Case Study of an Electrical Products Manufacturer:

Is e-Learning Effective at Increasing Sales with Seasoned Sales People

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Abstract

With the competitiveness of U.S. companies on the rebound (currently 3rd in the world); how do we continue to increase our sales/profits through the use of technology and ever-shrinking training budgets? This case study will examine an electrical product manufacturer's real-world results comparing monthly sales of both a newly introduced and an existing product using e-learning courses offered to their senior sales people. While there are a variety of extraneous issues that could sway the correlation between e-learning and bottom-line sales dollars, it was shown that abnormal, non-cyclical positive increases in product sales occurred post e-learning. Within the varied initiatives of corporate USA & the Adult Learning society at large, we need to continue to advance & grow this learning methodology for increased positive results.

Keywords: e-Learning, corporate, sales, electrical products, manufacturing, effectiveness

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Introduction

Can you teach an old dog new tricks? While the rhetorical question might be a bit cliché in today's society; in the business world it is essential to be able to educate & motivate our seasoned sales force. This group is usually the 'go to' to have the largest impact on sales/profit within a company. The World Economic Forum report (aka. The Global Competitiveness Report 2014-2015) said the U.S. improved its competitiveness for the second consecutive year, moving up two places based on gains in the nation's institutional framework, including its financial markets, and its innovation scores…..only Switzerland and Singapore finished higher in the overall rankings (McCoy, 2014). How can a company improve its sales/profit while balancing limited time, money, & resources? Many have turned to technology to aid in this endeavor. Training of workers has become, since the final third of the 20th century, one of the key factors of company competitiveness within an economy that is informational and global (Castells, 2003). Many believe that e-learning can help our business' regain a competitive edge within the world markets. We define 'e-learning' as the distance training methodology based on the use of information and communication technologies that allows interaction and asynchronous communication amongst participants as well as the access to a broad set of teaching resources. Thus, the student becomes the center of the training process, managing his/her own learning with the help of external tutors (Batalla-Busquets & Pacheco-Bernal, 2013). In a period of rapid technology chance, globalized capitalism, and a shift to knowledge-based economy, the effectiveness of workplace learning is also increasingly coming under scrutiny (Fenwick, 2001). Businesses and organizations use web-based training as a means to improve employee skills, save costs, and increase return on investment (Iris & Vikas, 2011). [E-learning] has already been described as the next "killer application" for the internet (Henry, 2001).

While there was a large 'boon' of studies & research when webinar/e-learning techniques were introduced – most are out of date with today's business needs and e-learning has continued to advance with newer ideas, approaches, and technology. Zhang and Nunamaker (2003) estimate that the skills and knowledge used by a worker today will be obsolete in three to five years' time, whereas corporate education using virtuality allows the worker to keep his/her skills continuously updated. Finding current research with that tight of a time-frame that focuses on the effectiveness (from a dollar results standpoint) has proved to be quite difficult. One reason is that "the majority of research examining e-learning's effectiveness takes place in educational environments with elementary-to college-age students" (Salas, DeRouin, & Littrell, 2005). It appears that most research welcomes the opportunity to tackle e-learning but then mostly focuses on a certain aspect each having 'the answer'. Some relatability could be found when Lande states, "The search for substantive journal articles and studies about the effectiveness of the webinar venue as a significant education and training medium didn't produce the number of studies or journal resources as expected. Webinars are not unpopular. In fact, internet searches were congested with much irrelevant information – offerings to attend webinars rather than information about the structure and production of effective webinars" (Lande, 2011). While outside of our time-limited scope of effectiveness, it was found that "organizations such as Avaya, Sprint, and Volvo cars have used story-telling to train frontline employees on how to deliver their brand image in their customer interactions" (Gronstedt, 2004). And that "HP has found that employee preferences for e-learning (and other training media) differ considerably around the world. In particular, HP has found that in Asia, employees prefer instructor-presented

or blended learning options. Conversely, in the United States and Europe, employees prefer self-paced and instructor-presented learning approaches (respectively)" (O'Leonard, 2004).

The purpose of this research is to provide a 'case-study' example to determine if e-learning is effective at increasing sales/profit of a large electrical products manufacturer. By obtaining monthly sales results of both an existing and new product introduction and examining 'pre' e-learning dollars sold to 'post' e-learning results it is hoped to understand the impact of the said training. Understandably there are many variables and extenuating circumstances that surround the sale of electrical goods/products; it is believed that the raw dollar differences will point to the positive-neutral-negative effect this specific training has had.

We will begin by reviewing other scholarly & industry literature to determine methods, impact, results, and thoughts of previous reports to determine their relevance to this one. The raw data will be collected from a cooperative of groups within the company; Human Resources (who could impact sales), Accounting (monthly sales reports of the two products), and the Training team (owners of the e-Learning program to show pre-signups, live attendees, and/or recorded e-learning participants) to show the effectiveness of the before/after impact of e-Learning on the organizations bottom line of sales. Discussion of the data & relevance will be mixed with conclusionary thoughts about the results, possible issues not included within this research that could have impacted the data, and recommendations for future research.

Literature Review

In their 2014 '*State of the Industry*' report (in which a diverse group of 340 organizations of various sizes, industries, and locations submitted their 2013 training and development efficiency and expenditures data) the Association for Talent Development (ATD, formally ASTD) summarized the industry by stating (Millier, Ho, Frankel, Jones, & Bello, 2014):

- Organizations, on average, spent $1,208 per employee on training and development
- The number of annual learning hours used per employee is 30.3 hours
- More than 2/3rd of formal learning hours available involve an instructor (with 55% taking place in an instructor-led classroom, 9% are led online by an instructor, and 5% were led remotely by an instructor)
- 25% of training hours used were completed through an online course, with 16% using a self-paced online program
- 38% of training is delivered via technology

This summary shows that corporate training is a sizable amount of time, energy, and money invested for a business but are we obtaining the best return-on-investment (ROI)? While Anderson points out that, "business skills courses largely focus on soft skills and lend themselves to face-to-face experiences with instructors and peers" (Anderson, 2013) and the data above shows that the majority of training is conducted face-to-face; the question still remains: Is there effective alternative methods to obtain learning/knowledge transfer (from a product standpoint), behavioral (from a sales position) change, and best use of the limited training budget? Bersin states that we're not just here to 'check a box', but instead "The ultimate purpose of e-learning is not to reduce the cost of training, but to improve the way your organization does business"

(Bersin, 2002). Whereas Pace has noted, "The participants want a reason for participating in web-based training. Unfortunately, a lot of the time the reason is that employees are simply required to do it" (Pace, 2014).

When comparing / contrasting face-to-face learning verses e-learning, "It occurs to me that we think we're comparing apples to apples, and you want to know if a Golden Delicious is as good as a McIntosh, "says Simunich. "Wrong question. Ask me instead how an apple compares to an orange. They are both fruits and they both offer nourishment, but the orange is different. It's not going to make a good pie, but it'll make a terrific beverage" (Simunich, 2015). Another cautionary view point is made by Finstein & Riddle in which "The most significant mistake organizations make is not realizing the differences in presenting online verses in person" (Finstein, 2007, p. 33). Nonverbal communication cues, such as eye contact, facial expression, and body movement, are lost in the webinar venue (Riddle, 2010). Within the research there seems to be a level of excitement for e-learning, but I believe that most agree we 'haven't arrived' yet. Maybe we're approaching it with the wrong mindset. Our classical viewpoint about corporate / adult education teaches us that "In contrast to teaching children, adults need to be self-directing in their education. They also have experiential knowledge to draw upon that needs to be heard and validated….this learning needs to be relevant to their needs and situation" (Knowles, 1972) and that "employees want on-the-job training that is self-directed, makes use of their experience, comes with clear motivation, and is relevant to their work" (Pace, 2014). Most often our analysis of the e-learning experience is summarized by Salas in stating, "breaking down our analysis into Kirkpatrick's (1976) four levels of training evaluation, that is, reactions, learning, employee behavior, and organizational results…[unfortunately] most organizations rely on the first level: employee reactions" (DeRouin, Fritzsche, & Salas, 2005). One interim step

between the two is to utilize "blended learning". One of the most popular terms in the e-learning literature to date is "blended learning"…[which] can be defined as "the thoughtful combination of training methods" (Brodsky, 2003). Welsh et al. (2003) found that four themes will characterize the landscape of e-learning during the next several years. Specifically, more focus will be placed on synchronous learning tools, organizations will begin to "blend" their classroom training with e-learning, e-learning technology will advance and make training programs more accessible, and better integration of the various characteristics of e-learning (e.g., peer collaboration, performance support, information presentation) will occur (Welsh, Wanberg, Simmering, & Brown, 2003). The author's own company is moving into this mindset with required e-learning 'pre'-work that teaches the basics of a topic before an individual attends the typical face-to-face instructor-led class. In this way it is hoped that the 'base' level of knowledge is at a similar starting point and the classroom time is better utilized for the nuances of the product performance and/or competitive differences.

When considering the variety of ways that e-learning has evolved & grown, Pace has compiled a run-down of the current research and suggestions into e-learning design:

- Scenario-based learning allows users to complete training similar to on-the-job tasks (Clark, Accelerating expertise with scenario-based learning, 2009).
- Activities should model real-world behaviors (Edwards, 2010)
- Polite feedback matters for learners with low prior knowledge. These learners did better in courses where the feedback was polite. Conversely, learners with high prior knowledge did worse with polite feedback (McLaren, DeLeeuw, & Mayer, 2011)

- Learners retain more information when the course is led by an animated agent with realistic human qualities (Mayer & DaPra, 2012). They also did better when the animated agent was female and provided elaborate feedback (Lin, Atkinson, Christopherson, Joseph, & Harrison, 2013)
- Collaboration has long been recognized as an important aspect of learning, but it is not always implemented into training (O'Brien, 2009)
- Story telling is important in adult education (Caminotti & Gray, 2012)
- Social dimensions of learning are important (Githens, 2006). A lot of learning takes place outside of traditional settings. Social media can help foster and connect this type of learning (Sandlin, Wright, & Clark, 2011)

Some issues have arisen with the increased use of e-learning that need to be addressed before successful implementation can be achieved. Cathy Moore (2010) points out that e-learning should not focus on information, but on experiences. The design strategy should be on what businesses want employees to ***do*** after finishing a web-based training course, not on what employees should ***know*** (Moore, 2010). Also two major problems in the design of web-based training courses is producing one course that will meet the learning needs of all employees that will be required to take it (Clewley, Chen, & Liu, 2011), and ensuring that the e-learning course will improve employee adeptness in on-the-job tasks and situations (Berings, Poell, & Simons, 2008). A prevalent theory in e-learning is Cognitive Load theory, which states that humans can only process so much information at a time (Clark & Mayer, E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning (3rd ed.), 2011) and that e-learning courses need to optimize the use of working memory capacity to avoid

cognitive overload (Pace, 2014) as e-learning consumes more mental resources, leading to cognitive overload (Granger & Levine, 2013).

In summary, Anderson has shown that e-learning is here to stay and continuing to grow (Anderson, 2013) – *Report Data 1*. As educators, we will need to continue to look beyond our 'traditional' methods of teaching and look for effective ways to 'blend' & re-use our training methodologies balancing between resources. Technology will continue to outpace e-learning research finding, so it is unrealistic to expect that researchers could empirically examine the usefulness of each new technology to e-learning outcomes prior to its use in e-learning programs. Instead, research should examine the value and limits of the application of technology (DeRouin, Fritzsche, & Salas, 2005).

A breakdown of organizations' training via the following delivery methods.

	2010	2013
Classroom	41.4%	31.5%
Synchronous e-learning	10.9%	12.1%
Asynchronous e-learning	18.6%	16.6%
Formal on-the-job	17.7%	18.5%
Other	11.4%	21.4%

Source: Chief Learning Officer Business Intelligence Board, 2013

Report Data 1 – Organizational Training Methods 2010 vs 2013

Methods

It is the intent of this study to determine if e-learning training seminars (whether viewed live or recorded) have an impact on the sales/profit of an electrical manufacturers products with their seasoned sales professionals. Creswell states that it is important to protect the privacy and confidentiality of individuals who participate in the study….Federal legislation requires that you guarantee them certain rights and that you request their permission to be involved in the study (Creswell, 2015). Anonymity plays a large part of this research in which no individual is mentioned, the parent company (of the author) is name-less, and the two products listed are not identified. This was a condition of the company to ensure that competitive information was not shared inadvertently and that true, real financial data could be publically shared.

The sample size encompassed all of the sales individuals focused on selling our products to end-customers. This would include all of sales staff which are paid directly by the company (to be known further as 'employees') and also outside sales companies that are licensed to sell our products on a commission basis (to be known further as 'agents').

Data Collection and Procedures

The data was collected through a collaboration between the company's:

- Human Resource Department (to provide estimates of personnel who could impact sales of two products within a market – in this case North America)
- Accounting Department (to provide financial data showing monthly sales totals of the two products)
- Training team (owners of the e-Learning program to show pre-registrations, live attendees, and/or recorded e-learning participants)

Requests were made by the author to best show the impact on total monthly sales of the two products both before the e-learning (to establish a 'norm' or baseline understanding of typical sales) and after the e-learning (to study the impact on the overall 'bottom-line' of total sales dollars for each month afterwards) for the sales/training year of 2014.

Data Analysis

The author used the data gathered from each group to determine an answer to the hypothesis detailed as:

- Human Resources – this information was used to determine sample size of both groups (employees and agents) involved in the training for both products. This allows for an overall understanding of general interest in the product and helps to understand if only specific groups would be involved in the focused product sales (i.e. not something every salesperson within the company has a customer base and/or interest in selling).
- Accounting – Like was mentioned above, some analysis was used on the 'pre' e-learning event data to understand what a 'baseline' of typical sales might be for the product. The newly launched product's 'pre' e-learning financial data (which is quite minimal) shows what is typical of an individual groups sales efforts vs. the focused entire sales force. The existing product's 'pre' e-learning numbers showed was is typical for the seasonal sales rate of this product without additional training effort. Not only were the total monthly dollars shown, but statistical analysis was performed to create trending lines of the data. These were used to show if monthly sales were above/below the typical trend (and thus direct an answer towards the hypothesis).

- Training Team – the data obtained (which were reports provided pre- and post- e-learning) showed three main items: How many of the total sales force showed enough interest to pre-register for the event, how many sales-people actually attended the event 'live' via their computer / phone (which could allow them the opportunity for feedback and additional Questions & Answers period), and finally how many people attended the e-learning from a recording through the end of the year (2014). This data was then compared to show:
    - How many of the total salesforce pre-registered (broken down between the two groups – employees & agents)
    - How many of the actual e-learning attendees viewed the event live versed recorded

Limitations

There existed a few limitations that the author had to overcome and/or take into account when performing the data-analysis. Since this looked at historical data, there was no way to make adjustments along the way to create more 'what if' scenarios to better test the hypothesis. Also, data gathered from the training team only listed those individuals that attended the e-learning and their title/product group focus (but not for those whom registered but didn't attend). This limits improvement thoughts for e-learning to address non-normal groups as they are unknown from the data gathered other than a quantity / number. The overall quantity of product presentations was fewer than the author would have preferred for a sufficient sample size. While there are many face-to-face trainings that took place, this study focused on company-wide webinars on products – utilizing two products (one being an existing product and one being a new product launch) webinars. While additional webinars were held, they were centered on

various corporate systems and not product specific (which didn't relate to overall sales dollars as directly as increased/decreased product sales can show).

Results

To obtain some idea of the general interest of the two e-learning events from the entire salesforce, the information from Human Resources was combined with the Training Team's information about preregistered, live, and recorded viewers, summarized in *Table 1*.

	Employees	Agents	Total
Total Available / Possible	183	393	576
Product XX - Established			
Pre-Registered	n/a	n/a	68 (12%)
Attended Live	8 (4.3%)	41 (10.4%)	49 (8.5%)
Viewed Recording	1 (0.5%)	8 (2.0%)	9 (1.6%)
Product YY – Newly Introduced			
Pre-Registered	n/a	n/a	64 (11.1%)
Attended Live	29 (15.8%)	28 (7.1%)	57 (9.9%)
Viewed Recording	4 (2.2%)	5 (1.3%)	9 (1.6%)

Table 1 - Sample Size vs Live & Recorded Attendance

The results of which show us relatively the same data for each product type; that approx. 12% of the possible sales force (being a combination of those that could impact the sale of these products – both the employees and agents) were interested but only approx. 9% attended live with an additional 1.6% viewing the recording. *Table 2* compares only the actual e-learning attendees – looking to understand how many attended live verses the recording.

Of Attendee's to the e-Learning

Product XX - Established	Employees	Agents	Total
Attended Live	8 (16%)	41 (84%)	49 (84%)
Viewed Recording	1 (11%)	8 (89%)	9 (16%)
Product YY - Newly Introduced			
Attended Live	29 (51%)	28 (49%)	57 (86%)
Viewed Recording	4 (44%)	5 (56%)	9 (14%)

Table 2 - Attendee Preference for Live vs Recorded e-learning

We see a similar pattern between the two e-learning events that approx. 85% of the attendees prefer to view the event live and approx. 15% preferred the recorded version. The sample size (of just two e-learning events) is too small to draw any repeatable patterns or conclusions about future events.

The data from the three corporate sources were combined into charts to show relevant 'pre' and 'post' e-learning time periods to determine if e-learning had an impact on the product sales. The two product's (Product XX – which has been an existing product for years & Product YY – which is a newly introduced product) monthly sales are shown in Charts 1 & 2 (in reverse order due to size). The date of the e-learning event for Product YY was conducted live on May 22nd, 2014 (with the recorded version available throughout the end of the year). The e-learning event for Product XX was conducted live on August 25th, 2014 (with the recorded version available throughout the end of the year).

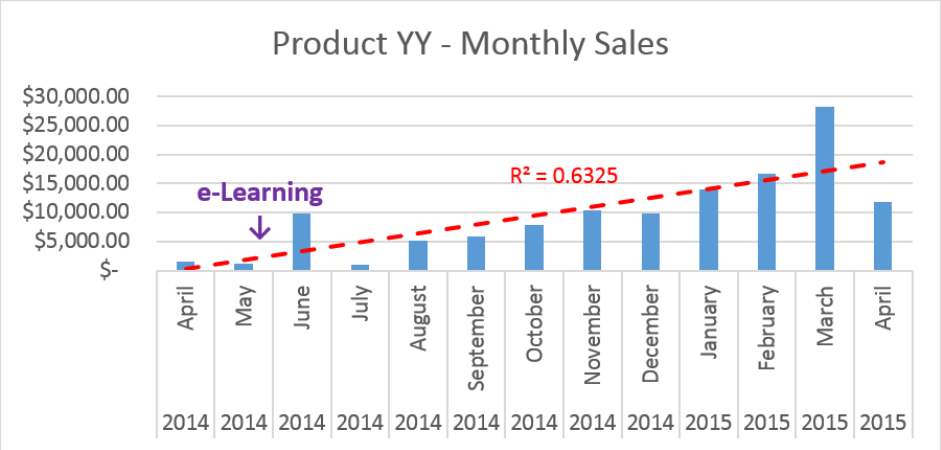

Chart 1 - Monthly Sales Totals ($) of Product YY - Newly Introduced

Remembering that Product YY is a newly introduced product – we can see that the monthly sales dramatically increased after the e-learning date and that the trending shows a continued growth with a coefficient of determination calculated at 0.6325.

The monthly sales for 'Product XX – Existing Product' (*Chart 2*) is much more in-depth and will require a bit more explanation. The additional 'pre' e-learning data was shown to help determine a baseline and to help explain the cyclical nature of electrical product sales. For this product offering, the majority of sales are shown to occur between the months of March thru July (trend lines shown in gold) with a leveling-off effect occurring between August thru October (trend lines shown in red). The remaining months (specifically November, December, and January) are typically low selling months due to the nature of the industry. Once this baseline was established, we can then understand the impact of the e-learning event (positively or negatively) on expected monthly cyclical sales. Even though the coefficient of determination was shown for each trend line; the importance is not high as the overall trend is what helps us to determine the normal cycle. An overall trend line of the complete data set was showing in green to help determine relative gains/losses above norm/expected. The slope (*Table 3*) of the trend

lines of the cyclical timeframes were used to understand expected results and look for differences (unitized for clarity).

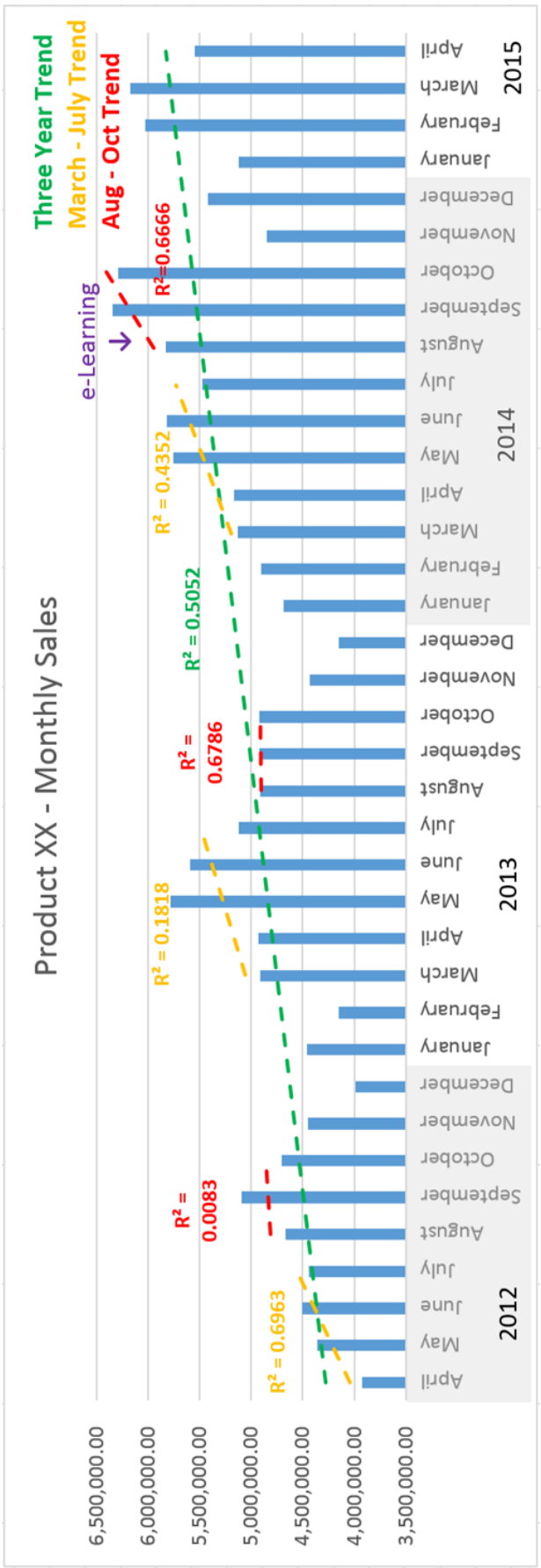

Chart 2 - Monthly Sales Totals ($) of Product XX - Existing Product

Product XX - Sales Slopes (unitized)

	2012	2013	2014
3 Year Total (green)		1.05	
Before e-learning		1	
March-July (gold) = large sales months	1.59	1	1.24
August-October (red) = leveling off months	5.18	1	55.60

Table 3 - Unitized Monthly Sales Slopes (grouped per purpose)

To address the question of '*did the e-learning had an impact on the sales force*' (and overall monthly sales), we need to look around August 2014 (when the live e-learning event occurred). Normally this is part of the cyclical 'leveling off' months in which we would expect to see sales flat (August thru October). From the data shown, the sales of this product were dramatically, abnormally, and positively impacted after the e-learning time. The expected slope during these months was expected to be anywhere from 1.0 thru 5.18 (from the historical data shown) but the actual slope was 10 times this!

Conclusions & Discussion

This research asks the question if e-learning can have a positive impact on the sales of an electrical product manufacturer? With the limitations of this case study (being a relatively small sample size and not including the huge variety of extraneous issues that can occur within electrical product sales – a downturn in the economy, a slow-down in a certain industry, personality issues between sales person & customer, 'golf-course' deals - just to name a few) a correlation can be shown between the timing of e-learning and an uptick in product sales. This affirms an earlier statement from the literature that "Within the research there seems to be a level of excitement for e-learning, but I believe that most agree we 'haven't arrived' yet". Certainly we can see some positive results – but are they as effective as they could be? Many of the researched authors point to improvements that could be made to tie into a person's unique learning style, build upon earlier experiential emotions that a person has, and/or ensure that cognitive overload is not occurring during this transitionary period of blended-learning from face-to-face to e-learning within our corporate environments. It is the author's desire to continue to improve the ROI of corporate training by implementing the various areas-of-knowledge gained about adult learning techniques and combining that with the VAK(T) learning styles to ensure maximum learning-transfer and behavioral change for our seasoned sales force. Another area to be researched is Anderson's suggestion that, "Mobile technology will increase with the creation of short learning bursts. Similar to tweeting, learning will adapt to create small yet relevant learning bursts" (Anderson, 2013). An effort should also be made, during the development of the e-learning curriculum to not only speak with the subject-matter expert but also include a successful sales person's understanding of what initially made them successful with the process and what was of importance to customers. We need to continue to drive for a

shift of results from ‘just checking a box’ to the true measure of successful e-learning being observed through changed behavior and memory retention of the materials presented.

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