, this micro level remains significant. However, the discipline is no longer limited to a clarification of the professional tasks and duties of the clergy. It is now more focused instead on understanding the practices of suffering, believing, learning, and so on in their own right. The instrumental approach that characterized previous eras has been corrected and shifted toward an account of the primordial processes that constitute religious beliefs and practices and that require fundamental and interdisciplinary research.

A second level of research focuses on the meso-domain of social and group interactions. Here, for instance, researchers study congregational life at the grassroots level of local churches where the faithful assemble, share their beliefs, and organize their mission. Researchers also attend to the internal aspects of religious organizations, such as counseling programs, catechesis curricula, liturgy, and management, as well as external tasks of church mission, such as volunteering in social action and helping those who are in need. In studying practices at the meso level, the researcher retains an interest in a transcendent perspective, seeking moral and religious understanding of basic concerns that are immanent in the lifeworld, such as ethnicity, gender, education, poverty, health, crime, family, environment, and so on.

Finally, researchers often fail to account for a third level, the macro-perspective of society's cultural contexts, economic facilities, and political institutions. At this level it may indeed seem odd to speak of studying texts, beliefs, and practices. Institutions, for instance, are seen as structures of social order that serve a social purpose in controlling practices rather than as representing a practice itself. However, institutions like the state or church do act, and individuals and groups continuously experience their impact. In practical theology, these institutional, social, and cultural practices need to be included because they represent political and cultural environments as influential forces. If we discarded this macro level of texts, beliefs, and practices as an object of practical theology, we would lose sight of highly relevant academic discussions about issues like secularism, human rights, and autonomy.

A humanities approach to theological issues at these three levels of empirical clarification represents—in admittedly still abstract terms—the object of an empirical practical theology. It studies the texts, beliefs, and practices of the faithful, the professional services directed at their comfort and challenge, and the religious institutions that offer the structures that enable their continuity and development. Even when framed in these formal terms, a traditional inclination towards pastoral instrumentalism or ecclesial functionalism may lure the researcher. But practical theology has at its core the notion of religious practice; a practice of hermeneutic communication that is not necessarily restricted only to the faithful and pastors or to the provisions and tasks
of religious communities and churches. As an academic discipline, it is obliged to transcend its dependence on pragmatic aims. It needs to attend to empirical assessment of religious practice as such. The tensions implied in religious practices between normative and descriptive views and between ideals and realities cannot be avoided. In practical theology they reflect the very object of empirical research.

When to Choose Quantitative Methods

Texts, beliefs, and practices all display observable characteristics. These observations are the focus of empirical research. In quantitative method they represent data that enable us to describe and explain corresponding phenomena. When one discusses reasons for a preference for quantitative empirical methods, a number of ideological and methodical issues usually emerge.

A primary determining factor rests on how one understands reason and the epistemological relationship between experience and theory. In a strictly inductive approach, the world outside informs us about reality. Methods that attend closely to empirical observation are necessary and sufficient to gain knowledge and to integrate facts into an evolving theory. Deductive types of reasoning argue the other way around. Here, logical argumentation builds a conceptual framework in which general premises lead to conclusions that hold specific claims for empirical reality. An inductive choice may represent a valid option. Observation is by all means a crucial and highly informative procedure that focuses our perception and points at inevitable blind spots in mere logical reasoning. However, even though observations can be quantified and theoretically informed by all means, the underlying assumption is often that facts speak for themselves. Often people claim that inductive propositions are closer to life and that their indigenous, or “emic,” perspective reflects a more authentic and empathic account. I need not disagree with this claim outright. But truth or veracity is not necessarily connected to a chosen method. The implicit question here is how subjective and objective claims interact. Who vouches for the validity of empirical facts — the wholeheartedly involved participant or the professionally disengaged theorist? Later on I will show that this opposition of bottom-up versus top-down argumentation is false. For now it suffices to say that in theological circles preference easily runs toward the first position.

Another more pragmatic issue pertains to our aims in research. Each method has its own value. Qualitative research is probably the best choice in the early stages of research, when we desire a more detailed description, when we are interested in subjective accounts, or when we feel unfamiliar with a topic. Quantitative research is indicated whenever we already have standing theories or established instruments at our disposal, when respondents are easily accessible and open to communication, and in all cases in which we aim for representative or comparative insights. Thus, where qualitative research focuses on processes or characteristics of particular (idiographic) interpretations, quantitative research is more outcome-oriented and pursues generic (nomothetic) knowledge. One of the advantages of quantitative research is its capacity to generalize from experience and to move from individual cases to the wider popula-
tions. We (randomly) select cases from a population as a characteristic sample. Observable properties are described and enumerated. On the basis of these observations and with the help of probability measures and statistical methods, a comparison of these properties yields knowledge that can be inferred to the population at large. This procedure requires technical skills but the procedures are in principle understandable with basic statistical knowledge and are now more transparent with the help of software.

Finally, a third consideration concerns the capacity of quantitative method to avoid the epistemological risks of inductivism, the attempt to derive general laws from individual observations. Quantitative research aims to arrive at robust theories that resist falsification. Following in David Hume’s footsteps, twentieth-century philosopher Karl Popper is credited by many with coining the main scientific procedure to arrive at valid, reliable, and unbiased knowledge: put your self-acclaimed assumptions to the test in crucial experiments that are not aimed to justify your own propositions but to undermine them. If they stand the test, think of better ways of falsification. If they fail the test, you have less reason to believe what you initially thought to be right. The rigorous procedure of falsification prunes a theory by removing branches of invalid assumptions and poor reasoning. It not only avoids pure inductive reasoning but also protects against political influence over research and the ideological use of its results. This is one of the main principles of science, even if it is not acclaimed by everyone.

In practical theology, quantitative methods do receive criticism. Empirical theologians are said to be positivists who equate knowledge and empirical data, rationalists who favor cognitive points of view, or functionalists who confuse causal reasoning with reality. There may be some truth to these allegations. But unless one is content with mere speculation, then the empirical and quantitative study of religious practice has theological significance. How can we endorse doctrines of revelation, for example, without a reliable account of their interpretation among various populations? How can we talk authentically about the love of God for all people without studying the relationship of affections and specific God-images among different types of believers? What is the use of developing religious practices and church programs without an actual insight into their conditions and effects?

How to Do Research

I have argued that there are good reasons to take an empirical perspective in practical theology, and that quantitative method has certain epistemological advantages. The question of how to do such research has both technical and logical answers. The technical answer explores methods of data gathering and construction, types and techniques of statistical analysis, norms for reporting data and evaluating conclusions, all

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1 A host of excellent statistical software is available, both proprietary (like SPSS) and open source (like R). For an overview see www.stata.com/links/stat_software.html or http://en.wikipedia.org/wiki/List_of_statistical_packages.
In *deduction*, the assumptions are formalized as a strictly rational and logical procedure. Reasoning runs like: "If we assume this . . . , then we can deduce that . . . " Loose assumptions are now defined in terms of concepts. A concept is an idea that represents a certain set of knowledge. These concepts are located in a theory or a cohesive structure of concepts that explain an observed state of affairs. *Conceptual* definitions connect a term with a concept and *operational* definitions connect the concept with a phenomenon. The former aims at adequate description, analysis, or explanation. Operational definitions connect these descriptions, analyses, or explanations to empirical characteristics. They take the additional step of operationalizing a theory and offering indices for its verification (variables). Deduction is still virtual, that is, it aims at a model that fits empirical reality but it is not reality itself. One of the characteristic activities during the deduction phase is the construction of hypotheses. Hypotheses connect concepts to a predicted outcome. Again, theological expertise matters. Insight into religious texts, awareness of the subtleties of spiritual experience and doctrine, and grasp of ritual phenomena are decisive in defining religious ideas and formulating hypotheses.

*Testing* is the crucial phase. Here one accepts or rejects hypotheses, predictions, and theories. This of course requires proper Popperian scrutiny. One of the appealing characteristics of statistics is that it always includes measures of probability. Any outcome is conditioned. Confirmation depends on the choice and size of the sample, the degree of conceptual elaboration, a theory's competitive value vis-à-vis rival theories, the focus of the hypothesis within a theory, the precision of its predictions, the type of statistical inference, and of course the inevitable fact that numbers always refer to probabilities and take chance into account.

Despite its technicalities, this phase is usually far more interesting than one imagines. One probes the extent to which theological concepts are realistic. Are they relics from an ancient past for normative and propagation use only? Or do factor and reliability analyses prove that they are present in the mindset of specific populations? If so, do frequency and descriptive analyses indicate that they find attitudinal support? Or do means analyses shed light on the views and behaviors of specific carrier groups that diverge on specific points but reflect a consensus on others? Thus the social location of specific spiritual beliefs or ritual practices is clarified. *Correlation analyses* may demonstrate a positive or negative dependence between variables that indicate theological notions. Alternatively such analyses may reflect an absent relationship. *Regression analyses* may prove some causality, in the sense of a probable relationship in which one view leads to another, always as ascertained in the mindset of the interviewed populations. *Cross-sectional studies* describe characteristics of certain groups, nations, or cultural contexts. Additional *longitudinal studies* may show changes in the understanding of religious texts, the transformation of spiritual beliefs, or the adaptation of ritual. The wealth of research instruments puts the grand views of theology into perspective. Quantitative method teaches modesty and precision in reflecting on the basic tenets of theology.

In *evaluation*, results are interpreted. But outcomes by no means reflect a final stage. Like the first phase, testing does not present facts that speak for themselves. Facts require a forum in which a researcher reports all the phases of research so other scientists can replicate the work and criticize (verify or falsify) the outcomes. Thus objectivity depends on communication in which one enables others to review one's research.
issues covered by handbooks on methodology. Of greater interest here, the logical answer concerns the larger question of which empirical and rational inferences and arguments lead to valid knowledge. The empirical cycle of learning provides an answer. An organism systematically learns from its environment by observing its surroundings, reacting to it by probing, observing the environment again, and subsequently evaluating the success of its reaction. This basic loop of experience represents a natural course in learning that correlates with the mental process of observation, assumption, expectation, testing, and evaluating. These steps not only represent a goal-oriented process, but a critical procedure all along, where the choice of means and ends is thought over in advance to understand the problem in such a way that interventions in real life have the best chance of success. This experiential cycle is logically identical to the empirical cycle in quantitative research (de Groot 1969). Thus there are five steps: observation, induction, deduction, testing, and evaluation.

The term observation implies submersion in reality. Observation is the activity of watching and noting a change within a state of affairs. It does not start from a blank slate. It not only implies the use of one’s senses but includes pre-information that forms a researcher’s assumptions and expectations. This is tricky. Confirmation bias is known to influence perception toward favored conclusions. Qualitative researchers argue that quantitative research presumes a kind of objectivity that can never be realized (Hammersley and Gomm 2000). Certainly exclusion of values is hardly possible. However, recognizing this allows researchers to proceed self-critically. As philosopher of science Thomas Kuhn emphasizes, a researcher’s most cherished paradigms shape what is observed, what questions are considered, how these questions are formulated, and how the outcome is interpreted. A practical theologian recognizes certain linguistic, spiritual, and ritual patterns in a given historical and sociocultural context, whereas a social scientist brings other behavioral or attitudinal frames of reference. Thus, every scientific observer cherishes objectivity while also recognizing disciplinary commitments.

In induction, facts and ideas meet. With the help of systematic or phenomenological description and study of previous empirical research and interpretation, initial observations are turned into assumptions and theory. One draws conclusions by inferring a general law or assumed order from the observation of particular instances. To avoid criticism that induction has become exclusive, one has to define these inferences as tentative and temporary. This requires a constant observational feedback loop in which one checks the extent to which these inferences hold against the facts of life. Facts in social life are never bare data: they are always value-laden and interpreted. Nevertheless, one is free to develop assumptions from these observations. There is no law that prohibits a completely new perspective. Theology is no exception to this. If lived practice is indeed a locus theologicus, one cannot in this phase of research claim a kind of normative reading of data. Interpretation must be geared to a close understanding of the empirical characteristics of texts, beliefs, and rituals.

Beyond this, there is the crucial matter of theoretical significance: Did the research actually increase knowledge? Were the research questions sufficiently answered and did these answers effectively contribute to the aims? One must avoid two risks here. First, mere summary of results reflects a subtle inductive reasoning in which data and its operational outcomes are taken for reality itself. One must continue to extend outcomes to new concepts and hypotheses. Second, extrapolation of the outcome only to justify what was already anticipated reflects a distorted deductive reasoning. Here, one must control for one’s claims within the research. These risks represent real dangers for the academic status of practical theologians. Empirical research is cyclic, iterative, and piecemeal. One follows the various phases time and again and within an academic community that acts as its forum. Empirical research is not a means of illustrating one’s theological concerns. If performed well, it not only describes religious reality and corrects false assumptions. It also offers new perspectives for the development of practical theology.

What Makes Quantitative Research Practical?

In his *Handbuch der Pastoraltheologie*, Catholic theologian Karl Rahner coined the term “practical theology” to describe the theological discipline whose object is “self-realization” (Selbstvollzug) of the church, thereby giving the area academic status (Rahner 1970: 138–152). His notion echoed the direction of the Chicago School during the first half of the twentieth century in its view of experience as significant and its respect for scientific method as a valid method to interpret it. In the footsteps of the American pragmatism of William James and John Dewey, scholars like Shailer Mathews, Bernard Meland, and Henry Nelson Wieman understood experience as constitutive for the interpretation of theological meaning and truth (Frankenberry 1992: 36–48). Scholars in this school can be considered forerunners of narrative, contextual, and liberation theology in the latter decades of the twentieth century.

It is, however, one thing to highlight the significance of experience for theology and quite another to draw scientific inferences from this insight. Practical theologians who understand themselves as “empirical theologians” are pursuing this additional project (van der Ven 1993; van der Ven and Ziebertz 1993; Schweitzer and van der Ven 1999; Schilderman 2001). Quantitative research exploring the relationship between theological notions and a number of public issues is now taken seriously as an important enterprise. A host of research efforts illustrates this.

Empirical research in religious education in Germany and the Netherlands has always been strong (Henau and Schreiter 1995; Porzelt and Güth 2000). For instance, Dutch practical theologian Chris Hermans (1990) studies the effects of moral education on the ecology crisis. German scholar Hans-Georg Ziebertz (1990, 1993) clarifies leading values in sexuality among youth, while Ulrich Riegel (2004) explores the gender images of God among youth. Empirical research also appears in pastoral care, social ethics, and congregational and liturgical studies. Attitudes toward theodicy have been charted among the youth (Vermeer 1999), patients (van der Ven and Vossen 1995), and migrants (Ponce 2006). Empirical explorations regarding death, tragedy,
and guilt were performed, for instance, among suicidal persons (Scherer-Rath 2001). The basic characteristics of rites have been clarified (Heimbrock 1993), also more specifically as funerary rites in relationship to concepts of liturgy (Quartier 2007). Van der Ven explored the relationship between concepts of God and conceptions of human rights, both in South Africa (van der Ven et al. 2004) and in other international contexts (van der Ven 2010). Studies were directed at other social topics, such as empirical studies of religious peace attitudes (Jeurissen 1993), poverty and the Bible (Sakwa 2008), and ethnocentrism (Capucao 2010). Finally, there have of course been studies more closely oriented toward church practices, such as a clarification of lay attitudes toward church leadership (Sonnenberger 1996), pastors’ attitudes toward official and professional aspects of their work (Schilderman 2005), religious and professional views of hospital chaplains (Smeets 2006), and ritual and belief in popular religiosity (Zaccaria 2010).

This account of publications in empirical theology is merely illustrative, by no means exhaustive of the burgeoning literature. Empirical theology not only represents a growing body of empirically validated theological knowledge. It also testifies to practical theology as a full-grown theological discipline that is academically integrated in the scientific framework of the university while remaining faithful to its practical cause.

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