

Applying Evaluation to Information Science and Technology

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INTRODUCTION

As indicated by the wide range of topics addressed by this Encyclopedia, the fields of information science and technology have grown exponentially. Likewise, the field of evaluation has evolved and become increasingly integral to learning and improving upon principles and practices associated with all fields the Encyclopedia explores.

The field of evaluation is the formal transdiscipline of gathering information about the performance or nature of objects of evaluation and comparing the objects' performance to criteria to help participants make evaluative judgments (Scriven, 2004). Evaluation includes several elements: negotiation with multiple participants regarding their values and criteria, using many different kinds of processes to document and judge the performance of various objects of evaluation, formative and summative purposes, measurement and assessment techniques, and use of quantitative and qualitative data gathering and analysis processes.

This chapter documents the development of evaluation as a field; presents a framework for thinking about evaluation that is theoretically sound and practical to use; and explores ways to apply the framework to facilitate learning, improvement, decision-making, and judgment in all sub-fields of information science and technology.

BACKGROUND

After reviewing several approaches to achieving different evaluation purposes, the relationship between evaluation, measurement, and assessment is explored and the use of quantitative and qualitative data to facilitate evaluation is clarified.

EVALUATION THEORIES OR APPROACHES

For the last few decades, many approaches to evaluation have been evolving. In the 1960's several social scientists, psychometricians, and others responded to government challenges to evaluate funded programs by identifying approaches that have been debated and expanded for years. Many of these

approaches are summarized and discussed by Fitzpatrick, Sanders, and Worthen (2004) and Alkin (2004).

For example, one influential thinker, Daniel Stufflebeam (2004a), introduced the CIPP (context, input, process, product) approach in the early 1970's. He elaborated the idea of meta-evaluation and guided the Joint Committee on Evaluation Standards to generate meta-evaluation standards (Stufflebeam, 2004b) for judging evaluations of programs, personnel, and students.

Patton (2004), recognizing that many evaluations, using social science research approaches, were ignored by the stakeholders that they were supposed to serve, he therefore created utilization-focused evaluation. It promotes practical ways to ascertain and target stakeholders' criteria to raise chances of results use.

Lincoln and Guba (2004) questioned the dominant evaluation paradigms and proposed fourth generation evaluation. Its hermeneutic dialectic methods of working with stakeholders seeks to negotiate their often conflicting values to better identify criteria, standards, and questions for guiding evaluations.

Robert Stake's (2003) responsive approach proposed radical changes to his earlier countenance approach by acknowledging that evaluation is only one of many factors that communities of stakeholders consider when negotiating with one another about evaluating objects they care about together.

Cousins, Goh, Clark, and Lee (2004) noted that evaluation is part of most organizations and something all stakeholders are doing constantly. They reviewed ways to encourage stakeholders to collaborate in various participatory approaches to formal evaluation.

Fetterman and Wandersman (2005) have proposed an approach to evaluation that some argue is more a form of social activism than evaluation. Empowerment evaluation seeks to encourage professional evaluators to coach various stakeholder groups, but particularly those that traditionally have less voice in their social and political communities, to conduct their own evaluations.

Formative and Summative Purposes

Scriven (2004) has critiqued other approaches and proposed others, such as goal-free evaluation and the key evaluation

checklist. He also distinguished summative from formative evaluation, to not only test how well evaluands achieve their purposes but also to seek formative feedback to improve evaluands.

Measurement and Assessment Techniques

Another important distinction in the literature is the relationship between evaluation, measurement, and assessment, which are often used synonymously. In the *Encyclopedia of Evaluation* (Mathison, 2005) three authors note: “Measurement may be defined as the set of rules for transforming behaviors into categories or numbers” (Petrosko, 2005, p. 247). “Roughly synonymous with testing and evaluation in lay terms, assessment has become the term of choice in education for determining the quality of student work for purposes of identifying the student’s level of achievement” (Mabry, 2005, p. 22). “Evaluation is an applied inquiry process for collecting and synthesizing evidence that culminates in conclusions about the state of affairs, value, merit, worth, significance, or quality of a program, product, person, policy, proposal, or plan. Conclusions made in evaluations encompass both an empirical aspect (that something is the case) and a normative aspect (judgment about the value of something)” (Fournier, 2005, pp. 139-140).

One implication of these quotes is that thinking about the evaluation task in terms that include measurement and assessment as subsets of the broader evaluation concept should help anyone using evaluation to explore its wider ranging concerns and thus enhance whatever they are evaluating as well.

Quantitative and Qualitative

A final concern raised by the approaches to evaluation asks whether quantitative, qualitative, or a mixture of methods are better for evaluation. Although explored extensively in social science literature, this debate continues in evaluation literature as well. To many, some evaluation questions demand qualitative answers while others seem best

answered through quantitative data collection and analysis. Lately, mixing methods has been the answer many evaluation theorists give regarding method issues. However, as Yanchar and Williams (2006) have argued, mixing methods without taking into account the assumptions those methods are built upon does not make those assumptions meaningless or of no influence. All evaluators should examine and build upon assumptions they can support and trust when selecting methodologies and associated techniques of data collection and analysis.

Summary

The field of evaluation has developed through efforts of theorists and practitioners from many fields for several years. Although many issues remain unresolved, evaluation scholars and professionals identify several variables to account for in creating evaluations that help stakeholders. Many such variables are addressed in the evaluation framework described below.

AN EVALUATION FRAMEWORK

A framework for applying the lessons learned by the field of evaluation to the many fields associated with information science and technology includes the elements presented in Table 1 and explained thereafter.

IDENTIFYING STAKEHOLDERS

Who are the stakeholders interested in evaluation of information science and technology programs, projects, products, and so forth? This question should be addressed first according to most of the approaches to evaluation cited earlier. Some questions to clarify who the stakeholders are include: Who asked for the evaluation and why? Who is served by the evaluand or should be? Who is likely to use the evaluation results to do something helpful? Who does not usually have a voice in matters associated with the evaluand but has a stake in it?

Table 1. Elements of an evaluation framework guiding what evaluators should do

1. Identify stakeholders and objects of evaluation (evaluands) they care about.
2. Clarify background, literature, values, issues, criteria, standards, and guiding questions reflecting stakeholders’ beliefs about “what should be” regarding the evaluands.
3. Use data collection and analysis to document “what is” regarding evaluands.
4. Compare “what should be” to “what is” to generate results and recommendations.
5. Meta-evaluate before, during, and after conducting an evaluation.

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