Applied Integrative Techniques as a Reflective Research Framework

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Abstract

This wholly theoretical article discusses ideas for integrating social science and statistical techniques (Keppel & Wickens, 2004; Creswell, 2003), particularly concepts from case study methods (Yin, 2003) and reflective research (Schön, 1983). The document is organized in a knowledge framework created from principles of reflection-in-action (Schön, 1983). Several tables and conceptual diagrams illustrate applied integrative technique best-practices. The main rationale is to build on the work of other writers demonstrating ways to apply reflective principles to “promote professional practice that is reflective rather than routine” (Thorpe, 2004 p327); while in this paper theory spans multiple research philosophies and mixed-methods.

Keywords: Reflection-in-action, research methods, mixed-methods, integrative statistical techniques.

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Introduction
Building on discussions advocating “methodological pluralism” (Onwuegbuzie & Leech, 2005 p 382), an applied mixed-method paradigm is proposed, articulated through a knowledge framework created by transforming the theories of reflective research (Schön, 1983).

Objective
Maybe reflection-in-action should go further than applied knowledge sharing since researchers should be “learning by doing” (Schön, 1983 p54)? Researchers ought to be “thinking what they are doing and, in the process, evolving their way of doing it” (Schön, 1983 p56). Therefore, to answer that inquiry, the aim in this paper is to construct a research framework of integrative techniques, through self-reflection.

Rationale
The rationale for proposing/sharing an integrative approach is to strengthen research community knowledge and self-practice through verbalization/reflection. In the literature, applied reflective research principles organized within theoretical frameworks is rare. For example, “... in practice many of these metacognitive rambles are token observations focused on minor technical aspects of their teaching” (Grushka, Mcleod, & Reynolds, 2005 p 239).

In terms of theoretical gap, research methodologies differ in qualitative versus quantitative terminology domains with respect to: philosophical views, approaches, techniques, and knowledge claims. This is evidenced in contemporary literature (Wacker, 1998; Zechmeister, Zechmeister, & Shaughnessy, 2001; Creswell, 2003; Whitley, 2002; Amaratunga, Baldry, Sarshar, & Newton, 2002; Schwalbach, 2003; Yin, 2003; Keppel & Wickens, 2004; Hammersley, 2006; Holly, Arhar, & Kasten, 2005). It is also cited in earlier work (Schwartz & Jacobs, 1979; Weick, 1985; Eisenhardt, 1989; Burns, 1990; Sekaran, 1992; Babbie, 1993; Yin, 1994; Zikmund, 1994). These four domains are explored as: multi-cultural/multi-continua philosophies, rival approaches, integrative techniques and knowledge articulation frameworks.

Benefits
Unique quasi-reflective frameworks exist that are not yet independently replicated or statistically significant, such as (Elmer, 2003; Basile, Olson, & Nathenson-Mej, 2003; Davies & Osguthorpe,
2003; Demulder & Rigsby, 2003; Martin, 2003). Multi-perspective and/or cross-cultural reflective research is also uncommon, with some studies concluding more documentation is needed (Park & Lahnman, 2003). This research method gap is identified in part by a credible writer as: “why... should leading professionals and educators find these phenomena so disturbing.... [researchers] are disturbed because they have no satisfactory way of describing or accounting for the artful competence which practitioners sometimes reveal in what they do” (Schön, 1983 p 19). Furthermore, contemporary literature encourages development of reflective research as more can be learned by students and practitioners (Russell, 2005; Crow & Smith, 2005; Cox, 2005). For example, “…reflective capacity is thus epigenetic and has to be learned and encouraged” (Gelter, 2003 p342). Thus, this paper builds on the idea of articulating a reflective research framework to organize the sharing of applied practices (e.g.Kosnik, 2001), by going beyond concepts to illustrate applied techniques, models, and methodologies.

A benefit of sharing techniques from a community of practice standpoint, is to overcome the difficulty ‘professionals as researchers’ have to communicate their reflective research phenomenological discoveries (Hammersley, 2006; Whitley, 2002; Mcniff & Whitehead, 2000; Guba & Lincoln, 1994; Babbie, 1993; Kemmis & McTaggart, 1988; Russell, 2005; Schön, 1983 pp 27 & 31; Eisenhardt, 1989; Glaser & Holton, 2005).

**Methods**

For background purposes, credible contemporary writers/researchers recommend to improve research methods by combining techniques and triangulating data (Keppel & Wickens, 2004; Creswell, 2003; Yin, 2003; Lee, Green, & Brennan, 2000). To do this, several mixed-method research concepts and applied procedures will be illustrated that integrate principles, across the positivist-to-realist philosophical continuum. Contemporary examples and applied experience are reflected on to show ideas for strengthening integrative techniques within a research project.

The underlying research methodology applied here to articulate this knowledge is identified in the literature as professional reflection-in-action, and is best-described by it’s well-known author:

“When someone reflects-in-action, he becomes a researcher in the practice context. He is not dependent of the categories of established theory or technique, but constructs a new
theory of the unique case. His inquiry is not limited to a deliberation about means which depends on a prior agreement about ends. He does not keep means and ends separate, but defines them interactively as he frames a problematic situation... reflection-in-action can proceed, even in situations of uncertainty or uniqueness...” (Schön, 1983 pp68-69).

The theoretical framework presented in Illustration 1 is designed for “reflective research” (Schön, 1983); I borrowed conceptual meaning of his typology categories, as briefly defined below:

1. “frame analysis” - tacit knowledge/perspective on reality and applied theories/alternatives;
2. “repertoire-building research” / repertoire of exemplar theories - “solution space/paths of inquiry”, situation context, actions taken, results (literature reviews);
3. “fundamental methods of inquiry and overarching theories” - restructuring a situation, a. Ethnography, observation / “episodes of practice”, but from multiple views, b. Grounded theory “themes... of theories and methods ... [by] practitioners”, “action science in ... social psychology”, relate phenomena to practitioners via metaphors;

Illustration 1: Reflective Research Framework (applied in this paper)
In addition to developing the framework itself, there are five concepts added to Dr Schôn’s reflective research paradigm that are synthesized in the center of Illustration 1, as well as being represented in the integrated, sequenced outer segments of that diagram. First a qualitative technique is applied, namely the espoused versus actual theory-in-action (Argyris & Schôn, 1996), to capture what theory participants perceive they are learning/reflecting on versus what I and my informants believe they have actually applied. Secondly, duetero learning or triple loop feedback (Senge, Kleiner, Roberts, Roth, & Smith, 1999), is a transformative element that advocates evolving the methods as one learns more from reflecting-on-practice (Strang, 2003). Thirdly, as an introspective standpoint, the philosophical view for understanding concrete and tacit knowledge is kept broad, encompassing both ends of the ideological spectrum from ‘pure scientific’ (positivist) to rational, while applying a constructivist mind set to communicate with readers. A fourth transformative component is the integration of cross-disciplinary principles: qualitative as well as quantitative techniques, gained from action learning experiences, and applied in articles. Finally a constructivist philosophy is employed, to synchronize the integration of qualitative and quantitative techniques, as well as to balance the diverse positivist to rationalistic ideologies.

Analysis
In this paper the four categories of reflective research (Schôn, 1983) are explored. Data, subjects, techniques, etc., are rhetorical as this work is introspective. The term ‘introspective’ is used herein to mean the contemplation of one’s own thoughts, feelings, and sensations (Houghton-Mifflin, 1994). Here self-reflection is differentiated as subsequent to introspection, conducted after thinking about multiple philosophical viewpoints as well as confronting rival perspectives in peer participant-observer feedback (if/when available). Self-reflection is not quoted introspectively, as is the typical mode (Gelter, 2003) - instead applied research techniques are conceptualized and described, with practical suggestions.

Frame Analysis
Published research typically begins (or at least contains) an expression of the writer’s ‘frame of reference’, meaning one’s philosophical values and beliefs of theory. This refers to a professional’s tangible and tacit knowledge perceptions, which is influenced by culture, social/work context, experience, and personality. The main philosophical influence usually
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emanates from the writer’s own field. “Traditionally, the discussion of alternative frames, values, and approaches to practice tends to appear in professional communities in the mode of debate among representatives of the contending schools of thought” (Schön, 1983 p 312).

Expressed theoretically, frame analysis is the “philosophical viewpoint for perceiving and explaining the epistemology, developing the research questions, and interpreting the analysis” (Strang, 2005 p 96). The definition of “philosophy” advocated here is the pursuit of wisdom by intellectual means through the investigation of the nature, causes, principles of reality, knowledge, and values, based on logical reasoning (Houghton-Mifflin, 1994). "Philosophically, researchers make claims about what is knowledge (ontology), how we know it (epistemology), what values go into it (axiology), how we write about it (rhetoric), and the processes for studying it (methodology)" (Creswell, 2003 p 6).

Frame analysis is strongly emphasized here because experience has shown this is critical to sharing knowledge with multi-cultural communities of practice. Philosophy perspectives range on a continuum from rationalism, being that fundamental knowledge is based on reason determined by rational analysis of ideas independent of empirical data, emotive attitudes, or authoritative pronouncements; to empiricism, whereby knowledge is based only on information gained from the senses (Popkin, R.H. “Philosophical Rationalism” in: Grolier, 2002). Empirical studies are conducted with techniques such as statistical measurement and/or behavior observation. Phenomenology is often used to explain a rationalistic research perception basis whereby reality consists of objects and events perceived or understood in human consciousness and not of anything independent of human consciousness (meaning theories are abstract and probably difficult to observe or prove through statistical testing).

Constructivism is a modern philosophical movement commonly found in educational psychology referring to a “cognitive view of knowledge creation whereby individuals learn by ‘constructing’ their own meaning of... beliefs, concepts, events, facts...” (Strang, 2005 p 45). In constructivism, knowledge is “dynamic… explicit and tacit” (Portier & Wagemas, 1995 p 66), while the process of forming meaning is organic (Schwen, Kalman, Hara, & Kisling, 1998) and self-transcending (Scharmer, 2001), with justified true beliefs ranging from rationalism to empiricism.
Constructivism is theoretically situated closer to rationalism, but the advantage is it can ‘connect’ phenomenology with realism. We can construct multiple group collective and personal meanings of the same event reality. In terms of the constructivist philosophy advocated in the framework of Illustration 1, a researcher must consider any multiple views of “justified true beliefs” (Strang, 2003 p3), and also must appease all multiple perspectives held by the stakeholders (participants and readers of the research). In terms of benefit for explaining research philosophies to professionals, “it would help the practitioner to ‘try on’ a way of framing the practice role, getting a feeling for it and for consequences and implications of its adoption” (Schön, 1983 p315).

How can frame analysis be delivered in a research paper or report? First, as a writer, by ‘thinking outside the current professional box’ - which usually means a cross-disciplinary literature review. Then a philosophical basis can be articulated in narrative and/or through diagrams yet writing words and drawing the concepts as a combination will subscribe to multiple learning styles (Clump & Skogsberg, 2003; Barbazette, 2004; Kolb & Kolb, 2005). Illustration 2 is a conceptualized ‘frame analysis’ applied in a study that developed an online professional learning model using integrative methods. The diagram shows the unusual combination of empirical-rational philosophical views applied to articulate, develop and create theoretical models. Both axiological (observation) and pragmatic (correlation & measurement) approaches are used to test theories. Axiology (in sociology) is the study of the nature of values and social value judgments while pragmatism (in psychology and management science) relates to the study of cause and effect of events with emphasis on practical lessons-learned (Houghton-Mifflin, 1994).

In Illustration 2, each phase encompasses a distinct methodology, starting with “theorizing” (grounded-theory techniques), followed by (descriptive survey) research, (participant-observer) action learning, (concepts & taxonomy) development, (controlled quasi) experiments, assessment (statistical correlation, regression, factor analysis) and finally adaptation (theoretical & generative model refinement). As a cross reference to apply this concept, Illustration 1 and the surrounding narrative are also examples of a frame analysis.
Repertoire of Exemplar Theories

A critical element in communicating any type of research is the theoretical “path of inquiry which leads from an initial framing of the situation to the eventual outcome”. As per the frame analysis section (discussed earlier), some of these may be linked as phases in the same project, and the topologies are roughly ordered from rationalistic to positivist ideology. This is discussed in Table 1.

Guidelines for explaining a research strategy typology can be found in a narrative devoted to discussing analytical versus empirical research sub-categories, refutation methods and theory-building procedures. Four key principles are offered to elaborate on the chosen research strategy: use measurable/differentiated definitions for terms, describe specific conditions of domains (when and where the data gathered), apply parsimony criteria in relationship/model building, and describe empirical riskiness criteria for theory prediction methods (Wacker, 1998 pp 380-381).

A second example of theory repertoire is a multi-purpose research planning and delivery scheme called a ‘Knowledge Vee’ that “serves as a scaffolding or normative device assuring that all of the elements receive due consideration in the process of seeking knowledge and value claims directed by the focus question” (Novak, 1998 p2). Knowledge Vee Diagrams are similar to concept maps but the former applies a constructivist philosophy and is completed at specific stages throughout the research, while concept maps are purely phenomological, and can be completed at anytime in the project. Recent extensions have customized it as a Vee Heuristic Diagram for communicating research findings to the academic community (Åhlberg, 1993).
<table>
<thead>
<tr>
<th>Research Typology</th>
<th>Purpose, Audience and Anticipated Results</th>
</tr>
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<tbody>
<tr>
<td><strong>Exploratory</strong></td>
<td>Research team may have little applied knowledge of the epistemology. The objective is to expose issues, develop parameters for later extending the study. The aim is to better understand the relevant issues/themes. Starts with literature reviews, grounded-theory, action learning and uses techniques of observation, open-ended questions in interviews, focus groups, field/meta studies. Can create research questions, meta-theories, conceptual model, etc.</td>
</tr>
<tr>
<td><strong>Descriptive</strong></td>
<td>Investigates variables and possible models that may articulate the patterns or phenomena being investigated, identifies overlapping theoretical areas, and constructs paradigms that offer a more complete theoretical picture. Can use literature reviews, grounded-theory, and possibly historical case studies.</td>
</tr>
<tr>
<td><strong>Evaluative</strong></td>
<td>Investigates the consequences/implications of a social phenomenon. Example: does government funded vocational education result in higher employment than university programs? Use strategies involving combinations of literature meta-evaluations, field/case studies, reflective research, action science, etc.</td>
</tr>
<tr>
<td><strong>Correlational</strong></td>
<td>Investigates possible relationships (inference mapping) between variables. Seeks to determine how X relates to Y (states confidence in resulting causal/effect, e.g. at 0.001 significance). Example: to what extent is motivation, self-efficacy, self-regulation, and self-schema is smoking associated with adult learning grades and satisfaction? Can use population surveys with descriptive statistics, regression, variance, factor analysis.</td>
</tr>
<tr>
<td><strong>Causal</strong></td>
<td>Investigates possible causes/explanations of phenomena. Seeks to determine if X causes Y (states the confidence in making the causal statement e.g. at 0.001 significance). Example: does motivation impact learning outcomes or satisfaction? Often uses mixed-methods: descriptive or probability statistics based on theoretically-coded taxonomies, with inductive implications.</td>
</tr>
<tr>
<td><strong>Experimental</strong></td>
<td>Tests hypotheses of applied theory by changing independent factors and measuring affect on dependent variable(s), at a confidence level, using highly controlled (laboratory or paired-treatments) or quasi-experimental configurations. Use scientific method (quantitative/statistical formula), must report descriptive statistics, regression, variance, and/or factor analysis.</td>
</tr>
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</table>
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The ‘reflective research’ concept underpinning a Knowledge Vee can be described as “an action research framework for planning, implementing and evaluating a course of action with the aim of improving a situation … [containing] ten theoretically justified steps to high quality learning and thinking” (Åhlberg & Ahoranta, 1999 p. 12). Furthermore, it facilitates the application of the above research typologies (Table 1), and it references the frame analysis (Illustration 1). The exemplar benefit is the inherent transformation from conceptual to empirical thinking, resulting in pragmatic “value claims” - the criterion for truth in the academic community is agreement among peer researchers (Rosenthal, S.B. (2002) “Pragmatism is a Philosophical Movement” in: Grolier, 2002).

An example is shown in Table 2 (Strang, 2005 p 244), articulating the ten steps superimposed over four project stages of focus/scope, planning, implementation, and evaluation.
A third self-explanatory example from the literature will illustrate an integrative technique for synthesizing exemplar theories, while also highlighting philosophical perspectives, in a singular conceptual diagram, as depicted in Illustration 3 (Strang, 2004 p4).
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Learning Meta-Theoretical Model

Illustration 3: Exemplar Meta-Theories with Frame Analysis (Strang, 2004 p4)

Fundamental Methods of Inquiry

Integrative techniques are posited from author experience as the best method of inquiry. This can be realized by upholding a rationalistic-to-positivist ideology described in Illustration 2, then applying one or more typology strategies from Table 1 (e.g. Descriptive and Causal are modeled later). This would be documented in sections 2 to 5 of the Vee Heuristic scaffolding in Table 2.

Integrative techniques combine and synchronize qualitative with quantitative data processing, to strengthen analysis and credibility of the research. Debate exists on the terminology across cultures and disciplines, in that rival literature describes “qualitative” as anything from “comment” data type to being an approach synonymous with case study or even a philosophical perspective; and likewise “quantitative” refers mostly to the application of statistical algorithms on “numerical” data types (Amaratunga et al., 2002; Carlson & Thorne, 1997). It is clear “the
case study strategy should not be confused with qualitative research [or] ethnographic methods...” (Yin, 2003 p 14). Nevertheless contemporary methodology writers condone the integration of multi-methods, approaches, and both qualitative with quantitative measures (Creswell, 2003; Keppel & Wickens, 2004), especially in case studies (Yin, 2003). To clarify this discussion, ‘qualitative’ and ‘quantitative’ are primarily associated with data type.

Notwithstanding terminology differences, the selection of techniques ought to be appropriate for the unit(s) of analysis data type(s). Units of analysis are aspects of interest such as a participant behavior, social culture, cause/effect, etc. These are the independent factors, dependent variables, and they will be found embedded in questions or hypotheses of the research project. Units have attributes composed or one or more independent factors and dependent variables, which can be quantitative or qualitative. Qualitative data types can be classified as nominal scale (gender, experiment treatment) or ordinal/ranked (1=disagree, 3=neutral, 5=agree); while quantitative data types are: interval (0, 1, 2...), integers (-1, 0, +1...), or ratio (0.0, 1, 1.1, etc), all of which support mathematical operations (Levine, Stephan, Krehbiel, & Berenson, 2005; Keppel & Wickens, 2004). Data tagging, tables, diagrams, and statistics (including software) are the popular techniques used for summarizing, analyzing, drawing conclusions, and making decisions on data types (Schwalbach, 2003; Carlson & Thorne, 1997; Daniel, 1990; Sekaran, 1992; Keppel & Wickens, 2004).

Statistics provide powerful predictive power, by using descriptive measures to explore data (averages, means, standard deviations, histogram plots, etc.), and inferential fitting models to explain factor-variable cause/effect relationships (Tamhane & Dunlop, 2000). A population contains all units of interest, and the descriptive measures called parameters (mean, standard deviations, etc) form a normal population probability distribution, based on the Central Therom principle. A sample is a subset from this, and the same descriptive measures are called estimates. There is a deductive relationship of population parameters to sample estimates, and vice-versa, an inductive approach in using sample estimates to generalize (predict) population parameters (mainly predicting subsequent sample estimates). While the above is basic ‘statistics’ epistemology, this is critical for integrative techniques, and it relates to upcoming discussions.

Research techniques are used to observe/measure cause/effect in cases/subjects to theorize a model that can be used to affect future behavior or other population samples - for example a research project goal might be to model effective leadership behavior in terms of effective
communication (independent factor) that will improve follower satisfaction (dependent variable), and if the statistical prerequisites can be met with the sample, the pattern/model could be generalized to all similar teams (possible samples) in the population (e.g. professionals). Research often takes two general approaches: an inductive approach starting with questions, then making observations about a set of relevant data, and using statistics to discover patterns that may point to more general theories; or a deductive approach that specifies a process from identifying relevant theory, to developing hypotheses, then making observations relevant to testing the hypotheses, and finally comparing the hypotheses and observations using statistics (Babbie, 1993) - either way integrative techniques can be employed. Illustration 4 is an abstract of applied integrative techniques, discussed below.

The critical success factor for applying integrative techniques in any typology from Table 1 (descriptive surveys, mixed-method case studies, etc) is to meet the prerequisite of the particular
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research method and/or statistical algorithm. In statistics for example, two important assumptions for most procedures are that the sample is a ‘normal distribution’ of the ‘population’ (meaning that the parameters and estimates are approximately equivalent), and that quality assurance has been applied in the design as well as in the procedures. For example, referring to Illustration 4, the mean college SAT score from hundreds of samples should be within three standard deviations of the population mean SAT. There are other standard descriptive measures that can verify the research sample is ‘normal’, such as a Z score, five-number-summary, skewness, kurtosis, along with drawing histograms plus box-and-whisker plots of the data (Aliaga & Gunderson, 2003). The most important criteria for an integrative multi-typology research design is to ensure some parameters are obtained from the population (at least averages of the psychographics like age and experience, but preferably both the independent factors and dependant variables of interest), and these should then be measured in the sample(s) through a survey and verified as normal before the case study, action learning, or other method is started.

Illustration 4 conceptually illustrates how integrative techniques were applied as a nested research typology. This example applies descriptive surveys, followed by theory building case studies or hypothesis testing experiments, analysis, reflection-in-action, and concluding with model generalizing. The data types involved qualitative (e.g. teaching method) and quantitative (e.g. GPV) units of analysis. Qualitative independent factors and dependent variables were transformed into quantitative modes for analyzing and statistically testing. More examples can be found in the literature (Strang, 2005 ch 3). The key integrative techniques included: descriptive statistics combined with action learning (participation and observation), logical and empirical model building, then experimental paired-treatment testing. Although it would be desirable to ‘prove’ a sample is normal with all independent and dependent units of analysis, this is rarely practical. In the example, SAT score (an independent factor) was used to ensure the sample was statistically normal as compared with the population frame distribution, to allow any deductive conclusions to be generalized as a best-practice (induction) for teaching university level students.

To conclude the method of inquiry section, it should be noted two fundamental research quality assurance criterion are necessary: methodical design quality, and applied technique quality. The details can be found in the literature (Yin, 2003; Whitley, 2002; Zechmeister et al., 2001).

Applied Reflection-in-Action

As mentioned earlier, reflection-in-action is often a tacit process carried out by a researcher as
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part of a formal methodology, or as a type of introspection on the final analysis. The main point advocated is self-reflection should be done by the researcher and participants (if possible), both during the project, and after, in support of ‘integrative technique triangulation’. The most likely methodologies where reflection-in-action and self-reflection takes places is ethnography, theory grounded research, and action learning. Often it can be purposeful to show good examples of partially applied methods then explain how the research might be extended or improved using integrative techniques. The examples will confirm reflection-in-action principles are gaining use, and are sometimes being integrated with other research typologies to strengthen credibility.

Reflection-in-action as a quasi-case study methodology has been successfully applied in recent professional-level studies, but often exercised in a more limited scope, by emphasizing only certain aspects of the categories such as interpersonal theories-of-action. A good applied example of reflective research was a case study of registered nurses that uncovered a type of professional learning defined as: “metier artistry... RNs reflect, draw upon and display the taken-for-granted, unconscious ways of being” (Stockhausen, 2006 p51). Ethnography was the documented technique. Stockhausen used “observations of students, registered nurses and patients in the authentic clinical milieu ... to expose, an as yet undetected aspect of artistry in practice...how experienced nurses, use a personally unnoticed reflect-in-action during patient encounters...” (Stockhausen, 2006 p54). The study could have been strengthened with researcher frame analysis and documentation of participant’s espoused versus applied reflection-in-action. A frame analysis might have clarified (and shared) the researcher’s own views, while capturing participants’ interpersonal theories of action might have identified concepts from other related disciplines to explain observed phenomena (e.g. behavioral and cognitive psychology). The rationale underlying this is “action science cannot be achieved by researchers who keep themselves removed from the contexts of actions...” (Schön, 1983 p320). A similar reflective research case study indirectly applies the concept of espoused versus theory-in-action, described by its author as “desired learning/intent” and “development” (Davies & Osguthorpe, 2003), while even that study could likewise be strengthened with frame analysis and descriptive statistics.

Other writers have constructed and applied good alternative variations of reflection-in-action principles. One study conducted innovative action research on seven critical incidents for an undergraduate course design/delivery project. “Using Schon's theory of reflective practice as the
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framework I examine my work in light of key concepts such as repertoire, artistry, reflection on action, reflective conversations, reframing, and so on” (Kosnik, 2001 p 65). This study could be extended with descriptive and inferential statistics to indicate if the participants of the program were a ‘normal population’ (thus strengthening the generalizations), and what particular factors influenced the outcomes (or at least what the observed variable/factor relationships were).

Another example reflective research study examined 13 teachers' use of how eLearning technology “facilitated their reflective consideration and use of alternative cultural perspectives to change their classroom practice” (Maher & Jacob, 2006 p129). An interesting aspect of their method of inquiry was the integrative technique of embedding ‘reflection-in-action’ supplemented with a type of action research methodology -“Cultural Inquiry Process” (Maher & Jacob, 2006 p128). That study included rich accounts of some participant self-reflections. Again, the research could be improved by articulating the researcher frame analysis as well as by integrating descriptive and inferential statistics. The purpose of technique integration would be to verify if the teachers were a ‘normal population’ (thus strengthening the generalizations), and how good the results were from the eLearning technology application (e.g. what particular factors influenced the outcomes, what the observed variable/factor relationships were).

A final unique example of reflection-in-action used “structured ... guided reflection” (Cox, 2005) applied by mentors keeping a diary as they taught in the community. Interestingly, they also employed focus groups and a survey. The method of inquiry would have been inductively credible if design and technique quality criteria had been achieved.

Recommendations and Implications

The article was organized in a knowledge framework developed by the author to leverage principles of “reflective research” (Schön, 1983). Examples of applied practices were given as a combination of narrative and conceptual diagrams in each of the four ‘reflective research’ framework categories. It started with philosophical perspectives of “frame analysis”, followed by knowledge organization as “repertoire of exemplar theories”, then integrative techniques for “modes of inquiry”, and finally contemporary examples of “reflection-in-action”. Illustration 5 synthesizes the main concepts and proposes an integrative research method framework.
Conclusion

To close, it would make sense to apply reflective research principles here, by completing the remaining sections of the Vee Heuristic in Table 2. The knowledge claim of this research paper is that the ‘reflective research’ framework outlined in Illustration 1 (plus examples herein) could be used in practice. The narrative and diagrams surrounding Table 1, Table 2, Illustration 4, and Illustration 5 could be adapted and applied in research.

The value claim of this research goes to answer the original objectives. First, these ideas could be used as a knowledge framework to help researchers/writers plan, design, organize, conduct, write, and communicate their work. Secondly, this research and the examples may inform our community of practice ‘knowledge gatekeepers’ (e.g. publishers and article reviewers) of alternative perspectives for contemporary research practices, namely integrative techniques.
References


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Teece (Eds.), Managing industrial knowledge - creation, transfer and utilization (pp. 69-90). London: Sage.


