How E-Learning Can Increase ROI for Training
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In today's new economy, corporations are increasingly facing new challenges. Escalating competition in a globalize market, shrinking corporate resources, maturing markets, rapid shifts in technology, and the recruitment and retention of talented and skilled people are just a few of these challenges. In addition corporations are constricted by the need to show short-term results no matter what circumstances exist. The pressure for month-to-month increases can be overwhelming. In the past corporations have viewed training as a necessary expense rather than an investment. Emphasis was placed on cutting the expense of training by making it more efficient. Now however in response to these challenges, corporations are beginning to view training as an investment. The knowledge and skills of the corporation's employees are now being held on equal basis with the corporation's monetary assets. Knowledge is now seen as a commodity. As a result of this shift, annual spending on formal training has increased to approximately $60 billion in the United States alone. With this increase in funding has come an increase in the demand to show accountability for these outlays and to demonstrate that these training initiatives bring tangible benefits to the corporation. One way to demonstrate the value of training in financial terms is to measure the return on investment (ROI) of your training programs.

As stated in my previous white paper ("Is It Worth The Cost?" Calculating the ROI of Training), return on investment is quite different than cost savings.   Cost savings is a reduction in expense, while return on investment is the rate or percent of return on your investment. One way to increase ROI and decrease expenses is by implementing technology based training (e-learning).

Technology based training (e-learning) makes several significant claims. It's supporters claim: (1) that e-learning saves time without decaying learning benefits;(2) that it minimizes travel costs; (3) that it minimizes time away from work; (4) that it is more cost effective; (5) that it can meet the needs of a geographically disperse employees; (6) that it provides consistent course delivery; (7) that it can offer more individualized instruction; and (8) that consistently higher learning results can be achieved over traditional training. But are these claims valid?

Learning Saves Time Without Decaying Learning Benefits

Fletcher (1990) after carefully reviewing over fort y independent studies found that Technology Based Training (TBT) yielded timesavings of 35-45% over traditional classroom instruction while obtaining equivalent or better gains in learning retention and transfer. Adams (1992), Cantwell (1993) Bradley (1994) and Hofstetter (1994) later confirmed these results across several years and hundreds of studies. Likewise Hall's (1997) in-depth review of over 130 case studies found that computer-based training required significantly less time than instructor-lead training. The amount of reduction in

time ranged from 20-80% with 40-60% being the most common range for timesaving. None of the studies and meta-studies reported a decrease in training effectiveness and most reported a substantial increases in training effectiveness (both learning retention and transfer). More recently, Hemphill (1997) found that while TBT saves time, it does not negatively impact effectiveness of learning.

E-Learning Minimizes Travel Costs

For years corporate America realized that travel and entertainment (T&E) made up the bulk of their training costs. As corporations become more global, the cost of moving and housing employees can only increase. But there is hope. Numerous studies have shown that e-learning can cut the travel and entertainment cost associated with training by at least 50% (Hall 1997). Other studies have shown that if implemented properly these costs can be reduced by at least 80% (Hemphill 1997).

E-Learning Minimizes Time Away from Work:

As stated above, Fletcher (1990) found that computer-based training yielded timesavings of 35-45% over traditional classroom instruction . In addition, Hall's 1997 case study review found that computer-based training required significantly less time than instructor-lead training. His review indicated that the reduction in time ranged form 20-80% with 40-60% being the most common time saved. In fact compression of training time has the most visible impact on ROI by not only providing savings in wages spent on training but also a savings in opportunity costs. An example of this is as follows:

A company needs to put 200 of their employees through a course in plant safety that takes one week. If the average hourly wage is $15 an hour then the wage cost of training alone (excluding travel costs and time, opportunity costs, instructor cost, etc) would be 200 X $15 X 40 = $120,000. If all other factors remain equal, a 40% reduction in times saves $48,000. This alone has significant impact on R.O.I., however this impact can be relatively small when compared to the effect of documented savings in opportunity costs. Opportunity costs are the cost incurred by the company when production or sales are reduced due to employee absenteeism. Thus if the 200 employees produce 10 units a day, the total lose for the week is 50 units. If each unit then nets the company $5,000 in revenue, the total in lost revenue would be $250,000. Again if all factors remain equal, a 40% reduction in training time would net $150,000 in lost opportunity savings. This is approximately three times the savings in wages alone.

E Learning is Cost Effective

Numerous studies have shown that the cost of developing multimedia training is significantly higher than creating custom classroom instruction (Hall 1995). It is not uncommon for development costs for multimedia to be four times that of traditional classroom instruction. This is obviously not cost effective for small class size. But as the number of employees or students increases, the cost per student is dramatically reduced. This is the cost efficiency of e-learning; it can reach more people in a shorter amount of

time than traditional learning. If this cost is spread out even further by purchasing off-the-self multimedia training on a "per head" basis the total cost is significantly lower than traditional instruction. Opponents of e learning point out that even though the cost of development for multimedia training is less on a "per head" basis, the cost of delivery multimedia can be significant. This argument has merit. The average corporation's workstations are not equipped to handle multimedia presentations. The cost to replace or upgrade existing systems is significant. However, even when these costs are calculated, custom multimedia learning on the average saves approximately 20% in the first year of implementation. In the second and third years when development costs are not a factor, the average savings for multimedia learning grows to nearly 50%   For-off-the-shelf multimedia training the savings in the first year increase to an average of 45% (Allen, 2000).

E Learning Can Better Meet the Needs of Geographically Diverse Employees

E-Learning is flexible. It is self-paced and can occur any time and any place. As such, it is ideally suited for training employees who are dispersed globally. E- Learning is easily modified (especially Web delivered content)thus making it more adaptable for translation and change of content for different cultures and languages.

E-Learning Provides More Consistent Course Delivery

We are all aware that "live" theatrical performances vary in subtle and some times obvious ways from one performance to another. During each performance actors vary their vocal inflection or they might stand in slightly different positions. There are days when a particular actor may feel good and give a stunning performance as well as those in which they may feel bad and give a poor performance. There are times when actors miss lines and make mistakes. Because the performance is "live" there is no opportunity for the actors or director to review the performance and make changes. In contrast, when a performance is filmed or taped the actors and director can review their performances and redo and edit those areas that are not up to their standards. When they are finished filming, editing, screening and re-editing they then have a finished product that will be extremely consistent across performances (showings). No matter how many times you view the film or tape it will be the same.

Traditional classroom training is in many ways a "live" performance.   Instructors vary the way the present material in subtle and sometime obvious ways each time they give a particular class. Just like actors there are days when they feel good and days when they feel bad and their presentations reflect these states. There are times when instructors emphasize certain aspects of the course and times when they emphasize others. In fact, no matter how many times an instructor gives a particular class his/her performance will be different each time. Adams (1992) found an average delivery variance of 59% between presentations by classroom instructors. Also, because the class is presented "live", there is no opportunity for the instructor to review his/her performance and to make changes. In contrast e-learning is very similar to a performance that is filmed or taped. The instructor can review, edit and re-edit their presentation until it is just right. In

addition no matter how many times the class or learning module is presented it will not change or vary. Each student will get exactly the same material no matter when they take the course. This leads to very consistent delivery of material that is not possible in a traditional classroom approach. In fact Adams (1992) found the average variance of e-learning modules to be 40% less than traditional classroom instruction.

E-Learning Can Offer More Individualized Instruction

Anyone who has ever taught in a traditional classroom setting knows how difficult it is to give individual instruction while at the same time meeting the needs of the class as a whole. Instructors must pace their presentations for the majority of students in the class. If some students are having a difficult time mastering a new concept, it is virtually impossible for the instructor to know about this unless they speak up. Without knowing this, the instructor cannot adjust his/her pace. In addition, even if the instructor is aware of these students having difficulty mastering a concept, he/she still needs to pace the instruction for the majority of the class. This inability to pace instruction to each student's needs is a major drawback to traditional instruction. It penalizes both bright and slower students and is inefficient.

This is not the case with e-learning. Studies have shown that if e-learning is constructed properly it can produce more individualized instruction (Adams, 1992). Students can take computerized pre-tests on the content of the class and based on their performance, only receive material or instruction on what they need. Likewise, the course can be structured so that it is adaptive. Students can be presented with material and then tested throughout the course to see if they mastered each concept. If students demonstrate that they understand the concept, they then are presented with a new one. If not, then they can continue to be presented with that concept until they have mastered it.

E-Learning Achieves Consistently Better Learning Results Than Traditional Learning

A growing body of research is reporting significant differences between e-learning and traditional classroom instruction. Fletcher (1990) and Wright (1993) report that e-learning achieves consistently better learning results than traditional classroom instruction. Adams (1992) reported the following results: (1) e-learning produced a 60% faster learning curve as compared to traditional instruction; (2) students had up to 50% higher content retention for e-learning over traditional classroom instruction; (3) e-learning students demonstrated 56% greater gains in learning than did students who were taught by traditional instruction; (4) consistency of learning was up to 60% better for students taught through e-learning over those taught by traditional methods; (5) consistency of the presentation of material was 40% higher for e-learning and (6) training compression was up to 70% faster for e-learning than it was for traditional classroom training.

Employees Receiving On-Going Training are Significantly More Productive Than Those Who Do Not

For over ten years research has been conducted to determine if employees receiving ongoing training are more productive than those who do not. In a comprehensive study Forman (1994) reported that employees who received ongoing training work more efficiently than did their counterparts who received no on-going training. Forman stated that as a result of this increase in efficiency the following occurred: (1) the cycle time for manufacturing was significantly decreased; (2) sales significantly increased; (3) absenteeism decreased; (4) product quality significantly increased with less waste due to error and (5) reduction in accidents and lost time injuries.

Training Results in Less Employee Turnover

Figures from the Bureau of National Affairs indicate that monthly turnover for the first quarter of 1999 was 1.1 %. This equates to an annual forecasted rate of 13.2%. Conservative estimates place the cost of turnover at 25% of annual salary plus benefits (Saratoga Institute and Kepner-Tregoe, Inc.). For a 2000 employee company with an average salary/benefit package of $60,000, the annual costs would be about 4 million dollars. Turnover costs include, but are not limited to; hiring expenses, training expenses, productivity losses and internal resources applied to dealing with the termination and hiring process. There are also soft costs associated with employee turnover. Soft costs have more to do with the impact of a revolving door on other employees. Other employees often have to pick up the additional work load until a new employee is hired and trained. This can lead to morale problems. One way to decrease turnover is to provide comprehensive and ongoing training.

A recent comprehensive study by Corporate University Review found that extensive and ongoing training and development was second only to stock options as a primary means of attracting and keeping talented workers (Corporate University Review, 1999). A thorough review of the literature by McNamara (1999) found that on-going training significantly reduced employee turnover.

Customer Satisfaction Increases With Employee Training

Customers are the lifelines of any corporation. Without customers there would be no corporate income. The Customer Service Institute estimates that it costs five times as much capital to acquire a new customer as it costs to service an existing one. A study by Bain Consulting (Business Week, August 1992) demonstrated that increasing customer retention by as little as 2% had the same effect on profits as cutting costs by 10%.

Forman (1994) while summarizing the benefits of multimedia training cites several case studies that show an average gain of 10-15% in customer satisfaction and retention following multimedia training in customer service skills. He further reports an increase in speed of service to customers as well as a decrease in customer complaints following training.

Summary and Conclusions

While the most obvious impact of e-learning on ROI is the significant cost savings it can produce over traditional training, more significant impact on ROI can be achieved as a consequence of e-learning. Well constructed e-learning is not only faster and less expensive than classroom training but also more effective. Numerous studies have shown that people learn faster with multimedia training; they more accurately recall what they learned over a longer period of time, and they are better able to transfer what they learned to actual performance. Studies conducted by the military, education and industry cite a 15-25% increase in learning with significant increases in retention and transfer of training.

Brandon Hall (1995) reviewed a number of studies on multimedia training and return on investment. The studies involved such companies as Intel, American Airlines, Pacific Gas and Electric, IBM, Bethlehem Steel, Bell South, Steelcase, and Pizza Hut. In all studies reviewed the results indicated significant increases in the quality of learning when computer based training was compared with traditional classroom instruction. Numerous studies have shown significant "bottom line business results" due to computer based training. Allen (1996) is quoted as reporting the following bottom line effects of e-learning: "(1) Union Pacific Railroad reported an increase in bottom-line performance--on-time delivery of goods--of over 35 %, which equated to millions of dollars in increased revenues and savings. He also reported that learners showed a 40 % increase in learning retention and improved attitudes about management and jobs. With CBT, Union Pacific was able to implement new company-wide processes 12 months earlier than would have been possible with traditional training; (2) Omega Corporation reported as much as a 100 % improvement in "hit ratio" on sales calls, more confidence in making sales calls, improvement of customer commitments from 33 to 93 % and achievement of nearly 50 % of the yearly sales goal in the quarter immediately after training; (3) The United States Air Force reported an increase in the ability to diagnose and repair aircraft systems correctly the first time by more than 80 %. They also reported a decrease in "no fault found" part replacements of 5 %, which represents millions of dollars in parts cost and downtime savings. Air Force managers also reported increased ability of more technicians to solve the toughest problems--which alleviated difficult staffing problems and downtime. Managers also reported on the improved morale and confidence of technicians and (4) American Express stated that the real return on investment of CBT lies in the use of simulations and real-life scenarios to teach thinking processes or mental models. The spokesperson suggested that it was easy to measure the dollars saved when a fraudulent claim is not paid out because a novice representative has learned to think like a pro. The number of fraudulent claims that get past phone representatives has been significantly reduced. "

While training is not the universal answer for all human performance issues, it can provide viable solutions to many of the new challenges that face corporations. Well-constructed computer based training, if employed appropriately, can yield significant improvements in learning and performance. This positively affects ROI and significantly improves a corporation's competitive advantage.

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