The Role of Research Methodology in Counsellor Education: A Case of Second-Order Effects

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Abstract

Research methodology training within counsellor education has consistently been advocated for various reasons, all of which are related to research understanding and applications within the counselling context. The current view proposes that there is additional critical value for training in research in that it promotes the development of counsellors' cognitive operations relevant for their actual counselling conduct (such as critical thinking, self-awareness to own biases, or doubting evidence and the obvious) by means of second-order effects. It is suggested that different components of a research methodology education should thus be emphasized in order to further foster counsellor in-session cognitive functioning.

Résumé

Pour diverses raisons, toutes concernant la compréhension de la recherche et ses applications dans le contexte du counseling, l'enseignement de la méthodologie de la recherche a été constamment préconisée dans la formation des conseillers. Il est généralement admis que cette formation de recherche est d'autant plus importante qu'elle favorise le développement des opérations cognitives — en tant qu'effets du deuxième ordre — des conseillers dans leur comportement pratique (par exemple, pensée critique, prise de conscience de leurs propres préjugés, mise en doute des signes et de l'évidence). Il est donc recommandé de favoriser les divers éléments de la méthodologie de la recherche, dans le but d'encourager le fonctionnement cognitif des conseillers dans leur pratique professionnelle.

INTRODUCTION

The importance of educating counselling students in research methodology has frequently been discussed, sometimes under different titles. It seems that the reason for the preoccupation with this subject has not necessarily been related to the importance of research methodology as such, but its relative significance in, and contribution to, counsellor development. After all, it is only natural to assume that, compared to research talents, skills such as interpersonal sensitivity, empathy, group facilitating, assessment procedures and their applications, or a specific counselling intervention technique—as advocated by different schools of therapist training—are more relevant and important for students to acquire in order to master their counselling conduct in a proficient way. The ramifications of providing effective education in developing these skills seem to be obvious, and apparently no counsellor educator would argue with this view. That is, the effects of the acquisition of these (and other relevant) skills to counsellors' professional growth are transparent, because they are directly related to the way we conceptualize counsel-

ling functioning and conduct. Actually, a good counsellor training program would be characterized by a constructively valid representation of counsellor-related functions in its course offerings.

In addition, apparently only a minority of counsellor educators would doubt the importance of educating counsellor trainees in research methodology. Views may vary about the *emphasis* given to such a course, to specific *subjects* it may entail, or to the *way* it should be taught (Lee & Workman, 1992), but it seems that basically there is almost a unanimous consensus concerning the importance of the inclusion of this topic in counsellor education programs. The reasons for the recognition and appreciation of this topic are many, and generally refer to the development of skills needed to: (a) understand research reports relevant for counselling conduct (Barker, Pistrang, & Elliot, 1994; Fahmy, 1988; Hadley & Mitchell, 1995); (b) conduct one's own research, or become a part of some research initiative (Fahmy, 1988; Hadley & Mitchell, 1995; Heppner, Kivlighan, & Wampold, 1992); (c) communicate with other professionals (Fahmy, 1988; Heppner et al., 1992; Rennie & Toukmanian, 1992); (d) develop more rigorous approaches in applying counselling techniques (Barak, 1995; Fahmy, 1988); (e) learn about how to do therapy through learning how to investigate it (Borders, Bloss, Cashwell, & Rainey, 1994; Mahrer, 1996); (f) develop confidence and a sense of self-efficacy with regard to applying research (Gelso et al., 1988; O'Brien, 1995; Szymanski, Marshall, Whitney-Thomas, & Sayger, 1994); (g) establish the legitimacy of the profession and accountability of services provided (Barak, 1995; Lee & Workman, 1992; McLeod, 1994; Whiston, 1996); (h) develop interest in and appreciation of research (Gelso et al., 1988; O'Brien, 1995; Tracey, 1991); and (i) develop scientific writing and reporting skills (Heppner et al., 1992). It seems that these goals lay a strong foundation for the inclusion of research methodology as a compulsory course in a counsellor education program. With an effective course outline, instructor, teaching methods, and educational environment (which relates to both local culture and educational standards, as well as to academic facilities) we may justifiably assume that this type of learning will have its *first-order effects* in achieving the course's objectives.

However, the argument made here is that through an application of a research methodology course—assuming it is structured and delivered according to high professional standards—students acquire and develop some *thinking capabilities* (that they may not even be aware of) which significantly contribute to their counselling conduct. Thus, the thrust of this article is that counsellor education in research methodology may have—and possibly should have—*second-order effects* as well. Herewithin, "second-order" refers to the educational intervention's *additional, independent* effects on the learners which contribute to the devel-

opment of their actual *counselling performance skills*, parallel, and in addition to the development expected of the basic skills acquisition courses. More specifically, it is proposed that the procedures applied to promote the learning of *scientific research methods* relevant for counselling may in fact contribute to other counsellor-relevant growth, above and beyond achieving the obvious and important first-order goals of acquiring knowledge in counselling-related research. It should be made clear that this process is not considered to be typical transfer of learning (which refers to generalizing learned behaviours to new situations), but rather generalization of thinking principles. Hence, it is contended that research methods training may actually change a learner's mindset, cognitive orientation, and general style and manner of thought, independent of contents of specific knowledge acquisition, in a way that make it applicable in actual counselling interactions.

The idea that a research methodology course may influence students' generalized thinking processes is not new. Lehman, Lempert, and Nisbett (1988) proposed that graduate training influenced students' reasoning through changing their cognitive schemas. They found empirical support for this proposition in several graduate disciplines, but most profoundly in psychology. This idea did not receive general support in additional studies which examined the effects that graduate education in general (Gray, 1990, 1992), and undergraduate research methods and statistics courses in particular (Mill, Gray, & Mandel, 1994), have on students' everyday reasoning, critical abilities, and beliefs in unsubstantiated phenomena. However, as suggested by Mill et al. (1994), the reason for the disconfirming evidence was that applicability of the methodological principles taught in the courses to everyday context was missing. Thus, it is argued here that such effects would be found in the case where a research methodology course is tailor-made to graduate students who specialize in counselling, which emphasizes both scientific principles of research as well as specific applications in the context of counselling.

Research Methodology Training to Develop Thinking Processes

Normally, a research methodology course has an explicit purpose to teach students specific knowledge bases (e.g., sampling procedures, estimates of internal consistency, or the nature of cluster analysis) which seem to be "important." As noted above, the importance of these or other specific course topics usually represent research applications and procedures which prevail in the behavioural sciences in general, and in counselling in particular. The learning of these topics supposedly enables students to better understand empirical papers and facilitates a more critical reading style. In a related fashion, this knowledge and new terminology promotes better communication with colleagues. In addi-

tion, this advanced knowledge may be applied in actual empirical research (e.g., a thesis) conducted by a student. All of these great advantages represent a direct product of effective learning acquisition.

However, a research methodology course could—and I propose it actually should—promote the development of *more critical thinking processes as well as some other important cognitive operations*. As argued by Lehman et al. (1988), Gray (1990, 1992), and Mill et al. (1994), teaching (and respective learning of) structural models, hypothetical constructs, applied principles, or theoretical propositions and their related assumptions and axioms in the knowledge base of a given discipline, could have *generalized effects* on students' thinking capabilities. Likewise, and in light of the research findings noted above, I would argue that high quality training in research methodology in counsellor education significantly contributes to students' growth in terms of their ability to process, analyze, and value counselling-related information, which, in turn, is reflected in better counselling conduct. This argument also rests on Kruglanski's (1989) lay epistemic model, through which he suggested that lay people process information and acquire knowledge in applying procedures in a similar way to that of scientists' processing in rigorous research methods and statistical procedures. Based on this premise, I contend that training in scientific-like thinking cultivates these inherent cognitive processes by providing improved self-awareness as well as the more sophisticated tools and techniques characterizing scientific thinking processes. In turn, this learning contributes to counselling-related functioning as a specific application of knowledge acquisition processes, decision-making considerations, and other relevant cognitive operations. It should be made clear that there is no argument here that other, counselling skills-related, training topics are unimportant (or less important), or that training in research methodology could replace other critical components of counsellor education. The argument made here refers to the *significant incremental value* of this type of education as a supplement which coincides with, and assists in, developing counselling skills.

There is no one, agreed upon outline of a research-methodology-in-counselling course. However, several of the common and recent texts in this area (Barker et al., 1994; Hadley & Mitchell, 1995; Heppner et al., 1992; McLeod, 1994) seem to promote similar main topics that should be covered. These topics include, but are not limited to, and not necessarily in the order of, the subjects listed below.

Role of Research. Topics include knowledge acquisition in the context of problem-solving, approaches to general inquiry, and concepts and terminology related to scientific inquiry.

Asking Research Questions. Topics include generation of research questions and hypotheses, distinction between empirical and non-empirical questions, and conceptual (or nominal, or theoretical) versus operational definitions.

Hypotheses Testing. Topics are related to the notion of a null hypothesis, Type I and Type II errors, and probabilistic nature of behavioural sciences.

Causality Versus Correlation. A special focus is made on the notion of a relationship and coincidence, their possible causes, the meaning of moderators, and the strict conditions where causality could be interpreted.

Drawing inferences. Topics include rival explanations, the importance of control group/s or condition/s, and threats to validity.

Placebo Effects. This topic gets special attention because of its direct relationship to counselling-related research.

Sampling. Topics include the meaning of a target population, a sampling frame, and a sample, as well as sampling procedures and techniques.

Measurement. Topics include the purpose of measurement and data reduction, types of measurement scales, and reliability and validity estimates.

Group Comparisons. Topics include the concepts of pair and multiple comparisons, including the nature of ANOVA and MANOVA, one-way and multi-way, within- and between-subjects designs, and post-hoc comparisons.

Relationships Among Variables. Topics include the nature of correlations, linear versus nonlinear relationships, intercorrelations, regression analysis, and tests of hidden structure, including factor, cluster, and configural analyses.

Sources of Research Bias. Topics include biases which pertain to researcher (experimenter) expectancy bias, effects of volunteer subjects, demand characteristics, hypotheses guessing, social desirability, and the like.

Limitations of Research. Topics include identification of flaws and weaknesses of research, and the need for systematic and nonsystematic replications.

Role and importance of further investigations. Topics include the need for systematic and nonsystematic replications, and generalizations and possible moderators which may extend research findings.

Ethical Considerations. Topics include major and relevant ethics codes' sections related to research, discussion of major ethical considerations (e.g., informed consent, deception), and ethical dilemmas.

As indicated above, this list of subjects is generic, and local study programs may add or refine subjects according to necessities, priorities, or constraints. Also, some courses would add (or put more emphasis on) statistical procedures, as well as some relevant computer statistics packages (e.g., SPSS, BMD) to enhance research skills. The latter, however, do not directly correspond to the idea advocated here, and hence are not necessarily related to counsellor growth in the current context. However, it seems that the core topics listed above do not only review some materials on "how to do research," but commonly influence the learners' mindset in that they focus on and emphasize specific perspectives in methods of inquiry and knowledge acquisition. This influence could in fact modify the learners' general state of mind or, at least, professional-related thinking style.

Suggested Effects of Research Methodology Education on Counsellor Performance

The proposition laid out in this article is that research methodology training in counsellor education—provided it covers the core subjects mentioned above and is effectively delivered—has second-order effects on the learners in regard to their counselling-related conduct. Specifically, it is contended that through promoting scientific-type thinking, learners may develop new or improved generalized thinking processes which, in turn, affect their in-session counselling behaviours. Such cognitive processes include (but are not limited to) *critical thinking, testing alternative explanations, self-awareness of personal biases, doubting evidence and the obvious, theme search,* and *caution about inferences and generalizations.* It should be stressed that these processes are only used here to exemplify the basic principle proposed, and by no means is this list conclusive. However, all these processes and considerations are highlighted in counselling literature as being central and important.

Critical thinking refers to the notion of *how* to think rather than *what* to think, and focuses on knowledge-processing components such as identifying positions or ideas, analyzing competing views, weighing evidence, and gathering information strategies. It incorporates important skills and mechanisms such as problem-solving processes, creativity, argument analysis, drawing inferences by means of deduction and induction, meta-cognition, and more (cf. Ennis, 1987; Perkins, Jay, & Tishman, 1993). The relevance of critical thinking ability to counselling conduct seems to be indisputable: a competent counsellor ought to be able to collect information from a client and other relevant sources (e.g., tests, relatives, own observations) and, moment-by-moment, throughout the counselling process, be able to weigh, compare, analyze, and infer. Obviously, for

a counsellor these cognitive activities are taking place in addition to, and simultaneously with, relating to the client through practicing proper interpersonal skills. Counsellors should be aware of these cognitive activities and be able to keep them under their full control (Downs, 1988; Irving & Williams, 1995). Thus, it clearly seems that developing appropriate relevant critical thinking skills would significantly contribute to counsellor functioning.

Testing alternative explanations refers to another important ingredient of counselling. Many scholars have suggested that counsellors should practice hypothesis testing processes with clients, in which therapists would generate ideas or arguments to be tested, collect relevant information for testing them, and make wise decisions in referring to acceptance (i.e., confirmation) or rejection (i.e., refutation) of these hypotheses. This way—as it has been suggested for various counselling interventions, such as family therapy (Hinkle, 1993) or addictive disorders (Shaffer, 1986)—a counsellor is guided by specific, object-oriented, progressive, and constructive goals which lead the way for counselling progression. Actually, it has been shown that if counsellors are directed by hypotheses testing frameworks, there are benefits of different types to their counselling practice (e.g., Morran, Kurpius, Brack, & Rozecki, 1994; Strohmer & Chiodo, 1984; Strohmer, Moilanen, & Barry, 1988; Wantz & Morran, 1994). Similarly to hypotheses testing is the idea of triangulation: as it is advised to analyze and consider research data through different methods (sometimes in adopting different statistical assumptions), this approach is recommended in counselling situations too, where assessing clients' experiences from various viewpoints (e.g., reconstructed narratives) is expected.

Self-awareness of personal biases refers to counsellors' recognition and realization of their individual preferences, stereotypes, prejudices, or other personal-driven influences which may intervene in their professional conduct. This issue has been a long standing one in counselling and psychotherapy, because it has been widely accepted that therapists—just as any human beings—possess attitudes and beliefs, which reflect their personalities, social background, education, culture, or ethnic group, and that these aspects may have devastating effects on the counselling process (e.g., Barak & Fisher, 1989; Morrow & Deidan, 1992). Counsellor biases may be related to clients' characteristics such as culture (Pedersen, 1987, 1995; Todisco, 1991), values (Mitchell, 1993), or gender (Edbril, 1994), and influence psychological assessment (Haverkamp, 1994) or interventions (Usher, 1989).

Doubting evidence and the obvious refers to a very basic skill counsellors should possess in that they should not accept any data, information, or facts at face value, but thoughtfully and continuously examine, analyze, cross-validate, and question those data. There are many reasons for

clients' distortion of communications to the counsellor, from denial or repression defenses (Egan, 1994), to limited memory, malicious motivations, short-cuts, showing-off, ways to express reluctance or opposition to change (Mahoney, 1991), and so on. Counsellors are repeatedly reminded to check and re-check information, compare different sources and occasions of information, and search for clues to validate or discredit clients' messages. In other words, counsellors are encouraged to examine the reliability and validity of information provided to them by clients (or other sources), to avoid using raw data as is, as well as to refrain from ignoring the credibility of the source of information. Related to this topic, counsellors are also trained and inspired to look for *themes* in clients' stories. Typically, themes are not obvious, straightforward, or transparent. Actually, it takes a very good counsellor to explore the information provided by a client (and other sources) and identify meaningful themes (e.g., Luborsky, Diguer, & Barber, 1992). The process of searching for themes is similar to the inspection of a complicated structure, full of items and inter-connections, while aiming at detecting a governing rule, or an implicit (or covert) infrastructure which is responsible for the creation and the dynamics of the overt phenomena.

Caution about inferences and generalizations refers to the notion that counsellors are consistently encouraged to draw conclusions carefully regarding their clients, especially early in the counselling process (e.g., O'Neill, 1993). Both in terms of assessment and therapy, it is natural for counsellors to receive and absorb information about their clients, and this information is typically used as a basis for appraisal of clients or evaluation of specific problems. Information can be collected from multiple sources, including counsellors' own observations and impressions, tests and questionnaires, other significant people's views, and clients' self-reports. A skillful counsellor is aware of the fact that information of any kind might be inaccurate because of the limited credibility of its source (as noted above), as well as erroneous because of lack of, or incorrect definitions or instructions, problems in understanding, or effects of situational or temporal factors (Dumont, 1987). Similarly, experienced counsellors are aware of the risk involved in overgeneralizations because of factors such as halo effects, unrepresentative specimens of clients' behaviour, and the like (Heppner & Frazier, 1992).

The five topics presented above are included here just to *illustrate* cognitive functions and information-processing operations counsellors use in counselling. Other processes of the same nature seem to be very relevant as well: viewing psychotherapeutic process as multi- (in contrast to uni-) dimensional in regard to determinants of change in clients, differentiating between clients' dynamics and mechanisms as is related to cause versus effect, being aware of the fact that coincidence or association between events (i.e., correlation) does not imply causality, consider-

ing questions of cost-benefit, identifying linear versus nonlinear trends related to clients' change processes, appreciating the complex nature of moderating psychological factors in the origin of symptoms and behaviours (such as interaction of personality and situations), recognizing multidetermination of events and psychological phenomena, or detecting "third variable" effects to be "partialed out" to examine a more authentic relationship between two psychological factors of interest.

Not surprisingly, all these cognitive procedures and considerations too have strong associations with *equivalent research methodological concepts*. That is, as suggested here, there are several principal, counselling-relevant, cognitive processes which may be affected through exposure to intensive and experiential scientific considerations. Table 1 presents hypothesized links between subjects which are recommended and commonly covered in typical counselling research methodology courses (e.g., Barker et al., 1994; Hadley & Mitchell, 1995; Heppner et al., 1992) and counsellors' cognitive operations as presented above. As shown in the table, it is proposed that dealing with certain research methodology subjects will result in affecting the relevant counsellors' cognitive functions that are widely accepted as central for effective psychotherapeutic conduct. It should be made clear, however, that although the links presented in Table 1 are assumed to be paired in a way that a specific research methodology subject is linked (and consequently affects) a certain counsellor cognitive function, there is no assumption of exclusive one-to-one relationships between the research subjects and counsellors' cognitive functions. That is, a certain subject learned in research methodology training may contribute to more than one of the counsellors' cognitive functions and, inversely, any one of counsellors' functions may be affected by more than one research subject.

Conclusion: Fostering Second-Order Effects and Expected Generalizations

As noted above, the idea of generalized learning is not new, and it has specifically been associated with the influence of research methodology education on students' general thinking skills. However, the idea presented in this article is more definite, exclusive and pretentious, because it specifically argues for direct causal effects of research methodology education on some aspects of counsellor's therapeutic functioning. Nevertheless, if we recognize and accept the reasoning made here, counsellor training programs should encourage, support, and even emphasize research education, through actually highlighting its status and importance in communicating with students. This way, a research methods course will not be regarded by students as a burden, a hurdle, or "a pain," but as an experience central to their professional development. Moreover, these messages should focus on the *counselling-related cognitive*

TABLE 1

Proposed Second-Order Effects of
Thirteen Illustrative Research Methodological Subjects

Research Methodology Subject	Counselling Cognitive Operation
Scientific reasoning	Critical thinking
Forming research questions; generating hypotheses; testing hypotheses	Testing alternative explanations
Experimenter (researcher) bias; effects of demand characteristics and expectancies; volunteer subjects effects	Self-awareness to own biases
Threats to research validity; Type I and Type II errors; rival hypotheses (explanations)	Doubting evidence and the obvious
Sampling; reliability and validity of measurement and observations	Cautiousness with inferences and generalizations
Structural analysis (factor analysis, cluster analysis); multidimensional scaling	Viewing client's change processes as multidimensional
Experimental and quasi-experimental designs	Differentiating cause versus effect
Nature and meaning of correlations	Awareness to differences between associations and causality
Evaluation and outcome research; attention-placebo effects	Consideration of cost benefit; consideration of nonspecific effects
Trend analysis; linear and nonlinear sequence and time series	Trends in client's change processes
Analysis of variance models	Appreciating complexity and diversity of factors related to symptoms and behaviours
Explained versus error variance	Recognizing and prioritizing multi-determination of psychological phenomena
Partial and multiple correlations; regression analyses	Isolating and/or collapsing factors of different importance in assessing causality and developmental trends

Note: The order of the illustrations is random.

growth experience which should be expected of such training, and not on the understanding of research alone.

An obvious but significant question which might be asked in this context refers to *how* the learning process the current position delineates takes place. In other words, what are the mechanisms, and the practical means which stem from them, which make (or may make) the generalizations from methodology training to in-session practicing possible. This question is of particular importance because it has been argued and shown (e.g., McPeck, 1990) that thinking skills are generally domain-specific. Moreover, extensive knowledge in a specific domain does not guarantee development of generalized thinking capability (Nickerson, 1988). However, as the research area of transfer of thinking skills is rapidly developing, several rules have been discovered associated with relevant practical propositions. For instance, we now know that some general dispositions (e.g., open-mindedness, self-regulation) can be developed in *applying effective examples and associated pratices* (e.g., Prawat, 1989). Also, it was shown that if new knowledge is associated with items stored in long-term memory and *meaningfully encoded* it becomes more generative rather than inert (Resnick & Klopfer, 1989). Another principle alludes to *discovery learning*, which refers to students' processing data and information to independently arrive at discoveries, resulting in higher meaningful abstractions (e.g., Bruner, 1971). Yet an additional principle refers to students' *active learning and involvement* in making discoveries (Bay, Staver, Bryan, & Hale, 1992). In a similar vein, Perkins (1987) and Perkins and Salomon (1989) emphasized *high-road transfer*, as opposed to low-road transfer. The concept of high-road transfer refers to a conscious and reflective effort to abstract basic principles of a thinking frame (i.e., a structure that organizes and supports thought processes) in a way that can be applied in a specific content area, which requires learners to be active (experience extensive practice), constructive (self-monitoring), and reflective in various domains or settings. These principles suggest that in order for the desired generalizations derived from a research methodology course to actually evolve, some special teaching approaches and techniques have to be considered.

In line with the latter ideas, a principal assumption of the current view is that a research methodology course is taught in a quality way to facilitate transfer of learning. Although it is beyond the scope of this paper, several course and teacher characteristics should be considered to make this training instruction effective. Among other characteristics, it seems to be of much importance that knowledge acquired in a research methods course be based on viable and *active learning* principles (Brown & Campione, 1994; Perkins, 1992), possibly by designing it with intriguing and involving methods (Jakoubek, 1995; Karon, 1995; Loughead, Menefee, & Black, 1991), using inter-university collaborative research

teams (O'Brien, 1995), formatting research training environments (Brown, Lent, Ryan, & McPartland, 1995; Galassi & Brooks, 1992), or applying problem-based (i.e., case) methods (McBurney, 1995; Stewart, 1997, this Issue). It is strongly believed that delivering quality research methods courses in counsellor education, along the lines indicated above, will foster better prepared counsellors.

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