Complexity and reflexivity: Two important issues for economic evaluation in health care

Chantale Lessard*

Department of Health Administration, Public Health Sector, Faculty of Medicine, University of Montreal, C.P. 6128, succursale Centre-Ville Montreal, Que., Canada H3C 3J7

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Abstract

Economic evaluations are analytic techniques to assess the relative costs and consequences of health care programmes and technologies. Their role is to provide rigorous data to inform the health care decision-making process. Economic evaluation may oversimplify complex health care decisions. These analyses often ignore important health consequences, contextual elements, relationships or other relevant modifying factors, which might not be appropriate in a multi-objective, multi-stakeholder issue. One solution would be to develop a new paradigm based on the issues of perspective and context. Complexity theory may provide a useful conceptual framework for economic evaluation in health care. Complexity thinking develops an awareness of issues including uncertainty, contextual issues, multiple perspectives, broader societal involvement, and transdisciplinarity. This points the economic evaluation field towards an accountability and epistemology based on pluralism and uncertainty, requiring new forms of lay-expert engagement and roles of lay knowledge into decision-making processes. This highlights the issue of reflexivity in economic evaluation in health care. A reflexive approach would allow economic evaluators to analyze how objective structures and subjective elements influence their practices. In return, this would point increase the integrity and reliability of economic evaluations. Reflexivity provides opportunities for critically thinking about the organization and activities of the intellectual field, and perhaps the potential of moving in new, creative directions. This paper argues for economic evaluators to have a less positivist attitude towards what is useful knowledge, and to use more imagination about the data and methodologies they use.

Keywords: Health economics; Complexity theory; Reflexivity; Economic evaluation in health care

Introduction

Human health is the outcome of complex processes that operate within multiple interacting systems (Healy, 1997). There is a paradox between the need for evidence-based medicine and the unique predicament, context, preferences and choices of the individual patient (Plsek & Greenhalgh, 2001). Furthermore, health problems and human behavior are unpredictable (Wilson, Holt, & Greenhalgh, 2001). In addition, health care is becoming more complex and multifaceted (Mechanic, 1995; Plsek & Greenhalgh, 2001). Many health care decisions are difficult because they involve large uncertainty, and have important consequences such as impact on quality-of-life of individuals and on allocation of limited resources.
Our way of thinking about human health, health problems and health care needs to reflect this complex interrelatedness (Healy, 1997).

Many of the strengths of traditional science, today, are central to its failings. Healy (1997, p. 507) argues that the ability of traditional scientific research “to reduce a complex world to a series of rules involves a narrow focus that excludes details of the larger complexity of that world, both human and non-human”. As a human activity, scientific research necessarily requires to be conducted by an individual or individuals. The researchers’ ontological and epistemological stances (i.e., their attitudes towards the nature of reality, truth, and knowledge) are indicative of the perspectives represented in a research endeavor (Mantzoukas, 2004). Medical and biomedical sciences are dominated by the logical positivism of traditional science which assumes the existence of an objective and universal reality, and considers researchers as independent observers (FitzGerald, 1995; Herman, 1992; Kneebone, 2002; Malterud, 2002). However, contemporary theory of knowledge realizes that all scientific knowledge (including laboratory facts) is constructed and reflects the researchers’ viewpoints, thus criticizing the belief of a neutral observation (Haggerty, 2003; Latour & Woolgar, 1986; Lynch, 2000; Malterud, 2002; Mantzoukas, 2004). All scientific facts must be conquered, constructed, and confirmed (Bourdieu, 1992).

Health care professionals are highly influenced by scientific research, while health care managers and policy makers, who are working in bureaucratic organizations, are principally concerned with rationality (FitzGerald, 1995). With the growth of health care costs, managers and policy makers have begun to turn towards the discipline of health services research, with a focus on the area of health economics (Frankford, 1994). Health economics is the branch of economics (social science) concerned with how scarce health care resources are allocated to maximize the health of the community (Drummond, O’Brien, Stoddart, & Torrance, 1997; Heyland, Gafni, Kernerman, Keenan, & Chalﬁn, 1999; Small & Mannion, 2005). Economic evaluations are analytic techniques to assess the relative costs and consequences of health care programmes and technologies (Davies, Coyle, & Drummond, 1994; Heyland et al., 1999). The role of economic evaluations is to provide rigorous data to inform the health care decision-making process (Davies et al., 1994; Drummond et al., 1997; Heyland et al., 1999). Economic evaluation is an applied field under the sway of positivism.

Interest in economic evaluation of health care programmes and technologies has increased considerably since the early 1990s (Hoffmann & Graf von der Schulenburg, 2000; Soto, 2002). However, investigations have shown that the influence of economic evaluations on health care decision-making is rather limited. A number of barriers to the use of economic information have been identified and appear to be international, including questions about reliability and relevance of economic evaluations (Drummond et al., 2003; Hoffmann & Graf von der Schulenburg, 2000; Van Velden, Severens, & Novak, 2005). The complexities of economic evaluations pose particular problems because it allows more analyst discretion than clinical trials (Drummond, 1998; Reinhardt, 1997; Sheldon, 1996; Soto, 2002).

One solution would be to encourage a critical thinking and professional reflection upon the issues of perspectives and context. Complexity thinking contributes to develop awareness of issues including uncertainty, contextual issues, multiple perspectives, broader societal involvement, and transdisciplinarity (Albrecht, Freeman, & Higginbotham, 1998; Healy, 1997; Van de Vijver, Van Speybroeck, & Vandevyvere, 2003). The ability of complexity science to detail the various perspectives and highlight their ramifications makes possible a more explicit description of the priorities and interests that are taking part in their realization (Van de Vijver et al., 2003). Broader conceptions, and related representations, of uncertainty can enable the elaboration of fundamental value distinctions embedded in different types of knowledge. This will be particularly relevant for contextual knowledge (Gatrell, 2005; Healy, 1997).

The increased emphasis on the context and process of data production highlights the issue of reﬂexivity in economic evaluation (Coast, McDonald, & Baker, 2004). A commitment to reﬂexivity could increase the integrity and reliability of economic evaluation in health care. Despite his impressive life work and academic inﬂuence, the French social scientist Pierre Bourdieu has had limited attention in the health economics and economic evaluation literature. Bourdieu’s studies have revealed the structuring effects of social fields on their members’ beliefs, dispositions, and practices (Maton, 2003; Rhynas, 2005). Reflexivity is
recurrant and central in his work (Bourdieu & Wacquant, 1992; Leander, 2002; Rhynas, 2005). Bourdieu’s concept of reflexivity is epistemological, collective, and non-narcissistic (Bourdieu & Wacquant, 1992; Karakayali, 2004; Maton, 2003; Pels, 2000). Through a reflexive practice, it is possible to free researchers from their illusions of objectivity, especially about themselves (Bourdieu & Wacquant, 1992). In fact, reflexivity offers the possibility to be objective in determining practice (Rhynas, 2005).

I believe that complexity and reflexivity are two of the most important issues for economic evaluation in health care. In this article, I will try to answer the following questions: Why should the field of economic evaluation adopt a paradigm based on complexity theory? What role should reflexivity play in the field of economic evaluation? To achieve this, I will explore the science of complex adaptive systems and Bourdieu’s concept of reflexivity as specific challenges.

Economic evaluation in health care

Neo-classical mainstream economics is the disciplinary mode of thinking that economics brings to the topic of health and health services (Coast et al., 2004). Welfare economics, with its core normative and behavioral assumptions (i.e., utility maximization, consumer sovereignty, consequentialism, and welfarism), provides the theoretical basis for normative mainstream health economics (Coast et al., 2004; Mannion & Small, 1999; Small & Mannion, 2005). Alternatives to welfare economics have been proposed, and include non-welfarist approaches which focus on societal objectives and are concerned with maximizing health (Coast, 2004).

Health economics is partly concerned with determining how health care resources can be used in the most efficient way (Drummond et al., 1997; Heyland et al., 1999). Economic evaluations are analytic techniques to assess the relative costs and consequences of health care programmes and technologies (Davies et al., 1994; Heyland et al., 1999). The role of economic evaluations is to provide rigorous and objective data to inform and improve the health care decision-making process (Davies et al., 1994; Drummond et al., 1997; Heyland et al., 1999). The process of decision-making takes place at different levels of the health care system: macro (policy), meso (administrative) and micro (clinical practice). Viewing the decision-making process from different perspectives, the decision-makers’ attitudes towards economic evaluations as an aid for health care decision-making may also differ (Drummond et al., 2003).

Despite the growing activity in the field of economic evaluation in health care and the methodological developments in recent years, investigations have shown that the influence of economic evaluations on health care decision-making and the knowledge about the formal methodology are rather limited. A number of barriers to the use of economic evaluations have been identified and appear to be international, including questions about the practice, relevance, transparency, generalizability of results, vulnerability to bias, and timeliness of economic evaluations (Drummond et al., 2003; Hoffmann & Graf von der Schulenburg, 2000; Van Velden et al., 2005). Birch and Gafni (2006) argue that the practical consequence of using the incremental cost-effectiveness ratio and cost-effectiveness threshold approaches is an increase in health care expenditures, without any evidence of an increase in total health benefits.

Decision analytic modeling is increasingly being used in many, but not all, economic evaluations to evaluate complex and difficult health care decisions under a state of uncertainty (Drummond, 1998; Lee et al., 2003; Soto, 2002; Weinstein et al., 2003). Applying mathematics to solve health care decision problems may grant an aura of objectivity and truth to the results produced through such methods (Richard, 2003). Nevertheless, the complexity of model-based economic evaluations poses particular problems because it allows more analyst discretion than clinical trials. There are still limitations and problems with these analyses, including the assumptions made in constructing them, the data used in the analysis, their degree of transparency, and their validation in everyday health care practice (Drummond, 1998; Reinhardt, 1997; Sheldon, 1996; Soto, 2002; Weinstein et al., 2003). Despite the aesthetics of models and the precision of computation, decision analytic modeling may oversimplify complex decisions. In practice, many of these analyses are focused on narrowly defined populations, and driven by expertise and opinion, which might not be appropriate in a multi-objective, multi-stakeholder issue (Lee et al., 2003; Richard, 2003).

The issues of generalizability and relevance of economic evaluation findings are of particular interest (Sculpher et al., 2004). Economic evaluations frequently depend on effectiveness information produced by clinical trials (Klein, 2005).
Context and relationship are often ignored or marginalized in economic evaluation (Gatrell, 2005; Healy, 1997). For example, quality-adjusted life years (QALYs) are commonly used as a single outcome measure for economic evaluations. This means that important health consequences, contextual elements or other relevant modifying factors, are excluded (Camidge et al., 2005; Coast, 2004; Coast et al., 2004). In their review, Sculpher et al. (2004) found that few economic evaluations took contextual factors into consideration or engaged decision-makers sufficiently. However, it is now recognized that the nature of reality is relative and socially constructed, and identical findings can lead to very different interpretations (Finlay, 2002; Manson, 2001). The results of economic evaluations and their implementation are not totally independent of the decision-making context (Drummond, 1994). Even if an objective approach is adopted throughout an economic evaluation, there is always the risk of misrepresentation and manipulation of the data by various stakeholders, in particular when communicating the results to health care decision-makers or the general public (Beutels, 2004; Drummond, 1998).

Some authors (Barbieri & Drummond, 2001; Beutels, 2004) dispute that industry sponsorship of economic evaluations is more likely to resort to qualitative bias when discussing the quantitative results. Concerns about industry sponsorship of economic evaluations remain and are more extensive than those expressed about industry sponsorship of clinical trials (Drummond, 1998; Drummond et al., 2003; Hoffmann & Graf von der Schulenburg, 2000). Furthermore, other potential bias are now recognized, including political bias and professional rivalries among researchers (Drummond, 1998; Kanavos, Trueman, & Bosilevac, 2000). Despite more stringent guidance on how economic evaluations are to be completed, economic evaluation research will always allow more discretionary decisions than clinical research (Drummond, 1998).

Economic evaluation arguments are utilitarian in nature and therefore population-based (Duthie, Trueman, Chancellor, & Diez, 1999). In fact, economic evaluation is concerned with questions of both efficiency and equity, although efficiency often appears to be the primary concern (Leander, 2002). Some argue that the current utilitarian approach fails to consider all society’s values and health objectives (Camidge et al., 2005; Coast, 2004; Coast et al., 2004; Nord, Pinto, Richardson, Menzel, & Ubel, 1999; Stolk, van Donselaar, Brouwer, & Busschbach, 2004). For example, the societal value of a year of life may differ between clinical settings, whereas maximizing health may not be the societal objective (Coast, 2004; Mannion & Small, 1999).

It is evident that the prevailing paradigm in economic evaluation is having problems both in its descriptive and prescriptive powers (Mannion & Small, 1999; Small & Mannion, 2005). The majority of applied economists (including health economists and economic evaluators) practice a form of positivism (Drummond et al., 1997; Mannion & Small, 1999; Richardson & McKie, 2005). The notions of objectivity, value-freedom and disinterest are rooted in traditional positivist approaches (Healy, 1997; Mannion & Small, 1999). Transparency and accountability of economic evaluations are important issues (Reinhardt, 1997). It is in the interest of all those concerned (academics, consultancies, industry, government, patients, society) to increase the credibility and respectability of economic evaluations in health care (Beutels, 2004; Drummond, 1996; Reinhardt, 1997). Drummond (1998, p. 8) argues that, since the potential for bias in economic evaluations cannot be eliminated, researchers “need to learn to live with it”. One approach would be to develop a new paradigm based on the issues of perspective and context. This highlights the issue of complexity for economic evaluation in health care.

**The science of complex adaptive systems**

Complexity science is the study of complex adaptive systems. Complex adaptive systems are characterized by a large number of agents or elements interacting dynamically and exchanging information through relatively rich means, and whose actions are interconnected among all agents in the system (Anderson, Crabtree, Steele, & McDaniel, 2005; Anderson & McDaniel, 2000; Gatrell, 2005; Plsek & Greenhalgh, 2001). Although
interactions occur at a local level, the richness of connections and patterns of relationships among agents means that they can have an impact on the whole system (Albrecht et al., 1998; Anderson & McDaniel, 2000; Anderson et al., 2005; Gatrell, 2005; Munday, Johnson, & Griffiths, 2003). No single agent or element knows the system as a whole; therefore, one cannot understand a complex adaptive system by examining individual components (Anderson & McDaniel, 2000; Anderson et al., 2005; Gatrell, 2005). Interactions are non-linear, meaning that small, random changes in one component or element of the system can lead to large changes in that system (Albrecht et al., 1998; Anderson et al., 2005; Gatrell, 2005; Munday et al., 2003; Plsek & Greenhalgh, 2001). There are often positive and negative feedback loops in the interactions (Anderson & McDaniel, 2000; Gatrell, 2005; Munday et al., 2003).

Over the time, the character of a complex system emerges through spontaneous self-organization (Albrecht et al., 1998; Gatrell, 2005; Munday et al., 2003). The capacity for self-organization enables complex adaptive systems to create or change their structures, via the interactions of system elements, and behaviors in order to meet the changing demands of internal and external environments (Anderson & McDaniel, 2000; Anderson et al., 2005; Gatrell, 2005). This may cause new system properties to emerge (Anderson et al., 2005; Gatrell, 2005). These emergent properties have synergistic characteristics; the whole is greater than the sum of its constituent parts (Albrecht et al., 1998; Anderson & McDaniel, 2000; Anderson et al., 2005; Manson, 2001; Plsek & Greenhalgh, 2001). Order can emerge naturally from fluctuations within a system (Albrecht et al., 1998; Anderson & McDaniel, 2000; Plsek & Greenhalgh, 2001). Although there may be a lack of detailed predictability, complex adaptive systems can form a specific type of patterns around attractors and follow overall predictable path of development (Albrecht et al., 1998; Plsek & Greenhalgh, 2001).

Complex adaptive systems are open, and thus agents interact and exchange information with others beyond the system boundaries (Anderson & McDaniel, 2000; Anderson et al., 2005; Gatrell, 2005). Both the systems and environment change evolve through these interactions (Anderson et al., 2005; Manson, 2001; Plsek & Greenhalgh, 2001). A complex adaptive system can create new behaviors as a result of information exchanges because it has diverse agents linked by complex relationships (Anderson et al., 2005; Manson, 2001). Because of co-evolution, the system’s history is “co-responsible” for its current and future behavior (Anderson & McDaniel, 2000; Anderson et al., 2005; Gatrell, 2005).

Complexity thinking in health care

Newton’s “clockwork universe” has strongly influenced the medical and biomedical sciences (Plsek & Greenhalgh, 2001). It involved both the breaking down of complex sociomedical problems into smaller ones in order to analyze, understand and solve them by rational deduction, and a search for laws for the predictable and the universal (Mannion & Small, 1999; Plsek & Greenhalgh, 2001). The universal models of science are designed to be applicable regardless of place, culture or other contextual circumstances (Healy, 1997). These traditional “reduce and resolve” approaches emphasize problem solving, prediction and control (Anderson & McDaniel, 2000; Gatrell, 2005; Healy, 1997).

The current mental model in medicine compares the human body to a machine and health problems to a malfunction of its parts. By breaking down clinical care into small divisions, it is possible to precisely and accurately identify the most appropriate intervention for each problem (Wilson et al., 2001). However, the management of most health problems is rarely simple. Many health care decisions are difficult because they involve a high degree of complexity, large uncertainty, tradeoffs across multiple objectives, perspectives of different stakeholders, and have important consequences such as impact on quality-of-life of individuals and on allocation of limited resources (Lee et al., 2003). Clinical decision-making can be considered as a complex social process with multiple factors, mediated by individual and social contexts (Clark, Potter, & McKinlay, 1991). Following the unpredictability of health problems and human behavior, cause and effect modeling seems inappropriate (Wilson et al., 2001).

New paradigms that incorporate a dynamic and emergent view of the world must replace reductionist approaches to health care (Plsek & Greenhalgh, 2001). Complexity science offers an alternative model for conceptualizing health and health problems as expressions of parts of complex, dynamic and interacting systems (Albrecht et al.,
1998; Plsek & Greenhalgh, 2001; Wilson et al., 2001). Human beings are inherently complex, and can be viewed as composed of and operating within multiple interacting systems, ranging from the biomedical, cellular, genetic, physiological and psychological systems to the social, cultural, ecological and political systems (Albrecht et al., 1998; Munday et al., 2003; Wilson et al., 2001).

Albrecht et al. (1998) argue that complexity theory, with its concern for nonlinear relationships, interactive causality and emergent properties of systems, presses researchers to adopt a transdisciplinary perspective. Politically, the incorporation of a multiplicity of perspectives, values, approaches, experiences and point of views, in solving complex health problems leads towards a politics of inclusion. Transdisciplinary thinking is open a priori to all theories of knowledge, and approaches health issues in the broadest possible context (Albrecht et al., 1998).

Why complexity theory is important for economic evaluation in health care?

Complexity theory may provide a useful conceptual framework for economic evaluation in health care. Current approaches in economic evaluation emphasize problem solving, prediction and control, whereas complexity theory emphasizes explanation and understanding. Relations and interconnectedness are important in both complexity theory and prevailing economic evaluation approaches (Gatrell, 2005). However, complexity theory foregrounds concepts of self-organization, emergence, non-linearity, and co-evolution, and it is these notions that may provide added value and which are missing from the existing economic evaluation frameworks (Anderson & McDaniel, 2000; Anderson et al., 2005; Gatrell, 2005).

By taking for granted assumptions about actors’ interests and interactions, economists leave out a very important part of social reality. Social reality is complex, contextual and constructed. Because of their socially constructed nature, understanding preferences and behaviors requires serious attention to social reality (Bourdieu, 2005; Leander, 2001; Small & Mannion, 2005). Complexity thinking contributes to develop awareness of issues including uncertainty, contextual issues, multiple perspectives, broader societal involvement, and transdisciplinarity (Albrecht et al., 1998; Healy, 1997; Van de Vijver et al., 2003). The ability of complexity science to detail the various perspectives and highlight their ramifications makes possible a more explicit description of the priorities and interests that are taking part in their realisation (Van de Vijver et al., 2003). Broader conceptions, and related representations, of uncertainty can enable the elaboration of fundamental value distinctions embedded in different types of knowledge. This will be particularly relevant for contextual knowledge (Gatrell, 2005; Healy, 1997). Complexity theory suggests that many types of knowledge are valid and useful for economic evaluation, and not just knowledge produced by traditional science (Munday et al., 2003; Øvretveit, 2002). For the field of economic evaluation, the use of complexity theory will involve the acknowledgement of complex, interdependent relationships with broader contextual, economic, social, cultural, political, and other non-technical factors (Healy, 1997).

McLain (2002, p. 251) believes that “the marginalization of practice reflects the separation of scientific and everyday knowledge, experts and lay publics, knowledge and society, and theory and practice”. A turn towards complexity science would lead the field of economic evaluation in health care towards an accountability and epistemology based on pluralism and uncertainty, requiring new forms of lay-expert engagement and roles of lay knowledge into decision-making processes (McLain, 2002; Webster, 2002). This will provide the basis for the engagement of economic evaluation and policy, and economic evaluation knowledge and broader society (Healy, 1997; McLain, 2002). Central to this will be an acknowledgement of the limitations and weaknesses of economic evaluation in health care. Broader conceptions, and related representations, of uncertainty can enable the elaboration of fundamental value distinctions embedded in different types of knowledge. This will be particularly relevant for contextual knowledge and for the extension of stakeholders involvement in the production, evaluation and application of economic evaluation in health care (Gatrell, 2005; Healy, 1997).

Observational research, both quantitative and qualitative, including narrative-based approaches, would more firmly ground economic evaluations in the experience of people engaging with health care systems (Mannion & Small, 1999; Munday et al., 2003). The development of these methodologies would also allow for a more holistic, critical, and empowering approach to economic evaluation in
health care (Mannion & Small, 1999). Albrecht et al. (1998) argue that complexity theory, with its concern for nonlinear relationships, interactive causality, and emergent properties of systems, presses researchers to adopt a transdisciplinary perspective. Politically, the incorporation of a multiplicity of perspectives, values, approaches, experiences, and point of views, in solving complex health problems leads towards a politics of inclusion. Transdisciplinary thinking is open a priori to all theories of knowledge, and approaches health issues in the broadest possible context (Albrecht et al., 1998). The transdisciplinary approach could lead to a more equitable and efficient use of health care resources because allocation decisions would be based on fuller knowledge and better understanding of health problems (Albrecht et al., 1998). For example, Eccles (2004) argues that multidisciplinary groups composed of clinicians, consumers and health economists, can adopt a societal perspective on health care.

On the other hand, it has been argued that economic evaluators would take the risk to widen the margin of choice of decision-makers and to reduce the generalizability of results of their analyses (Moatti, Chanut, & Benech, 1994). Nonetheless, it has been suggested that the criterion of generalizability be replaced by transferability (Coast et al., 2004). In the qualitative literature, transferability of a research study implies the development of knowledge that, through critical reading and decision-making, can be contested and shared (Malterud, 2002; Manztoukas, 2004). It places a requirement on researchers to give detailed descriptions of the intervention, context and process of data production to allow readers to assess the transferability to their settings (Coast et al., 2004; Øvretveit, 2002). The recognition that settings may share similar features highlights the importance of developing research hypotheses which are potentially transferable between different settings (Coast et al., 2004). The increased emphasis on the context and process of data production highlights the issue of reflexivity in economic evaluation for the development of knowledge that can be made transferable across different settings (Coast et al., 2004; Malterud, 2002).

**Bourdieu’s concept of reflexivity**

The social scientist Pierre Bourdieu has written on a wide range of subjects, and his analyses have revealed the structuring effects of social fields on their members’ beliefs, dispositions, and practices (Maton, 2003; Rhynas, 2005). His attempt to undermine the debate between objectivism and subjectivism is central to his work (Bourdieu & Wacquant, 1992; Kenway & McLeod, 2004; Rhynas, 2005). Bourdieu (1980) proposes that subjective approaches often overlooks objective structures and social conditions that play a role in subjective decision-making. On the other hand, objective approaches often uses implicit, subjective observations, and understandings (Bourdieu, 1980; Rhynas, 2005). Bourdieu’s concepts of habitus and field suggest a different conceptualization of the subject, as socially embedded, as embodied dispositions shaped by one’s location within social fields. The relationship between habitus (disposition) and field (position) is central to Bourdieu’s understanding of reflexivity (Bourdieu, 1980; Bourdieu & Wacquant, 1992; Kenway & McLeod, 2004).

Reflexivity is recurrent and central in Bourdieu’s work (Bourdieu & Wacquant, 1992; Leander, 2002; Rhynas, 2005). His concept of reflexivity entails the systematic exploration of the “unthought categories of thought which delimit the thinkable and pre-determine the thought” (Bourdieu & Wacquant, 1992, p. 40). Namely, Bourdieu (1992) is interested in the specific determinisms that weigh on the thought of the thinkers. According to him, reflexivity brings to our knowledge the existence of these constraints, which thus opens up the possibility of liberating thought. It also provides the means to objectify these social determinants of thought, and in objectifying them, to control them to a certain degree (Bourdieu, 1992; Bourdieu & Wacquant, 1992).

Bourdieu’s concept of reflexivity may be characterized as epistemological, collective and non-narcissistic (Kenway & McLeod, 2004; Maton, 2003; Rhynas, 2005). It is not the individual researcher who is of primary interest to Bourdieu, but rather the intellectual field as a whole (Bourdieu & Wacquant, 1992; Heilbron, 1999; Maton, 2003). The purpose is not to expose the biases of the individual researcher, but to uncover the collective scientific unconscious embedded in scholarly practices by the field’s objectifying relations (Bourdieu & Wacquant, 1992; Maton, 2003). This collective reflexive analysis provides an epistemological basis for scientific knowledge (Bourdieu & Wacquant, 1992). He believes that “reflexivity makes possible a more responsible politics, both inside and
outside of academia” (Bourdieu & Wacquant, 1992, p. 194).

Bourdieu (1980) identifies three potential sources of bias in knowledge claims. The first and most obvious sources of bias are those brought into the study by the position of the researcher, notably class and gender, and the hidden interests of individual researchers as well as of research institutions. The second source of bias relates to the position the researcher occupies in the intellectual field. The third and most profound type of bias that pervades the intellectual field is the intellectualist bias (or the “scholastic point of view”) (Bourdieu, 1980; Bourdieu & Wacquant, 1992; Karakayali, 2004; Kenway & McLeod, 2004; Lewandowski, 2000; Maton, 2003). Intellectualist bias occurs when researchers are not conscious or critical of the hidden assumptions inherent to their intellectual posture and which structure their research (Bourdieu & Wacquant, 1992; Karakayali, 2004).

According to Bourdieu (1980, 2003), reflexivity is achieved through participant objectivation, and by that he means the “objectivation of the subject of objectivation”. The reflexivity fostered by participant objectivation has three distinctive features. In the first instance, it does not undertake to explore the personal experiences of the researcher (Bourdieu, 1980, 2003; Bourdieu & Wacquant, 1992; Heilbron, 1999; Kenway & McLeod, 2004). It is an attempt, not to subjectify, but to objectify the objectifying subject, in other words to use the most objectivist tools of social science to become aware of the conditions of possibility (i.e., dispositions, strategies, limits, hidden assumptions, etc.) of the intellectual practice (Bourdieu, 1980, 2003; Bourdieu & Wacquant, 1992; Heilbron, 1999; Karakayali, 2004; Leander, 2002; Pels, 2000). Second, reflexivity does not lead to a relativistic stance (Heilbron, 1999; Moatti et al., 1994). It is not in opposition to scientific knowledge. On the contrary, reflexivity is a means of underwriting objective scientific knowledge (Bourdieu, 1980, 2003; Bourdieu & Wacquant, 1992; Heilbron, 1999; Maton, 2003; Pels, 2000). Third, reflexivity allows researchers to face issues which are the least obvious and the most difficult to acknowledge, and that not so much for technical but for social reasons, for reasons linked specifically to the scholastic view to which the inhabitants of the academic world tend to adhere without being conscious of it (Bourdieu, 1980; Bourdieu & Wacquant, 1992; Heilbron, 1999).

**Why reflexivity is important for economic evaluation in health care?**

The goal of reflexivity is to improve research quality, validity, reliability and relevance (and ultimately utilization), and to reveal knowledge limitations, thus to lead to more rigorous research (Guillemin & Gillam, 2004). Pels (2003, p. 211) argues that “there “can be no such thing” as a search for knowledge which is purely interest-free, curiosity-driven, or value-neutral, or a form of dialogue or discussion that can (or, for that matter, should) be liberated from power talk, interested negotiation, or strategic calculation”. Scientific practices are always bound up with intellectual, interpersonal, political and institutional considerations (Mauthner & Doucet, 2003; Moss, 2005). We have to recognize that researchers bring subjective experiences to the field of study (Rhynas, 2005). By bringing to consciousness the sociopolitical processes at work within and beyond the profession, economic evaluators can gain some control over them and reconsider the concepts, practices and institutions through which they work (Moss, 2005). From this perspective, change is fostered through critical thinking and epistemological, collective reflexivity. This sort of radical doubt is only a preamble to a more controlled science, a science more conscious of itself (Bourdieu, 1992).

Most economic evaluation methods are presented as a series of neutral and decontextualized procedures, and thus as taking place in a social vacuum (Mauthner & Doucet, 2003). Reflexivity matters for how the problems are defined and analyzed, and thus what type of results can be obtained. It is important to remember that the economic evaluation researcher is situated in a context and is looking at the world from one’s own perspective. A reflexive stance limits the imposition of research priorities and analysis schemes which mirror that bias (Bourdieu & Wacquant, 1992; Leander, 2002). A reflexive stance is indispensable if economic evaluators are to recognize the complexity of their own practice (Kneebone, 2002).

Because economic evaluators use mainly, if not only, quantitative methods, it is unlikely that they have been prompted to justify their claims to knowledge (Bourdieu & Wacquant, 1992). Economic evaluators have to reflect on their own epistemological position. This does not compel one to deny the existence of an objective reality, but to question the ability to acquire knowledge of that reality.
(Coast et al., 2004). By doing this, they may in fact gain credibility and a more realistic and contributive relationship with the various actors involved in the health care decision-making process (Moatti et al., 1994).

Reflexivity is also important for a second reason. Indeed, by analyzing the logic of the field and the habitus of its actors, reflexivity provides the necessary base for emancipatory thinking and action about the impact of economic evaluation on social hierarchies (Bourdieu & Wacquant, 1992; Leander, 2002; Lynch, 2000; Schubert, 1995). This point refers to the idea that economic evaluation in health care cannot happen in isolation from the rest of society (Leander, 2002). The practice of Bourdieu’s sociological reflexivity enables researchers to identify, confront and transgress the socially constructed boundaries that delimit their practices (Bourdieu & Wacquant, 1992; Leander, 2002; Schubert, 1995). If unable to analyze the field sociologically, researchers are unknowing accomplices in the production or reproduction of social hierarchies (Bourdieu & Wacquant, 1992; Schubert, 1995).

External funding of research grants and contracts, and publication of results in international journals emphasize the need for reflexivity. Namely, this means subjecting the economic evaluation research agenda to the priorities of policy makers, fund managers, market participants or other stakeholders, and to the interests of the international academic community. It is important to think critically about how these priorities and interests fit with the economic evaluation research agenda. Without critical thinking, there is a risk of obscuring power relations and the location of the power to set the agenda (Leander, 2002).

Although economic evaluation is mostly quantitative in nature, much of the uncertainty associated with it is not. Broader diagnosis, characterization and communication of the uncertainty present in the scientific knowledge are important to an improved policy role for economic evaluation in health care. This will have a positive impact, not only on the quality of advice and information, but also on the appreciation of the relevance and power of knowledge (Healy, 1997).

Finally, economic evaluation is concerned with questions of both efficiency and equity, although efficiency often appears to be the primary concern. Econometrics and the application of econometric estimating techniques, including the implicit assumptions underlying the conceptual framework, privilege one type of knowledge and reproduce an established power structure (Leander, 2002). There is an ethical usage of reflexivity (Bourdieu & Wacquant, 1992; Guillemin & Gillam, 2004). Guillemin and Gillam (2004, p. 278) suggest that “being reflexive in an ethical sense means acknowledging and being sensitized to the ethical dimensions of research practice”. Therefore, a commitment to reflexivity would lead to a different practice of economic evaluation in health care. A critical and reflexive stance within the discipline would allow economic evaluators to raise questions about power and exclusion, and to consider both efficiency and equity (Mannion & Small, 1999).

**Conclusion**

I strongly believe that the field of economic evaluation in health care should adopt a paradigm based on complexity theory, and that reflexivity has an important role to play. There are several good reasons for this, not the least of which are that both the concepts of complexity and reflexivity are important for good research practice, expand the scope of economic evaluation, increase its real-world applicability, and make possible a more responsible politics.

In practice, context and relationship are often ignored or marginalized in economic evaluation in health care (Gatrell, 2005; Healy, 1997). However, it is now recognized that the nature of reality is relative and socially constructed, and identical findings can lead to very different interpretations (Finlay, 2002; Manson, 2001). From a reflexive perspective, technical knowledge and lay knowledge are thus related through a process of mutual transformation (McLain, 2002). An approach based on pluralism and uncertainty would more firmly ground economic evaluations in the experience of people engaging with health care systems (Mannion & Small, 1999; Munday et al., 2003).

Economic evaluation researchers are actively engaged in developing knowledge, and this process should be both systematic and reflective (Guillemin & Gillam, 2004; Malterud, 2002). Bourdieu’s concept of reflexivity provides opportunities for critically thinking about the organization and activities of the intellectual field, and perhaps moving in new, creative directions. It has been acknowledged that the concepts Bourdieu advocates may be
difficult to use (Leander, 2002; Rhynas, 2005). This is no reason for not practicing reflexivity.

This paper argues for economic evaluators to have a less positivist attitude towards what is useful knowledge, and to use more imagination about the data and methodologies they use. A turn towards complexity theory and reflexivity would provide the basis for the engagement of economic evaluation and policy, and economic evaluation knowledge and broader society. The issues of complexity and reflexivity should be put on the economic evaluation research agenda and be discussed at length. Is the field of economic evaluation in health care ready to rise to the challenge?

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