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Use and non-use of research evaluation
A literature review

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ABSTRACT

This paper reviews the literature in research evaluation and in social program evaluation on the topic of use and effects of research evaluation. The past two or three decades have seen the emergence of several new forms of research evaluation next to the existing peer review practices on papers and project proposals. The UK Research Assessment Exercises are among the most studied and discussed ones. Many other types of evaluations have received some attention but when it comes to their use and effects, interest also quickly faded. It seems time to re-address the issue and see what can be learned from the existing literature for a study of use and effects. The paper also draws on literature from social program evaluation for additional insights since in this field the concern for use and effects is further developed. The most important insight gained is that use and effects of evaluations extend beyond those implied by policy-cycle perspectives and peer review. Furthermore, concepts and conceptual frames from the field of science and technology studies can be productive in the study of a wide range of use and effects, including the pressing issue of non-use.

Keywords: Research evaluation, social program evaluation

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Abstract

This paper reviews the literature in research evaluation and in social program evaluation on the topic of use and effects of research evaluation. The past two or three decades have seen the emergence of several new forms of research evaluation next to the existing peer review practices on papers and project proposals. The UK Research Assessment Exercises are among the most studied and discussed ones. Many other types of evaluations have received some attention but when it comes to their use and effects, interest also quickly faded. It seems time to re-address the issue and see what can be learned from the existing literature for a study of use and effects. The paper also draws on literature from social program evaluation for additional insights since in this field the concern for use and effects is further developed. The most important insight gained is that use and effects of evaluations extend beyond those implied by policy-cycle perspectives and peer review. Further more, concepts and conceptual frames from the field of science and technology studies can be productive in the study of a wide range of use and effects, including the pressing issue of non-use.

2 Introduction

Recently, Whitley & Gläser (2008, p. v) have put the effects of research evaluation on the agenda through a volume of the *Sociology of the Sciences Yearbook*. Mostly discussing developments of the past decade, the volume lacks a literature review. This paper addresses that omission in order to draw lessons for studies on use and effects of research evaluation.

It draws on literature from science policy studies as well as evaluation studies - meaning the studies of evaluation of social programs in general - dating back to the 1970s/1980s. In both bodies of literature, the issue is not unattended but understudied compared to for example methods of research evaluation, quantitative assessments and peer review.

For this literature review, I initially searched for papers about the use and effects of research evaluation. Besides a search of the Lund University library, I searched journals in the field of social program evaluation, science policy studies and the broader field of science and technology studies (STS)[i]. Accidentally, I became acquainted with the work of Ter Bogt and Scapens, which triggered me to look in journals for accounting research. In total, this review covers 18 journals[ii]. In addition I searched my literature database of collected texts in science policy studies and STS,

and browsed the collection of texts on research evaluation made available by [a colleague], to whom I am indebted for that. Of the most relevant texts, I scanned the reference lists.

It soon became clear to me that with two topical exceptions, there is not much interest in the use and effects of research evaluations. The two exceptions concern peer review and the assessment based block funding of universities, known as the Research Assessment Exercises in the UK, and under different names in Australia and other countries. The interest is such that it warrants separate literature reviews. At the same time, the literature covering other forms of research evaluation show that their use and effects are much less obvious. Perhaps disappointingly so to some actors in the field, but if their use and effects are indeed limited then that asks for investigation because one may wonder why they are (still) being performed and why at the same time their numbers seem to be growing.

When it became clear to me that there were few articles on the use and effects of research evaluation, I expanded the search to use and effects in social program evaluation. On this topic perhaps no abundance of texts exists either, but SPE has a higher level of interest, reaching the point that it leads to overview articles and reflections on the topic. Here, I limited my scope to mostly those articles. The searches were performed between August 2009 and February 2010. After that, I kept track of new-issue alerts of most of the journals.

The following section presents an overview of the two fields of SPE and RE - as they are two fields with different sets of authors - to prepare the ground for the comparison of the two fields. Section **Error! Reference source not found.** presents the findings from the two bodies of literature, and the final section presents the lessons that can be drawn for a study on the use and effects of research evaluations.

3 A historical overview of two fields of evaluation research

To provide a basis for the following chapters, this chapter provides sketches of the historical and conceptual developments in social program evaluation (SPE) en research evaluation (RE).

3.1 Social program evaluation

To provide but one[iii] sketch of the historical background of social program evaluation (SPE) or evaluation research: the field developed from practices of measuring student

achievements in the US and France around 1900. IQ tests, mental tests and scientific management were introduced about a decade later in Europe and the US. As of the 1930s, evaluative descriptions were developed to improve and refine curricula, and in the 1960s, authors such as Michael Scriven (1967) stressed the elements of judgements and standards in evaluations, leading to discussions about who should provide these and the development of evaluation models in the late 1960s and 1970s. (Guba & Lincoln, 1989, p. 22 - 31)

From around the 1960s, within SPE, evaluation is often framed in a basic top-down policy-cycle perspective . In this perspective, it is placed in a decision making cycle (Colebatch, 2006, p. 49 -51), often in two 'locations'. One is at the point where a decision has to be made on the continuation of an existing program to which an evaluation can be an input. The other is in the course of a running program so that program staff can improve the program. For example, Weiss (1972) states: "the purpose of evaluation research is to measure the effects of a program against the goals it set out to accomplish as a means of contributing to subsequent decision making about the program and improving future programming" (p. 4)

When authors in this perspective deal with use and effects of evaluations, they accordingly focus on the use of an evaluation in the decision making process about follow-up, and on the improvement of a social program. For example Leviton (1981) : "We suggest that cycles of bureaucratic decision-making and policy revision determine the type of use to which evaluations can be put." (p. 531)

The 1970s saw a (further) professionalization of social program evaluation. In 1976, the Evaluation Network and the Evaluation Research Society were established[iv]. Also journals such as *Evaluation Review* (1977), *Evaluation Practice* (1979), and *American Journal of Evaluation* (1980) were launched and standards for evaluation were being developed in 1981 and 1988 (Guba & Lincoln, 1989, p. 13; Shadish, Cook et al., 1991 p. 29)

It is difficult to pinpoint but, as a first attempt, from the late 1960s onward, so in the course of this professionalization, increasingly more authors started to realize that the basic policy-cycle perspective did not fit with their practical experiences in evaluations and that alternative views were possible (Scriven, 1983). Weiss (1972) exhibits a strong practical orientation. While still adhering to and in a way on top of the policy-cycle perspective, she pinpoints many practicalities that do not fit the model but without drawing the conclusion that the model might not be appropriate.

Others were more articulate in their critiques up to the point that they developed alternative models which step away from the policy-cycle perspective in various degrees. Stake (1974) and colleagues proposed 'responsive evaluation' which orients itself towards program activities rather than intentions, which responds to information requirements from the audience, and thirdly, which in its reports on success and failures refers to different value-perspectives of people involved (p. 8).

Patton (1978) developed a 'utilization-focused evaluation' approach based on the finding that when evaluations are used, this is not a sudden nor a singular ground shaking event, but rather a gradual process "of reducing decisionmaker uncertainty

within an existing social context" (p. 34) Thus, an important first step in the approach is the identification of relevant decision makers and information users. These are specific individuals who want evaluative information (p. 70), rather than organizations with formal, stated goals.

   Guba & Lincoln building on Stake's responsive evaluation concept, introduce 'fourth generation evaluation' which stresses the notion of negotiations between different stakeholders in an evaluation (p. 8). In addition their approach is explicitly constructivist (p. 12 - 13, 16), which, among other things, mean taking the context of an evaluation into account (p. 8). In contrast to Patton, these authors do not primarily focus on the decision makers or those who want evaluative information. They note that some persons "are drawn into an evaluation because they are put at risk by it." (p. 14) and that one of the shortcomings of earlier evaluation methods is its orientation towards managerialism[v]: the manager contracts the evaluator and this leads to the manager not being subject of evaluation, which means that if failures are found, the manager can not be blamed. In addition "the typical manager/evaluator relationship is *disempowering* and *unfair*." (p. 32, stress in original) because the contracting manager has the ultimate power to determine the shape of the evaluation, even though this is usually settled in consultation with the evaluator.

   Although Stake, Patton and Guba & Lincoln propose new ways to approach social program evaluations and although they have drawn attention, the policy-cycle perspective is far from defeated, perhaps as alive and kicking as it ever was. Weiss (1998) evaluates what the profession has learned about the use of evaluation since the late 1980s. She has mixed feelings about constructivist ideas which "make us think more carefully about using evaluation results to construct generalizations and syntheses" but doubts whether they revitalized the use of evaluations[vi] (p. 30). When participatory approaches are concerned, she indicates that they have advantages and limitations. Weiss wished it was different but observes that in practice the programs' beneficiaries[vii] often are not involved in participatory evaluations and as a result, the studies are likely to be conservative (p. 30). Another more recent indication that the policy-cycle perspective is still around can be found in Leeuw (2008) "The fourth criterion [which defines an evaluation system] is that the information from evaluative activities is (institutionally) linked to decision and implementation processes." (p. 5)

3.2   Research evaluation

Research had had its internal peer review practices in different shapes as practiced in scientific academies and journals for over a century and a half or more (Shapin & Shaffer, 1985). In the course of the post World War II decades, the rise of research councils and other funding organizations added similar peer review practices to academic life, amounting to a set of evaluation practices along a project's life cycle (Latour & Woolgar, 1979). Somewhat later, ministries, research councils and other actors became interested in new forms of evaluation of research, basically on a more

aggregated level than individual projects, papers or researchers. As of the late 1960s, they became interested in the impacts of research on innovation (Kostoff, 1994). About a decade later, evaluation of institutes and nation wide disciplinary efforts also became target for evaluation (Ståhle, 1987; Van der Meulen, 1992) as did the impact of technology on society through technology assessment. In the course of the 1980s, bibliometric and scientometric methods for the study of science came to the attention of some governments as a base for research funding. Most well known are the systems in the United Kingdom, Australia and New Zealand[1] (Philips & Turney, 1988; Van der Meulen, 1992). At the latest in the course of the 1990s also the functioning of funding programs and research councils was evaluated[viii]. One may also identify societal evaluation of research, 'Evaluation of research in context' as a recent development (Spaapen, Dijstelbloem et al., 2007). However, to my knowledge it is not widely used so far[ix]. Finally, during the 1990s, world wide and national scope rankings of universities came to the fore (Thakur, 2007; Usher & Savino, 2006, January No4 1983). For educational programs such rankings had been developed before that, but overall university rankings, also taking research into account were developed.

Rip (1994) and Shove (2000) pointed out that in the course of time the Latour and Woolgar's peer review dominated credibility cycle science has been linked to and expanded by credibility and reward cycles governing research councils and private companies, respectively, each bringing in their own evaluation practices and criteria. Similarly, the rise of university rankings adds yes another cycle with yet other evaluation practices and criteria.

The developments listed here did not occur in all countries at the same time and not all types of evaluations have been practiced in all countries. Moreover and depending on the type of evaluation, they were not all systematically covering all research, for example all disciplines, or all levels of aggregation from group to discipline. Still, in some countries, this patchwork has become rather dense and/or systematic in some dimensions as testified by Whitley (2008) who speaks of strong and weak 'research evaluation systems'.

In addition to the expansion of the number and types of evaluation, within research evaluation also some professionalization has occurred. There is no association for research evaluation, but a dedicated journal, *Research Evaluation*, was launched in 1992. Since around the same time, the Centre for Studies of Science, Technology and Society of the University of Twente has been providing an annual course in R&D evaluation for professionals such as university and research council staff and governmental policy staff (Anonymous, 2010a). Roughly at the same time, the Manchester Institute of Innovation Research provides a course on evaluation of science and technology policy (Anonymous, 2010b). Specialized research groups such as the Centre for Science and Technology Studies at Leiden University and consultancy firms such as Technopolis perform evaluations or provide evaluation services.

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[1]   Also, in Spain an assessment based funding system for individuals was introduced around 1990 (Osuna, Cruz-Castro et al., 2010, p. 4), in Italy in 2006 for university funding (Abramo & D'Angelo, 2010) and in Sweden in 2010, also for university funding.

In evaluation of research, two frames of reference are being used: science's internal peer review evaluations and the policy-cycle perspective discussed above. The adaptation of this perspective is often left implicit and may be a result of the fact that the non-internal evaluations are usually initiated by actors in a policy making position, rather than a researchers' position. An example here is the US Government Performance and Results Act of 1993 which requires federal agencies to assess the achievements of their programs (Cozzens, 2008; Cozzens & Melkers, 1997).

Often both perspectives are used at the same time. Elzinga (1988) however criticizes the rise of the policy induced evaluations and the related perspective, as he sees them as a symptom of 'epistemic drift'[x] (Elzinga, 1985).

Authors writing about research evaluation also use other concepts or conceptual frames from social program evaluation. For example Luukkonen & Ståhle (1990) use categories of use and effects as discussed and developed in SPE and also take into account the multiplicity of audiences of evaluations. Another example is Kuhlmann (1998) who, referring to Fourth Generation Evaluation and the general turn in social program evaluation mentioned above, explores whether research evaluation can be used for the 'moderation' of negotiations and struggles in research policy.

3.3   Use to legitimate performance of evaluations

A conclusion that can be made at this point relates to the long term trend change in science policy from 'endless frontier' towards societal relevance as expressed in different ways by different authors (Elzinga, 1985; Guston, 2000; Rip, 1994; Ziman, 1994). The start of this trend can be located in the late 1960s and early 1970s and it is usually treated as a development in itself. The emerging of new types of research evaluations can be interpreted as part of this trend. In addition, the historical coincidence with development of social program evaluation suggests a relation with a broader trend of evaluation and assessment in government and governance practices.

One can go one step further and argue that research evaluation and social program evaluation as fields of research are also caught by this trend towards societal relevance. Now and again it is stressed that use of evaluations or of social research in general is or has become an important issue of legitimation.

"This is a time when more and more social scientists are becoming concerned about making their research useful for public policy makers, and policy makers are displaying spurts of well publicized concern about the usefulness of the social science research that government funds support." (Weiss, 1979, p. 426)

and in research evaluation

"Effective utilization is the ultimate justification of the whole evaluation activity." (Ormala, 1987, p. 140)

If so, then what has the literature to say about the use of evaluations?

4   On use and effects

In their review of the existing literature, Leviton & Hughes (1981) noticed a "dearth of studies dealing with the utilization of evaluations per se." (p. 526) and, perhaps as a result, they also took account of literature on the use of social science in general. The resulting overview remained one of the few[xi] on the use and effects of evaluations in SPE literature until Shulha & Cousins (1997). By then, the interest in the use of evaluations had grown, empirical studies performed, practices reflected upon, theories developed and standards and guidelines developed.

   Not counting studies on peer review and on the research assessment exercises in the UK and Australia[xii], in comparison, literature on other forms of research evaluation has developed less or hardly at all on the issue of use and effect. This in itself is interesting enough to report, but the result is that this chapter treats the issue of use and effects in SPE differently from RE.

4.1   Use of social program evaluation

In social program evaluation, focus is mostly on use or utilization but not on effects, and use is seen in terms of the use of evaluations by program staff or policy makers, i.e. from a policy-cycle perspective. Sometimes, this demarcation is made explicitly, such as Leviton & Hughes(1981) who define utilization for the purpose of their review "to use of evaluation results for programs and policy only, not by academicians or by the press, for example" (p. 526). The literature identified three types of use based on the purpose of use, viz. instrumental, persuasive/symbolic and conceptual. Instrumental refers to the use of evaluations as a basis for decision making, persuasive use to the use of evaluations in political discussions to persuade others, and conceptual to evaluations taking part in rethinking of policy issues (p. 528). These categories were highly influential in SPE literature.

   An important question, which also remained a central issue in SPE literature, was the question what the important factors are that influence a particular type of use. Here Leviton & Hughes (1981) aggregated findings from others and thus identified five groups of positive and negative variables, which they labeled 'relevance', 'communication', 'information processing', 'credibility', and 'user involvement and advocacy'. Relevance is a measure for an evaluation addressing needs of evaluators' clients, policy makers and program managers. Communication comprises the communication of users' needs for evaluation, bureaucratic communication, and various forms of dissemination. Information processing refers to recognition of

relevance and the processing of results into implications. Credibility variables include comparison to other information sources, preconceptions of users, credibility of the evaluator and quality perceptions. User involvement means the commitment of users to an evaluation and advocacy deals with the extent and how of committed individuals advocating the evaluation in their environment/organization. Before 1986, others added other groups of variables, such as anticipated degree of program change, perceived value of evaluation as a management tool, quality of implementation of the evaluation, and contextual characteristics of the decision/policy setting (Shulha & Cousins, 1997, p. 196).

Cousins and Leithwood (1986) prompted the evaluation community that more was needed in terms of theory building than identifying types of uses and identifying and weighing factors that influence use. An important impulse to conceptual and theoretical development came from the debate between Carol Weiss and Michael Patton about the question whether evaluators could or should be held accountable for use. Weiss argued that considering the non-rational and pluralistic decision making context, evaluators should and could only strive for evaluation findings that are accurate and adequate for the evaluation question. Patton, in line with his utilization-focused evaluation approach, argued that evaluators should actively promote and cultivate use. (Shulha & Cousins, 1997, p. 197)

The role of context in utilization was scrutinized in multiple ways. Guba & Lincoln (1989) adopted a constructivist perspective. Others argued that use is related to political activity which is closely entangled with people, interest groups, environment and circumstances. Others focused on organizational structures and processes, or on the interaction between evaluator and the program context. (For references see Shulha & Cousins, 1997, p. 197-198)

Besides context, the process dimension is another angle of theoretical interest. Process use of evaluation refers to use as an ongoing process before, during and after an evaluation. Participation of intended users and the impact thereof on personal learning, stakeholder actions and anticipations, ongoing organizational learning and learning by the program community, and the relationship between evaluation and organizational capacity development are issues under study and elaboration here. (For references see Shulha & Cousins, 1997, p. 199)

Towards the end of the 1990s, the three categories of use outlined above are still en vogue (Shulha & Cousins, 1997, p. 203). Weiss (1998), ten years after the Weiss-Patton debate discusses the question 'Have we learned anything new about the use of evaluation?'. She uses the three, provides a few twists and adds a fourth: Firstly, instrumental use only happens under three conditions: the implications of an evaluation's findings are relatively non-controversial, the changes are within the program's 'existing repertoire' and comparatively small scale, and third, the program general situation is unchanged. In addition, instrumental use may also occur when a program is in crisis and nobody knows that to do. (p. 23 - 24) Secondly, Weiss narrows down persuasive use to program managers and others mobilizing findings to support positions that they already had before the evaluation (p. 24). Thirdly, she identifies a fourth 'influence', thus moving from use to other effects.: "influence on *other* institutions and events - beyond the program being studied." (p. 24, stress in

original) Evaluation evidence mounts up and is sometimes "synthesized through meta-analysis". In such accumulation evaluation can contribute to "large-scale shifts in thinking-and sometimes, ultimately, to shifts in action." (p. 24)

A central point in the study and theorizing of the use of SPE is the insight, as already listed by Leviton and Hughes, that the involvement of the user in the design and implementation of an evaluation increases the chance that the user will use the findings. Patton's utilization-focused evaluation revolves around intended use by the intended user and he thus seems to make the insight into a norm. It seems that no author challenges the correctness of this insight, but some challenge it as a norm, basically because in practice the norm surrenders the evaluation/the evaluator to the powers that be, i.e. the program staff and the sponsor of the program, leaving the needs of program's beneficiaries[xiii] unattended (Weiss, 1998, p. 30).

"Participatory evaluation, for all its good points, may have the process upside down. We evaluators are trying to enlist program people in our work-doing evaluation-while what they want is to enlist us in their work-improving the organization and its programs. They want the best evidence and ideas going." (p. 31)

Dibella (1990) provides one testimony to this practice and, adding on top, testifies that managers actually asked him to provide prove to support their opinions. "when you open up the evaluation process to stakeholders, you unfortunately open up the possibilities for having the process co-opted and manipulated." (p. 117) This dilemma of on the one hand wanting to involve many stakeholders and on the other hand not being subject to stakeholders' attempts to manipulate an evaluation has of course not been solved.

4.2   Use and effects of research evaluation

Like in SPE, in the field of research evaluation the use and effects of research evaluations have been under investigated (Hemlin, 1996, p. 243; Luukkonen, 1989, p. 234; Ormala, 1987, p. 140) and this has not improved since these authors observed this. As mentioned earlier, there are two topical topical exceptions, viz. peer review and the Research Assessment Exercises in the UK and similar operations in Australia and New Zealand. Taking only a few texts on these topics into account and all other literature on use and effects of other research evaluation, I found around 15 texts, which are synthesized in this section. The first part of this section provides an overview of the methods used and the empirical content, the second part summarizes a number of uses and effects per organizational level or unit. The third part discusses a few salient findings in detail.

4.2.1 Overview

Method
The methods used to study the use and effects of research evaluation vary. Empirical studies mostly use surveys (Ormala, 1987), interviews (Luukkonen, 1995; Luukkonen & Ståhle, 1993) or combinations (Cozzens & Melkers, 1997; Raitzer & Kelley, 2008) to cover dozens or more evaluations. In depth case studies are also used (Meyer-Krahmer, 1989; Ter Bogt & Scapens, 2009; Timonen & Stenholm, 1987; Van der Meulen, 1992) and incidentally a paper is based on anecdotal evidence and newspaper articles (Thakur, 2007). Some authors base themselves not on empirical studies but on selected literature (Elzinga, 1988; Kuhlmann, 1998) and/or a lifetime of experience and study (Whitley, 2008) to discuss or hypothesize particular uses and effects.

Follows the news
When the time dimension and the type of evaluations that are studied are considered, then most of the literature follows the news. Each time when new types of evaluations emerge, there is some interest in the evaluations and their use and effects: the first discipline evaluations in the Nordic countries (Luukkonen, 1995; Luukkonen & Ståhle, 1993; Ormala, 1987), the RAE in the 1990 in the UK and later Australia and New Zealand, the 1993 Government Performance and Results Act (GPRA) in the United States (Cozzens, 2008; Cozzens & Melkers, 1997), and finally the national and international rankings in 2000s (Thakur, 2007). Self-evaluations as occasionally practiced by some universities, research institutes or units within these organizations , have not been studied. Also societal evaluation of research has not been studied for its use and effects. This is not so remarkable since, to my knowledge there are no cases except the experimental ones[xiv].

Geographical coverage is limited
This list also indicates the geographical coverage of the literature. Besides the countries mentioned, also Germany, the Netherlands and France are covered. Considering the number of countries in the world and even considering other high ranking nations in research, such as Switzerland and Japan, nations on the rise such as China and India, the coverage is slim or non-existent. It is unclear to me whether the coverage is a result of researchers' respective topics and countries of interest or the lack of the new types of research evaluation in other countries.

Target 'level' of use and effects
Evaluations and evaluation systems often operate on a particular organizational level or unit of analysis, such as research groups, centers, universities or individuals. The effects and uses of these evaluations can operate on those, but also on other levels. National disciplinary evaluations can have consequences for individuals, groups and national policies for example. When the organizational or hierarchical level of the use or effects are concerned, then the literature covers many, including individuals researchers, university management, a discipline within a nation, and national research policy. Occasionally, the effects cover the interaction between different

levels such as between universities and national governments. Whitley (2008) identifies institutional processes such as stratification of organization of research, strengthening of disciplinary standards and intellectual diversity as target areas of effects of research evaluation systems. Similarly, Kuhlmann (1998) discusses potential use of evaluation results in negotiations and struggles in the policy arena.

Some levels are absent from the literature. Uses and effects on research groups, funding organizations and other intermediary organizations, disciplines on international level, and the intra/supra national governance levels, such as the EU in case of its Framework Programs are unfortunately not discussed.

4.2.2   Reported uses and effects at different levels of research organization

This section summarizes a number of reported uses and effects of research evaluations. Taking the categories from SPE of instrumental, symbolic and conceptual effects is not productive here because these refer mostly to the policy-cycle perspective, whereas in studies of research practices, the effect of evaluations on the knowledge produced or the knowledge producers (the researchers) would fit none of the categories. In SPE terms, such effects would be effects of evaluations on programs' beneficiaries. Here, I will thus adopt a simple organizational categorization, for reasons of simplicity and because it will cover all literature. Uses and effects that are independent of these levels or cross them are dealt with in section **Error! Reference source not found.**.

Individual level

Considering effects on individual knowledge production and knowledge producers, different answers can be found. Ormala (1987 p. 144-145) reports a main observation by his respondents (research administrators) that evaluations did not provide new information to those involved in research administration nor in research. They saw as the evaluations' main function to collect information and condense it to an authoritative basis for further discussion.

Luukkonen & Ståhle (1993 p. 32-33) report[xv] a similar view from scientists who were 'negatively' evaluated[xvi]: these scientists said that they had received no new ideas from the evaluation. Those 'positively' evaluated claimed the contrary and in addition they had learned what others had been doing or had acquired an overview of their respective fields or their position in relation to colleagues. In general, the interviewees assessed their evaluation's impact on their research orientation as small.

In addition, 4 out of 10 scientists appreciated the preparations for the evaluations as useful because it forced them to reflect on their research, its strong and weak points, the significance of their findings and their future plans.

On individual level, personal consequences are reported. Individuals were fired (Luukkonen & Ståhle, 1993, p. 44-46; Thakur, 2007, p. 89) or labeled as incompetent (Luukkonen & Ståhle, 1993, p. 44-46). Anxiety, depression, loss of motivation and

psychological problems were reported by interviewees about colleagues (Luukkonen & Ståhle, 1993, p. 46). Ter Bogt & Scapens (2009) also report increased levels of stress due to performance based reward systems implemented in departments in the Netherlands and the UK.

Program level

The evidence of the use of evaluations at program level is also mixed. Luukkonen & Ståhle (1993 p. 34-35) report that many interviewees thought that the discipline evaluations were used by research councils for issues as grant decisions, reorganizations, personnel mutations, development of research programs and reallocation of money between fields. However, in earlier interviews, members of research councils said that the evaluations played only small roles in grant decisions. In one case where an interviewee believed an evaluation directly led to the establishment of a research council this proved to be impossible since the decision had been made before the evaluation panel did its work. Luukkonen & Ståhle suggest that the positive relation that interviewees made between the evaluation and its use was strongly related to the interviewees' work being positively evaluated (p. 36).

Cozzens (1997 p. 428, 430 - 431) reports that respondents from around 80% of the science and technology programs that did performance measurements[xvii], mentioned that changes were made in program focus and 70% mentioned budget reallocation as a result of performance measurements. Also four out of ten reported expansion of the program and three out of ten a reduction in program size or mission. Half of the respondents of the performance measuring programs saw program management and half saw justification of the program as the main reason for the measurements. Still both groups thought that the measurements were highly useful to the internal management.

In a case study on evaluations on innovation policy programs in the Federal Republic of Germany, France, the Netherlands and Sweden, Meyer-Krahmer & Montigny (1989, p. 318) find different uses for different cases. In the Netherlands and Germany management and improvement of program performance were important uses. Also, evaluations had impact on program definition, but no program was halted due to an evaluation. In Sweden one research center was closed after two subsequent evaluations pointed in that direction.

National level

Some effects are reported, which will be listed here without further ado. It should be stressed that most of these are reported incidents rather than reoccurring findings. Establishing a coordinating body and dissolution of a research group was reported by some respondents to a survey/study of 18 evaluations of research fields and funding programs in Scandinavia. Other effects or uses were the changes in funding principles or the introduction of new forms of support. Respondents rarely noticed an effect of evaluations on levels of research funding (Ormala, 1987, p. 146 - 148).

Others also find that such effects and resource reallocation due to evaluations are rare (Hemlin, 1996, p. 243; Raitzer & Kelley, 2008)[xviii]. But researchers in the field are reported to see an increased competition or rivalry between fields and indeed a reallocation between fields or within a field based on field evaluations (Luukkonen & Ståhle, 1993, p. 42-43).

4.2.3   Multi-level and level independent effects

Anticipation and adaptation to cope with evaluations

The first discipline evaluation in Finland was in inorganic chemistry in 1983. Being the first of its kind, it turned out to be a shock to the researchers involved. They were not prepared to be compared to international quality standards and many did not take it seriously. The first draft report included a numerical assessment of each research group and this came as an unpleasant surprise. The more so, when the evaluation wide attention in the media. The report was very explicit and critical, to which the scientists were not accustomed. It became a lesson to researchers in other fields that were evaluated afterwards. Luukkonen and Ståhle (1993) conclude "It seems that this first evaluation had indeed had an impact at the field, including publishing habits." (p. 42) However, in other fields, researchers were less convinced of an impact of the evaluations. Those who did see an impact related this to evaluation based funding mechanisms.

   Also Elzinga (1988 p. 10) reports about architectural researchers in Sweden who were told to change their publication habits to write more in English and publish more in internationally published journals. The researchers knew that in the next few years a number of them would not receive a continuation of their temporary contracts and of the role evaluations would play in this. Elzinga warns that such evaluative practices can have detrimental effects to cultural research on local/national issues. Researchers will have to comply to an international agenda instead of the local/national one.

   On a larger scale, the UK Research Assessment Exercises[xix] (RAE) which are being used to distribute block grants among universities, show a similar effect. Between the 1996 and 2001 RAEs a noticeable quality improvement was registered. Probable reasons were grade inflation and strategic behavior, but also actual improvement in the quality of research (Barker, 2007, p. 7).

   These insights are not that new. However, two things should be stressed. Firstly, in all these instances, evaluations were clearly connected to financial incentives of one kind or another. Thus it seems likely that, not merely the evaluation, but the intended use for funding distribution, caused the researchers to adapt their behavior. Secondly, the researchers were aware of this before hand. They knew or assumed that such an evaluation was about to happen. Thus, evaluation systems with a cyclical character can be assumed to have more effects than incidental ones.

   This means that if and when in certain countries evaluation practices amount to systematic and cyclical approaches, it makes sense to approach the issue like Whitley

(2008) does when he speaks of consequences of evaluation systems. The history of the UK RAEs however also shows that no two exercises have been the same: procedures changed, rating systems were adapted and funding calculations changed time and again. Meanwhile, universities continuously adapted to past changes and (probably) to anticipated changes. The overall 'system' thus constantly changes.

Negotiations and constructions to shape the evaluation and/or its effects

Researchers not only adapt their behavior to suit evaluation criteria, they also deal with evaluations in different ways. One way is to not participate in an evaluation. Many researchers on rankings and university administrators agree that students' selection of universities is influenced by ranking systems. Also researchers when selecting their potential employers take rankings into account. Some universities are thus concerned that they refused to deliver information to ranking exercises. However, because so much information about universities is made public, this does not always prevent them from being ranked.(Thakur, 2007, p. 89 - 90)

In the Netherlands during the 1980s, the Dutch Government made plans to introduce a research evaluation system for the Dutch universities. The goals were to improve accountability of the universities towards the Government, to generate better insight in the state of affairs and to stimulate discussions about priorities and policies at university and department levels. In addition, all research had to be organized in programs which would be the subject of these evaluations and funding would become dependent on this.

In the course of a few years, when the system was being set up the Dutch researchers managed to step by step "adopt, adapt and defuse" it (Van der Meulen, 1992 p. 77). First, peers ignored the government's wish to also evaluate social relevance and focused on scientific quality only. Secondly, after a few evaluations, criteria were adopted to disciplinary customs, and requirements regarding program sizes were toned down. In the end, negative evaluations became scarce and thus the effects of the funding allocation mechanism was diminished.

In the late 1980s and separately from this, Dutch universities self-imposed an evaluation system for their educational programs. This way they could gain more autonomy after the Ministry made this autonomy dependent on improvement of quality and implementation of quality assurance systems.(Van der Meulen, 1992 p. 78)

Also on a micro-level of evaluated researchers in contact with evaluation committees, negotiations about the evaluation can be found. John Rekstad, a professor in nuclear physics in Oslo, accounts of the field evaluation of his discipline in 1984. The evaluated researchers urged the evaluation committee to "go beyond the questions from the research council", i.e. beyond the evaluation's commissioner's wishes, and take the funding level for all the Norwegian natural sciences under consideration. The researchers were successful, and consequently, the evaluation committee observed "a more general lack of suport for basic research in the natural sciences" (Quote by Rekstad from the evaluation report Rekstad, 1987, p. 40)

Here, the evaluated managed to negotiate a change in the evaluation protocol and to use the evaluation as a lobbying tool towards the research council and the Norwegian Government. They were successful to the extend that the committee indeed made a point about the general funding situation, but not to the point that funding was increased. The research council accepted the evaluation's message, but its hands were tied. "Inofficially we were informed that nuclear physics did not have a sufficient "political" appeal to play a role in advertising science for the Norwegian public and opinion. Nor could the report improve the standing for nuclear physics in comparison with other fields yet not evaluated." (Rekstad, 1987 p. 42) To some researchers, this was reason to "reorient their activity." Rekstad drew the conclusion that his discipline needed "alliances with other groups in the society" (p. 43)

The examples support a few of points. In terms of social program evaluation, the evaluated researchers would be the beneficiaries of the evaluated funding programs, and the government or research councils are the evaluator's clients and designated users of the evaluations. Whereas in SPE, authors discuss and worry about the influence of the commissioner/user on the evaluation, here, it is the beneficiaries who attempt to interfere. Secondly, in the case of the nuclear physics evaluation, the evaluation was indeed tweaked in order to gain support for an opinion that was already held by the interfering program beneficiaries. Thirdly, although the evaluations have their official goals within the traditional policy making cycle, they also can be the policy in themselves, such as in the Dutch case where the self-imposed evaluations were a means to maintain autonomy. Fourthly, if evaluations may not be useful, attempts to influence the outcomes may also not be effective.

Translation of effects through levels of governance

Ter Bogt & Scapens (2009) compared the use and effects of ranking systems of two research groups in Accounting & Finance (A&F) in the universities of Manchester and Groningen. In doing this they considered ranking and other formal and informal evaluative systems within the groups and at different levels in the contexts of the respective groups, ranging from faculty/school to university to national systems. The comparison becomes complex because of many differences that exist between the two sides of the comparison, at the different levels and with different developments over time. Most apparent is that between all levels varieties of connections are in place. That is, some actors (such as boards, deans and group leaders) have, to some extent or another, discretionary powers to translate external control imposed upon them into different internal control mechanisms. They can adopt different evaluative and decision making systems within their sphere of control from those under whose control they operate. Even if at each level, the freedom to translate is limited, the multitude of levels accumulates into perhaps unexpected effects. Thus, it can happen that whereas the University of Manchester falls under the reign of the formalized and highly quantitative ranking based funding system of the RAE, at group level a more or less informal 'clan control' system is in place. More or less the reverse is going on in A&F group at the University of Groningen. Dutch universities' block funding highly depends on the number graduated students, but not on research performance

and quality indicators, whereas the Groningen A&F group internally does use such indicators for individual assessment and reward practices.

Ter Bogt & Scapens' case study points to an important aspect of evaluation. More often than not, the entire national organization of research and research policy includes so many actors, hierarchical levels and other connections that evaluations and evaluation systems and their related uses may not work out as planned or expected. See also Osuna et al. (2010, p. 15).

Ter Bogt & Scapens' case thus also provides a methodological warning for Whitley's approach of evaluative systems. The case study shows that although evaluation systems are in place, there may exist different ones at different levels and they are loosely coupled. This makes it complicated to actually verify Whitley's broad ranging hypothesis about the likely effects of evaluation systems in concrete cases. Abramo & D'Angelo (2010) propose a bibliometric assessment tool for funding purposes which takes multiple levels into account.

4.3 Non-use

A hot item, mostly in SPE but also in RE is the non-use of evaluations. In SPE it was identified at the latest in the early 1970s. After listing situations in which it is best not to evaluate and problems of setting up an evaluation in a decision making setting, Weiss (1972) notes "But experience suggests that even good evaluation studies of well-defined programs, directed to clear decision purposes, often wind up as litter in the bureaucratic mill." (p. 11). Patton (1978) noted that non-utilization seemed to be "particularly characteristic of evaluation studies" (p. 18). It seems that non-utilization has not decreased: more recently, Feller (2003) notes "... an extensive literature on knowledge utilization points to the limited and highly selective use of social science research in general and evaluation studies in particular."

This section presents a number of explanations that are provided for non-use both in RE and SPE.

The role of the evaluator
The evaluator takes an academic stance towards the his/her work: gathers and analyzes the data but does not transform the findings into recommendations. They have no interest in mingling into the politics and struggles in and around the program, and are more concerned with rewards and recognition from the academic community. Because implications are not easy to deduct from findings, nobody is left to do them, leaving program managers complaining about the irrelevance of the study.(Weiss, 1972, p. 111 - 112)

Ormala (1987, p. 149) points to the need of role similar to that of a 'product champion', known in innovation projects, in evaluation projects. An 'evaluation champion' actively promotes the use of an evaluation study. Within his study, usually the/an evaluator took this role, but also decision makers or other users did so. If nobody took it, then use of evaluation results tended to be ineffective.

The organization's resistance against change
When there are recommendations, organizations provide many mechanisms that prevent their implementation. It is a well known argument, but I'll summarize some of it anyway, based on (Weiss, 1972,p. 113 - 115). Change costs time and money and the outcome may be uncertain, the proposed changes may be incompatible with other interests such as relations to funders, beneficiaries and neighboring organizations. Organizations resist changes that counter ideological commitments. When these are involved then "even totally negative results will not lead to abandonment" (Weiss, 1972, p. 115)

Lack of relevance
In the course of the 1970s at the latest, lack of relevance was identified as a negative factor for use of evaluation studies and relevance as a positive factor (Leviton & Hughes, 1981, p. 534-535).

   In research evaluation the reverse, if there is a relevance then the evaluation will be used, is obviously illustrated by the actual use of peer review in journal and conference paper selection processes and in grant selection processes. Also, nobody blames the research assessment exercises in the UK and Australia for not having any relevance. Probably it is the relevance of these evaluation processes that causes substantial coverage in the literature (see above).

   Timeliness of an evaluation was considered as a factor influencing use, but the evidence was mixed. Some authors found it a positive factor, others did not: whether the report was in time or not did not influence the use of the results. (Leviton & Hughes, 1981, p. 535)

   Relevance refers to the relevance an evaluation has to a user. Targeting relevant users was the focus of Patton's utilization focused evaluation approach, discussed above. Others focused on the intra and inter organizational communication processes which were found to influence the use of evaluations. (Leviton & Hughes, 1981).

   In research evaluation, Ormala (1987 p. 149) found something similar. Discussing early discipline evaluations in the Nordic countries, he observes that in many evaluations which had 'significant impacts' involved both the users of the information as well as the researchers who were evaluated from the start into the evaluation process. This way, the evaluation becomes an interactive process including mutual learning and adaptation. Use then is, as it were, incorporated in the process.

Of course, the user has to know how an evaluation could be relevant, and often, he does not know that or cannot specify that sufficiently well for an evaluation. More often than not it is quite unclear what exactly the goals of a particular program are and thus it is difficult to evaluate it (Leviton & Hughes, 1981, p. 537-538). To Weiss (1972, p. 11) from an evaluation methodological standpoint, it makes no sense to evaluate if 1) there are no questions about the program 2) the program has no clear orientation, that is, there is not much of a program 3) the people who should know the program goals do not agree.

Dissemination of results
Failing communication is an obvious reason for non-use. Here, not only all kinds of practicalities in the communication between evaluator and her client play a role (Leviton & Hughes, 1981, p. 537-538), but also the possibility to reach other users with a legitimate stake besides the evaluator's client. However, because other users are in different situations, the use may be less straightforward (Weiss, 1972, p. 122).

   A committed individual can play a role in communications within organizations by informing users, if necessary by bypassing middlemen. Such individuals can also take other roles in the evaluation process. They can be the evaluators, but also program advocates. However, in the latter case, their advocacy of the evaluation depends on the evaluation's conclusions. Negative ones will find resistance, positive ones will be propagated. (Leviton & Hughes, 1981, p. 543)

Decision base
Although the policy cycle concept suggests that evaluation of program functioning is an important input in decision making, many argue that decision makers have many other inputs and factors to take into account (Luukkonen, 1989, p. 238; Weiss, 1972, p. 4, 121). Luukkonen (1989, p. 238-239) also observes that evaluations often have piecemeal impacts, but rarely cause drastic changes. If drastic changes, such as reorganization or acquisition of expensive equipment, follow upon an evaluation, then these decisions had had strong support before and in addition to the evaluation[xx].

What strikes most about these explanations is that they focus on the nuts and bolts of evaluation *practices*, rather than on an evaluation *model*. Apparently, models such as the policy-cycle model do not provide grounds for explanations for non-use. The non-use or piecemeal use thus is an effect of actor behavior, sometimes of deliberate actor strategies aimed at use or non-use.

5   Conclusions

The overview presented in this paper can be used for different purposes and different audiences. For example, it may help prepare researchers, both evaluators and evaluated, for their work in evaluation settings. And perhaps it may help researchers and practitioners in social program evaluation (SPE) on their work, in particular where the comparison with research evaluation (RE). Foremost, however this overview is of interest to researchers in the field of research evaluation who are interested in use and effects of evaluations. Below, I will synthesize the findings and indicate what it means for a study into use and effects of research evaluation.

   In both SPE as well as RE, close connections have been identified between use/non-use, the involvement of different kinds of actors with different roles in the evaluation process. An important insight in both fields is that those actors involved

in the development of an evaluation, are more likely to use the evaluation's outcomes. And the earlier they are involved, the more influence they have or potentially have, and the more likely they can use the results. This is in itself not so ground braking or interesting. After all, the more influence actors have the more the evaluation may be geared towards their particular interests or needs. However, involvement or early involvement of particular actors is a contested issue, in which practices of SPE and RE differ.

In SPE, some authors consider the evaluator as an external expert who needs a distance between him/herself and all other parties in order to perform an objective evaluation. Allowing any other actor to influence the evaluation would impair objectivity. However granting no access at all to the commissioning party may result in not being commissioned at all or not in the future for another contract. This leads to subtle negotiations about contracts and professional rules to navigate this dilemma.

Some authors embraced the impossibility of absolute distance and objectivity and strive to provide influence to all actors involved, in particular program beneficiaries, who were often left out of scope but for whom the functioning of a social program is important. But opening up an evaluation to all actors also means opening up to the commissioning party, which leads to other subtle negotiations about the shape of the evaluation.

Important for all professional evaluators is that the evaluation activity indeed has become professionalized. This means that the evaluators lose some of their independence because they have an interest in being commissioned and in the fact that evaluations are being performed at all.

In RE the distribution of roles and dependencies is somewhat different. In peer review of papers or project applications, commissioners, evaluators and evaluated belong to the same disciplinary[xxi] group: they are all considered internal experts - although some better than others. In addition, individuals take turns in roles and evaluating is not a professionalized specialty. Evaluations are not commissioned but requested and performed on voluntary basis and in fact sometimes requesting parties have difficulties finding volunteers of sufficient quality. Objectivity is guarded by blinding the evaluators and/or the evaluated. In practice this turns out to be problematic, but the discussions do not revolve around the role or influence of particular actors, and the use of outcomes is clear: papers and proposals are being rejected, accepted or returned for revision. Clearly, this is a polished presentation, but the basic differences between such peer review situations and SPE stand out.

With the introduction and development of the new forms of evaluations things have changed in RE. Some actors, such as governments and research councils, have renewed their roles, interests and intended uses of outcomes of the new forms of RE. New actors entered the scene, such as accreditation organizations and the organizations that produce rankings. Altogether, new distributions of roles of different actors in evaluations were proposed, partly challenging the ones that were earlier established in peer review traditions, and leading to struggles to influence the shape of the evaluations and their use. Because many of these new types were initiated by governments, or under government pressure, the policy-cycle model of

evaluations entered the scene. In the course of the struggles, this model did not simply replace peer-review but was added or mixed in. Similarly, rankings introduced a new model - not specified in this paper and not fully established as a model - which in some cases did replace peer review, but in others mixed with it.

Back to another similarity in the literatures on SPE and RE: both stress that the use and effects are usually relatively small and that it would be unrealistic to expect dramatic changes simply because of the evaluation. Many other factors play a role in decisions and changing of practices. Still, in both fields, non-use draws particular interest and many explanations are provided and here SPE and RE develop similar explanations.

The overall historic picture becomes puzzling from the perspective of the policy-cycle model. In RE - and perhaps in SPE as well - the number of evaluation types and probably the absolute number of evaluations are increasing. At the same time non-use is still a matter of concern, even after over 40 years of analysis and attempts to change evaluation approaches. Apparently, non-use is not a stopper of evaluations being commissioned. But perhaps use is also not an interest to the commissioning actors[xxii].

Although actual uses fitting the policy-cycle model, and for that matter the peer-review model, can be identified, many uses outside those models are identified as well. In the overview above I encounterd only the use of evaluation outcomes, but as Weiss (1998, p. 24 - 27) points out, it is very productive to ask *what*[xxiii] of an evaluation is being used and who does the using. This draws away from the focus on the policy-model and the peer-review model and sensitizes the researcher to a multiplicity of practices.

What does the above mean for a study of use and effects of RE? Perhaps most import is the type of question to be asked, which should be relatively open. As Weiss suggests: *who* uses which parts or aspects of an evaluation? The answers may lead us outside the ranges of actors covered by policy-cycle and peer-review models. In addition, I suggest, how do actors use parts and aspects of an evaluation? And, since use and influence on the evaluation development are related, how do actors try to influence evaluations and their outcomes. One may hypothesize actors to be more strategic than uncovered in the literature. If they realize the multiplicity of uses of evaluations by other actors, they may try to prevent or encourage particular uses through the design of an evaluation or initiating one. Besides what, who and how, the literature also invites to ask when evaluations are used. For results of evaluations to be used, the evaluation has to be performed first, and only after that can its outcomes be used. However, by now it has become clear that use may precede the outcomes, even to a point in time before an evaluation is commissioned: ex-ante use of an ex-ante evaluation.

An important methodological lesson concerns the multiplicity of uses and the complexity of situations in which actors use evaluations, parts and aspects thereof. This calls for a case study approach rather than survey or statistical approaches, at least until a deeper understanding of use and effects is acquired. Alternatively, if a

survey or statistical approach is conducted, caution should be taken with the interpretation of findings.

Thirdly, conclusions concerning conceptual frames can be drawn. The policy-cycle and peer-review models are models used by actors in the field, which clearly do not suffice to describe, investigate or explain all uses and effects of evaluations. A different framework is needed. The synthesis points at the importance of the relations between the development of evaluations, the influence of multiple actors on this and certain uses and non-use. These topics and their relations are well known in science and technology studies. Once evaluations are seen as technologies or artifacts, a small step to take, they can be subject of a multitude of concepts, conceptual frameworks and approaches. Think of script, boundary object, user studies and social construction of technology, to name a few that seem easily applicable.

   The synthesis provided above in addition suggests to look for conceptual frames that allow charting actor constellations. It points out that they differ between SPE and RE. Within RE differences between constellations of journal peer review on the one hand and the new types of evaluations on the other can be identified, and also between the different new types. This suggests that within RE practice, multiple constellations exists[xxiv]. The synthesis also points out that these constellations are important when it comes to the involvement of actors in the design and execution of evaluation approaches, and thus for the use and effects of parts, aspects and outcomes of the evaluations. It may next be hypothesized that particular (types of) use is (are) to a large extent, a result of an actor constellation. If so, then non-use could be a result even of actors with similarly strong positions in the constellation, each trying to pursue a particular positive use.

Notes

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[i] I decided not to take the literature on the use and effects of technology assessment into account. Although in part TA evaluates results from research, its focus is on technology as developed by public and private parties. The forms of research evaluation covered here exclusively focus on research performed by public research institutes and universities.

[ii] Accounting Auditing & Accountability Journal, Advances in Program Evaluation, American Journal of Evaluation, Critical Perspectives on Accounting, Evaluation, Evaluation Review, Journal of Research Practice, R&D Management, Research Evaluation, Research Policy, Science and Public Policy, Science Studies, Science Technology & Society Newsletter, Science Technology and Human Values, Social Studies of Science, STI-studies, Technology Analysis & Strategic Management, Tertiary Education and Management

[iii] This paragraph is based on Guba and Lincoln (1989), who have stylized this history to introduce their 'Fourth Generation' evaluation. Another sketch, going back to around 1800, can be found in (Madaus, Stufflebeam et al., 1983).

[iv] They merged in 1985.

[v] As Guba & Lincoln acknowledge, the issue of managerialism was put on the agenda and extensively discussed by Michael Scriven who described the relation between evaluator and his/her client as a 'cozy relationship'. Unfortunately, I found no reference for the phrase.

[vi] Admittedly, I may make an interpretation mistake. The literal text is "But I doubt that they vitiate the use of evaluation-or in fact, the reliance on any social science." (p. 30). The sentence suggests that she points out a negative side, but vitiate means to spoil or impair quality. I assume a typo and that the sentence should have read 'vitalize' in stead of 'vitiate'.

[vii] Weiss uses the word 'clients' to refer to this group of those benefiting from the program, such as the poor in a poverty relief program, or the pupils or teachers in an educational reform program. The term client is not used consistently throughout the literature. Sometimes it refers to the evaluators' clients, sometimes to the beneficiaries of the evaluated programs. In this text I will use phrases such as "the program's beneficiaries" and the "evaluators' clients" to make clear which are meant.

[viii] I know of a number of such evaluations, but of no source that overviews this type of evaluation.

[ix] See also the SIAMPI project at http://www.siampi.eu. SIAMPI is the acronym for 'Social Impact Assessment Methods for research and funding instruments through the study of Productive Interactions between science and society'.

[x] With epistemic drift Elzinga means the increasing sensitivity of scientists to issues of external legitimation as required by policy bureaucracies and funding organizations rather than to internal legitimation as is produced through peer review.

[xi] Another is Cousins & Leithwood (1986)

[xii] Both topics warrant separate literature reviews on use and effects.

[xiii] Weiss refers to them as clients.

[xiv] See for example the Dutch ERiC project (Spaapen et al., 2007) and the EU FP7 funded SIAMPI project (Anonymous, 2010c).

[xv] Luukkonen & Ståhle (1993) and Ormala (1987 p. 144) focused on the different groups of disciplinary evaluations in the Nordic countries. A few evaluations were covered by both inquiries.

[xvi] The scientists perceived themselves as negatively evaluated in the evaluation reports.

[xvii] The respondents were the program managers of the programs. They were asked by e-mail about their experiences with performance assessment due to the US GPRA. E-mails were sent out to 75 managers, each heading one program, and 44 managers responded. About three out of four of them reported actually doing performance measurements.

[xviii] Hemlin refers to Kostoff (1994).

[xix] The series of exercises is currently most well known under this name. The next round, in 2014, will be renamed to Research Excellence Framework (REF).

[xx] Pavitt, discussing Luukkonen, points out that piecemeal changes aggregate to an important influence (in Luukkonen, 1989, p. 243).

[xxi] Except of course in case of interdisciplinary papers and applications, when these differences lead to problems.

[xxii] Feller (2000, p. 435) observes that in many performance measurement exercises, there are no provisions to evaluate their own impact.

[xxiii] She identifies "(1) findings or recommendations, (2) ideas and generalizations from evaluation, (3) the very fact of evaluating, which can be used for good or ill, (4) the focus of the study, especially the measures used, and (5) the design of the study" (p. 27). I would suggests that the list is in principle endless.

[xxiv] Of course, similarly, different constellations may exist in practices of SPE, but here I want to focus on lessons for RE.

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