

# Designing extended professional development: The power of formative evaluation

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# Professional development Evaluation

- Professional development (PD) or learning (PL) continues to be central to maintaining high quality education and supporting the implementation of new curriculum, pedagogies and school directions.
- Evaluation (rigorous) can reveal impact or provide justification for funding
- In this paper - different types of evaluation and consider the different messages, or 'stories' (Brinkerhoff, 2006), that each can portray and their relative usefulness for a teacher professional development program designed to be *flexible and responsive to participants learning needs*.

# Evaluation: Telling stories



- Evaluation - acts like (ongoing) storying of the phenomenon under investigation:
  - Brinkerhoff (2006) - evaluation of workplace training as 'telling stories'.
  - Other sources use the medium of story to share program outcomes in order to emotionally and intellectually engage different audiences (<https://evaluationstories.wordpress.com/>)
- We use this metaphor of story and evaluation storylines to interrogate what we can learn from the above illustrations of how different types of evaluation might usefully inform a PD program.

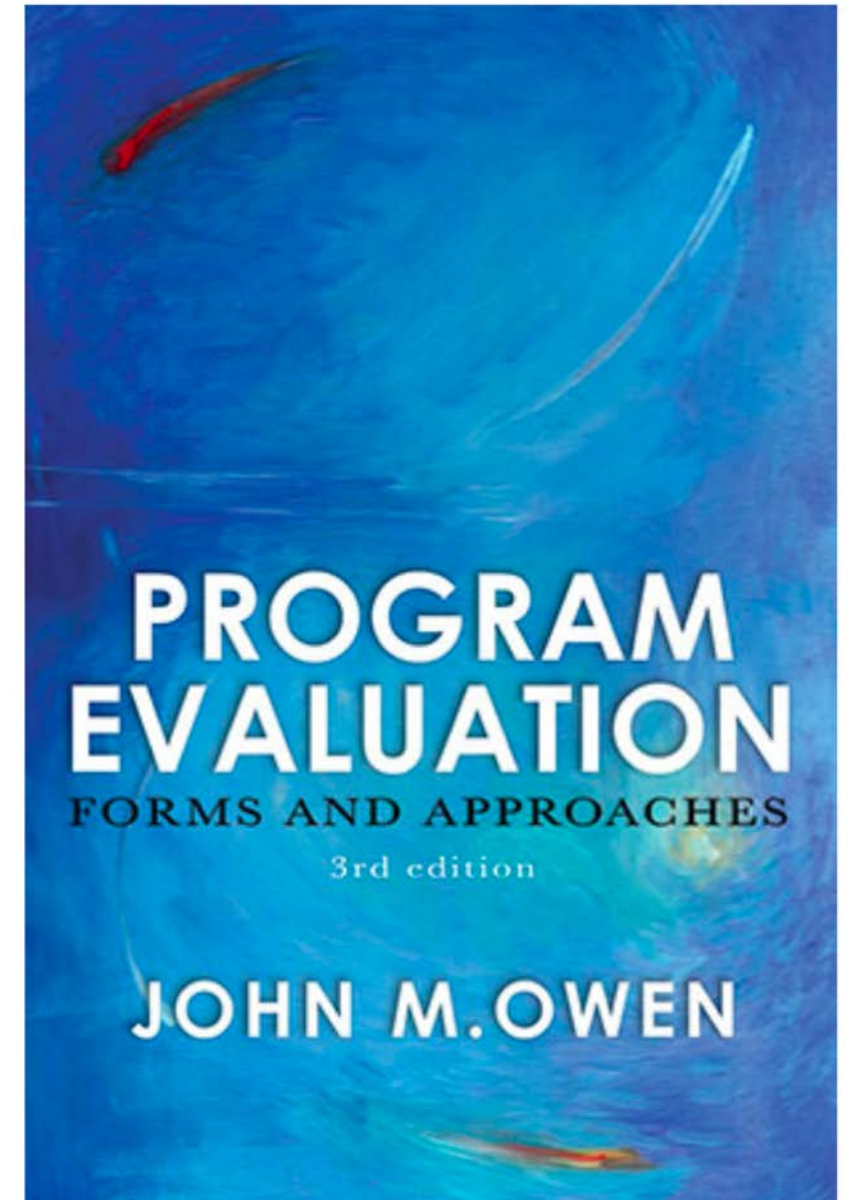
# Evaluation reporting

- Commonly reported: Impact (Owen, 2006) of the evaluation in terms of the expected outcomes, eg:
  - reports on measurements of changes in teacher knowledge, pedagogy and beliefs, as well as impact on student growth
  - Program characteristics that led to this growth
- Often not reported:
  - Monitoring of whether the program is meeting the target audience, and how a program may 'evolve' during implementation
  - How the core features and form (Garet et al 2001) of a program structure might have been clarified and monitored as a program is implemented.

# This paper

- *How were different forms of evaluation used to generate insights that informed the progress of a new professional development program?*
- Use of Owen's (2006) classification of evaluation forms:
  - Proactive
  - Clarificative
  - Interactive
  - Monitoring
  - Impact
- Key learnings that were achieved through the evaluation and how these informed program design conceptually, pedagogically and practically

Type of evaluation	Typical issues that can be dealt with
<b>Proactive</b>	<p>Is there a need for the program?</p> <p>What do we know about this problem that the program will address?</p> <p>What is recognised as best practice?</p> <p>What there been attempts to find solutions to this problem?</p> <p>What does the literature and conventional wisdom tell us?</p>
<b>Clarificative</b>	<p><b>What are the intended outcomes and how is the program designed to achieve them?</b></p> <p>What is the rationale for this program?</p> <p>Is the program plausible?</p> <p>Which aspects of this program are amenable to a subsequent monitoring or impact assessment?</p>
<b>Interactive</b>	<p>What is the program trying to achieve?</p> <p><b>How is this program going?</b></p> <p>Is the delivery working?</p> <p>Is the delivery consistent with the program plan?</p> <p>How could <b>delivery be changed</b> to make it more effective?</p> <p>How could this program be changed to make it more effective?</p>
<b>Monitoring</b>	<p>Is the program reaching the <b>target population</b>?</p> <p>Is implementation meeting <b>program objectives and benchmarks</b>?</p> <p>How has implementation changed?</p> <p>How can the program be fine-tuned to make it more efficient and effective?</p>
<b>Impact</b>	<p>Has the program been implemented as planned?</p> <p>Have the stated goals be achieved?</p> <p>Have the needs of those served been met?</p> <p>What are the unintended outcomes?</p> <p>Has the implementation strategy lead to intended outcomes?</p> <p>How do differences in implementation affect program outcomes?</p> <p>What are the benefits of the program given the costs?</p>



# Successful Students – STEM Program



## Four Cycles of PL

1. Pedagogies & Contemporary STEM practices
2. Assessment & leading change
3. Sustaining change
4. Embedding practice & generating evidence of change

## Structure of each cycle

1. **Immersion:** 2-day learning intensive
2. **Implementation:** 8-10 week implementation STEM innovations.
3. **Review:** 1-day reporting & planning

+ STEM education conference  
+ Teacher network meetings  
+ In-school support

+ Industry partnership program  
+ Showcase event

# Proactive

- The process by which the proposal for the program was constructed
- Revisions in collaboration with funder



# Impact



During  
PL Days

- Presentations
- Planning documents
- PL artefacts
- **Component mapping tool**

Other

- Email surveys
- **Teacher Focus group interviews**
- **Student surveys**

# Monitoring

*I would have appreciated more time to work with my team to discuss the project. Some examples of projects would be great to see. Discussion of what student ambassadors and what Deakin could specifically provide. Examples of industry links*

Monitoring evaluation was conducted by the Program team as generation of data, and was reported quarterly to the funding body against agreed Key Performance Indicators (KPIs).

13 Steering group meetings. The independent evaluator attended one of these meetings. Action items informed the program.

## Methods and Purposes

1. Survey teacher reflection data used to report to KPIs and the steering group meeting
2. Feedback forms at the completion of each PL session, teacher network meetings and STEM ed conference - to ascertain if we were meeting the needs of the participants
3. Observations of participation patterns of schools and teachers

## Examples of outcomes/actions:

- Introduced areas of the curriculum deemed relevant for the teachers
  - types of content that were useful or missing,
  - the types of support structures (such as templates) that might have been useful,
  - areas that have been clarified or need further clarification, and
  - the types of experiences that might otherwise have been useful.
  - More planning time was introduced into the PL programs to allow for collaborative planning
- Confirmation of improved outcomes for teachers.....

# Improved teacher capability from email survey

Period	Improved Teacher Capability	
	Target	Actual
<b>6 months</b>	70% of teachers report improved knowledge and understanding at 6 months	79%
<b>12 months</b>	70% of teachers report improved capability at 12 months (n=11)	100%
<b>18 months</b>	50% of continuing teachers in the program report evidence of classroom innovations at 18 months (n=11)	100%
<b>24 months</b>	75% of continuing teachers report evidence of classroom innovation at 24 months (n=11)	100%

\*\*Confirmatory - at least for these teachers, they were implementing change at the same time as they were completing the program.

\*\* funding body used this data to disseminate publicly impact of change.

# Clarificative

Clarificative evaluation was conducted by the Program team as a way of seeking clarification of what STEM is and what we would focus on when building STEM teaching capability.

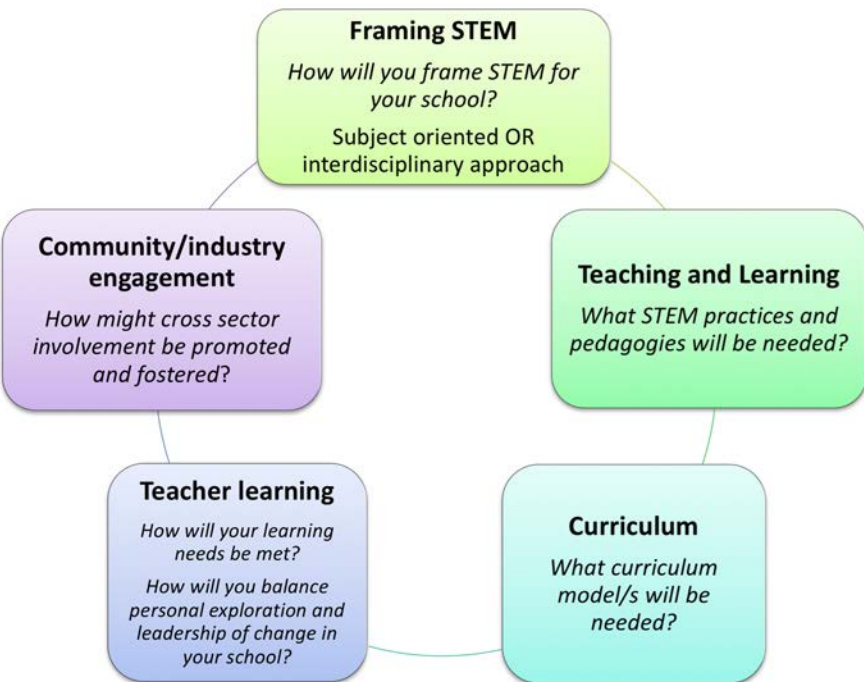
## Methods and Purposes

1. Our reflection to clarify what STEM education is
2. Evaluation surveys after PLs to ascertain school direction and perceived weaknesses
3. Artefacts and surveys to ascertain usefulness of the emerging framework and tools

## Example outcomes/actions:

- Introduced a language of STEM education through a STEM vision framework
- Introduction of tools to align teacher planning with this framework and common language
- Feedback on framework to guide future use, eg. reduce repetition across PL sessions
  - *We made some good decisions but still some more clarity needed amongst ourselves.*
  - *We have been able to get clarification around the ideas we have and also been able to get feedback on our ideas. Clarification about representations. Time to work in our teams with the chance to talk to others re: concerns/ideas has been very helpful.*
  - *The variety of choices meant that we have swapped between ideas a couple of times, and it hasn't meant that we consolidated our ideas till late in the piece*

# STEM Vision Framework



What are your STEM learning needs and what change is needed in your school?

How will your learning needs be met and how will you balance personal exploration and leadership of change in your school? Consider:

- What strategy is needed that integrates school processes and support processes for individual teachers?
- What resources, knowledge and people are needed to support change?
- What evidence will you collect to evaluate the effectiveness of the new curriculum, the use of the STEM practices, and your own learning?
- How will you build capacity of other teachers in your school? Consider the role of leading teachers and school leadership in supporting and enabling *change*.

Emergent needs:

- *cultural aspects of support from leaders and a general shift in the culture of teaching that prioritises STEM teaching and learning practices (3 schools).*
- *different approaches or skills, such as assessment practices, coding and using digital technologies*
- *use of representations*
- *resources needed to support adoption of these new pedagogies and activities.*

# Interactive

An external evaluator was contracted to observe and unpack the processes, conversations and interactions that occurred and recurred throughout the program development, implementation and review processes.

## Methods and Purposes:

1. External evaluator acted as a critical friend by giving ongoing and informal feedback, as well as through formal reports (x4)
2. Develop an ongoing independent narrative that synthesised the perspectives of the project team, the participants, and independent observations

## Example outcomes/actions:

- Affirming of design, pedagogy and processes of the PLs and program generally
- Informing of design features, support processes and content areas that needed strengthening
- E.g., content area of 'sustaining and embedding change' – need for project team to work closer with school leadership to support change
- E.g., emerging model of teacher learning as 'teacher action research' – unintended cyclic action research process, rethinking of expectations of teachers to develop and report a new innovation each PL cycle, formalised in the final cycle as an action research project

*The Evaluator had the opportunity to **act as a critical friend** in the ongoing processes, and [had] been at liberty to raise questions and present observations throughout the various meetings she attended.*

*This... enabled her to provide **formative feedback of an ongoing nature** to the project team with regard to teacher development, the conceptualisation of STEM practice, resources provided and program activities....*

*This has **facilitated changes** where possible and if appropriate in a relatively dynamic way" (Report 1 p.3).*

## Evaluator questions

1. What are the intended processes and outcomes for the project?
2. How is the project being implemented?
3. To what extent are the intended outcomes being achieved?
4. What factors are helping and hindering achievement of the intended outcomes?
5. To what extent are the project outcomes meeting the needs of the audiences for whom they are intended?

# Putting stories to use

## Storylines

- Different evaluation storylines were evident, each providing different useful pieces of information and which then were “put to use” within the program:
  - **Clarificative evaluation** enabled elucidation of the perspectives of the participants - “**development and creation of**” something.
  - **Monitoring evaluation** enabled interrogation of the ongoing effects of the program on participants - “**effectiveness and usefulness for**” someone and “**improvements to**” something.
  - **Interactive evaluation** enabled a different window on the program through the perspective of an “outsider” - “**crystallization of**” an emerging change process.
- Explicit use of evaluation types possible when there is a degree of flexibility built into the program design:
  - cyclical allowing for reflection after each cycle
  - longitudinal catering for one cohort of participants enabling building teachers’ developing expertise