



## **Total Evaluation: building the case for e-learning**

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### **Abstract**

The transformation from bedside nursing and hospital-based education to business owner and technical e-learning author/advisor offers new perspective on how health professionals adopt learning technologies. Research from our own group of health professionals as well as third party needs assessments reveal similar findings. Feedback collected from Nurse Executives and Directors of Education from across the globe uncovers the need for a benchmark to more accurately measure end user feedback.

Identified was the need for understanding a standard in human capital analytics relating to the healthcare environment, as well as a communication strategy to both create and/or maintain a meaningful case for e-learning. With little published data on e-learning adoption and ROI in the healthcare sector, there is an identified knowledge gap. Questions remain on how we value both learning and as well, the influence of our health professionals.

A staple in the e-learning sector for over thirty years is the Kirkpatrick model for summative evaluation, which includes four levels of learning; a fifth added years later. Applying this standard to healthcare could be a method in which to achieve this benchmark. Also discussed is the importance of knowledge transfer in capitalizing on what other institutions have experienced with regards to technology adoption, budget allocation, facility & resources, and environment & attitudes.

**Key terms:** *knowledge exchange, knowledge transfer, value proposition, learning metrics, cost-benefit ratio, ROI, total evaluation, information technology, human capital analytics*

## **Nursing in the 21<sup>st</sup> Century**

Since the mid 1960s, most healthcare institutions have been implementing information technology systems and examining how they influence operations on a daily basis. After over 40 years, we have some of the most intuitive software for tracking, billing, bed utilization, and clinical charting. So why do healthcare's largest population - nurses, continue to feel undervalued?

Shortly after graduating from University with a degree in Nursing, my overwhelming sense of pride was displaced with the realities of clinical decision-making. I quickly realized that my professional responsibility was far more than I had anticipated. Despite memorizing the policy and procedure manual and mastering clinical competencies, I felt helpless when one of my first patients quickly deteriorated into respiratory failure and died. I decided at that moment, I needed to seek out a mentor who would lovingly agree to take me under her wing; thank goodness I found her.

Many years later, after spending much of my own time developing orientations on powerpoint, struggling through countless CPR classes – IV Pumps – Cardiac Monitors - Glucometers training, I wondered if nurses would ever have the opportunity for professional growth. Had we gotten so focused on this new wave of technology that the very basis of nursing as a profession had somehow been overlooked? As a hospital-based educator, nurses did not see me as a mentor or facilitator, but 'the lady who forces us to train on some new piece of equipment'.

Leaving the institution for business was similar to turning the lights on in the morning after a deep sleep. As a business owner, I quickly learned that every customer wants to know 'what's in it for me?' With job satisfaction at an all time low, retention and recruitment issues at the forefront and the almost constant influx of new technologies, are we able to see the value in information technology? In the 'other' worlds or industries, vendors are committed to integrating sex appeal, value-add propositions, games and other fun marketing tools into their products and campaigns to sell, sell, sell.

In discussions with our community of nursing educators and administrators, I often bring up the following questions: Are our nurses listening to our technology-related value proposition? Are they motivated to learn? Do our nurses have the ability and desire to use the technology in the first place? Are we offering them anything that seeks to value them as professionals, and as human beings within our organizations? Have we created a culture of apathy? Maximizing adoption and acceptance of IT should be focused on one thing, *make our nurses feel valued*. I realized when working in my own hospital that on average, there were only one-two nurses per unit that participated in any form of clinical education every year. If that was in fact the case in other parts of the world, it would mean that out of thirty staff, each nurse would have one relevant learning opportunity every 15 years, if at all. Establishing a benchmark for successful adoption and value with any organization is therefore paramount.

## Total Evaluation

Most e-learning programs, paper-based education and live seminars that we deliver today have standardized methods of evaluation, with the purpose of gathering immediate feedback from learners. However, measuring the value of this feedback is a step that might sometimes be omitted. Typically, we allow our learners a few minutes at the end of the day to evaluate the instructor, the content and its delivery. We must ask ourselves though, what is the purpose of my evaluation form? Am I retrieving information that is measurable and useful in building my case for future learning opportunities? Are we setting a standard that could be leveraged by other facilities like ours? If our purpose of gathering feedback was to assess the need for continued education and its value to the learner, the facilitator and the healthcare organization, would the long term case for learning be an easier 'sell'? Where do we start and what do we want to accomplish?

If we were able to source valuable statistics and measurements from our learners, our content and learning objects would be altered and grow as any living organism would. In some industries, the ROI (return on investment) may be evident as it can be calculated using numerical values; dollars spent and dollars made. How do we in fact measure an e-learning program or any learning program within the hospital environment, considering value in our industry is not purely based in dollars?

In healthcare, hard ROI factors may include the cost of tuition, travel expenses for education seminars and salaries for educators. You may have already begun training with a sample group, collecting statistics that might help to build your case such as amount of sick time, error & injury rates, and retention numbers. The challenge when considering only the hard ROI is that there are only a few points of measurement that may not reflect the value or benefit you would see in return. The equation therefore cannot help build a solid case to grow your continued education strategy. Soft ROI would include job satisfaction, increased technology adoption, quality of care to the patient, and so on. But how do we put a dollar amount on these factors? How or who decides what value to place on medical error reduction? (See Figure A.)



**Figure A.**

The obstacles we face when considering this intuitive way of evaluating learner experience and ROI for the healthcare organization cannot go unrecognized. If you do not have a well rounded team of educators, IT specialists, nursing, finance, administration, etc., it becomes difficult to gather the proper amount of documentation prior to adoption, during the process and post-adoption. Most 'champions' expend their energy on administration and end-user buy-in. Most times, these champions lack project management experience and are working above and beyond their job description.

#### *The Kirkpatrick Model for Summative Evaluation*

Dr. Donald Kirkpatrick, an internationally recognized expert in the field of training program development and evaluation, published the four levels of evaluation in 1959. His model titled, *The Kirkpatrick Model for Summative Evaluation* was based on his PhD dissertation and has been a staple in

the e-learning sector for over thirty years; a well researched and useable model that can be easily applied to the healthcare environment. This four-level model of evaluation includes:

- Level One: Reaction
- Level Two: Learning
- Level Three: Behaviour
- Level Four: Results

In level one, our learners would evaluate their training immediately after completing each individual course. This uses a very straight-forward method of measuring user feedback and can be used to gain insight into the success or failures of the instructor, the course, the environment and/or the delivery format. At this level, we could evaluate not only the overall perceived value, but its transferability to the workplace, the ease of use, the appropriateness of interactivity exercises, relevance of objectives to the content and testing modalities, and the ability to maintain interest. This type of feedback form is easily created, delivered and measured.

It is important with any type of survey to strive for honest responses which can be accomplished if we aren't requesting their specific identity. When developing a level one survey, be sure you have identified what you want to know, ask permission prior to delivering the course and/or survey, and make sure it generates quantifiable results. Ask yourself, what is the purpose of this survey? How will I measure results? What will I do with the results? Surveys are not only useful in making good courses great, but in building a case for its value in the future.

In level two, we would measure the users' learning results. With the use of a pre-test as well as a post-test, we can more clearly understand whether the user learned the knowledge or skills within the course. Both the pre and post tests should be aligned with its learning objectives and targeted to the users' educational background and experiences. This type of survey is important in understanding whether our learners find the information useful and practical as well as setting the stage for evaluating business results. How important is it to your administrator that your learners are leaving the course with tangible results, results that can affect quality of care, medical error, performance and productivity.

Not as commonly used in healthcare are behaviour measurements which are defined as level 3. These types of evaluations attempt to assess whether the learner retained the knowledge and skill after

returning to his/her workplace. These are generally performed 3-6 months after course completion and can be answered by either the user or supervisor. For example, if Rita completes a course in accessing a port-a-cath, is she still using the learned skills and techniques in a clinical setting five months later? This may be challenging when time and resources are limited so you may choose to use a control group or smaller sample of learners.

At the fourth and final level for this total evaluation model, we evaluate business results. To assess findings properly at this level, we could divide two separate groups of potential learners. The first group would enjoy all the benefits of e-learning and access to continuing education. The second group would continue with the learning methods they have been using to date. Evaluation of medical errors, quality of care, cost, etc would be calculated for each of these groups. This type of study is more time consuming and difficult to control so it is not as widely used. However, anecdotal data can still be calculated on an annual basis as most facilities do now. If we have a reduction in medical errors with increased cost-benefit and quality of care, we could attribute a portion of these benefits to the new e-learning program.

An important study conducted by Dr. Debra Bournes and Dr. Mary Ferguson-Pare, two doctoral nurses at the University Health Network lasted over two years and studied two populations in a clinical environment; one group receiving access to professional development and the other maintaining their current level of continuing education, however limited. Preliminary quantitative data trends included a reduction in sick time (3.42% of worked hours pre-study; 2.34% of worked hours post study), overtime (2.87% of worked hours pre-study; 1.53% of worked hours post study), and turnover (3.5% year 1; 0% year 2) among the participants in the study. Care delivery on the study unit changed dramatically over the evaluation period (see Mitchell, Bournes, & Hollett, in press), especially in relation to length of stay (decreased from 11.08 to 9.45 days), preadmission teaching, pain management, and discharge planning. In addition, the study unit was the only one in the organization to report a surplus in the 2005-2006 budget year. The surplus (approximately \$228,800.00) was almost identical to the amount spent (\$236,982.96 using research funding) on the nurse education time in the same period.

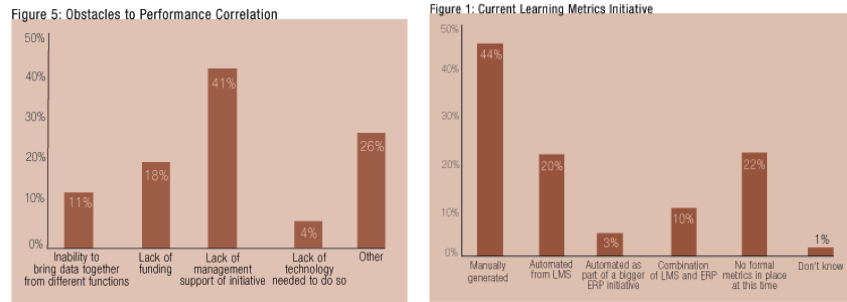
### *The Addition of Level 5*

The fifth level of evaluation came years later by Dr. Jack Phillips as organizations became more focused on specific dollar values that could be attributed to learning. This level of evaluation includes the need for ROI methodologies, of which there are many tools we could use or modify for our own use. It is important to understand that at this level, we would not only use the costs attributed to learning but placing a quantifiable value on the benefits of learning. It is challenging to measure retention, recruitment, sick time, job satisfaction and many others, in dollars. There is very little published data that relates a dollar value to soft ROI measurements and there is no benchmark as yet in healthcare. We, as leaders in healthcare, need to create a value proposition that makes sense, communicate with other facilities as a mechanism for useful knowledge exchange and work toward establishing a benchmark or standard that has been tested in your respective environment.

### *Human Capital Analytics*

KnowledgeAdvisors for which Dr. Kirkpatrick sits on the Advisory Board is a company that has done much research in human capital analytics and learning metrics. They define human capital analytics as follows, 'the process of measuring human capital processes from recruitment to retirement and all people management processes in between. This definition means that Human Capital Analytics measures, *not* manages, human capital. Human Capital Analytics quantifies gaps in the management of existing processes to more precisely identify opportunities for improvement where limited financial, physical and human resources exist.' They have developed a scheme that includes 4 key processes with the purpose of managing deployment of personnel, managing competencies and performance, developing and training employees and finally, motivating and retaining employees.

Lisa Rowan of IDC, reviews statistics produced by the Business Intelligence Board and published in Chief Learning Officer in 2005. What is important to note is that most of us currently use Level 1 and 2 types of evaluation and that they are manually generated (*see Figure 1*). Some of the obstacles faced in collecting the necessary data for valuable performance measurement are lack of management support, lack of funding, inability to bring data together, and a lack of technology to do so (*see Figure 5*).



**Figure 5**

Source: Rowan, L., (2005). What gets measured, gets better: the application of learning metrics.

## Creating the Burden of Proof

This final step includes creating the burden of proof. Not only is it important to document internal successes and challenges, it is also important to create an environment where knowledge share becomes common place. So what does our healthcare community want to know? Let's break it down into four classes: technology adoption, budget allocation, facility & resources and environment & attitudes (See *Figure B.*).

Encourage a knowledge exchange among professionals in your industry who have similar goals. Once you have documented your findings pre-, during and post-adoption, this data can be very useful to others.



**Figure B.**

*Technology Adoption* - Share your experiences of using a Learning Management System, third party content providers, and database or delivery software systems. Include your implementation procedures and necessary scope changes required throughout the process. Offer feedback on the vendors you reviewed and finally, accepted. What were some of the obstacles in facilitating end user acceptance of technology? What were some of the security issues? What are the advantages and disadvantages of hosting internally and externally? How does the quality of the e-learning activities affect end-user technology adoption? How many computers does your facility have or are learners using e-learning from home computers?

*Budget Allocation* -\_What was your budget process and/or your calculations for cost-benefit ratio? Do others value e-learning in the same manner that you do? What types of measurements have you been successful in retrieving? What are some of challenges or obstacles around finding budget in a very layered budgetary process? What helped to build your case for learning in relation to budget allocation? How are users being compensated?

*Facility & Resources* – How many IT personnel does your facility have? Are they comfortable in managing the Learning Management System or software you use? Are they able to support the end-user's technical requirements or questions? Has there been any error reduction, reduced sick time, improved cost-benefit ratios? Are annual updates being met? How do your decision-makers view value that continuing education provides, along with support required to succeed?

*Environment & Attitudes* - What are the users saying? Has their level of job satisfaction changed? Are your educators satisfied with the tools they have to facilitate and support learning? Has the level of patient satisfaction changed since increasing opportunities for learning? How has overall technology adoption been influenced?

Your peers will find value in the experiences, both successes and failures that you have lived so be open to both teach and learn. Knowledge exchange or transfer is a collaborative flow of researched data and creative ideas, with the result being a meaningful contribution to the prosperity and economy of a given group or society. When effective, everyone wins; both the industry and the individuals working within it.

In conclusion, establishing a benchmark for success in continued learning for nurses and other health providers is the next step; one that we can all participate in working toward. Putting yourself in a position of strength and knowledge when negotiating a given product or solution is key to moving the profession forward and promoting the nurse's value.

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