Commentary on *Logical Operations in Theory-Building Case Studies* by William Stiles

Logic, Hermeneutics, or Both?

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ABSTRACT

Stiles' (2009) thesis that logical operations can be employed in case studies making them contributory to theory-building is examined in the light of methodical hermeneutics. The assimilation model of psychotherapeutic change developed by Stiles and colleagues is used to demonstrate the utility of this alternative framework. The question is raised of whether the case-study research conducted by Stiles et al. illustrates theory-building as Stiles claims or instead illustrates his concept of enriching research. In terms of logical operations, it is pointed out that in order for Stiles' uptake of C.S. Peirce's theory of inference to work, it is necessary to take into account how that theory has been has been modified to fit with qualitative research. Throughout, the epistemological positions of Stiles' experiential correspondence theory of truth versus methodical hermeneutics are considered.

Key words: Case-study research, theory-building research, enriching research, assimilation model, semiotics, Peirce's theory of inference, correspondence theory of truth, methodical hermeneutics

LOGIC, HERMENEUTICS, OR BOTH?

In the article by Stiles (2009), including its Appendix A, which is a reprint of Stiles (2003b), two main arguments are made. The first is that, in terms of his distinction between what he calls "theory-building" versus "enriching" research (Stiles, 2006), he and his colleagues have used case studies to build their own theory, the assimilation model of psychotherapeutic process. The second argument is that this use has entailed the application of logical operations that are good for any program of theory-building from case studies.

I welcome this opportunity to comment on the article. As Stiles has indicated elsewhere (Stiles, 2006), he initially called the above duality "scientific" versus "hermeneutic" research, which was taken by critics to imply that the latter is not scientific. As an advocate of a hermeneutic methodology asserting the relevance of this approach to human *science*, I found the contrast a bit hard to take. Perhaps my friendly protest was among those that led him to pull back from that way of putting it.

As I look at the development of the assimilation model, it seems that although case studies are claimed to have been used to build it (Stiles, 2003a; Stiles 2003b, appended in Stiles, 2009), the model has not actually changed much since its inception (cf. Stiles, et al., 1990; Stiles et al., 2006). In this commentary, I thus raise the question of whether the use of case studies by Stiles and his associates indeed exemplifies theory-building, or alternatively, enriching research. I do this by considering where the assimilation model came from and to where it has come. From there I proceed to comment on the logical operations he sees to be applicable to case study research used to build theories.

"THEORY-BUILDING" VERSUS "ENRICHING" RESEARCH

Here is how Stiles (2006) sets out his distinction between theory-building and enriching research:

> Theory-building research and enriching research are alternative scholarly projects (Stiles, 2003 [i.e., 2003a, present commentary], 2005). They have different aims, yield different products, and are meant to be evaluated by different criteria. But both can be pursued using quantitative methods.[1] Theory-building research aims for an internally consistent, explicit understanding. It need not presume that there is a positivistically true or crystalline account, but it does seek a unified and coherent account. The product of successful theory-building research is some improvement to the precision, generality, or realism of the theory (e.g., increased or reduced confidence in aspects of the theory, modifications, qualifications, elaborations, extensions). Theory-building research provides quality control on theories, testing, and altering ways of understanding so they become better tools for operating in the world.

> Enriching research aims for a deeper, broader, more profound appreciation of the object of study. It systematically explores multiple perspectives and alternative interpretations, unpacking the historical and possible meanings of texts and events. The product of enriching research is not a unified theory but a richer or deeper appreciation by people, including researchers, participants, and readers. From their encounter with the research (e.g., reading a research report), people may find their own meanings and uses. (2006, p. 253).

A Case Study: Where Did the Assimilation Model
Come From and to Where Has it Come?

It is apparent in the formative depiction of development of the assimilation model (Stiles et al., 1990) that it came out of a discerning interpretation of how concepts about change in psychotherapy, described in the literature on various approaches to psychotherapy, can be integrated by Piaget's concepts of assimilation and accommodation, with the emphasis being placed on the former. Although these same theories of therapy and Piaget's developmental cognitive theory are indebted to case studies, and although it may be assumed that the model's originators drew on their own knowledge of clinical cases when interpreting the two literatures,

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[1] This article was written as a contribution to a Special Issue on quantitative methods.

it would appear that the assimilation model was formulated more through the interpretation of literature than through the study of individual cases.

The model now entails a process of eight levels of change, measured by the Assimilation of Problematic Experiences Scale (APES). Writers on the model are careful to point out that the scale is used not only to rate discourse but more generally as a description of the levels that aid in the interpretive analysis of dialogue. The model has given rise to some valuable observations. One example (Leiman & Stiles, 2001) is the applicability of the Vigotsky's concept of the "zone of proximal development" to the assimilation process.[2] Another example is the region of the assimilation continuum in which practitioners of alternative approaches to therapy typically engage their clients (Stiles et al., 1990). In this regard, Stiles et al. (1990) point out that

> Experiential and psychodynamic therapies generally emphasize the . . . [upper] portion of the assimilation continuum [see Table 1 in Appendix A of Stiles, 2009]; they foster the emergence of warded-off content, the formulation of problems, and movement toward insight (e.g., Gendlin, 1964; Wallerstein, 1983). By contrast, cognitive and behavioral therapies appear to emphasize the . . . [bottom] portion: gaining understanding of specific problems brought to therapy and applying that understanding to daily life. (p. 417).

Such useful observations notwithstanding, do changes in the meanings attached to some of the levels of the APES, in response to what was learned in case studies, constitute theory-*building*? Much hinges on the meaning of the verb "to build." Among its definitions given in the *Shorter Oxford English Dictionary* (3rd edition), the one closest to the meaning Stiles appears to give to the term is as follows: "To construct by fitting together of separate parts." As suggested, historically, the theory appears to have been constructed rationally out of parts of the literature. Gradually, in the light of case studies of the applicability of the theory, a few parts (i.e., levels of the APES) have been added and the composition of other levels has been made more complex, but the overall meaning of the model has remained essentially the same since its initial construction.

An alternative to Stiles' way of looking at it is to see his program of theory development as hermeneutical all the way down. As indicated elsewhere (Rennie, 2007a), hermeneutics has been defined as "the theory of the operation of understanding in relation to the interpretation of text" (Ricoeur, 1978, p. 141). By "text," the Greeks and medieval Scholastics meant sacred and legal documents. In the 19th century Schleiermacher and his associates, however, saw hermeneutics as "the primary aspect of social experience, not only for the scholarly interpretation of texts or documents of the past, but also for understanding the mystery of the inwardness of the other person" (Gadamer, 1984, p. 57). Others such as Karl Jaspers have generalized it even more to include the interpretation of oral communications, when proposing that psychoanalysis is a matter of hermeneutics (Erwin, 1997).

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[2] Vigotsky defines the zone of proximal development as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (1978, p. 86).

In contemporary thought, there are three types of hermeneutics—the methodical, philosophical, and critical kinds (Palmer, 1969). The first is about making hermeneutics into a method.[3] The second attempts to answer the question, "How is understanding possible? (Gadamer, 1997). The third, attributed mainly to Habermas (1984/1981) applies hermeneutics to the study of social change, emancipation in particular. It has been observed (see Rennie, 2007a) that, compared to methodical hermeneutics, philosophical hermeneutics is directed mainly to ontology (the theory of being) while critical hermeneutics is positioned more at the level of epistemology (theory of knowledge) than at the level of method.

In terms of the *general* definition of hermeneutics, it can be argued that Stiles and his colleagues built their assimilation model mainly from the interpretation of published texts. Then, in terms of *methodical* hermeneutics, once formulated, it has been applied to the interpretation of the texts of case studies, wherein what is looked for in those texts has been organized by the model. What has been found has led to refined understandings of the model, which is another way of viewing Stiles' suggestion that the interstices of a theory are filled in by the understandings coming from case studies. It's a fine line perhaps, but it would thus seem that rather than contributing to the building of the model, the role played by case studies has been to illuminate its range and depth and, by the same token, to enhance the persuasion of its soundness. In hermeneutic terms, the meanings of the texts coming out of case studies have increased the understanding of and strengthened the rhetoric supporting the model. Accordingly, in Stiles' terms, his team's program of studying cases would seem to have been about enriching research more than theory-building research.

This takes me to the second focus, on the logical operations.

ENTERING THE LABYRINTH: LOGICAL OPERATIONS

When considering the logical operations entailed in case study research, Stiles is influenced by the writings of Lakatos (1978), Peirce (1931-1958), Campbell (1979), and Rosenwald (1986, 1988), among others. Looking at the above four thinkers, there is kinship among them in that in varying degrees each subscribes to relativism, epistemologically. Lakatos came to abandon his initial endorsement of Popper's falsificationism—throwing theories out if disproved—mediated by deduction. Rather Lakatos came to a logical positivist faith in justificationism—using observations to support theory—mediated by induction. In making this turn Lakatos deals with the seemingly intractable problem with induction (that probability never gives certainty) by holding that scientists engage in research programs, continuing to test their theories in various ways; and that in the last analysis truth is constructed more than found, justifying such tinkering. The latter skepticism about finding truth, referred to as fallibilism, has a relativistic element.

In his writings, Peirce, as well, champions induction when he sees it as encompassing abduction and deduction, in the following way. He views induction as the overall activity of

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[3] The term "methodical" hermeneutics raises consternation in some readers, who think I mistake "methodical" for "methodological." Actually not: "methodology" means "theory of method." Thus, it is possible to make methodical hermeneutics into a methodology (discussion to follow).

science. In this activity, the scientist has expectations about the phenomenon he or she is investigating, and gathers evidence about it. During the course of induction, a surprising finding may be encountered that cannot be explained. The scientist then imaginatively creates a hypothesis which, if true, would explain it. Peirce calls the process of creating hypotheses "abduction." The scientist then deduces experiments designed to test the hypothesis, and may revise it as a result of the tests. The program of such experimentation is in turn inductive. Hence, for Peirce, progress in science entails interplay between induction and abduction, wherein ways are deduced to test hypotheses coming out the latter activity. This is not deduction of the classical, formal kind involving a syllogism, however. In keeping with the medieval notion supported by Locke (1959/1690) and Kant (see Cassirer, 1981; Peirce, 1985), Peirce holds that no new knowledge comes from formal deduction because the conclusion of a syllogism is contained tautologically in the premises leading to it.[4] Thus, all in all, Peirce in his way, akin to Lakatos in his, sees the over-reaching mode of inference entailed in the conduct of science to be induction, not deduction. Moreover, Peirce's position is also a fallibilist one in that he holds that science gradually approximates truth, but cannot be expected to achieve it totally.

Meanwhile, Campbell, in suggesting that the many variables at play in a single case-study are analogous to degrees of freedom in statistics, makes room for interpretation and with it, a degree of relativism.

Finally, Rosenwald is a dyed-in-the-wool qualitative researcher who in his writings clearly sees the conduct of his method as a hermeneutic activity wherein it is taken for granted that relativism to a certain extent is always involved.

In his formulation, Stiles argues that deduction provides logical consistency and interconnection between observations and theory, which is in keeping with Peirce's view. In developing the argument Stiles distinguishes between the formal features of deduction, on the one hand, and the meanings of the predicates addressed by these features, on the other.[5] He astutely maintains that in the human sciences there is less stability in the meanings of words (cf. Wittgenstein, 1953) than in the natural sciences, which makes the application of deduction more difficult in the former. Lurking behind this position appears to be the correspondence theory of truth tempered by a kind of relativistic nominalism (that is, reality is what we name it) in virtue of the constructed nature of signs. A clue to this is given in the passage appearing in the Stiles (2003b, p. 6, appended in Stiles, 2009).

> Theories are ideas stated in words (or numbers or diagrams or other signs), which communicate ideas between people – between author and reader in the case of research reports. To the extent that communication is successful, the reader experiences something similar to the author's understanding. *Empirical truth – the goal toward which theoretical*

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[4] In previous writings (Rennie, 1998, 2000, 2007b), I assumed that Peirce dismissed deduction entirely because of the circularity of the syllogistic argument. I now see that I oversimplified his position because he distinguishes between this kind of deduction, which is a formal argument, versus a second kind, which is the activity of reasoning what experiment would test a hypothesis created through the process of abduction.

[5] It would seem that Stile's use of "formal" is broader than Peirce's use of the term which, as indicated, the latter reserves for the form of argument made in a syllogism.

> *statements strive – can be understood as correspondence between theories and observed events. Of course, it is nonsense to suppose that words in a theory (e.g., print on a page, spoken sounds) literally correspond to the concrete objects or events described. However, both the words and events are experienced by people; that is, they produce ideas and observations. Because both of these are human experiences – composed of the same stuff – they can be compared and judged as similar and different* (Stiles, 1981). (Emphasis added)

Although cast in the language of the correspondence theory of truth, wherein the theory is supported by empirical observations, in the above statement the realism typically subscribed to in the realm of natural science (see Stiles, 2006) is called to question because of the relativism complicating empiricism in the human sciences. This difference of course is what has always bedeviled the human sciences. Giddens (1976) addresses it when observing that, although all science is interpretive, the work of natural scientists entails only a single hermeneutic unlike the work of human scientists, which involves a double hermeneutic. As he remarks, in reference to his own discipline, "Sociology …deals with a pre-interpreted world where the creation and production of meaning-frames is a very condition of that which it seeks to analyze, namely human social conduct." (quoted in Habermas, 1981/1984, Vol. 1, p. 110).[6] Hence, there is a reflexive relationship between the researcher as subject and the subject matter with which he or she is dealing. The last sentence in the passage by Stiles, above, is reminiscent of this double hermeneutic. Hence, when holding that there is *experiential* correspondence between theories and observations, Stiles (2006, 2009) would appear to be attempting to modify the correspondence theory of truth to make it fit with this reflexivity. Another way of dealing with the complexity, however, is to cast it into the framework of hermeneutics.

When he argues that logical operations are applicable to case studies, Stiles is on the right track, especially when he picks up Peirce's concept of abduction. To make the application work in qualitative research, however, it is necessary to modify that concept and to shift the focus of deduction, in order for both modes to fit with the interpretation of the meaning of texts. Accordingly, Peirce's concept of *abduction* can be adapted in the following way (cf. Rennie, 1999, 2000, Rennie & Fergus, 2006). Imagination is employed to create a category, theme or structure that gathers together the strands of meaning of the passage of text under study, thus making explicit the implicit meaning. Once the category, theme or structure is conceptualized to apply to this particular passage of text, it is *deduced* that if it is to have weight, it should be evident in other passages of text. Because it may have been missed in earlier passages, they are reviewed to check for evidence of it now that it has come to light. And, of course, the analyst has it in mind when analyzing ensuing passages of text.

In keeping with Peirce's theory, the course of this testing expresses *induction*. During this course, those categories, themes or structures surviving the testing are retained, while others are pooled into more prevalent ones, and still others may be discarded because they are too thinly supported by the text as a whole. Furthermore, the application may be made to either a single

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[6] Thus, an entailment is that an observer interprets the experience and behavior of another person (single hermeneutic) who in turn has been interpreting his or her own experience and behavior (double hermeneutic).

text, such as a transcript of an individual client's therapy session, or many of them, such as the therapy transcript for each of several clients.

Tursman (1987) maintains that in formulating the interplay between induction and abduction (and connected by Peirce's 'scientific' deduction, I now add) Peirce works out a way making induction self-correcting. Thus, to the extent that the translation of the theory of inference into the hermeneutic analysis of text is tenable, we have, in this field, too, a way of making that happen.

With this modification of Peirce's theory of inference in hand, I return to the assimilation model as an example. Although not ardently so, Peirce (1985) sees hypotheses as *leading to* theory (Peirce, 1985), whence a generous interpretation is that the range of abduction is broad enough to include the formulation of an explanatory theory; certainly this is how Stiles applies the concept. Whether or not this claim is justifiable, in the instance of the assimilation model, depends on whether attention focuses on the model as a whole or on the case studies it inspires. As argued, there does not seem to be much evidence that the inductive use of case studies has done much to alter the model as a whole.

On the other hand, my modification of Peirce's theory of inference does apply to the kind of case-study work Stiles and associates have conducted within the framework of model. This can be seen in the depiction by Stiles et al. (2006) of Dialogic Sequence Analysis (DSA), a form of discourse analysis developed by Mikael Leiman (e.g., Leiman & Stiles, 2001). Stiles has used the DSA method to analyze therapy transcripts, as guided by the assimilation model. Stiles et al. (2006) write,

> DSA encourages early formulation of explicit hypotheses regarding problematic positions, and dialogic patterns, drawing on investigators' clinical acumen. It then demands that these hypotheses be checked and revised in light of later observations. The DSA analyst examines and reexamines the semiotic material, including clients' interactions with their therapists and clients' narratives about their lives, seeking to apply the analytic concepts to describe the observed dialogical patterns. In this way, DSA offer an approach to systematizing clinical inference (p. 411).

This description maps well onto Peirce's theory of inference as I have adapted it. It also is relevant to point out that, in my attempt to improve on the application of method to hermeneutics, I have suggested the most fitting epistemology is critical realism (i.e., an accommodation of realism and relativism; see Morton, 1993; Rennie & Fergus, 2006). These are deep waters, of course, and I have not fully thought it through. However, it seems to me that looking at the scientific relation between case studies and theory development as an expression of methical hermeneutics rather than of experiential correspondence between observations and theory puts the relationship on more solid ground. I say this because the epistemology claimed in the methodology of methical hermeneutics is explicitly realistic in part, whereas the realism ascribable to Stiles' experiential correspondence between theory and observations is less clear because the correspondence appears to be based on nominalism, which is comparatively more relativistic.

CONCLUSION

Stiles' (2009) argument that logical operations applicable in case studies make them contributory to the building of theories has profound implications for method in the human sciences, and for qualitative research methods in particular. The thrust of it is to make the correspondence between theory and observations a bridge uniting natural science and human science. This bridge is developed by Stiles in the context of sensitivity to the impermanence of signs associated with human kinds as compared to those associated with natural kinds. Specifically, Stiles develops this bridge by proposing an experiential correspondence between theory and observations wherein the same logical operations seen as applicable to the study of signs of natural kinds are seen as appropriate for the study of signs of human kinds.

This is one way to look at the complexity. Another is to face squarely the double hermeneutical nature of empirical material constituted of signs of human kinds by developing hermeneutical ways of dealing with it. As indicated, on another front this work has been going on (Rennie, 1999, 2000, 2007a, 2007b; Rennie & Fergus, 2006; Rennie & Frommer, 2006). It has led to a translation of Peirce's theory of inference that fits with Stiles' analysis of single cases. Meanwhile, there are grounds for the claim that the assimilation model was developed hermeneutically in a broad sense. However, just as Stiles admits somewhere in his writings that he and his colleagues naturally see the assimilation model everywhere, I admit that I am inclined to see hermeneutics everywhere. Is this a problem? I should think not provided the debate continues!

REFERENCES

Campbell, D. T. (1979). "Degrees of freedom" and the case study. In T. D. Cook & C. S. Reichardt (Eds.), *Qualitative and quantitative methods in evaluation research* (pp. 46-67). Beverley Hills, CA: Sage.

Cassirer, E. (1981). *Kant's life and thought.* (S. Korner, Intro.; J. Haden Trans.). New Haven CT: Yale University Press.

Erwin, E. (1997). *Philosophy and psychotherapy: Razing the troubles of the brain.* London, UK: Sage.

Gadamer, H-G. (1984). The hermeneutics of suspicion. In G. Shapiro and A. Sica (Eds.), *Hermeneutics: Questions and prospects* (pp. 54-65). Amherst, MA: University of Massachusetts Press.

Gadamer, H-G. (1997). Reflections on my philosophical journey. In L. E. Hahn (Ed.), *The philosophy of Hans-Georg Gadamer* (pp. 3-63). Chicago, IL: Open Court.

Gendlin, E. T. (1964). A theory of personality change. In P. Worchel and D. Byrne (Eds.), *Personality change* (pp. 100-148). New York, NY: Wiley.

Giddens, A. (1976). *New rules for sociological method.* New York,NY: Basic Books.

Habermas, J. (1984). *The theory of communicative action. Vol. 1: Reason and the rationalization of society.* (T. McCarthy, Trans.) Boston,MA: Beacon. (Original work published 1981).

Lakatos, I. (1978). *The methodology of scientific research programs.* Cambridge, UK: Cambridge University Press.

Leiman, M., & Stiles, W. B. (2001). Dialogic sequence analysis and the zone of proximal development as conceptual enhancements to the assimilation model: The case of Jan revisited. *Psychotherapy Research, 11,* 311-330.

Locke, J. (1959). *An essay concerning human understanding* (In two volumes, A. C. Fraser, compiler and annotator). New York, NY: Dover. (Original work published 1690).

Morton, M. (1993). *The critical turn: Studies in Kant, Herder, Wittgenstein, and contemporary theory.* Detroit, MI: Wayne State University Press.

Palmer, R. E. (1969). *Hermeneutics: Interpretation theory in Schleiermacher, Dilthey, Heidegger, and Gadamer.* Evanston, IL; Northwestern University Press.

Peirce, C. S. (1931-1958). *The collected papers of Charles Sanders Peirce* (Vol. 1-8; C. Hartshorne, P. Weiss, & A. Burks, Eds.). Cambridge, MA: Cambridge University Press.

Peirce, C. S. (1985). On the logic of drawing history from ancient documents especially from testimonies [690] 1901 (Printed in part, *Collected Papers of Charles S. Peirce,* Vol VII). In C. Eisele (Ed.), *Historical perspectives on Peirce's logic of science* (pp. 705-800). Berlin/New York/Amsterdam: Mouton.

Rennie, D. L. (1998). Grounded theory methodology: The pressing need for a coherent logic of justification. *Theory & Psychology, 8,* 101-119.

Rennie, D. L. (1999). Qualitative research: A matter of hermeneutics and the sociology of knowledge. In M. Kopala & L. Suzuki (Eds.), *Using qualitative methods in psychology* (pp. 3-19). Thousand Oaks, CA: Sage.

Rennie, D. L. (2000). Grounded theory methodology as methodical hermeneutics: Reconciling realism and relativism. *Theory & Psychology, 10,* 481-502.

Rennie, D. L. (2007a). Methodical hermeneutics and humanistic psychology. *The Humanistic Psychologist, 35,* 1-14.

Rennie, D. L. (2007b, March). *Toward a meta-methodology of qualitative research.* Keynote address given at the annual meeting of the British Psychological Society, University of York, York, UK.

Rennie, D. L., & Fergus, K. D. (2006). Embodied categorizing in the grounded theory method: Methodical hermeneutics in action. *Theory & Psychology, 16,* 483-503.

Rennie, D. L., & Frommer, J. (2006). *Reflections.* In J. Frommer & D. L. Rennie (Eds.), *Qualitative psychotherapy research: Methods and methodology* (2nd edition, pp. 185-200). Lengerich, Germany: Pabst Science.

Ricoeur, P. (1978). The task of hermeneutics. In M. Murray (Ed.), *Heidegger and modern philosophy: Critical essays* (pp. 141-160). New Haven, CT: Yale University Press.

Rosenwald, G. C. (1986). Why operationism doesn't go away: Extrascientific incentives of social-psychological research. *Philosophy of the Social Sciences, 16,* 303-330.

Rosenwald, G. C. (1988). A theory of multiple case research. *Journal of Personality, 56,* 239-264.

Stiles, W. B. (1981). Science, experience, and truth: A conversation with myself. *Teaching of Psychology, 8,* 227-230.

Stiles, W. B. (2003a). Qualitative research: Evaluating the process and product. In S. P. Llewelyn, & Stiles, W. B. (Eds.), *Handbook of clinical health psychology* (pp. 477-499). London: Wiley.

Stiles, W. B. (2003b). When is a case study scientific research? *Psychotherapy Bulletin, 38,* 6-11.

Stiles, W. B. (2005). Case studies: In J. C. Norcross, L. E. Beutler, & R. F. Levant (Eds.),
        *Evidence-based practices in mental health: Debate and dialogue on the fundamental
        questions* (pp. 57-64). Washington, DC: American Psychological Association.
Stiles, W. B. (2006). Numbers can be enriching. *New Ideas in Psychology, 24,* 252-262.

Stiles, W. B. (2009). Logical operations in theory-building case studies. *Pragmatic Case Studies
        in Psychotherapy,* Vol. *5(*3), Article 2, 9-22. Available:
        http://hdl.rutgers.edu/1782.1/pcsp_journal
Stiles, W. B., Elliott, R., Llewelyn, S. P., Firth-Cozens, J. A., Margison, F. R., Shapiro, D. A., &
        Hardy, G. (1990). Assimilation of problematic experiences of clients in psychotherapy.
        Psychotherapy, 27, 411-420.
Stiles, W. B., Leiman, M., Shapiro, D. A., Hardy, G. W., Barkham, M., Detert, N. B., &
        Llewelyn, S. P. (2006). What does the first exchange tell? Dialogic sequence analysis and
        assimilation in very brief therapy. *Psychotherapy Research, 16,* 408-421.
Tursman, R. (1987). *Peirce's theory of scientific discovery: A system of logic conceived as
        semiotic.* Bloomington, IA: Indiana University Press.
Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes.*
        Cambridge, MA: Harvard University Press.
Wallerstein, R. (1983). Some thoughts on insight and psychoanalysis. *Israeli Journal of
        Psychiatry and Related Sciences, 20,* 33-43.
Wittgenstein, L. (1953). *Philosophical investigations* (G.E.M. Anscombe, Trans.). New
        York,NY: Macmillan.