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# Calculating the Return on Investment (ROI) of Your Mobile Learning Initiative

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**November 2011**

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## Executive Summary

Mobile Learning is a rapidly growing area of exploration for training and development departments of organizations. With more smartphones sold annually than standard cellphones, the opportunity to reach an organization's employees in new and dramatic ways is growing rapidly.

An organization need only look to its competitors or best of breed companies to understand that mobility is the coming next wave of learning. With the ability to reach employees virtually any time, anywhere with focused, expert learning, organizations will be able to tap into a hidden reservoir of employee potential. The mandate is clear, do more with less. Even as manufacturing payrolls are declining, productivity gains offset employment losses. Mobile learning offers the ability for employees to learn when and how they need and want to learn. The company that best understands, and creates and executes a strong mobile strategy, will be best able to compete in the coming years.

This new delivery mechanism brings with it not just a plethora of new tools and platforms but also a wide variety of new measurement tools. These tools, when employed properly and framed within a business case, can be used to clearly demonstrate the ROI of the mobile learning efforts already started in your company or you want to undertake in the near future. It's not nearly enough to tell the executive office "we have to do it." The business case should and must be made as to why this approach will provide the expected return for the money and time invested. Developing a strong business case at the outset of any mobile learning effort and then measuring the impact after implementation and deployment will be necessary to position mobile learning as a critical piece of the learning strategy for successful organizations.

The path to determining the ROI for mobile learning can be difficult to understand and develop. Many learning professionals are accustomed to the fact that a good portion of the metrics that they use deal with human factors and are not as concerned with the impact to the bottom line that their training creates. It is critical that both qualitative and quantitative measurements are considered and developed in order to create an accurate picture of the costs and benefits of the recommended mobile learning project.

With mobile learning directly impacting the performance and behavior of the learners, it's easier in most instances to calculate the financial impacts of mobile learning than it may be to calculate the learning, mastery, and retention of the information. This is due to the fact that mobile learning tends to affect the learner at the higher levels of learning evaluation (Behavior and Results) compared with traditional training approaches (Reaction and Learning).

Measuring the impact of mobile learning on the organization as a whole is perhaps even more important to a business as a true measurement of its value. This white paper explains a straightforward and effective calculation of ROI for mobile learning as well as how to apply it to *your* project.

## Introduction: What is ROI?

One of the most common questions asked of vendors of mobile learning products and services is, "What is the ROI of mobile learning?" The only correct answer is, "It depends." Of course, this answer can be considered a bit off-putting to the person asking the question, especially if it's an executive who most certainly wants to have as many facts in hand before making a decision. The reason this reply is given is because there is no global answer possible to this question, only specific calculations of ROI for individual mobile learning initiatives. Even then, answers can only be approximations, because there are so many factors that are not measurable, but are important to consider. Elliot Masie advises:

> Think like a lawyer. You won't be able to prove a hard ROI number for your training investment. What you want to demonstrate is a "preponderance of evidence" that shows that your intervention works. Many other business decisions, such as mergers and acquisitions, are bets based on a preponderance of evidence. Ask your business leaders to make a bet on a learning intervention and then present a preponderance of evidence that it works. (Quoted by Billhardt, 2011)

For each individual company, it is important to calculate the ROI of all training efforts, as well as describe any intangible benefits or costs that can't be measured. According to the American Society for Training and Development's (ASTD) 2010 report on the state of the training industry, American businesses spend over $125 billion each year on employee learning and development. Executives frequently need to calculate their costs, benefits, and likely return on purchasing new learning technologies before they can make their buying decision.

In this paper, we explain the concept of ROI, and outline how you can calculate it for *your* mobile learning project. At Float Mobile Learning, this is a step that we assist our clients with in the first stages of helping them to develop and implement a mobile learning strategy.

From an accounting point of view, calculating the ROI of mobile learning is relatively simple: simply place a monetary value on all the net program benefits of implementing a mobile learning system, deduct all known related costs, and then divide the total by the known related costs. Multiply the result by 100 to express ROI as a percentage. (figure a)

Expressed as a formula, return on investment is:

$$\text{ROI (\%)} = \frac{\text{Net Program Benefits} \times 100}{\text{Program Costs}}$$

*figure a. Calculating ROI*

For example, if ABC Company implements a mobile learning program that costs $50,000 but produces measurable benefits of $500,000, we can easily calculate its ROI. The net program benefits are $500,000-$50,000 = $450,000. Therefore, ROI is 900%. Here's how the calculation works: (figure b)

$$\text{ROI (\%)} = \frac{\$450{,}000}{\$50{,}000} \times 100 = 900\%$$

*figure b. Calculating Real World ROI*

In this example, for every dollar invested in a mobile learning system, there is a net benefit of nine dollars after all costs are covered. This figure is usually expressed as an annual benefit, even though there may be many long-term benefits. It is expressed this way because with traditional classroom-based training, the impact of the training usually diminishes year after year. However, with mobile learning systems making information available just in time from any location, training can be reinforced at any time, so this assumption can be challenged. We suggest that benefits be calculated for the life of the project, as long as training can be renewed at any time the employee chooses.

The key to calculating ROI is listing all costs and benefits in financial terms – **not an easy task!** Not all cost and benefit information can be expressed as numbers; there are often intangible benefits that cannot be easily measured, making the final decision on whether or not there has been positive ROI more complicated than it would seem at first glance. Moreover, a focus on numbers and accounting tends to place an emphasis on the *efficiency* of the solution, rather than its *effectiveness*. According to Craig Taylor (2002), "...the learning profession has done a poor job of building core competence in quantifying the financial value and impact of most performance improvement efforts."

Evaluating the return on training efforts is not just a matter of dollars and cents. Positive benefits of learning technologies such as mobile devices include increased speed of training to improve a new product's time-to-market, improved sales and commissions, increased safety on the job, and the ability to train hard-to-reach employees. It is not just a matter of saving money, although that can be very important as well.

Extending the benefits of mobile learning means recognizing its specific "affordances" — those things that it does uniquely — that can lead to innovation and new approaches to training. Sometimes changing the approach to using a learning technology can turn a negative ROI into a positive one. For example, breaking learning content into small reusable "learning objects" (RLOs) has the potential to shift learning from a "transmission model," where an instructor dispenses information, to one where students find and help themselves to the pieces of information that they need, when they need it. This ability can reduce instructor costs, and increase the reuse of content, both of which have an impact on ROI.

You need to be aware of the unique potentialities of various learning technologies, and not just use them in the same way as with previous methods. For example, both mobile phones and tablet computers can be considered "smart objects" that improve the quality of interaction between a company and its employees.

Typical functionalities of smart objects include:

- **Identification.** Smart objects can be uniquely identified, e.g., by means of a numbering or authentication scheme. This identification allows the object to be linked with personalized services.
- **Memory.** The object has storage capacity so that it can carry information on its past or future, as well as information downloaded for later use.
- **Networking.** In contrast with the simple pocket calculator, smart objects have the capability to connect with resources in a network or even amongst themselves (referred to as "ad-hoc networking") for the reciprocal use of data and services.
- **Sensor technology.** The object collects information about its environment (temperature, light conditions, readings from its gyroscope, presence of other objects, etc.), records it and/or reacts to it (referred to as "context awareness").
- **New user interfaces.** With the merging of computers and physical objects come new requirements to be met by the user interface. These requirements are combined with the changes in input and usage patterns to craft a new user experience.
- **Positioning & tracking.** Smart objects know their location (positioning) or can be located by others (tracking) – for example, at the global level by GPS or inside buildings by ultrasound, near field communications (NFC), radio frequency identification (RFID), or other methods. (Adapted from Fleisch and Thiesse, 2007)

Of course, none of these capabilities of mobile learning technologies means much in terms of ROI if they are not tied to the business goals of the organization, and if there are no business metrics being collected at the same time. As Paul Angileri (2010) explains,

> Training groups often calculate what costs they are incurring or saving, and judge that figure, which is contextualized to their specific scope of work, as the ROI. This is incorrect. The point of training is to have a positive impact on business goals. Therefore, in order to understand true training ROI, the training group must build relationships and partners that can help build and share a wide range of relevant data. Through the application of all four of Kirkpatrick's evaluation levels on a scope that goes to the business level and not just the training department, a true ROI can be derived and an accurate assessment of outcomes understood.

The reference to Kirkpatrick's evaluation levels is critical to understanding the impact of mobile learning. In 1959, Donald Kirkpatrick, Professor Emeritus at the University of Wisconsin, created a four-level hierarchy for evaluating the effectiveness of training (Kirkpatrick, 1998). These are:

- **Level 1: Training Reaction.** Did the participant like the program; did they feel it to be valuable; did it meet their expectations? This is measured by having participants fill out evaluation sheets at the end of taking the course.
- **Level 2: Learning.** Did participants learn what they were supposed to learn? This is measured by comparing scores on pre- and post-tests.
- **Level 3: Behavior.** Did the participants apply the new learning back on the job? This is measured by supervisor's observations.
- **Level 4: Results.** Did training have any measurable business impact?

In 1997, Jack Phillips added a fifth level focusing on return on investment. The emphasis of corporate training has been on measuring the effects of training at Levels 1 and 2 (reaction and assessment of learning), with some attention paid to Level 3 (behavior). Yet it is at the levels of behavior change, business results, and ROI (Levels 3, 4 and 5) that we need to focus if we are to increase training effectiveness in ways that measure effects on profitability. Although few companies actually do measure impact on business and the ROI of training, interest in doing so has recently increased for a number of reasons.

Many senior executives now recognize that training is a basic necessity, especially when their organizations undergo growth, change, restructuring, or significant competition. In these situations, gaps can emerge between what the employees of an organization currently know and what they need to know, to remain competitive. Additionally, executives perceive that proper training can contribute to bottom line measures such as productivity improvements, cost reductions, customer satisfaction, improvements in morale, and teambuilding (Phillips, 1997). Let's look at how we can approach estimating both costs and benefits for mobile learning.

## The ROI of Mobile Learning

Calculating the ROI of mobile learning requires an analysis of two factors – the benefits and the costs. The model is quite simple, as shown in this diagram (figure c) adapted from Antariksa (2007):

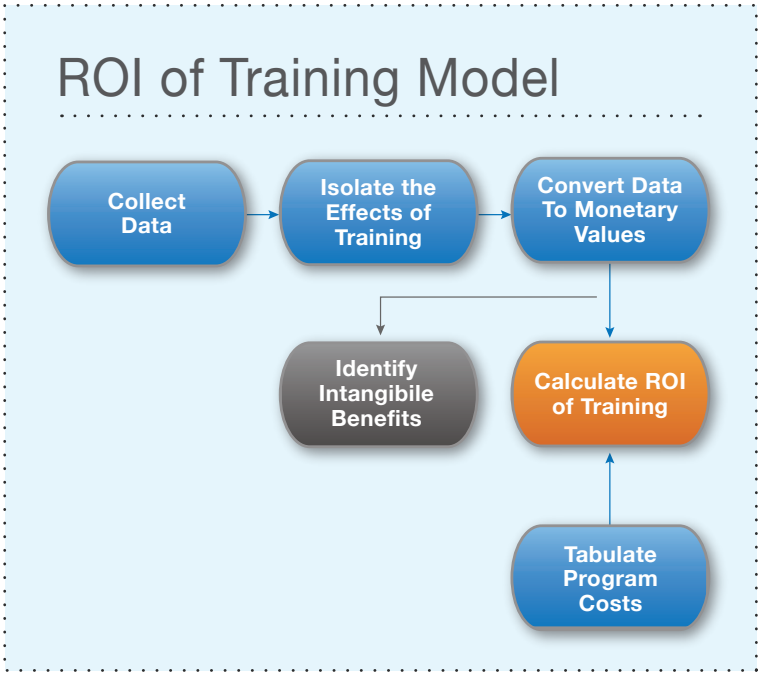


*figure c. ROI of Training*

While the model looks simple, in practice it is not. Data needs to be collected in a rigorous way, usually by methods that involve random sampling in order to avoid biases. Then, other possible influences on the results of data gathering need to be isolated, so that you can truly see the impact of training. The method for doing this is usually to compare two groups – a *control group* that does not receive the training, and an *experimental group* that does. If the two groups are reasonably equal in characteristics before training is given, then you can attribute the differences between the two groups after training to the effects of training itself.

You then need to estimate the observed benefits of training in financial terms. Only by converting benefits into dollars and cents can you then work with them in the ROI formula, and compare them with the costs of delivering the training.

Calculating the ROI of an emerging medium such as mobile computing has its challenges. Forrester has broken the process down into these manageable steps:

1. Identify the benefits (and which business objectives they support).
2. Estimate usage of your mobile services, and quantify the benefits.
3. Calculate the total cost of ownership (TCO).
4. Build a model to calculate the return over a period of time.

In order to help you calculate ROI, here is a list of many of the common costs associated with the implementation of a mobile learning initiative:

## Costs of mobile learning

- Pre-implementation costs such as research and development, staff planning time, hiring consultants, conducting a needs assessment, gathering requirements from all stakeholders, researching vendors and solutions, and design and development.
- Purchases of mobile devices and/or associated infrastructure, such as servers or routers. Remember to calculate the *total cost of ownership* of hardware, as it often requires technical support and upgrades throughout its life.
- Payment for connectivity – monthly bandwidth charges, data plans, usage.
- Costs of developing content for mobile learning and/or the costs of buying off-the-shelf content for all mobile devices, such as educational apps.
- Salaries and overhead for staff working to provide mobile learning for the company.
- Installation and implementation costs.
- Ongoing support costs.
- Lost opportunity costs.
- Lost productivity costs while using mobile learning.
- Evaluation costs.
- Costs of updating and maintenance of the content and the hardware.
- Disposal costs – getting rid of equipment has a cost.
- Overhead costs related to mobile learning.
- Costs associated with communications and change management supporting the introduction of mobile learning.
- Other costs.

It is important to estimate the length of the mobile learning project, in order to pro-rate one-time costs such as requirements gathering over the life of the project.

Costs associated with employees as participants in *on-site* training events frequently represent more than 80% of the cost of a traditional training program (Head, 1994). Traditionally, this cost is arrived at by adding the participants' salaries (during the time they are taking training), together with lost opportunity costs (the value of the deduced productivity of each participant and/or the value of the time lost due to absence from the workplace). Calculating this figure is further complicated if a temporary employee replaces the participant, where the salary of the temporary employee has to be adjusted (usually by a factor of between 1.2 and 1.5) to make up for their lower efficiency. If there is no replacement, then the participant's missing productivity must be calculated for the time they are absent due to training and travel.

## Benefits of mobile learning

After costs have been calculated, it is now time to list benefits of the project, and where possible, convert these benefits into an estimated monetary value over the life of the project. Benefits of a mobile learning project can include:

- **Savings** – document where costs will decrease because of the implementation of your mobile learning project, when compared with methods of training currently in use.

- **Reductions in the amount of time** that employees need for training in order to learn to do their jobs. Often this can be a 50% reduction in training time. Productivity losses are minimized together with lost opportunity costs.
- **Increased revenue** – Are there increased sales of your products or services that can be attributed to better training of employees?
- **Competitive advantages that can be used to increase sales in the future.** These can include improved reputation, a boost in marketing presence, or differentiators that allow your company to move away from your competition into new market segments.
- **Innovations that add value** to the worth of your company.
- **Business benefits such as reductions of employee or company downtime,** decreases in returned products, increased production, improved customer satisfaction, better response times for orders, or increases in customer satisfaction ratings.
- **Reducing the "training cycle time."** Just-In-Time (JIT) training eliminates wasted time associated with waiting for an entire course to be offered in order to get one critical piece of information.
- **Significantly reducing travel costs,** costs of meals and lodging.
- **Other benefits.**

## Calculating the ROI

So how does the calculation of the ROI of mobile learning work in practice? Let's work through an example: Company XYZ decides to introduce a new product. To facilitate this, XYZ Company sends 500 participants on a 5-day course. These participants' average wages are $20/hr. (including the cost of insurance and other benefits). The cost of sending these employees for 5 days of training, not including travel time, opportunity costs, or the costs of creating or purchasing and delivering the training is: (figure d)

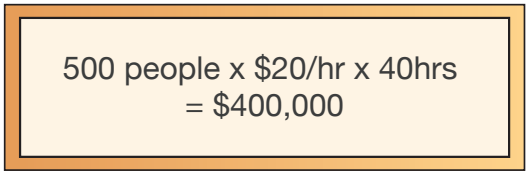


*figure d. Calculating ROI*

A 40% reduction in time spent on training, with all else remaining equal, means a saving of $160,000 in wages allocated to training. But the cost of actual wages can be small compared to the possible lost opportunity costs. For example, if Company XYZ takes a sales person away from their sales activities for one day and the opportunity cost is $10,000 in lost revenue, and if Company XYZ is realizing a 10% net income on revenue, then that company loses $1,000 in profit each day the sales person is off.

If Company XYZ sent its sales force of 500 on a 5-day training course, the lost opportunity costs would be $2,500,000. Again, this estimate still does not include travel, lodging, and any per diem expenses. Any decrease in training time reduces the lost opportunity cost. Reducing the time spent on training by 40% reduces the lost opportunity costs for a savings of $1,000,000.

By using mobile learning rather than traditional classroom methods, Company XYZ can also significantly reduce the travel, lodging, and entertainment costs that go along with traditional methods of training. Suppose Company XYZ sends its 500 sales person to a training site for a week. Assuming travel and entertainment expenses per employee who travels at $1,000/week, the total travel and entertainment cost for a week of

training is $500,000. With mobile learning the entire cost of travel, lodging. and meals is eliminated. Other traditional costs in delivering training have included instructional delivery costs, instructional content development costs, and management costs. These costs include overhead and the cost of equipment. Chapman (2010) has identified many costs in the development of instructor-led training, some of which may apply to the development of mobile learning content, depending on the approach that is taken. (see figure e) But, most of these costs can be greatly reduced or eliminated altogether by giving employees access to mobile learning.

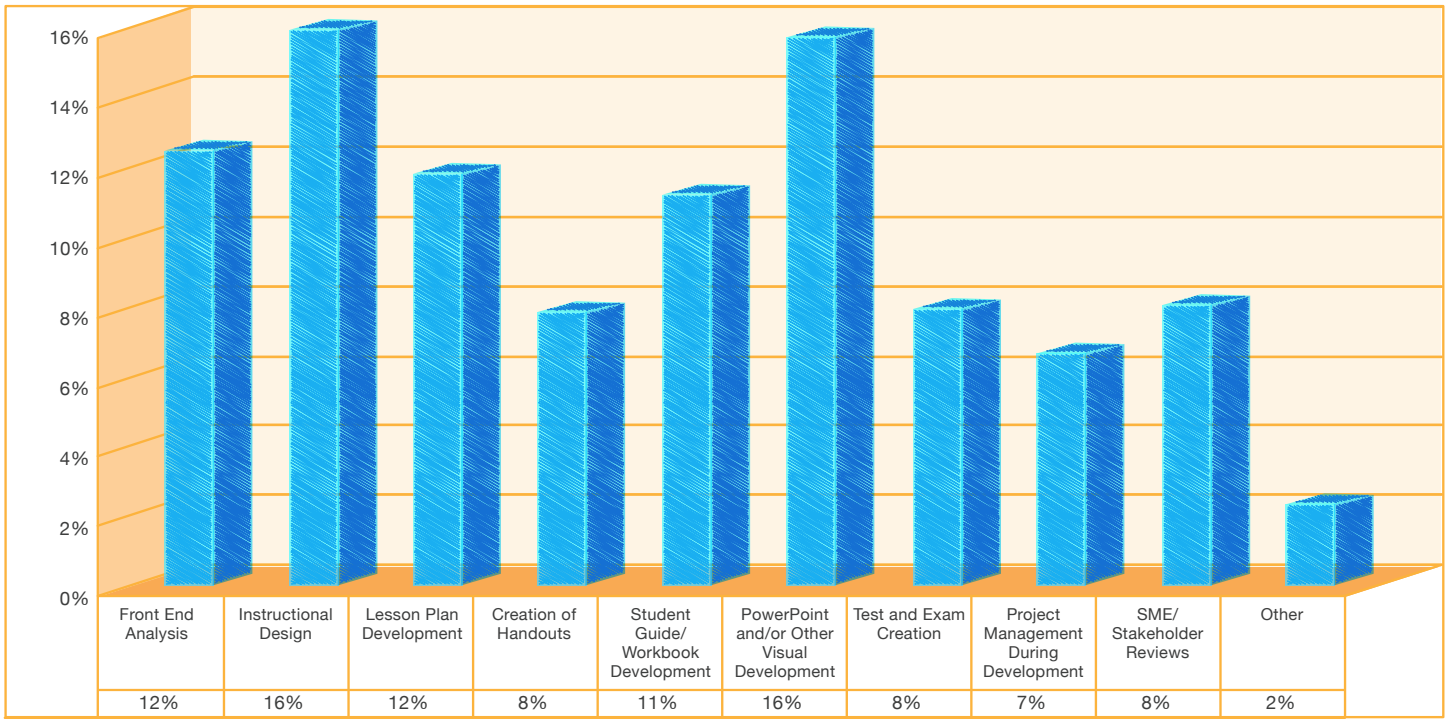


*figure e. Activities for the creation of instructor-led training. From Chapman (2010).*

As well, with mobile learning, significant savings are to be had in terms of the cost of a trainer's in-classroom time.

For example:

If XYZ Company pays a trainer a salary of $40,000 annually, with additional employee costs of 25%, that trainer costs XYZ Company about $920/week. If XYZ Company wishes to train its 500 sales personnel, for one week, in classes of 20, it will take 25 person/weeks to complete the assignment. During this period the trainer(s) will cost $23,750 in salary and benefits. In order to deliver this training simultaneously to all salespeople, XYZ company will require 25 trainers sent out on 20 trips, at $1,000/trip (5 trainers are already on site). Total travel cost is $20,000.

Mobile learning eliminates these costs. One instructional designer adding mobile learning content to a server could handle the entire sales staff, and training time for the sales staff would be reduced from 5 to 3 days.

In order to calculate the actual ROI in the above example, you will need to know the costs of providing the mobile learning system over a specified period of time. If employees use their own devices, then costs will be

much lower than if the company has to buy a smartphone or tablet for each employee, as well as all the other possible costs listed above.

### Intangible benefits of mobile learning

As an accounting exercise, calculating ROI is relatively straightforward. However, Phillips (1997) reminds us that there are "intangible benefits" of all training which need to be identified and calculated if executives are to get a full picture of the ROI of mobile learning. Phillips contends that "for some programs, intangible, non-monetary benefits are extremely valuable, often carrying as much influence as the hard data items" (p. 34). Intangible benefits include items such as:

- increased job satisfaction
- increased organizational commitment
- improved teamwork
- improved customer service
- reduced complaints, and
- reduced conflicts

Finally, the *effectiveness* of any educational program will determine the ultimate ROI. There is no point in focusing on the amount of money saved by a proposed mobile learning solution if that solution does not produce real learning in the form of change of behavior, level of knowledge, or personal growth of the learners.

## ROI Studies of Mobile Learning

Because ROI is calculated differently for each company, there are only a few studies that can be cited to show that some companies do enjoy a significantly positive ROI from mobile learning. The eLearning Guild's 2007 *360° Report on Mobile Learning* revealed that respondents who have implemented mLearning report a 52% improvement in user performance and an 83% increase in making learning available to users. Of respondents who have implemented mLearning and who are able to evaluate return on investment, 88% report a positive ROI. The 2007 study by the eLearning Guild reported the following results when respondents were asked the question, "Do you believe you have received a good return on investment in mLearning?"

- Very Good ROI – 20.8%
- Modest ROI – 33.8%
- It is too early to tell – 37.7%
- We did not get a return on investment – 7.8%

But these figures are somewhat out of date, as many more companies have launched mobile learning initiatives in the past few years. A more recent study of mLearning by Clark Quinn (2011) published by the eLearning Guild shows that 50% of respondents who had implemented mobile learning reported a positive ROI.

Bill Brandon of the eLearning Guild (2011) says

> ...half of all organizations that are trying mLearning are already showing positive ROI on their initiatives, [so] it is difficult to justify a "wait and see" strategy. Second, not having a [mobile learning] strategy makes it difficult to proactively protect the return on investment in learning. By at least understanding the decision criteria for mLearning, and having a plan for periodically reviewing those criteria and their performance against those criteria, designers and managers are in a much better position to make good decisions about how they will support learning in their organizations. This includes implementation strategy (knowing where to start), and the learning strategy itself.

In the end, each company must calculate the ROI of mobile learning for their own situation and business goals. Float Mobile Learning can help in that exercise, as part of the support it gives as strategic planning and implementation services offered to major companies that are trying to decide on whether or not they should invest in mobile learning.

# Bibliography

Angileri, Paul (2010). *Training Consultant: What Every Trainer Ought to Know About ROI.* Interviewed by Nemo, August 5.

Antariksa, Yodhia (2007). *Measuring ROI of Training.* Online slide presentation. At http://www.slideshare.net/nusantara99/measuring-roi-of-training

ASTD (1998) *The Training Report*, Vol 1, No.3, Oct.

Billhardt, Bjorn (2011). 4 takeaways from Elliot Masie's LeadershipDev Conference. *Enspire Learning Blog*, June 22.

Bramley, Peter (1996). *Evaluating Training Effectiveness.* Second edition. London: McGraw-Hill.

Chapman, Bryan (2010). ***How Long Does it Take to Create Learning?*** [Research Study]. Published by Chapman Alliance LLC. www.chapmanalliance.com

Cohen, A. and Nachmias, R. (2011). What can instructors and policy makers learn about Web-supported learning through Web-usage mining. *Internet and Higher Education*, 14, 67-76.

Erri, Raja (2011). *Mobile Learning: a new paradigm of e-learning.* Masters thesis, Auburn University.

Fleisch, E. and Thiesse, F. (2007). *On the management implications of ubiquitous computing: an IS perspective.* Paper presented at the Fifteenth European Conference on Information Systems, St. Gallen, pp. 1929-1940.

Head, Glenn (1994). *Training Cost Analysis: a how-to guide for trainers and managers.* Alexandria, VA: American Society for Training and Development.

Howard, Barry (1998). Increasing employee knowledge and understanding of operational systems: integrating multiple technologies at NYNEX. In Schreber, D. and Berge, Z. (Eds.) *Distance Training: how innovative organizations are using technology to maximize learning and meet business objectives.* San Francisco: Jossey-Bass, pp. 92-114.

Kirkpatrick , Donald. (1998). *Evaluating Training Programs: the four levels.* 2nd Edition. San Francisco: Berrett-Koehler Publishers.

Kirkpatrick, J. and Kirkpatrick, W. (2010). ROE's rising star: why return on expectations is getting so much attention. *T+D*, August 10.

Metcalf, David (2007). *The Business-Value Proposition of Mobile Learning.* Online essay, eLearning Guild Research Library.

Mooney, Elizabeth (2002). ROI on mobile work force enablement is relatively short. *RCR Wireless News*, 21(3), No. 1533076.

Phillips, Jack. (1997). *Return on Investment in Training and Performance Improvement Programs call it a step-by-step manual for calculating the financial return.* Houston, Texas: Gulf Publishing.

Phillips, J. and Stone, R. (2002). *How to Measure Training Results: a practical guide to tracking the six key indicators.* New York: McGraw-Hill.

Quinn, Clark (2011). Mobile Learning: landscape and trends. Santa Rosa, CA: eLearning Guild.

Sintes, Andres (2011). Maximize ROI through training: three things every company should know. *IT Channel Planet*, Sept. 16.

Sweet, J. and Ellaway, R. (2011). Reuse as a heuristic: from transmission to nurture in learning activity design. *Innovations in Education and Teaching International,* 47(2), May, 215-222.

Taylor, Craig (2002). E-Learning: the second wave. *Learning Circuits,* Oct.

Williams, Paul (2008). *Assessing Mobile Learning Effectiveness and Acceptance.* Doctoral Dissertation, George Washington University.