CIPP as a model for evaluating learning spaces

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Introduction

This report describes CIPP (Context, Input, Process, and Product), a model for evaluating learning spaces. Although CIPP was not specifically designed for evaluating learning spaces, it is nonetheless a very versatile evaluation model across a wide range of applications. We have found that it works particularly well for our case study, as it takes into consideration the observable stages of learning space development.

The choice of evaluative model is an important aspect of the evaluation of learning spaces, as the varieties of model chosen can each provide a unique selection of knowledge with which to further our understanding of the design process. Evaluative models offer insight into which areas can be better implemented in future undertakings, structure information for collaboration within the community and ensure accountability of all stakeholders involved in developing a physical learning space.

We advocate that evaluation models such as CIPP is useful in providing a framework for conducting and validating, rigourous evaluations of learning spaces at the pre-occupancy, design and post-occupancy stage. At the same time, we acknowledge that evaluation models of this kind can involve an expensive and time-consuming process, and that the outcomes may not necessarily reflect the expectations of all stakeholders.

This report expands on the above claims in three sections. The first section focuses on the aims, objectives and values of evaluation models in general. The second section elaborates in further detail the specific application of our model of choice, CIPP, and outlines key factors in its use while designing and analysing an evaluation. The third section concludes our report, addressing both the strengths and limitations of CIPP, and summarising the key concepts of CIPP as an evaluation model.

1. The Value of Evaluation Models

According to Scriven (2007), the aim of an evaluation is to determine the merit, worth, or significance of a product or service. Robinson (2002) claims that all evaluation models share at least one common factor: to conduct a rigourous evaluation and for reliable and systematic evidence to support any conclusions. For Stufflebeam and Shinkfield (2007), evaluations are therefore a process of quality improvement, while Scheerens and Glas (2003) and Stufflebeam (2008) add that this process serves to emancipate and empower key stakeholders.

Formal evaluations are preferred over informal evaluations, as the outcomes are usually able to stand firm against scrutiny. Stufflebeam and Shinkfield (2007) claim that informal

evaluations are unsystematic, lacking in rigour, and based on biased perspectives, resulting in poor outcomes. Informal evaluations are prone to haphazard data collection, leading to misaligned information and subsequent error in decision making (Stufflebeam 2008). Formal evaluations, however, are generally conducted with control bias consistent with appropriate professional standards.

Evaluations may fail for several reasons. Even if evaluations are conducted rigourously, they only provide one of the ingredients needed for quality assurance and improvements, and cannot guarantee that those in authority will heed and act on sound evaluation findings (Stufflebeam and Shinkfield 2007). In a best case scenario, however, evaluations can provide support for improvement, accountability, dissemination and insight to a wide variety of decision making processes.

2. CIPP model for evaluation

The CIPP model was devised by Guba, and further developed by Stufflebeam, in the 1960s. It arose from the observation that traditional approaches to evaluation designs were found to be limited and often too rigid for evaluating dynamic social contexts (Stufflebeam, 2003a).

While each evaluation model has its own unique value strengths, CIPP focuses on providing the foundation for deriving and validating particular evaluative criteria through an interactive relationship between evaluator and client. CIPP was founded on a constructivist approach that requires evaluators to operate on a foundation of trust, showing respect to all stakeholders, regardless of power, gender, and cultural backgrounds (Stufflebeam and Shinkfield 2007). In particular, it provides a framework for detecting unexpected defects and strengths (Stufflebeam 2003a).

CIPP focuses on improvement of designs, where priority is given to planning and implementation of development efforts. When undertaking a evaluation study using CIPP, evaluators must take into consideration the feasibility of the project scope, safety for all users, significance of impact that the evaluation has on the project as well as project outcomes, and equity for stakeholders and decision makers. Communication between evaluator and stakeholders is kept open, to allow for gathering of data, as well as further analysis and synthesis.

2.1. The four components of CIPP

CIPP uses four primary concepts to guide evaluation, being context evaluation, input evaluation, process evaluation and product evaluation. Each of these components of CIPP asks

specific questions pertaining to the current stage of development within the evaluated process (Fig. 1).

In addition, it also functions as a meta-evaluative framework. By asking these questions, CIPP can inform a number of decisions, such as the goals or objectives for undertaking a project, what are the plans or strategies to carry out the project, what actions or activities need priority or further attention, and what do the outcomes answer the objectives.
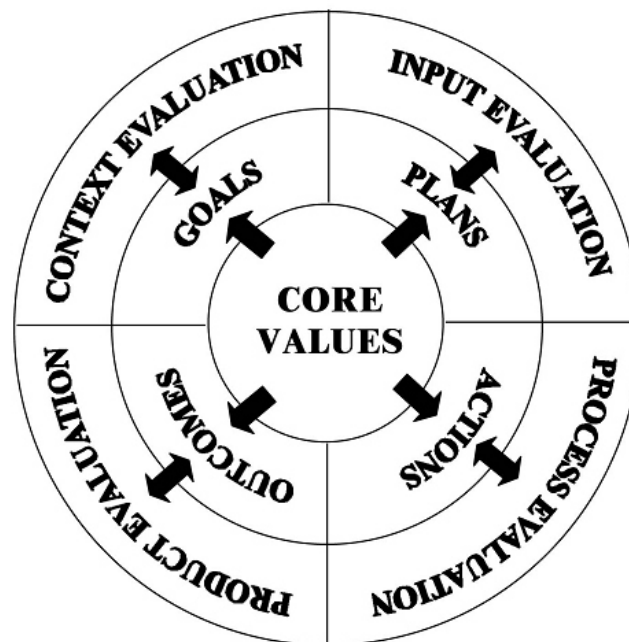

Fig. 1: Key components of the CIPP Evaluation Model and associated relationships (Stufflebeam 2003).

Context Evaluation helps decision makers to assess needs, problems, assets and opportunities while defining goals and actions. Planning decisions and context information are two key concepts addressed during context evaluations (Randall, 1969). Decision makers need to consider the selection of problem components and set priorities in terms of importance. They also need to determine the strategy or strategies that will be used to carry out or overcome these problem components. The main methods for data collection during context evaluations are research surveys, literature reviews, and expert opinions.

Input Evaluation helps decision makers to assess plans for their feasibility and cost-effectiveness for achieving planning objectives. It entails structuring decisions and action plans that depend on design information. This stage of evaluation generally sees decision makers setting up and confirming plans and budgets before actions are undertaken. This may include comparing competing plans, funding proposals, allocating resources, scheduling work and assigning human resources.

Process Evaluation sees decision makers assess actions and implementations of plans that are being achieved. At this stage of an evaluation, the design has been structured and put on trial.

Evidence is collected to determine the effectiveness of the objectives, and to help designers and evaluators to gauge the success of the process. Main methods for data collection are baseline observations, test results that can be compared against a time frame sequence, and comparing stated objectives with observed effects (Randall, 1969).

Product Evaluation aids in identifying and assessing outcomes, those intended and unintended, short-term and long-term. It also provides a platform for clients to stay focused on their goals and to gauge the effort's success in meeting targeted needs. The product information gathered from testing the completed designs contain evidence about the effectiveness in attaining short and long range goals, and can also be used to compare with that of another program or design (Randall 1969).

2.2. Categories of evaluation study

Evaluations fall into one of two categories, either formative or summative. Formative evaluations are generally interim reports sent at various stages of an evaluation study to inform stakeholders and clients. These reports offer guidance to decision makers by assessing and assisting with goals and priorities. Summative evaluations are generally retrospective project assessments of completed projects.

An evaluator needs to be aware of summative and formative evaluation reporting when undertaking an evaluation study. While these two levels of reporting are never clearly distinct, and may at times work in combination, an evaluator will nonetheless be doing one or the other at some stage of an evaluation cycle (Stufflebeam and Shinkfield 2007). While formative reports are useful for providing ample opportunity to decision makers to make room for improvements and revisions, summative reports are useful for determining accountability for success and failures.

The chart (fig. 2) adapted from Stufflebeam and Shinkfield (2007) provides an overview of how formative and summative reports can be used in an evaluation study.

Evaluation Roles	Context	Input	Process	Product
Formative evaluation: Prospective application to guide decision making and quality assurance	Guide to identify needs, ranking of goals (based on assessing needs, problems, assets, and opportunities	Guide to choose strategy and examining work plans (based on assessing alternative strategies and resource allocation plans)	Guide to implement plans (based on monitoring and judging program activities)	Guide to continue or terminate of project (based on assessing outcomes and side effects)
Summative Evaluation: Retrospective comparison and sum up of the program's merit	Compare goals and priorities to assessed needs, problems, assets, and opportunities	Compare program's strategy, design and budget to targeted needs	Compare designs and actual processes and costs	Compare outcomes and side effects to targeted needs

Fig. 2: Difference between Formative and Summative evaluations at different stages of CIPP (Stufflebeam and Shinkfield 2007).

2.3. Designing an evaluation study

In addition to deciding the kind of reporting to deliver, an evaluator needs to take some additional factors into consideration when designing an evaluation study. The context or situation to be evaluated, the appropriate methods for data collection, how information is to be organised and analysed; and reporting findings appropriately are all critical to any successful evaluation.

When evaluating the context, the evaluator should focus on laying a sound foundation for the potential study. According to Stufflebeam and Shinkfield (2007), careful preliminary investigation is pivotal when deciding if a study should go forward. The aim is to stay focused on key questions, such as identifying key audiences, clarifying pertinent values and criteria, as well as determining information requirements about the project. This first step requires the evaluator to establish rapport and trust with the client and stakeholders.

There are no best methods for conducting an evaluation study, only those most appropriate to whatever the context requires. When collecting data, an evaluator is advised to collect a wide range of information, from background contexts to matters such as costs and types of activities. This process includes collecting, correcting, and initial analysing and synthesising of information. Stufflebeam advises that evaluators use whatever methods necessary and useful to reach defensible judgment, including both qualitative and quantitative methods.

When organising and analysing information, all information collected should be systematically and accurately recorded, and securely kept. Analysis of information should be focused on answering the basic evaluation questions and judging the evaluand (Stufflebeam and Shinkfield 2007). Although evaluator and client may collaborate to determine the bases of the study, it is the responsibility of the evaluator to synthesise the analysis to produce appropriate reports for the client. Evaluators need to be competent in analysing and synthesising information in order to provide clients with sound, meaningful and creditable information.

Results obtained from the analysis are then used for preparing and presenting oral and printed evaluation reports. Reporting activities may occur throughout and after completion of an evaluation study. Reports should be communicated to all stakeholders in an efficient and timely manner, in order to foster the effective use of evaluation findings. Reports may also take on descriptive and judgmental information. However, it is advised that descriptive information be kept separate from judgments in a report, in order to stakeholders understand the value of what factors influenced the evaluation. Judgment-oriented feedback may be viewed as biased, but is helpful when directed at identifying strengths and weaknesses to help improve an evaluand.

The following chart (Fig 3) provides a summary overview of possible methods that can be used for each stage of CIPP.

Information Collection Procedures	Time periods in the Evaluation						
	Period 1 (Start up and Context Evaluation)	Period 2 (Input Evaluation)	Period 3 (Process Evaluation and Cost Analysis)	Period 4 (Process and Impact Evaluations)	Period 5 (Outcome Evaluation)	Period 6 (Sustainability and Transportability Evaluation)	Period 7 (Final Report Preparation and Delivery)
Document, files, and data tape retrieval and review	O	O	O	O	O	O	
Travelling observer or resident researcher			O	O			
Literature review		O					
Interviews	O		O	O	O	O	
Site visits		O	O			O	
Focus groups				O		O	
Observations			O	O			
Mini-case studies					O		
Goal free studies					O	O	

(Stufflebeam and Shinkfield, 2007)

Fig. 3: Four types of evaluation (Stufflebeam and Shinkfield 2007).

The evaluator will need to critically assess which parts of the CIPP model to apply, depending on what evaluation stage has been reached. According to Stufflebeam (2003), there is no need to conduct all four sections of a CIPP model, as CIPP treats evaluation design as a cyclical process of continually identifying and employing the appropriate means by which to address emergent needs.

Regardless of the stage of evaluation, evaluators are advised to regularly inform and seek consultation from stakeholders in order to invite reactions and suggestions regarding planned activities throughout the study. Stufflebeam (2008) emphasizes that stakeholders must play a key role in determining evaluation questions, variables and interpretive criteria to ensure continual sharing and dissemination of information and improvements.

3. Conclusion

While there is no set formula by which to design an evaluation study, CIPP provides us with a versatile framework. In combination with rigourous instructions, it allows an evaluator to adapt it according to a project's particular purposes. Significantly, it aims to improve, rather than prove, any aspect of a study.

Strengths: As it was not designed for any specific program or solution (Guerra-López, 2008), CIPP is adaptable, lending itself to use in varying situations as a "...comprehensive framework for guiding

formative and summative evaluations of projects, programs, personnel, products, institutions, and systems" (Stufflebeam 2003b). CIPP allows for evaluations to occur from the planning to outcome stages of an evaluand, allowing for iterative development during the design and build. This holistic approach shows evaluators that they need not wait until the completion to evaluate (Guerra-López, 2008; Robinson, 2002).

CIPP's holistic approach is not only evident in what it evaluates, but also who it involves in the evaluation. The role of stakeholder representatives in CIPP evaluations is as active participants helping to gain and provide information, not simply as passive sources from whom evaluators gain their information. Stufflebeam (2003b) states that while evaluators manage and drive the evaluation to ensure integrity, stakeholders are used to help "...affirm foundational values; define evaluation questions; clarify evaluative criteria; contribute needed information; and assess evaluation reports..." (p.11).

Relevant stakeholders must be sought from all levels of influence, as not only is their involvement crucial to providing a thorough and sound evaluation, it is also an ethical responsibility. It empowers those who may not be represented in other forms evaluation (Stufflebeam, 2003b). Even before the first *context* evaluation begins, Stufflebeam suggests the use of checklists for contractual agreements between the evaluator and stakeholder, followed by further activities for both parties and concluding with a checklist for the final report (Stufflebeam, 2003b).

Limitations: The thoroughness of the CIPP model is also one of its major limitations. From a theoretical perspective the model is complete, robust and egalitarian, though it is also idealistic and dependent on unique situations. Its critics contend that a number of situations exist in practice which prevent evaluations from running smoothly, most notably the politics occuring within and between departments and organizations and therefore often present in the creation (and consequently the evaluation) of a learning space (Robinson, 2002). Furthermore, the equity provided to all stakeholder groups, together with the requirement of input from them, means that the process of evaluation can be slow, costly and complex (Angelova and Weas, 2008). Finally, it is in practice still a top-down, managerial model dependent on rational decisions made at a management level, although some collaboration is required (Robinson, 2002).

In the end, CIPP is not an infallible system, but rather a model to be used by an evaluator. The responsibility and accuracy of any evaluation is determined by the decisions of the organisation conducting it, not the model itself. CIPP provides a way to gain evidence-based data with which to validate findings and develop a clearer understanding of the process and problems encountered when creating learning spaces.

Evaluations may sometimes not be intended to assist in improving an entity, but aim instead to serve as a public relations exercise for promoting that entity's agenda. Stufflebeam and Webster (1983) refer to these types of evaluations as "politically oriented evaluations (or pseudo-evaluations)". This kind of pseudo-evaluation can be pursued in a number of ways. Firstly, the questions asked in the evaluation can be specifically chosen to provide only a positive outcome for the entity. Secondly, a genuine evaluation can be conducted, but only selected information of the results will be released. In either case, pseudo-evaluations allow for what Stufflebeam and Webster (1983) refer to as "public relations-inspired" evaluations.

Regardless of the type of evaluation model chosen, all valid evaluations have a range of goals. They aim to assist in dissemination and foster enlightenment, to help decision makers make effective decisions and to reveal the potential strengths and weaknesses of projects. It is our belief that physical spaces for learning in higher education can improve and stand up to public scrutiny only if they are regularly subjected to a rigourous evaluative process shown to be sound through effective and reviewed method. CIPP is the framework by which we intend to ensure that this process occurs successfully.

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