

An Outcomes Approach to Evaluate Professional Development Programmes for Medical Educators

Elizabeth G Armstrong,^{1,2}PhD

Do our Continuing Professional Development (CPD) programmes provide significant measurable and desirable results? The key metric for evaluating programmes in the past has been the satisfaction of participating healthcare providers. Often the participants stated they enjoyed the course, time well spent from their perspective, and returned

to their home institutions with little or no change visible in their behaviours. This problem was formally recognised in 2000 by the Continuing Medical Education Advisory Group¹ of the Association of American Medical Colleges, who advocated that there be new methods to evaluate the efficacy of CME programmes and better sharing of

Table 1. The Outcomes Logic Model for the NUS-HMI Programme for Physician Educators, Singapore (2004, 2005, and 2006)

Component	Description
Inputs What resources are dedicated to or consumed by the programme?	<ul style="list-style-type: none"> • Funding from NUS and tuition of regional faculty • Faculty and staff time (within HMI & NUS) • Facilities at conference centre
Activities What does the programme do with inputs to fulfill its mission?	<ul style="list-style-type: none"> • Systems to publicise programme, screen potential participants, manage course logistics, etc. • Curriculum design that incorporates (1) assessment of learning needs, (2) interactive learning and opportunities to practice, (3) sequenced and multifaceted activities, and (4) outcome evaluation. • Ongoing curriculum updating • Sessions with evaluation during and after sessions to judge whether programme is meeting needs and is implemented as planned. • Systems to support medical educator networking and communities of practice before, during and after participation, e.g. HM website, participant reunions, recruitment of programme alumni as Faculty Scholars from NUS
Outputs What are the direct outputs of programme activities?	<ul style="list-style-type: none"> • Number of applicants and participants since the programme began • Average number of hours a participant spends on the programme and related activities • Number of participants from NUS • Number of participants from across the region • Number of returning scholars
Outcomes What are the immediate and intermediate benefits for participants during and after programme activities?	<p><i>Immediate</i></p> <ul style="list-style-type: none"> • Increased knowledge about active learning methods and greater capacity to be learner-centred educators • New understanding of and appreciation for ways medical education is implemented in institutions nationally and globally <p><i>Intermediate</i></p> <ul style="list-style-type: none"> • An increased commitment to medical education as a career direction and stronger identity as a medical educator • Expanded network of colleagues in medical education and communications with like-minded physician educators, e.g., via virtual communities, • Educational projects initiated and completed
Impact What is the long-term institutional gain?	<ul style="list-style-type: none"> • Continuous quality improvement of educational programmes through scholarly research in medical education

HMI: Harvard Medical International; NUS: National University of Singapore

¹ Director of Education Programs, Harvard Medical International

² Professor, Harvard Medical School

Address for Correspondence: Dr Elizabeth G. Armstrong, Harvard Medical International, 1135 Tremont Street, Boston MA 02120, USA.

Email: earmstrong@hms.harvard.edu

evaluation strategies and results among planners of medical professional development programmes.

When Harvard Medical International (HMI) was invited to design and implement annual courses for healthcare faculty at the Yong Loo Lin School of Medicine, National University of Singapore (NUS) starting in 2004, we were honored by the privilege and mindful of the challenge. Building on the programme framework of the Harvard Macy Institute Program for Educators in the Health Professions² with its proven track record in creating faculty behaviour changes and resultant institutional impact, we established a week-long programme for the faculty of NUS. The programme was customised according to guidelines and goals from NUS to foster “transformational learning” and to move participants toward: 1) greater capability as educators using active learning methods (Handelsman³), 2) new understanding of ways medical education is implemented in diverse institutions globally, 3) firmer commitment to the field of medical education as a scholarly activity and enhancement of their own identity in the field, 4) ongoing involvement in cross-specialty, inter- and intra-institutional communities of practice.

Looking back over the past 3 years of work together and 3 residential course offerings, we can tap data that include end-of-course satisfaction surveys that look quite positive and we can examine evidence of changed behaviours of individuals and the institutions they represented.

In keeping with the call for evaluating the efficacy of these programmes over time, I employ an outcomes logic approach⁴ to determine results that go beyond satisfaction, assisting us in discovering what, if any, enduring impact the collaboration has produced. An outcomes logic model depicts the path from programme creation to implementation to outcomes. Earlier, I applied this approach to the Boston-based Harvard Macy Institute Programs⁵ to judge how well the programme mission and plan were implemented and whether any observable outcomes had been attained.

In the outcomes logic model, activities are identified that have been shown by prior research to be predictive of the desired outcomes. Some outcomes are immediate, that is, measurable during or soon after the programme ends. The outcomes logic model posits that these immediate outcomes must first be achieved in order to set the stage for intermediate or longer-range outcomes. A beginning outcomes logic model for NUS-HMI courses (Table 1) examines whether the programme was implemented as intended and whether selected immediate and intermediate outcomes were attained.

At this stage of our work we have output measures for the 3, 5-day total immersion courses as follows:

First NUS-HMI Programme for Physician Educators October 17-22, 2004			
• NUS SoM	22	• HoD	3
• NUH	3		
• KKH	1		
• TTSH	2	• Total	<u>28</u>
• MEU members	4		

NUS-HMI Programme for Physician Educators 2005 October 16-21			
• NUS SoM	12	• HoD	2
• NUS Pharmacy	1	• China	1
• NUH	1	• Malaysia	6
• AH	1	• Thailand	4
• SGH	6		
• TTSH	2	• Total	<u>34</u>
• MEU members	3		

NUS-HMI Programme for Physician Educators 2006 October 15-20			
• NUS SoM	16	• Brunei	2
• NUS SoN	1	• Malaysia	1
• NUS Dental	2	• Pakistan	1
• NUH	1	• Taiwan	1
• SGH	3	• Total	<u>28</u>
• MEU members	1		

AH: Alexandra Hospital;
HMI: Harvard Medical International;
HoD: Head of Department;
KKH: KK Women's and Children's Hospital;
MEU: Medical Education Unit;
NUH: National University Hospital;
NUS: National University of Singapore;
SGH: Singapore General Hospital;
SoM: School of Medicine;
SoN: School of Nursing;
TTSH: Tan Tock Seng Hospital

For each outcome from Table 1, a measurement indicator is to be created to provide evidence as to what degree the programme outcome has been achieved. To create a measurement indicator, we need to (1) define the specific observable, measurable characteristic or change that will represent achievement of the outcome, and (2) identify the specific statistic, such as number and percentage of participants attaining the outcome, that the programme will

use to set baselines and targets as well as summarise its level of achievement. It is important to note that outcomes logic model in this study examines the efficacy of the *programme* and is not intended to assess individual performance.

One important indicator is active involvement in educational leadership and scholarship. With 14 research projects and curricular innovations underway being championed by the members of the classes of 2004 and 2005, we have some tangible evidence of the impact of the programme. Education projects completed include: Peer Instruction and Student Electronic Response (PISER), Revised Obstetrics and Gynecology Clinical Curriculum, Program to Measure Effectiveness of Endotracheal Intubation Instruction, Survey on Good Teaching, and Program to Enhance Skills and Competency of Clinical Examiners. Of the 54 NUS participants over the 3 classes, 4 are identified in new educational leadership positions, 32 are active in educational committees, 18 are active in faculty development programmes, 11 are involved in current educational projects, 11 hold educational grants in support of their creative work, 8 have won teaching awards, and 1 has published an article, “What Makes A Good Medical Teacher – Perception of Medical Students”, *Medical Teacher*, December 2006. The new education leaders at NUS have also supported the creation of a Student Medical Education Conference in 2005, Medical Education Rounds occurring throughout the year bringing national and international leaders together and the implementation of innovative student assessment exercises (OSCE, mini-CEX, and Simulations). The education leaders perceive recognition for educational activities as scholarship in the promotion process and now appreciate that effective

educational planning requires systematic management.

Finally, it is important to note that the education projects designed during the 2004 to 2005 academic year received over \$1 million in funding from the provost’s office at NUS. Ongoing funding sources now include the NUS Center for Development of Teaching and Learning – Teaching Enhancement. Grants as of 2006 at the NUS Leadership in Academic Medicine pitch for funds round initiated in January 2007. Value was perceived by the institution and funds followed.

Visible new work in education that is consistent with advances in learning and teaching, and designed by the national and international scholars assembled each year at NUS provides evidence of the potential long-term benefit to students, faculty, and, of course, ultimately the patients we serve.

REFERENCES

1. Bennett NL, Davis DA, Easterling WE Jr, Friedmann P, Green JS, Koeppen BM, et al. Continuing medical education a new vision of professional development of physicians. *Acad Med* 2000;75:1167-72.
2. Armstrong E, Doyle J, Bennett NL. Transformative professional development of physicians as educators: assessment of a model. *Acad Med* 2003;78:702-8.
3. Handelsman J, Ebert-May D, Beichner R, Bruns P, Chang A, DeHaan R, et al. Scientific teaching. *Science* 2004;304:521-2.
4. Hatry H, van Houten T, Plantz MC, Greenway MT. *Measuring Program Outcomes: A Practical Approach*. Alexandria, VA: United Way of America, 1996.
5. Armstrong EG, Barsion SJ. Using an outcomes-logic model approach to evaluate a faculty development program for medical educators. *Acad Med* 2006;81:483-8.