Calculating the Economic Viability of Corporate Trainings (Traditional & eLearning) using Benefit-Cost Ratio (BCR) and Return On Investment (ROI)

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Abstract— The intent of this paper is fourfold: (a) to document chronologically the history of corporate training; (b) to discuss the importance of corporate training highlighting the reasons why eLearning is gaining traction; (c) to report the results of a research study conducted with 85 sales employees in a U.S.-based organization; and (d) to calculate the return on investment (ROI) for the training costs incurred by the company and validate if the training was economically viable. Forty-two employees received the Traditional mode of training and the remaining 43 received the eLearning mode. The researcher made several comparisons. First, pre-training test scores were compared to post-training test scores to determine differences between training modes (Traditional or eLearning). Second, post-training test scores of Traditional vs. eLearning mode were compared to determine differences between the modes of training. Third, pre-training sales numbers were compared to post-training sales numbers to determine differences between training modes (Traditional or eLearning). Finally, post-training sales numbers of Traditional vs. eLearning mode were compared to determine differences between training modes. Previous researchers have compared pre- and posttest scores. Some have documented the cost-benefit analysis of training programs and described the ROI percentage achieved from training. However, previous researchers have not detailed the exact dollar value of the benefits achieved from training programs, discussed actual sales numbers, or discussed actual revenue data to show how these were used for tangible ROI in dollar value. To the author's knowledge, this will be the first peer-reviewed study to document, describe, and calculate the aforementioned details.

1   Introduction

Chief Financial Officer: "What happens if we train the employees and they leave?"
Chief Executive Officer: "What happens if we don't and they stay?"
    —Unknown

These statements point towards the dilemma with regards to training in any corporation. Historically, corporate learning has occurred through on-the-job training or apprenticeships, in which a "newbie" is trained by a veteran. In objective fields like mathematics, accounting, or medicine, in which only one or two solutions to a problem exist, one-on-one training yields good results. However, in subjective fields like stock investments, sales, and the like, in which there can be numerous ways to solve a problem, one-on-one training often produces inconsistent results. Because each apprentice is only as good or as bad as the veteran he or she trains under, inconsistencies in task performance may occur.

McKinsey (2010) reported that "inconsistent processes across business units yield inconsistent results" (p.4) [1]. Such inconsistencies may prove costly to a corporation's brand image or competitive edge. Ducoff (2013) noted that training is both non-negotiable and necessary to eliminate costly inconsistencies in organizational performance [2]. Employees need training to understand how the enterprise system will change business processes [3]. Burke and Hutchins (2008) observed that corporate leaders strive for knowledgeable and skilled employees in order to improve performance [4].

A dilemma arises: Company leaders might not train employees because they fear employees might leave. However, employees sometimes leave because they do not receive training. If companies offer training, employees are more likely to remain [5]. For example, in a 2015 survey by West UC's Digital Media Services, two out of three employees said that training played an important role in their decision to stay with the company and three out of four employees had participated in job-related training within the last year, a clear indication that corporations have been moving in the right direction [6]. In addition, with training, employees can master different areas, thereby becoming cross-functional. Training gives employees the tools to succeed. In fact, training employees provides corporations with a competitive advantage (Blackler, 1995) [7].

The goal of any organization is to ensure every employee is aligned with the strategic goals of the company. The key driver to ensure this alignment of the goals is training. According to Rivera and Paradise (2006), organizations that successfully link corporate strategy with learning objectives show increased performance from their learning investments [8]. Nda and Fard (2013) confirm that, in order to maintain sustainability, organizational leaders must see continuous employee training and development as invaluable [9].

2 Literature Review

2.1 How Have U.S. Companies Invested in Learning?

According to the Staff of the Training Industry Report (2017), U.S. companies spent and $90.6 billion on training 2017, a 32.5% increase over previous year. (p.21) [10].

Average training expenditure for large companies (10,000+ employees) increased from $14.3 million in 2016 to $17 million in 2017. This number remained flat for midsize companies (1,000–9,999 employees) at $1.5 million for both the years. And it rose to $1 million in 2017 from $376,251 in 2016 for small companies (100–999 employees) (p.22) [10].

The average training expenditure per learner for 2016 and 2017 was $814 and $1075 respectively (p.23) [10]. In 2017, 36% of the companies reported increased training budgets, compared to 37% in 2016 (p.25) [10]. These companies attributed the increased training budgets to increased scope of training programs, increased number of learners, and purchase of new technologies (p.25) [10]. However, 49% of the companies reported no change in 2017, compared 50% in 2016. Also, for 2017, 15% of the companies reported a decrease, compared to 13% in 2016 (p.25) [10]. These companies attributed the decreased training budgets to reduced training staff, fewer trainings, and "other" as the reason for this decrease (p.26) [10].

2.2 Modes of Learning Used

According to Li, Lau, and Dharmendran (2009), "E-learning is the delivery of a learning, training or education program by electronic means" (p.37) [11]. Applying this definition to the findings of the 2016 Training Industry Report, 46.4% of small companies, 47% of midsize companies, and 44.2% of large companies used virtual classroom, computer-based, online, and mobile training. In contrast, 42.9% of small companies, 43.2% of midsize companies, and 39.5% of large companies used the instructor-led delivery method. Blended learning (part instructor-led, part eLearning) was measured at 42% for small companies, 41% for midsize companies, and 21% for large companies (p.28) [10].

2.3 Pros and Cons of Traditional (Classroom) vs. ELearning (Online)

Freifeld (2014) feels that, eLearning has the reputation of being more cost-effective, compared to classroom training [12]. Classroom training entails additional expenditures not directly related to knowledge transfer. For example, U.S. companies in 2017, spent $44.5 billion on "other training expenditures" such as travel, facilities, and equipment (p.21) [10]. However, Wentworth (2016) noted that unlike Traditional mode of training, eLearning training was the most expensive to create, costing an average of $53,742 per course [13].

Freifeld (2014) reasoned that companies prefer eLearning for cost-effectiveness. Learners can revisit the eLearning courses as many times as desired for refresher purposes [12], unlike in the instructor-led mode, for which companies pay thousands of dollars for participants' travel, conference rooms, food, and hotel rooms to retrain employees. ELearning eliminates such overhead costs associated with Traditional training.

However, findings from Sikora and Carroll (2002) show that learners are less satisfied with eLearning mode compared to Traditional mode. [14] While Traditional

mode may be slightly more expensive to be used for multiple sessions, the instructor is an expert in the field and can train the learners better than self-paced eLearning. The demonstrations, role-plays and discussions etc. that take place in a classroom setting are invaluable. Instructor led trainings ensures that the objectives of the training are uniformly understood. In eLearning, everyone's understanding of the same topic can be incongruous, and this may prove disastrous for the organization image or bottom-line. Also, according to Martinez (2003), eLearning mode has a higher attrition rates (dropout) compared to Traditional mode. [15] The challenge is to keep the online learners engaged by developing an attrition management plan. Many organizations are finding ways to reduce the dropout rates by improving course content, interface design, activities, or a reward for completion etc.

Some of the advantages of Traditional mode of training are consistency of the knowledge transfer and any additional or newinformation, changes, and examples etc. can be communicated extemporaneously. In eLearning mode, learners may derive the meaning of the topic differently and therefore the content has to be proofread by multiple parties before being deployed to the leaners. Also, any change to the course content has to be done by the Learning Management System (LMS) administrator, which could take days or weeks.

Traditional training is a better approach for companies with a smaller or local presence. ELearning training is a major money saver for corporations with global presence, where, neither location nor language will be a barrier because the same course content can have subtitles in various languages.

ELearning is largely independent learning and therefore helps silent participants who are "quiet in meetings other for different reasons, are reticent by nature, fearful that their opinions may be ridiculed, some are not comfortable speaking if they don't know everyone" (para.1) [16]. For such silent participants, eLearning can be a secure and smooth experience [16]. But, most learners might feel isolated in an eLearning environment. Traditional mode allows social participation, enabling face-to-face conversations, discussions, role-plays, simulations, with the instructor or unknown people, thereby creating sense of community and networking opportunities, unlike eLearning. And, may also provide an opportunity for introvert participants to open up and become more sociable.

2.4   What the Management Wants

Top executives seek to understand impacts and ROI data. A major study, supported by ASTD, showed that the CEOs' primary desire was to quantify business impact from implementing learning and development [17]. Ninety-Six Fortune 500 CEOs revealed that their second most-desired measure was ROI. At the same time, these executives indicated that the current level of measurement fell far short of showing the desired data. Only 8% said that they were able to see current business impact—96% wanted to see it but could not. For ROI, 4% were able to see current ROI, and 74% wanted to see it in the future [18].

Unfortunately, many middle managers lack knowledge to evaluate the effectiveness and Return on Investment (ROI) from training to present to top management. Thus,

most managers deal only with before-and-after scores, although there are many models that prescribe appropriate testing procedures.

2.5 Evaluating Results & Effectiveness

The term 'evaluation' can be explained differently by different researchers. And one of the reason why Dr. Kirkpatrick developed this model was to articulate the term 'evaluation.' [19]

Kirkpatrick (1994) says that "The reason for evaluating is to determine the effectiveness of a training Program". [19] Evaluation of a training program provides insights into various gamut of business. While training for knowledge transfer, evaluation is a like a confirmation that knowledge transfer did occur and how it has impacted the organization, as a whole. Evaluation brings tangibility to many elements involved in a Training program.

There are many evaluation models that have been mentioned in literature, namely the Kirkpatrick's Four Levels of Evaluation Model [19], the CIRO Model [20], the CIPP Model [21], the Brinkerhoff Model [22], and the Phillips Model [23] [24]. For the purpose of the study the author chose the Kirkpatrick's Four Levels of Evaluation Model and the Phillips Model.

Level 1: Measure of Learners' Reactions to the Course.
- This is commonly done using Post course surveys and questions about course setting, course content, delivery style, materials, interactions etc.

Level 2: Measure of What They Learned.
- This is typically done comparing pretest and posttest scores.

Level 3: Measure of Changes in the Learners' Behavior, Post Training.
- This level requires supervisor's or peers' assessment that they have noticed a behavior change in the learner.

Level 4: Business Impacts That Occur Because They are Doing Their Jobs Differently.
- This level assesses the Business Impact to the organization, as a whole.
  According to U.S. Office of Personnel Management, has the learning "yield[ed] measurable results that directly contribute to accomplishment of the [organization's] goals and ultimate mission". [25]

Phillips (1997a, 1997b, 2016) recommended an additional level, the Level 5, to Kirkpatrick's model. [23] [24] [26] The Level 5 measures the Return on Investment (ROI).

Phillip's Level 5: ROI, calculated by converting productivity and improvements to monetary values
- In plain terms, it measures the success of the training initiative in economic terms. [26]

2.6   How Organizations Evaluate Trainings

Organizational leaders are reluctant to spend money on employee training because they are not positive they will recover their investment. Other reasons for this decision could include high employee turnover rate, quality of available training, and lack of tools to measure the effectiveness and ROI on training. Additionally, Wentworth (2016) noted training is a corporation's biggest budget line item [13]. Accounting departments view training as an expense rather than as an investment [27]. Companies are not required to report training expenditures as a discrete item, therefore it is lumped in with other overhead costs.

Organizations that spend a lot of money on trainings do not quantify their learning results as deeply as Level 4 or Level 5, despite having the evaluation models as guide posts. Evaluating to Levels 1, 2, and 3 provides insight into employees' learning and behavioral changes. The analysis of results from Levels 4 and 5 is the substantiating factor, showing top executives the financial gains and losses from the training.

However, Purcell (2000) opined that organizations do not measure results at Level 4, because "only programs that address a high-risk business issue or have the greatest impact on the bottom line should receive this level of evaluation" (p.32) [28]. The reason that companies do not evaluate at Level 5 is because, quantifying training results is not an easy task. Bernstein and Beeferman (2015) note that "This is an understandable approach since the payoff to training is difficult for an individual company to quantify" (p.13) [27]. When organizations have the necessary tools to quantify training and are doing it for the first time, Phillips (1996) suggested "only one course [metric] should be selected for a calculation as part of the ROI learning curve" (p.4) [29].

3   Purpose of Study

According to a 2009 report by ASTD, "Ninety-two percent of respondents to ASTD's Value of Evaluation report indicated that they measure at least Level 1 (reactions of participants) of the model. However, use of the model drops off dramatically with each subsequent level, with only 18% measuring at Level 5 (return on investment)" (para.2) [30]. The author searched hundreds of peer-reviewed papers and determined that none of the papers have evaluated past Levels 2 or 3. Even those papers that have evaluations at Level 5, only discussed the cost-benefit analysis – for example, "the training caused a 10% increase in sales revenue." Glaringly missing from these papers is the "how". None of these hundreds of papers discuss the actual revenue calculations, actual data, and more importantly how the dollar value or increase percentages were achieved. Probably, organizations do not report actual numbers because of competition and thus, no peer-reviewed papers exist today in the entire research databases, which have documented real data and ROI and BCR calculations. This is the first ever study to detail both BCR and ROI for a training exercise of a company, using actual data and calculations and percentages. The caveat being, the company in this study requested to be anonymous due to the aforementioned competitive reasons.

Research Question #1.1:

Test Scores: Pre-Training Test Scores vs. Post-Training Test Scores

H1$_0$: There is no significant difference between the Pre-Training Test Scores vs. Post-Training Test Scores.

H1$_a$: There is a significant difference between the Pre-Training Test Scores vs. Post-Training Test Scores.

Research Question #1.2:

Test Scores: Classroom vs. Online

H2$_0$: There is no significant difference between the test scores of Classroom mode vs. Online mode.

H2$_a$: There is a significant difference between the test scores of Classroom mode vs. Online mode.

Research Question #2.1:

Pre-Training Sales Figures Vs. Post-Training (either Classroom or Online) Sales Figures

H3$_0$: There is no significant difference between the Pre-Training Sales Figures vs. Post-Training Sales Figures (either Classroom or Online).

H3$_a$: There is a significant difference between the Pre-Training Sales Figures vs. Post-Training Sales Figures (either Classroom or Online)

Research Question #2.2:

Post-Training Sales Figures of Classroom vs. Online

H4$_0$: There is no significant difference between the Post-Training Sales Figures of Classroom vs. Online.

H4$_a$: There is a significant difference between

4   Methodology

- The study was conducted at a U.S. based health food company
- 15% phone sales and 85% ecommerce sales
- Teams: Customer Service, Sales, Retention, and Technical Support
- Sales team was trained: 85 Sales associates (with similar pc or sales skills)
- Mode of Training: Traditional or eLearning
- Associates were selected via Lottery Method (42 for Traditional & 43 for eLearning)
- 16 hours training and 1-hour proctored exam
- The exam (one-hour duration) was not included in the ROI calculation
- Traditional mode attendees had a 2 (two) day class
- eLearning mode attendees had access to the Learning Management System for 1 (one) month
- Associates were unaware that they were being evaluated, therefore, we could not do a survey at the end
- Only the 3 main big-ticket products that the company sold were considered for this research and they were priced at $250, $350, and $450

- There were no new promotions and campaigns by the company, during pre-training and post-training periods of evaluation

5 Results and Discussion

Research Question #1.1:

From Table 1, since the employees were the same individuals tested under two different conditions (Pre-Training and Post-Training) on the same dependent variable (test score), a Paired Samples t-test was used to determine whether there was a statistically significant mean difference between the pre-training test scores (M = 77.66 and SD = 10.954) and post-training test scores (M = 80.55 and SD = 10.599). Employees had better test Post-Training test scores as compared to the Pre-Training test scores. The Post-Training exam showed a statistically significant increase in test scores compared to the Pre-Training exam, t(84) = -32.665, p = 0.000.

The Effect size was estimated using Cohen's d [31], where Cohen's d formula for Paired Samples t-test is: $\mathbf{d = M2\text{-}M1 / SD_{pooled}}$ **(where, $SD_{pooled} = \sqrt{((SD1^2 + SD2^2)/2)}$)**

Cohen's d was estimated at 0.3, which is in between small to medium effect according to Cohen (1988). [31] [32] [33] [34]

Therefore, we can reject the null hypothesis (H1$_0$) and accept Alternate Hypothesis (H1$_a$).

Normalized Gain

Hake (1998), introduced the formula for Normalized Gain also known as Learning Gain. [35] In simple terms it is the calculation of how much score a student could have gained from a pre-assessment to post-assessment.

Formula for Normalized Gain:

(Post-assessment - Pre-assessment) / (100% - Pre-assessment)

And, the Average Normalized Gain Score, which is an average for the 85 students' individual scores, was 0.1827. In other words, there was an 18.27% average normalized gain for the entire class.

Research Question #1.2:

From Table 2, since the employees were tested under two unrelated testing conditions (Classroom and Online) on the same dependent variable (test score), an Independent Samples t-test was used to determine whether there was a statistically significant mean difference between the Classroom test scores (n1=42, M = 80.12 and SD = 10.035) and Online test scores (n2=43, M = 80.98 and SD = 11.226). There was statistically no significant difference in test scores between the Classroom and Online participants, t(83) = -3.71, p = 0.712.

The Effect size was estimated using Hedges' g, where Hedges' g formula for Independent Samples t-test is:

> **Hedges' g = (M2 - M1) / SD_{pooled}**
> **$SD_{pooled} = \sqrt{((SD1^2 + SD2^2)/2)}$**
> **Where;**

- **M2 – M1 = difference in means.**
- **SD_{pooled} = pooled and weighted standard deviation.**

The Effect size was estimated using Hedges g at 0.08, which is a small effect according to Hedges & Olkin (1985). [36]

Therefore, we can reject the Alternate hypothesis ($H2_a$) and accept Null Hypothesis ($H2_0$).

Research Question #2.1:

From Table 3, since the employees were the same individuals tested under two different conditions (Pre-Training and Post-Training) on the same dependent variable (sales figure), a Paired Samples t-test was used to determine whether there was a statistically significant mean difference between the Pre-Training sales figures (M = 64.46 and SD = 14.788) and Post-Training sales figures (M = 67.18 and SD = 13.466). Employees had better Post-Training sales figures as compared to the Pre-Training sales figures. The Post-Training sales figures showed a statistically significant increase compared to the Pre-Training sales figures, $t(84) = -8.824.665$, $p = 0.000$.

The Effect size was estimated using Cohen's d, where Cohen's d formula for Paired Samples t-test is: $\mathbf{d = M2\text{-}M1 / SD_{pooled} \text{ (where, } SD_{pooled} = \sqrt{((SD1^2 + SD2^2)/2))}}$

Cohen's d was estimated at 0.2, which is a small effect according to Cohen (1988). [31] [32] [33] [34]

Therefore, we can reject the null hypothesis ($H3_0$) and accept Alternate Hypothesis ($H3_a$).

Research Question #2.2:

From Table 4, since the employees were tested for application of knowledge gained from under two unrelated testing conditions (Classroom and Online) on the same dependent variable (sales figures), an Independent Samples t-test was used to determine whether there was a statistically significant mean difference between the sales figures of the Classroom participants (n1=42, M = 66.36 and SD = 13.911) and sales figures of the Online participants (n2=43, M = 67.98 and SD = 13.132). There was statistically no significant difference in sales figures between the Classroom participants and Online participants, $t(83) = -5.52$, $p = 0.582$.

The Effect size was estimated using Hedges' g, where Hedges' g formula for Independent Samples t-test is with where n1 =:

$$\mathbf{Hedges' \ g = (M2 - M1) / SD_{pooled}}$$
$$\mathbf{SD_{pooled} = \sqrt{((SD1^2 + SD2^2)/2)}}$$

Where;

- **M2 – M1 = difference in means.**
- $\mathbf{SD_{pooled}}$ **= pooled and weighted standard deviation.**

The Effect size was estimated using Hedges g at 0.12, which is a small effect according to Hedges & Olkin (1985). [36]

Therefore, we can reject the Alternate hypothesis ($H4_a$) and accept Null Hypothesis ($H4_0$).

Financial Calculation:

Monthly Sales Units BEFORE Training	5479 units.
Total Sales in Dollars BEFORE Training	(1762 * $250) + (1691 * $350) + (2026 * $450) = $1,944,050
Monthly Sales Units AFTER Training	5710 units
Total Sales in Dollars AFTER Training	(1854 * $250) + (1726 * $350) + (2130 * $450) = $2,026,100
Additional Sales Units (AFTER – BEFORE)	5710 units – 5479 units = 231 units
Additional Revenue from the Additional Sales Units	$82,050
Company's 5-year average gross profit margin	49.90%
Gross Profit from the Additional Revenue	$82050 X 49.90% = $40942.95
Company's 5-year average Net Income	16.7%
Net Income (in the first month AFTER the training)	$40942.95 X 16.7% = $6837.47

Training Cost Calculator

The training calculator is based on the sample Cost Estimating Worksheet Phillips & Phillips. [26]

Items	Description	eLearning (Online)	Traditional (Classroom)
Logistical Costs			
	# of Associates	**43**	**42**
	# of hours	**16**	**16**
	Wage/hour/Associates	**$16/hr.**	**$16/hr.**
	Misc. Cost (travel, food, printouts, etc.)	**0**	**$147.62 pp for 2 days**
	Sub-Total 1	**$11,008**	**$16,952**
IT Costs			
	Access to Learning Management System (LMS)	$99	**0**
	Sub-Total 2	**$4,257**	**0**
Trainer Costs			
	Instructor Wages	**$10,000**	**$12,500**
	Travel, Food, Flight, Car etc.	**0**	**$5,000**
	Sub-Total 3	**$10,000**	**$17,500**

Total		$25,265	$34,452
Total Cost of the Training Exercise		**$59,717**	

Benefit Cost Ratio (BCR) & Return on Investment (ROI) Calculation

According to Brinkerhoff (1991), ROI (Return on Investment) is the ratio between the cost of a program and the value (monetary) of its outcomes. [37]

The program costs of the combined training were $59,717 and the program benefits were $82,050 in the first month.

FIRST METHOD:

BCR = Program Benefits ∕ Program Costs = $82050 ∕ $59717 = 1.37

As this calculation shows, for every $1 invested returns $1.37 in benefits.

Thus, the ROI would be:

ROI = Net Benefits ∕ Program Costs X 100

Where, Net Benefits = Program Benefits – Program Costs

= $82050 – $59717 ∕ $59717 X 100 = 37.4%

This means that, for each $1 invested in the program, the ROI is $1.374.

SECOND METHOD:

However, according Knight (2015), the most common mistake that experts make is to calculate ROI using the sales revenues, whereas, net profit is a more accurate approach. [38] The company makes a net profit of 16.7% on its gross profit of $40942.95, resulting in an additional net profit of $6837.47 in the first month after the training.

According to Nayab & Richter (2010), ROI can be calculated monthly too. [39]

ROI$_{Monthly}$ = Monthly Net Profit ∕ Program Cost X 100

= $6837.47 ∕ $59717 X 100 = 11.45% per month.

Thus, the annual ROI is calculated as follows:

ROI$_{Annual}$ = ROI$_{Monthly}$ X 12 months

= 11.45 X 12 (months) = 137.4%.

This means that, for each $1 invested in the program, the ROI is $1.374.

The author therefore is able to prove using two different methods that the ROI was similar, irrespective of training mode.

6   Limitations of the Study

1. Only BCR/ROI was considered. Intangible benefits were not taken into account.
2. Only the sales from the 3 main products that the company sold were taken into consideration.
3. The entire year was not considered for the BCR/ROI calculations, only the pre-training and post-training months' sales figures were taken into account.

4. Market conditions were stable during the study. When the market conditions are good, people make expensive purchases and hold off during bad market times.
5. Teams received other trainings too, which could result in overlapped benefits.

7   Conclusion

The findings of this study corroborate other published literature and research showing that a trained team produces better results than does an untrained one, irrespective of the training mode. Additionally, our research deduced that eLearning mode is equally effective as the Traditional mode.

Many organizations find it sufficient to measure their training programs from Levels 1 through 4 using subjective key performance indicators (KPI) such as customer satisfaction, employee morale, and process improvement. It is tedious to evaluate and apportion how these subjective KPIs contribute to the ROI of the training program. Thereby, resulting in very few papers published, which discuss evaluating training programs at Level 5 (ROI) results. But even these papers only discuss "what" results were achieved.

The current paper will be the first ever in the entire peer-reviewed research database to show not only "what" results were achieved but also "how" the results were achieved.

Notwithstanding the complexities of training, it is an indisputable fact that the true success of training is represented in learners' ability to transfer the learning to their jobs and thereby making profit to the company. The only way to know this is, if organizations start accounting for the time, resources, and money spent on training programs, not as an expense but as an investment. And like any investment, success and failure of training programs should be evaluated in monetary (ROI) terms, which is the key to an organization's survival**.**

8 Tables

Table. 1

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre_Training_Scores	77.66	85	10.954	1.188
	Post_Training_Scores	80.55	85	10.599	1.150

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre_Training_Scores & Post_Training_Scores	85	.998	.000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pre_Training_Scores – Post_Training_Scores	−2.894	.817	.089	−3.070	−2.718	−32.665	84	.000

Table 2.

Group Statistics

	Mode	N	Mean	Std. Deviation	Std. Error Mean
Post_Training_Scores	Class	42	80.12	10.035	1.548
	Online	43	80.98	11.226	1.712

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Post_Training_Scores	Equal variances assumed	.823	.367	−.371	83	.712	−.858	2.311	−5.455	3.740
	Equal variances not assumed			−.372	82.361	.711	−.858	2.308	−5.449	3.734

Table 3.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre_Training_Sales	64.46	85	14.788	1.604
	Post_Training_Sales	67.18	85	13.466	1.461

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre_Training_Sales & Post_Training_Sales	85	.984	.000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2– tailed)
Pair 1	Pre_Training_Sales – Post_Training_Sales	−2.718	2.839	.308	−3.330	−2.105	−8.824	84	.000

Table 4.

Group Statistics

	Mode	N	Mean	Std. Deviation	Std. Error Mean
Post_Training_Sales	Class	42	66.36	13.911	2.146
	Online	43	67.98	13.132	2.003

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2– tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Post_Training_Sales	Equal variances assumed	.103	.749	−.552	83	.582	−1.620	2.934	−7.454	4.215
	Equal variances not assumed			−.552	82.455	.583	−1.620	2.936	−7.459	4.220

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