

**ELEARNING INDUSTRY REPORT:
EMERGING TRENDS IN THE CORPORATE ELEARNING
INDUSTRY**

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“It’s not the strongest of the species who survive, nor the most intelligent,
but the ones most responsive to change.” – Charles Darwin

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EXECUTIVE SUMMARY

We argue that while eLearning stocks have been pressured, the prospects for leading eLearning companies have brightened. In this short piece, we wish to accomplish two things. First, we would like to step back and highlight what we consider to be the major trends in the corporate eLearning space over the last year or so. Second, we argue that a divergence in performance and prospects for eLearning companies, on the one hand, and the performance in their stocks, on the other, has created an investment opportunity, in our opinion. Recently, the market has started to recognize the traction the leading eLearning companies are having. The stocks of this group of leading companies are up approximately 13% in the last four months. We draw to evidence positive emerging “big picture” themes, the financial performance of leading eLearning companies, and the performance of their stocks, and argue that investors with appropriate risk tolerance should take a good look at this space.

KEY INVESTMENT POINTS

eLearning has garnered strong traction and the prospects are highly encouraging. We believe that the demand for eLearning is being driven by the emerging business case for eLearning, supporting information and self-service revolutions transforming the workplace, enhanced eLearning solutions and smarter users, involvement by established professional service organizations and publishing companies, and the maturation of standards.

The marketplace is reinforcing leadership positions. We think that challenging economic times have promoted two forms of selectivity on the part of buyers in choosing providers that appear financially stable and have reputations and brand names. Thus, we believe that difficult times have been differentially cruel to small players and late comers. New entrants have also been hurt by a pronounced chilling in the capital markets that has exacerbated the risk for and of pre-profit companies. Similarly, we think investors are exhibiting the same choosiness.

Leading eLearning companies promise accelerating profitability. We believe that the attainment of or steady progress towards profitability by leading players (all the stocks that we follow are expected to be profitable by the second half of next year) will provide an inflection point for investors. Also, by achieving profitability eLearning stocks should fall under the generous valuation umbrella of bricks and mortar for-profit education companies that are trading at around 1.5x their growth rates. An analysis of the most recent quarter for 10 leading corporate eLearning companies showed that in aggregate, \$0.51 of every incremental revenue dollar flowed through to operating profits.

eLearning stocks are beginning to chart their own course. eLearning stocks essentially mirrored the NASDAQ last year. Thus, looking back over two years, the movements of a basket of eLearning stocks and the NASDAQ showed a 85% correlation. However, year-to-date, the correlation has fallen to 37%. We believe that this divergence suggests that eLearning is being recognized as one of the few technology bright spots.

eLearning stocks still bear significant risks. Despite the recent financial and stock performance strength of eLearning companies, the sector is by no means immune from economic conditions and investor pessimism. Also, we expect intensifying competition. Even as smaller players expire, we think the entrance of publishers, integrators and consultants, and enterprise software companies will heighten competition. Nonetheless, we believe the leading pure-play eLearning companies have the capacity to preserve their competitive edge as they draw upon their education expertise and differentiated technological offerings.

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OUTLINE

Background: We begin our report by recapitulating our overall case for eLearning. We put eLearning in the context of what we take to be a shift from an Information Economy to a Knowledge Economy. We also present projections for the growth of eLearning and eLearning infrastructure and its sub-components (infrastructure and the rest).

Themes: Here we look at major themes that signal the maturation and strengthening of the eLearning industry. We focus first and foremost on the emerging business case for eLearning. The value proposition that eLearning solutions offer enterprises is the fulcrum of our case for investing in eLearning stocks. Emphasis on the concrete business case for eLearning has increased with the downturn in the economy. In our second theme, we argue that eLearning should be viewed as part of a pervasive trend to migrate processes and information to the Web.

In our third theme, “Improved Solutions and Smarter Users” we examine refinements to eLearning products, selection criteria, implementation methodologies, and knowledge of technical requirements. Our contention here is that not only are eLearning products getting better, but also that they are being used more effectively. Smart enterprises are using eLearning to drive business solutions with measurable results.

In our fourth theme, we look at what we take to be one of the most significant positive portents for the corporate eLearning space — the decisive entrance of professional service organizations, particularly systems integrators and consultants. These players are using eLearning internally, investing in eLearning companies, using eLearning to complement other practices (especially e-business transformation), and basing entirely new practices on eLearning.

In our fifth theme, “Old Content Becomes New Content” we argue that information companies may revolutionize eLearning by making available vast repositories of content. Moreover, if we are correct in believing that corporations will opt for blended education, combining both traditional and technology-based elements, then traditional educational players will play a big role in eLearning through internal development efforts, acquisitions, and partnerships.

Our sixth theme concerns the evolution of eLearning standards. While the merits of standards are clear for the industry as a whole, we believe that their achievement may cut against the interest of individual players. Also, given the sheer amount and variety of content and technology, standards may be hard to achieve from a practical standpoint. However, standard organizations and industry participants (the above proviso notwithstanding) are making a concerted effort, and we believe that there has been progress on this front over the last year or so.

The Evolving Landscape

In this section we take a closer look at recent shifts in the competitive landscape. Here, we highlight the relative prosperity of large eLearning companies, heightening competition (especially in the infrastructure space), and changes in the manner of competition among eLearning companies.

The Morgan Keegan Corporate eLearning Index

In order to gain a sense of the performance of leading eLearning stocks we constructed an equally weighted index composed of 10 stocks. Although this index shows that leading eLearning stocks have generally mirrored movements of the NASDAQ over the last two years, the relationship between the two has weakened in the last eight months.

Financial Performance of eLearning Companies

Despite the challenging economic times, leading eLearning companies have posted impressive financial results. For example, when comparing the most recent trailing months of revenues to the previous trailing 12-month period, we see top-line growth of 262% versus 21% for the stocks composing the S&P 500 Index and 38% for the Software and Programming sector (as demarcated by Market Guide). While profitable companies are few in our index, we also witnessed good operating leverage with broad improvements in operating results in the periods we examined. Benefiting from earlier generous times on the capital markets, the stocks comprising the Morgan Keegan Index have sufficient funds to continue to breakeven, by our estimates. In fact, all the companies that we currently have under coverage are projecting positive cash flow in the next 12 months.

Valuation

Given the strong prospects for leading eLearning companies, coupled with price declines, we argue that leading eLearning stocks are attractively valued relative to prior levels, major indices, and traditional for-profit education companies. According to revenue multiples, eLearning companies are trading at a discount to the NASDAQ on an enterprise basis despite the strong performance of this sector. As we approach an anticipated powerful inflection in earnings in 2002 and 2003, we think eLearning stocks will offer a compelling proposition in terms of P/E and PEG ratios.

Outlook and Investment Opinion

Based on the abiding strength of the big picture case for eLearning, the positive developments over the last few months, and the departure between the solid financial performance of eLearning companies and the substantial declines since earlier highs, we commend this industry to investors. In the near term, we continue to think that infrastructure will grow faster than other content and services. We urge investors to steel themselves for intensifying competition, particularly from large enterprise software companies.¹ If John Chambers, president and CEO of Cisco, is right to think that eLearning will be so big as to make e-mail look like a rounding error, then we should not be so optimistic as to think that its market will be little contested. Our strategy is to focus on industry-leading companies who should be able to sustain their competitive edge and benefit directly from the growth in this industry. We believe that industry leaders have and will gain traction at the expense of smaller players as their target customers, typically large enterprises, refraining from picking smaller players who may or may not be in existence a year hence and whose solutions may or may not scale as needed. Until the economic environment improves, smaller companies may face a vicious circle of constrained growth limiting funding opportunities and limited funding constraining growth. While very generous in the early part of 2000, the private equity market has been brutal to young companies more recently. We estimate that the number of U.S.-based eLearning companies may have shrunk from around 400 last year to around 300 presently.

BACKGROUND

Education Critical in the Dawning Knowledge Age

It is our belief that we are in the midst of the transformation from the Information Economy to the Knowledge Economy. The Information Age has been characterized by a proliferation of data generated and carried by new communications media such as the Internet. This extraordinary medium stores and delivers an incredible amount of data and, itself, occasions the generation of an overwhelming amount of information. Yet, information in brute form is of limited value. Indeed, information saturation leaves us, to quote William James, in a “booming buzzing confusion”. Individuals and organizations must comprehend, rank, sort, and systematically implement raw data in order to use them effectively. The Internet is both poison and cure as it generates an overabundance of information, but can be put to use in marshalling data and in cultivating the skills to deal effectively with information.

¹ “Internal competition” from eLearning companies may actually be diminishing because stingy capital markets and a flight to those recognized as leaders in the industry are forcing many smaller players out.

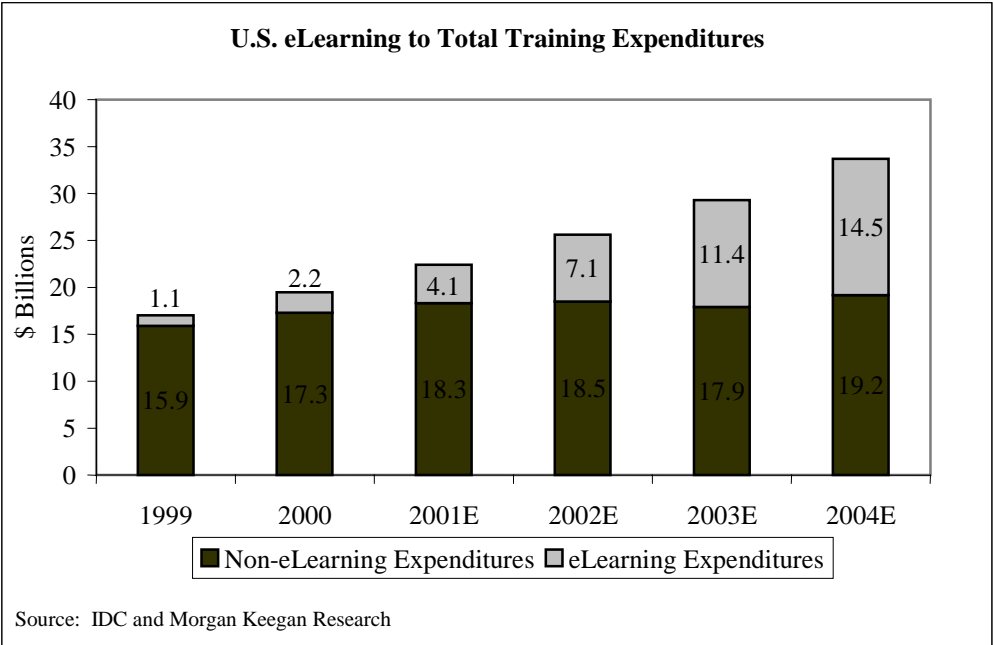
Enterprises and governments are compelled to invest in the education of their citizens and workers in order to maintain and enhance their competitive positioning. Big picture forces such as globalization and the information revolution require organizations and government to disseminate information and skills over great numbers of people, who are geographically dispersed, at lightening speed. We are increasingly encountering the phenomenon of the extended enterprise. Enterprises are extended in an obvious sense in terms of number of employees and geographical dispersion. However, enterprises are also extended in the sense of increased responsibility for communication with all of the stakeholders. Corporations are increasingly attempting to enhance communication with suppliers, partners, customers, owners, and local communities — all those parties with stakes in the condition of the company or organization. Even while organizations grow larger and more dispersed, competitive pressures require increasing nimbleness. Top-flight enterprises must maintain impeccable current knowledge resources and continually enhance the knowledge, competencies, and attributes of their employees to keep ahead of the competition.

We believe that workers, too, desire strong education initiatives. In the new free agent economy, workers often feel that they neither owe nor are owed lifetime employment. Rather, employees now often construe their company’s obligation to them in terms of cultivating marketable skills. Cognizant of the steep earnings curve associated with educational levels, workers eagerly seek education, particularly when this is on their employer’s dime, or is at least subsidized by their employers. Also, the harried pace of today’s workers makes attractive the flexible “anywhere, anytime” education enabled by the Internet.

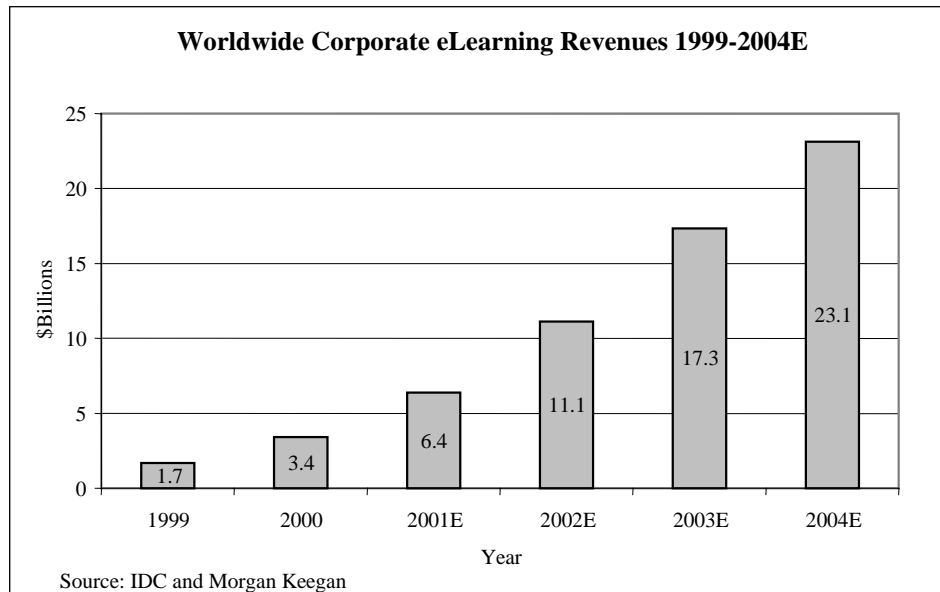
An imbalance in the supply and demand for workers contributes to the need for corporate and governmental education initiatives. Three trends seem especially pertinent. First, the demand for smart workers, particularly those with technical expertise, is growing rapidly. Second, the supply of skilled workers is failing to keep up with this demand. Third, relative to the increasing demand, educators are becoming scarcer.

The Numbers

In 1999, traditional methods remained the most popular source of training in the U.S., and only \$1.1 billion of \$17 billion dollars in outsourced training expenditures was spent on eLearning solutions. Total expenditures on education by the public and private sectors sum to around \$100 billion. Over the next four years, IDC predicts that eLearning expenditures in the U.S. will increase to \$14.5 billion, a CAGR of 67.5%.

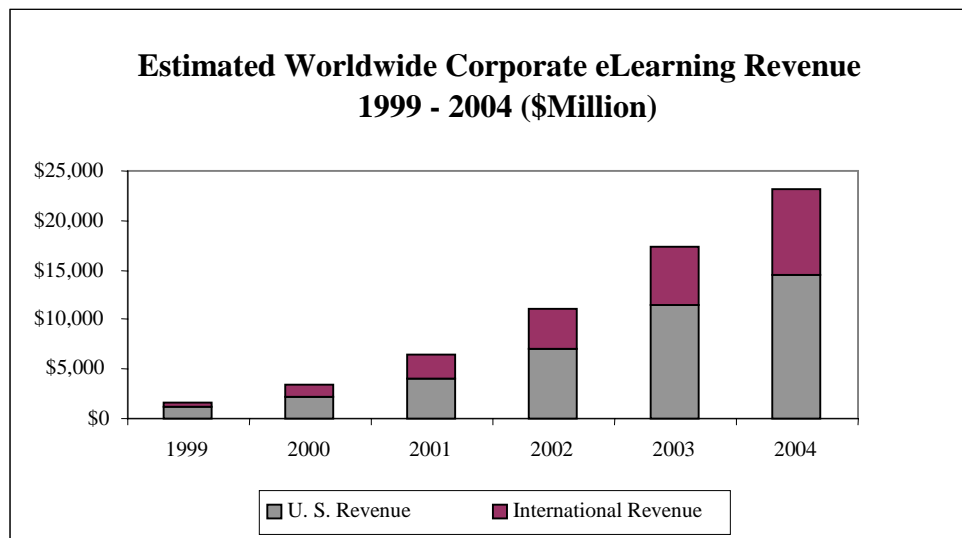


During the same period, IDC predicts that worldwide eLearning revenues will increase to \$23 billion, a CAGR of 61.4% between 2000 and 2004.



We believe that the task of managing a company's training initiatives will fall increasingly to learning systems that are integrated into the enterprise framework; thus, we believe that eLearning will replace a large share of learning done through traditional training modes. According to IDC, in 1998 77% of training was instructor-led. This statistic is changing. Looking at IDC's U.S. expenditure projections, instructor-led training will grow at only a 2.7% CAGR between 2000 and 2004. During this same time period, IDC predicts that eLearning will grow at a CAGR of 67.5%. The challenging economic times are prompting many organizations to stretch their training dollars, and accordingly they are cutting back on instructor-led training and increasing the use of eLearning. For example, in its most recent quarter, Cisco Systems reduced the time employees spent by 80% and enjoyed cost savings of 40–60%. Following these two projections, in 2004, eLearning will account for 43% of total training expenditures. A recent Skillssoft survey of 300 business organizations found that 43% of respondents have implemented, or are about to implement, an eLearning program. Of firms with upwards of 100,000 employees, 39% said they use eLearning for business skills training.

Given the importance and complexity of education initiatives, we think that enterprises and organizations will look to systematic rational learning programs that require supporting infrastructure. Isolated eLearning experiences are certainly likely to be beneficial to knowledge workers, but where eLearning's real power for the corporation emerges is in its ability to provide organization and accessibility to the firm's vast and disparate in-house and outsourced, online and offline, knowledge resources on a day-to-day basis. Clearly, these complex solutions that require the sustained integration of a wide array of resources require substantial technological infrastructure. The relevant software infrastructure consists of learning management systems (LMS), content management systems, and synchronous collaborative applications. In both the corporate and government markets, we think infrastructure software will capture around 10% of eLearning expenditures. Since infrastructure expenditures, in general, precede other eLearning investments, we expect that expenditures on eLearning infrastructure software will at first capture in excess of 10% of eLearning expenditures but will decline as a proportion thereafter. Thus, we expect that worldwide expenditures on infrastructure software and services will grow from an estimated \$250 million to \$1.8 billion in 2004 (49% CAGR). The Gartner Group estimates that 60% of U.S. corporations will employ an LMS by 2003.



Source: IDC and Morgan Keegan Estimates

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THE EMERGING BUSINESS CASE FOR LEARNING

Participants have worked hard to clarify the business case for education in general and eLearning in particular. While academics and Street analysts have paid attention to such factors as the relationship between investments in R&D and performance (financial and stock), less attention has been paid to the correlation of investments in education. Given the extent to which education within corporations takes place informally (outside the classroom), and the difficulty in isolating variables when assessing productivity, measuring the cost of education and its effects is extremely difficult. However, given the expense of education, interest in more accurate cost/benefit analyses has been boosted. In 1998, expenditures on direct costs on education accounted for 2.0% of payroll. However, with indirect costs (wages and benefits), this amount nears 10% of payroll (Bassi, Ludwig, McMurrer, VanBuren). The most recent Training 2000 report estimates that U.S. corporations spent \$53 billion on training in 2000. Moreover, given the emphasis increasingly placed on developing smart workers as the heart of competitive advantage, education is being given closer inspection. Lastly, challenging macroeconomic conditions are forcing explicit ROI justifications of education expenditures. We have observed, in the companies that we follow, a shift in the tenor and content of the sales pitch for eLearning.

Above-average expenditures of employee education appear to have pervasive positive effects on companies. Per employee, investment in education is directly and well correlated to stock performance the following year. Indeed, investments in education have been as strong a predictor of stock performance as investments in R&D. Looking to some of the components of share performance, firms with above-average investments in education have achieved 58% higher sales per employee than firms with below-average education investments. Also, employees' assessment of the prospects for education and development has proven to be a crucial factor in deciding whether to stay with a company. Employee retention has been shown to have ripple effects in sales per employee, customer retention, and market capitalization. Particularly, a 1.0% increase in customer attrition has been shown to result in as much as a 5.0% decrease in profits. Also, education is considered to be a powerful tool in aligning cultures, goals, and strategies in mergers and acquisitions. Lastly, a correlation was found between firms that innovate and those with above-average expenditures on education (Bassi et al.).

From the above discussions we would emphasize the following take-away point. Enterprises are being forced to focus on their education budgets and methodologies because education is costly, and it is critical to competitive performance. However, here we are concerned not so much with the business case for education in general but for eLearning in particular.²

The Value Proposition of eLearning

Understanding the Cost of Traditional Education

In order to understand the value proposition of eLearning vis-à-vis traditional education, we need to consider three component costs to training a given number of employees: content development, delivery, and travel costs. The following analysis follows closely the one provided by Marc Rosenburg in his excellent *eLearning: Strategies for Delivering Learning in the Digital Age*. We will estimate and compare the cost of a three-day traditional education event for 500 students and its electronic equivalent.

Development Costs for Traditional Education

We estimate that it will cost an enterprise around \$60,000 to develop the content for 500 employees for a three-day class.

² The case for education expenditures is important in the same way that the prospects for consumer spending in general has implications for this or that type of consumer spending (casual dining restaurants, for example). However, we think the distinct value proposition of eLearning divorces its prospects to a large degree from overall expenditures on education. For example, we think that in difficult economic conditions training departments face additional pressures to deliver education in the most cost-effective manner possible.

Delivery Costs for Traditional Education

By looking at the amount that corporations spend, on average, of training per employee per year, we can get a sense of the cost of delivering a course by traditional means. Our estimate derives from the mean number of hours spent training employees per year and the mean spent per employee per year. Delivery costs include the costs of facilities, instructor costs, and material costs.

Cost of Delivering Training per Employee Per Hour

Hours per Year	43
Expenditures per Employee	\$1,193
Cost of Training per Student per Hour	<u>\$28</u>

If we assume that each student receives 7.5 hours of instruction per day, then the cost of delivering training works out to around \$600 per student.

Cost of Delivery of Three-Day Seminar per Student

Hours per day	7.5
Cost per Student Day	\$207
Days	3
Cost of Delivery per Student	<u>\$621</u>

The total cost of the training event therefore varies directly with the number of employees being trained. If we assume that an enterprise wants to train 500, then we get a total cost of around \$41,500.

Number of Employees	500
Total Delivery Costs	<u>\$41,424</u>

However, more substantial costs come from the travel expenses (transportation, lodging, meals, entertainment) associated with education events. We assume, based on industry data, that it costs around \$1000 per employee per training event for travel expenses. Now, if we assume that 50% of those attending an education session need to travel, then our three-day seminar for 500 employees will generate \$250,000 in incremental costs.

Travel Costs

Travel per Employee per Trip	\$1,000
Fraction of Students Traveling	50%
Number of Students Traveling	250
Cost of Travel	<u>\$250,000</u>

Therefore, the total cost of the training event will be sum of the development, delivery and travel costs — around \$350,000.

Development Costs	\$60,000
Delivery Costs	\$41,424
Travel Costs	\$250,000
Total Cost of Three-Day Seminar	<u>\$351,424</u>

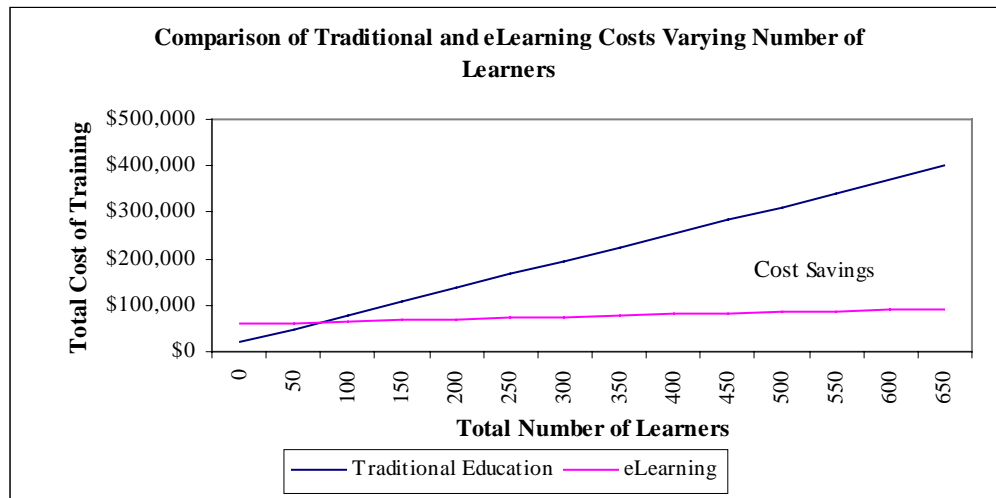
eLearning Cost Savings

In essence, eLearning offers an extremely leverageable model for education of employees as the lion's share of the costs are fixed, pertaining to development. The largest portion of the cost for eLearning owes to course development with little incremental costs stemming from incremental users. If we assume the same metrics as the above example, a three-day seminar for 500 employees, the costs break out as follows.

Development Costs	<u>\$180,000</u>
Cost of Delivery of Seminar per Student	
Cost of Delivery per Student	\$50
Number of Employees	<u>500</u>
Total Delivery Costs	<u>\$25,000</u>
Travel Costs	
Travel per Employee per Trip	\$1,000
Fraction of Students Traveling	0%
Number of Students Traveling	<u>0</u>
Cost of Travel	<u>\$0</u>
Total Cost of Three-Day Seminar	<u>\$205,000</u>

Thus, even though the content costs three times as much as that developed for traditional education, eLearning promises cost savings of around \$150,000 in the first year alone.

The following chart illustrates the cost structures of traditional training and eLearning when varying the number of learners.



Source: Morgan Keegan Estimates

The more often the eLearning system is used, the more powerful the value proposition. Even if we assume that expensive content development must be iterated each year for three years, the leverageability of eLearning translates into impressive savings. Using the same template, we estimate that the total cost to train 500 employees once a year for three years will cost around \$940,000, while the same training delivered by networked technology will cost \$255,000 for a total cost savings of \$680,000. In other words, the conversion to eLearning will pay for itself more than 2.5 times in a three-year period based solely on the factors that we have considered.

Accelerated Learning

As impressive as the above ROI numbers are, we believe that the most compelling savings come from returning workers to their regular activities sooner. Since eLearning allows continuous, just in-time learning, employees can be educated with minimum disruption. Suppose that the use of eLearning allows a course to be completed in two days instead of three. This acceleration would have the explicit effect of reducing delivery fees. Using the same example, the enterprise in question would save around \$14,000 in delivery fees. The kicker, however, lies in the implicit costs. Again, following a template supplied by Rosenberg, assuming the employees are being paid their market value, we can estimate the cost associated with removing workers from productive activity during training. For example, assume that the learners earn \$70,000 a year, work around 230 days per year, and that the use of eLearning truncates our training from three days to two.

Salary per Employee	\$70,000
Number of Workdays per Year	230
Cost per Day	\$304
Number of Employees	500
Learning Compression (days)	1
Learning Compression Implicit Savings	<u>\$152,174</u>

If we add the explicit savings coming from reducing delivery costs, then we get total incremental savings (in reference to our previous analysis) of \$166,000 from the acceleration of the training process. Obviously, the more expensive the employees and the greater the acceleration, the more dramatic the cost savings.

We think that a strong case can be made for efficiency of eLearning in accelerating time-to-competence. For example, eLearning students do not have to waste time in travel. Since asynchronous eLearning is self-paced, quicker students need not suffer instruction aimed at the lowest common denominator. Moreover, in well-designed courses, students can test out of areas of existing competence, thus allowing a more honed educational experience. A Brandon-Hall article estimated that eLearning reduces the education time by 25-60%. This estimation of the acceleration suggests that our above analysis is fairly conservative: a well-designed eLearning course may be able to cut a five-day travel event to three days, delivering dramatic savings (\$300,000 holding the other assumptions constant).

Enhanced Performance: Smarter, Happier Workers

Additional benefits stem from having better trained workers with 24/7 access to the skills and knowledge of an enterprise. Numerous other “soft” benefits should accrue from effective continuous network-based education. For example, eLearning facilitates consistent information to be delivered in a consistent manner. eLearning should mitigate worries about educational content being distorted by the idiosyncrasies of instructors. Also, eLearning frees up in-house experts to work rather than teach; we believe that considerable opportunity costs attend informal education. A self-service mode of education may also boost morale as satellite offices receive training the same time as headquarters and each employee can control and track his or her level of competency and certification. We began this section by referencing a study that correlated various performance metrics with investment in employee education. The report suggested that above-average investments in education were correlated with above-average sales per employee, employee satisfaction and retention rates, and levels of innovation. However, it is near impossible to isolate, with much precision, the effect of education from other productivity initiatives and, thus, we cannot model the impact of eLearning in the same detail as we did in our “cost savings” and “learning acceleration” analyses.

However, the anecdotal evidence for the power of eLearning in particular seems to be quite strong. Below, we offer a variety of “success stories” that attest to the effectiveness of eLearning on one, two, or all of the levels that we have delineated: cost savings, learning acceleration, and enhanced performance. We think that it is trite but true to say that a company’s employees are typically its most important assets and that investments in human capital are critical to sustainable competitive advantage.

We believe that the dawning recognition of the importance of human and knowledge capital management and development positions eLearning companies as providers of mission critical solutions. That is to say, many corporations no longer view their training in terms of discrete events but as essential to the ongoing cultivation of its workers and intellectual assets.

- “IBM says it saved \$350 million in 2000 by putting 36% of its internal training online.” (*Business Week*, April 5, 2001)
- “Ed Sketch, director of education training and development for Ford in North America and Europe, says putting classic Ford courses, such as “Lean Manufacturing,” online should save the company’s training division at least \$25 million a year. The system also will allow Ford to track the impact e-training has on business.” (*Business Week*, April 5, 2001)
- When training Ernst and Young tax personnel, tests showed that the migration from classroom-based learning to eLearning caused comprehension to increase by 23-57%. Also, 96% of test group participants either agreed or strongly agreed that the course was “an effective learning experience and that Web delivery was appropriate for the type of content”. (“Tax eLearning Transformation”)
- Cisco estimates that eLearning courses in manufacturing save \$1.0 million per quarter when factoring in the reduction of costs as well as an acceleration in time to competence. In a year and a half, Cisco has migrated its sales training from 90% classroom to 80-90% online. The effectiveness of this shift is evidenced by increased levels of customer satisfaction (Tom Kelly, eLearning Magazine Interview, April 2001). In the same interview, when describing the reception of the program with the sales force, Kelly described the program as “wildly successful” and 100% of the sales force have subscribed to online services.
- The First Consulting Group (FCG) estimated that its investment in Centra products paid for itself within a year and delivered a return on investment of 215%. In their analysis of the project, FCG focused on cost reductions that resulted from eliminating travel for its learners and instructors using standard T&E rates of \$380 per person, per day. In addition to direct cost savings, FCG realized strategic benefits from increased billings and a 1.0% increase in associate retention.
- Unysis estimates cost savings of \$8.0 million flowing from a SmartForce Solution and a resultant payback of six months. Since deploying the SmartForce solution, the company has seen a 30% decrease in instructor-led training while eLearning has increased by 400%. Moreover, time-to-certification has increased by 600% and the pass rate for certification exceeds 95%.

eLearning May be a Forced Move

Enterprises may have no choice but to adopt eLearning. Traditional education is not only expensive, but it promises to become even more expensive and less effective. Intensifying competition, a dizzying pace of innovation, and increasingly complex products and sales strategies, among other factors, are causing a contraction in product cycles. Workers have to be educated about increasingly complex products and services more and more often. While managers may tolerate flying in a global workforce once a year, they may not do so three times a year.

The scalability of eLearning may also make it the only viable solution to broad enterprise initiatives in extended enterprises. The use of classrooms and live instructors strictly limits the number of people that can be trained in a given period of time. For example, imagine that a behemoth company such as GE wanted to educate its entire workforce by traditional means. It would have to cycle its workers through classrooms with live instructors. Since few more than 20 students can be effectively instructed simultaneously in a classroom, classrooms are often hard to find, and instructors are finite in number, the number of workers that would be quickly trained is strictly limited. With shortening product times and increasingly complex products, traditional educational techniques may not be up to the task of disseminating knowledge and skills to a distributed workforce. Also, only eLearning may be up to the task of distributing consistent information across an extended enterprise.

Conclusion

We believe that corporations can expect savings north of 50% in training costs by adopting the electronic delivery of learning. Education delivered electronically is cheaper than traditional education since eLearning mitigates the costs of classes, facilities and travel. Moreover, traditional education is not only expensive, but also it promises to become more expensive and less effective than it is currently. Intensifying competition, a dizzying pace of innovation, increasingly complex products and sales strategies, among other factors, are causing a contraction in product cycles. Workers have to be educated about increasingly complex products and services more and more often. However, more important than this, in our opinion, are the benefits that derive from the superior speed and effectiveness of eLearning. First, eLearning saves money by returning workers to their regular activities sooner. Since eLearning allows continuous just-in-time learning, employees can be educated with minimum disruption. More effective education should translate into more productive and satisfied employees, and the consequence of this should be pervasive and profound. For example, eLearning promises to reduce the considerable costs and collateral damage associated with employee turnover while improving sales per employee, employee innovation, and so on.

SUPPORTING TRENDS

eLearning may be adopted in enterprises as part of more general initiatives to migrate information and knowledge systems to the Web. The deployment of ERP and CRM systems are paradigmatic of this effort. eLearning fits into this effort in at least two ways. First, the successful adoption of these sorts of complex enterprise systems requires changes in employee knowledge and behavior, and eLearning may be an effective solution to inculcating these. Accordingly, consulting companies often introduce eLearning in conjunction with an ERP implementation, for example, and all of the major content developers offer e-business courses. Second, eLearning naturally follows the trend of migrating information to networked systems.

eLearning can quickly and cost-effectively disseminate information over the extended enterprise. We are increasingly encountering the phenomenon of the extended enterprise. Enterprises are extended in an obvious sense in terms of number of employees and geographical dispersion. Flexible work environments (telecommuting, working from home, and so on) magnify this scattering of workers. However, enterprises are also extended in the sense of increased responsibility for communication with all of the stakeholders. Corporations are increasingly attempting to enhance communication with suppliers, partners, customers, owners, and local communities — all of those with stakes in the condition of the company or organization. Even while organizations grow larger and more dispersed, competitive pressures require increasing nimbleness. Companies must be able to disseminate the right information at the right time in a multitude of ways. We think that eLearning can meet the demands of distributing consistent, timely information across a dispersed and various audience in a way that traditional education cannot.

eLearning is part of the Self-Service Revolution. Workers and consumers are becoming used to, and perhaps expect, self-service capabilities. Customers and workers fill in their own purchase orders, update personal information, adjust benefits, and make travel arrangements. Moreover, they do so each at their own pace and schedule. Similarly, we think the workers will expect and be inclined to self-service education. eLearning facilitates self-service not only in terms of the 24/7 accessibility allowed by the Internet, but also in terms of flexibility. Many systems available today allow learners to choose what content they need, in the desired dosage, in the style of their liking, and in the modality (online, offline, portable device, and so on) of their choosing.

Conclusion: We believe that enterprises are more receptive to eLearning given trends in pervasive workforce transformation mentioned above.

BETTER SOLUTIONS AND SMARTER USERS

We believe that on a number of levels, people are getting smarter at the development and deployment of eLearning. While we certainly think that there is plenty of room for improvement, and that much content will rely on the distribution of broadband Internet access, recent developments are encouraging.

Enterprises and third-party vendors are designing content to take advantage of the interactive capabilities of the Internet. In recent months, we have seen a spate of white papers, articles, books and seminars on building effective eLearning courses. Topics covered include page layout, navigability, enhancing interactivity, modular design of courses with re-usable objects, and so on. One of the most widely held beefs with eLearning has been dissatisfaction with the available content. Gripes with content are various. First, students and educators were displeased with the form of the content: in many cases, content was and is slavishly migrated from a given medium to the Internet. This sort of migration to the Internet merely imposed on the learner the combined dullness of textbooks with the unpleasantness of reading from a computer monitor. Companies are getting much better at taking advantage of the capabilities of the Web, while compensating for the Web's weaknesses as an educational medium. For example, developers of online content are increasingly interweaving interactive and multi-media elements throughout courses. Experts now suggest that courses should have an interactive element every three screens, and much of the newly developed content that we have sampled follows this guideline. A paradigmatic example of excellence in interactivity is INDELIQ's simulation-based learning in which students are put to free-form information exploration and strenuous problem solving.

A persistent concern about eLearning involves course completions: the Big Brother effect of having live instructors as well as scheduled class times away from work motivates students to complete their work. Well designed computer-based training attempts to hold the reader's attention with varied and compelling content, required interactivity, and the capacity to self-direct the learning experience and circumnavigating areas of existing competence. Moreover, by appropriately blending asynchronous, synchronous, and live learning, educators can motivate learners to stick with the asynchronous portion of their education.

New learning content management systems (LCMS) promise powerful complementary technology. An LCMS is an information system that is used to create, store, assemble, deliver, and administer personalized eLearning content in the form of learning objects. We can look at each of these capabilities in turn.

Content creation: Authorship tools enable the distribution of content creation and technical development across an enterprise. The tools create intelligent workflow for faster time-to-market of new content. The use of templates assists in the creation of content in accordance with sound pedagogical principles. New authoring tools allow dispersed teams to collaborate on projects.

Storage and management of learning objects: Systems maintain repositories of content of a variety of sorts including text, images, multimedia, and XML files. Moreover, these systems aggregate content generated outside the enterprise. By centralizing content management, enterprises should be able to improve and control the quality and consistency of content as well as its efficient use. Additionally, superior content management should help companies preserve their intellectual assets and best practices even as employees leave.

Dynamic assembly and delivery of content: The promise of eLearning lies in the dynamic, personalized, and just-in-time delivery of information and cultivation of skills. Best in class delivery systems spontaneously select, assemble and deliver learning objects according to the profile, usage patterns, and recurring internal tests and external assessments. By "external assessments" we mean input from company workers or management who might appropriately guide an individual's instruction. As enterprises develop highly granular databases of content and content use, they should increase their capacity to dynamically tailor content and the form of content to the individual learner.

Administration: The utilization of effectiveness of learning objects should be tracked for individual learners and various aggregations of learners (people of a given job description, business departments, whatever). In a manner analogous to smart search engines such as Google, well-designed LCMS can allocate levels of pertinence to the knowledge assets of a company. The ability to track the flow of information and activity of learners should enable deep performance analyses of the correlation of eLearning and business performance. Administrators and managers should be able to gain a very fine-grained sense of elements that are impacting performance and those that are not.

LCMSs complement eLearning. With their capacity for streamlining and improving the quality of content, keeping track of the knowledge internally and externally developed knowledge assets of a company, and the dynamic personalized delivery of these assets, LCMS should be a highly complementary technology to eLearning technology. Indeed, when each is considered in a perfected state, there may be little difference between robust eLearning technology and robust learning content management technology. Companies such as Docent, Saba and Click2learn are simultaneously developing and intertwining content management and learning management functions. For example, although much hyped, we think that the convergence of these technologies will have profound and pervasive consequences. We will revisit the themes of learning objects in more detail in our sections of information publishing companies and eLearning standards.

The melding of learning management and content management systems also shows the way in which an eLearning installation can be expanded once insinuated into an enterprise. Like angioplasty balloons, eLearning systems can be inflated to fill out the human capital management and knowledge management needs of an organization.

Enterprises are not only getting smarter about eLearning per se, but seem to be grasping its place with an entire educational and knowledge management process. Corporations are not only learning to build better eLearning, but also are more canny about when to use different types of eLearning (synchronous or asynchronous, linear or exploratory). This improvement stems from the role of professional educational organizations such as ASTD, direct experiences with success and failures with online learning, and the efforts of providers of technology, content, and services. As we have argued in previous sections, we think that eLearning is most effective when it is not merely seen as a training solution, but rather as one resource among many to solve business problems and attain strategic goals.

Advocates of eLearning are learning to present better business cases to increasingly receptive audiences. As we argued in our section, “The Emerging Business Case for eLearning,” we think that not only can a compelling case be made for eLearning solutions, but that in many cases network-based education is the only viable solution for extended enterprises faced with rapidly evolving markets. Also, the recognition of the strategic effectiveness of eLearning is making it easier to sell to higher echelons of enterprises. Advocates of eLearning are now better equipped with resources to make their case. For example, in addition to new books, seminars, and white pages, proponents of eLearning can get information from Web pages such as “eLearning 1.0: Building a Business Case for Online Learning Projects”, (www.learningcircuits.org/feb2000/feb2000_elearn.html).

Participants are getting smarter about generating the right corporate support for eLearning. Tied to the idea of using eLearning strategically to power business solutions instead of just training solutions is the requirement that it received broad and executive-level support. We believe that in many cases this support is forthcoming due to the emphasis that is being placed on human capital in the knowledge economy. Our main point here is that enterprises are more disposed to provide the broad and authoritative support needed to make eLearning succeed, and that the sell-side of this equation is better equipped to seek this support. This support may include providing incentives to workers who adopt eLearning and do so enthusiastically. ASTD and The Masie Center recently published a report entitled “eLearning: If We Build it, Will They Come?” that explores in great detail the steps needed to generate institutional support for eLearning.

We think that there is growth in the expertise concerning the technical requirements of eLearning. The creation of checklists for technical requirements in order to improve implementation, the early involvement of the internal technology department, and knowledge about the real (as opposed to advertised) technical capabilities and requirements of eLearning systems should improve implementation. Also, heightened awareness about compatibility of infrastructure and content components should help corporations avoid some of the stumbling blocks encountered in the early-adopter stage of the industry. In essence, we think that painful experience is leading to smarts.

INVOLVEMENT BY CONSULTANTS AND SYSTEMS INTEGRATORS

We believe that one of the most significant positive portents for the corporate eLearning space stems from the decisive entrance of professional service organizations, particularly system integrators and consultants. These players are using eLearning internally, investing in eLearning companies, using eLearning to complement other practices (especially e-business transformation), and basing entirely new practices on eLearning. Each of the Big Five has started eLearning practices involving either technical integration or strategic consulting, or both. Given the natural synergies, eLearning practices are often encompassed within training divisions. However, we have been excited by the promotion of eLearning as a direct means to affecting change in business processes (sales, most notably), change management, and customer relations. Consulting firms use eLearning strategically, directly, and pervasively to enhance the competitiveness of their clients. A paradigmatic and high-profile instance of the ambitious strategic use of eLearning involves PricewaterhouseCoopers' (PWC) \$450 million U.S. Army contract in which the consulting company conglomerated infrastructure and content from a number of players to solve critical problems facing the military, such as retention and the need to rapidly upskill its personnel. We think that the involvement by these professional service firms could be decisive not only in eLearning as a whole, but also in deciding the winners and losers.

Consultants provide a valuable service to clients by picking and choosing among eLearning offerings and integrating parts for a complete solution. Despite strenuous claims to the contrary, current eLearning companies do not provide true end-to-end training solutions for complex enterprise deployments, in our opinion. It is certainly the case that existing eLearning companies cannot claim to offer a gamut of best-of-breed solutions. Thus, consultants have a valuable role to play for their clients in objectively choosing and integrating the right components in order to power solutions for their customers. Moreover, these companies can bring their clients proven methodologies to develop comprehensive solutions.

Many consulting firms are taking their own poison by extensively using eLearning to train their own employees. Clearly, for consulting firms, maintaining a sustainable competitive edge depends on the smartness of their workers. Moreover, by the nature of services they offer, these firms field dispersed workforces that need rapidly to acquire new skills. Because they are always on the road and dealing with clients in multiple industries, consultants are benefited by online access to their firms' databases and online libraries of eLearning content. Integrators attest to notable cost savings through the use of eLearning. While public specifics are hard to come by, one large consulting firm claimed (off the record) that they expect eLearning to save them hundreds of millions of dollars while accelerating and increasing the competence of their workers. We believe that Accenture and EDS have goals of delivering 70% and 80% of their internal training by eLearning.

Below is a summation of the involvement of leading consultants/systems integrators. The list is by no means exhaustive as numerous other services are being constructed around eLearning. In our abbreviated list, we attempt to highlight the activities of the largest players or highly active smaller players.

Accenture has chosen to partner with eLearning companies such as Centra, Click2learn, Docent, NETg, Prosoft, and SkillScape for the provision of its learning solutions. Other content partners include CBT Worldwide, Course Technology, eMind.com, Intellexis International (the spinoff of EDS), Learning Insights, Maxim, and MicroMash (a division of Harcourt). The company also has formed a venture arm called Accenture Technology Ventures, formerly AC Ventures, to invest in eLearning companies. So far, it has taken a 5.0-7.0% stake in Docent and has launched an independent eLearning company called INDELIQ that will offer simulation-based eLearning solutions to improve business skills.

Booz Allen & Hamilton (B.A.H.) operates an internal, eLearning, "Virtual Campus". Internal teams wrote the content, which was then programmed by external eLearning developers. The LMS infrastructure used was a combination of Saba and Docent's technology. Knowledge Planet was used for third-party hosting, and B.A.H. subscribed to MindLeader's instant mentoring service. We gather that B.A.H. uses eLearning extensively to train its own workforce.

Deloitte's partner overseeing its eLearning implementations stated that the main point of Deloitte's partnership agreements is to narrow and clarify the eLearning field for its clients and consultants. Its alliances are not exclusive; they are merely agreements with the companies that Deloitte feels have the most and the sturdiest offerings and who have the financial wherewithal to survive. So far, Deloitte has partnerships with SmartForce, Docent, Saba, and Centra. Deloitte offers a full variety of services including assisting clients in developing their internal content, predicting and measuring the business impact of eLearning, and following up on deployments. Deloitte has projected its eLearning revenue targets in the hundreds of millions of dollars, and it is estimating that 70-75% of its future client solutions will involve an eLearning component. Deloitte also has a venture capital arm.

EDS maintains an internal eUniversity for which Saba is the primary provider of infrastructure. EDS also has a partnership with Centra to implement Centra's technology in both EDS' internal eUniversity and the real-time eLearning solutions it develops for clients such as GM, Texas Utilities, 7-Eleven, and Blue Shield of California. Through another alliance, EDS contracts DigitalThink to develop projects for the EDS Web universities and eUniversity. EDS has guaranteed DigitalThink at least \$150 million over the next five years in a combination of purchases for internal use as well as sales to clients. EDS is a customer of Mentergy, Inc., Brainbench, and SkillSoft.

Intellinex, a full-fledged eLearning company, was spun off by **Ernst & Young** in light of the opportunity it saw in the eLearning industry. To date, 40 companies are already implementing Intellinex solutions, and \$100 million of revenues are expected in 2001. Intellinex's plan of growth is to develop technology alliances and acquire eLearning companies. So far, it has acquired Teach.com. For internal use, Intellinex has developed "iSpace," a corporate Yahoo! Portal that integrates Yahoo! services alongside Intellinex's eLearning.

GP e-Learning Technologies, employing around 120 people, is highly active in the eLearning space. Leveraging live-training resources and experience from General Physics, the company offers differentiating expertise in developing complete blended education solutions. GP e's marquee customers are The Ford Motor Company, General Motors, McGraw-Hill, Cablevision and Kelly Services. GP e has also formed key strategic partnerships with many of the industry's leading technology and content providers, including Saba, Docent, Learnframe and MindLeaders.

KPMG has incrementally signed deals (amounting to a sum greater than \$4.5 million) with DigitalThink to provide online and downloadable training to all of its consultants. In the eLearning solutions it develops for its clients, KPMG offers to oversee every step of the implementation. It also offers a catalog of ready-made courses and a library of proprietary courseware that includes e-business content obtained through a partnership with Cisco.

PricewaterhouseCoopers has an internal "eLearning enterprise." Its solutions use Centra and Interwise's technology for live training and conferences, technology provided by Saba, WBT, Knowledge Planet, and Lotus for its LMS, and asynchronous courseware developed by SmartForce. In the majority of its consulting cases, PWC's client training group recommends, designs, and develops an eLearning component as part of the solution. PWC's largest deal to date is a \$453 million project to develop Army University Access Online. On this project, PWC will parcel off segments of development to Blackboard, Saba, and others. PWC also has an alliance with Docent to deliver Docent's eLearning services as a part of its consulting solutions.

Arthur D. Little is active in the development of eLearning content. The company has received an \$88 million deal from the IRS to develop online training with the aid of 16 university partners for 100,000 employees.

Other consultants/systems integrators active as customers or promoters of eLearning include the following.

A. F. Kelly
AnswerThink
Bain
DA Consulting Group
Dove Consulting
Geteducated.com
Green Consulting
kForce Consulting
LogicBay Corporation
Mercer
RWD Technologies
SkillSoft
TIS Worldwide
Tenera
Towers Perrin

Conclusion

We think that the broad involvement by systems integrators and consultants should boost the industry in general and help separate the sheep from the goats. The existing pure-play eLearning companies are too little to market, sell and implement their solutions across the public and private sectors without leveraging partners. These professional service partners allow young eLearning firms to leverage pervasive penetration of the leading global firms. For some companies, the involvement of consulting partners has been key. For example, for Docent's first 2001 quarter, 18 of the company's 40 new clients were won through the company's indirect channel versus 11 in the fourth quarter of 2000. Moreover, the involvement of these partners allows young eLearning companies to focus on their core competencies and, in many cases, outsource lower-margin service revenue. For the systems integrators and consultants, eLearning promises to be the foundation of a new lucrative and a complement to existing practices. We are encouraged to have witnessed a growing number of seven-figure deals — deals large enough to sustain the interest of sizable consulting and integrating practices. In sum, we think that eLearning companies, on the one hand, and systems integrators and consultants, on the other, are beginning to form symbiotic and pivotal relationships.

OLD CONTENT BECOMES NEW CONTENT: TRADITIONAL INFORMATION PUBLISHING AND EDUCATION COMPANIES

Traditional content development and aggregation companies, most notably publishers and news organizations, promise to revolutionize eLearning by making available in electronic form their vast repositories of content. We think that publishers are being pushed by a number of forces to convert their content to modular, properly tagged, electronic form. First, publishers are interested in e-books that should enjoy technical improvement and broader acceptance. IDC estimates that the U.S. market for digital books, including digital downloads and print-on-demand books, will grow from \$9 million this year to \$414 million in 2004. Second, in the academic market, educators are in many cases choosing custom textbooks that assemble desired primary and secondary material for a specific class rather than generic textbooks. Publishers now construct tailor-made textbooks just as Gateway constructs custom computers so that, for instance, biology teachers can pick their instructional material with or without evolutionary theory. Third, traditional developers of content become accustomed to delivering their material across a variety of media. For a media company, for example, the same story may be simultaneously delivered in printed form, translated and printed throughout the world, presented over TV channels, and also delivered across a variety of Web pages with differing depth and focus.

We believe that the diversification of the media over which content is disseminated is promoting two related alterations to the form of content. First, we think that we will see a conscious separation of content and the form in which it is presented. In other words, information would be originally compiled, or subsequently reworked, so that it could be expressed variously, with little alteration (now as a Web page, now as a radio broadcast, now over TV, and so on). Second, we believe that we will see a granularization of content in which information is broken down into components that can be reassembled according to need. For example, a small tract on the matching principle in accounting would be separated and tagged so that it could be used in introductory material to accounting, a piece on investing, an economic textbook, and so on. Looking back to the first driver for altering the form of content, medium agnosticism would mean that the section on the matching principle could be incorporated into an online tutorial, online simulation, textbook, and so on. The important point for us here is this: we think traditional content companies are re-working and developing content in such a way that it can be effectively migrated to eLearning.

In sum, we think that traditional information companies can have a dramatic and far-reaching impact on the eLearning industry by solving one key bottleneck — the lack of quality content. These information companies offer a vast repository of information and, increasingly, information in the right form for eLearning. The general availability of such information would not only boost eLearning, but would also accelerate the convergence of eLearning and knowledge management. The strong interest in eLearning on behalf of traditional training and information publishing companies is evidenced by a myriad of investments in the eLearning space. Among others, Thomson Corporation, McGraw-Hill, and Pearson have all been very active in the space.

More generally, we think that there is an irreducible and substantial role that bricks and mortar information and training companies will play in eLearning. Many educators in the field have expressed a preference for blended learning solutions. Many argue that eLearning, at least in the forms currently available, is not as effective as traditional instructor-led training for certain types of education. Some argue that soft skills are best taught this way — it is difficult to teach a salesperson to give the right handshake in either synchronous or asynchronous eLearning. Similarly, education involving group dynamics will most likely not survive the mediation of eLearning all that well. Also, there will simply be learners (Luddites and others) who will not take to technology-based education at all. Thus, we think that traditional training companies who can offer both traditional and eLearning will offer a real value to enterprises. Moreover, as these traditional training companies build out their eLearning practices, they will be able to make claim to providing end-to-end solutions. Our above discussion also suggests that if classroom education cannot be eradicated, and will in fact play an important part in corporate education, then pure eLearning companies will have to expand to services if they wish to scale to provide complete training solutions. Thus, we may well see eLearning companies become less pure and traditional educational companies less traditional. Alternatively, we will see alliances or mergers among eLearning companies and traditional companies. Thus, we may see, once again, the competition played about between end-to-end solutions and an aggregation of best-of-breed solutions.

STANDARDS UPDATE

While important to the maturation of the industry, standards have proven hard to achieve. In our former and longer industry piece, we emphasized the importance of industry standards as fundamental to the flourishing of the industry. We argued that standards would be important insofar as they enabled key “abilities” which were summarized as follows.

Accessibility: access instructional components from one remote location and deliver them to many other locations

Interoperability: use instructional components developed in one location with one set of tools or platform in another location with a different set of tools or platform

Adaptability: tailor instruction to individual and situational needs

Reusability: incorporate instructional components into multiple applications

Durability: operate instructional components when base technology changes, without redesign or recoding

Affordability: significantly increase learning effectiveness while reducing time and costs

Source: M. Parmentier, 1999

One way to understand the importance of learning standards is to understand the promise of learning objects. Learning objects represent the great quest of eLearning. Not only are eLearning objects not yet attained, but they are not yet clearly understood. Looking for learning objects at this stage is more like looking for the Holy Grail than looking for a lost sock. That is, practitioners are not in agreement about what constitutes a learning object. This being said, the arguments for the granularization of knowledge into re-usable bits are very compelling. Learning objects promise to allow flexibility in compiling and tailoring content. The same objects can be variously assembled to provide a one-day class, a one-hour refresher, or a one-minute portion of “just-in-time” information. Moreover, the analysis of courses and curricula into smaller units should promote up-to-date content as just that stale information can be replaced or new simulation inserted into an old course. Moreover, the separation and reworking of courses into units of pure content should facilitate multi-modal delivery. The use of learning objects and a pure Web architecture allows the delivery of content through media such as WebTVs, PDAs, and SmartPhones. However, in order for a learning object to be variously reused, we need standards to ensure that it works with a variety of authoring tools, administrative tools, tracking tools, and so on.

Thus, it is almost universally agreed that, like world peace, standards and learning objects would be wonderful things to have if we could get them. However, the promotion and acceptance of standards is inhibited by at least the following factors.

- 1) The pace of technical innovation at the level of infrastructure (new multi-functional LMS systems, for example) as well as at the level of content (new games and simulations) coupled with the prolonged production cycle of standards threaten to render standards obsolete at birth.
- 2) Hype by vendors cripples buyers’ comprehension of the meaning of compliance and/or conformance and about who really complies/conforms to standards. Regrettably, many vendors exaggerate the extent to which they comply with standards. Users complain, for example, that even when well-known companies claim compliance to the same set of standards, it turns out that their products do not work together without tweaking.
- 3) Vendors, at least in the short-term, may prefer proprietary products, as these impose high switching costs on buyers. (However, if vendors are offering part of a solution, then they limit their market opportunity with proprietary products. This tradeoff is analogous to a developer writing applications for Apple computers: writing for Macs alone may produce a captive audience, but will exclude PC users.)
- 4) Since current and future standards will pertain first and foremost to future content and technology, they may leave untouched a variety of technologies and a mass of valuable content already in electronic form. Thus, we believe that we will see great value placed on technology that can manage, launch and track information from disparate origins.
- 5) We believe that many of the current leading providers of content will find themselves divided on the issue of standards. Leading companies such as SmartForce, DigitalThink, and SkillSoft distinguish themselves from competitors by the breadth of their integrated content as well as its smooth interoperability with their respective platforms. True interoperability facilitated by standards would allow buyers to construct painlessly ad hoc eLearning solutions picking content and technology from this or that vendor. Thus, leading eLearning content players may resist standards as these might undermine key competitive differentiators.

Despite these worries, we do see positive developments including the adoption and promotion of standards by vendors, and the maturation of industry groups fostering standards. Although their claims are sometimes exaggerated, leading technology companies, in particular, have been integrating standards into their platforms. In a recent Brandon-Hall report on learning management systems, compliance with standards represents a key criterion for evaluating competing systems. The value that an LMS provides hinges on the amount of content and the variety of applications that it can launch and track. Therefore, we continue to expect to see technology companies seeking standards to enhance their value proposition and attain product differentiation. By the same token, those vendors marketing a “one-stop” solution, but who start from content (SmartForce and DigitalThink, for example), will be motivated by the same reasons to comply with standards. Even where compliance with standards is not forthcoming, alliance among vendors may produce substantial interoperability for clients.

We are witnessing greater cooperation among the leading standards groups such as IMS Global Learning Consortium and Advanced Distributed Learning (ADL) standards initiative, and we think that these bodies will move from specifying standards to assessing and accrediting technology and content by standards. Similarly, recognizing the need in the marketplace to improve the quality and consistency of eLearning courseware, the ASTD Certification Institute has introduced the first and only eLearning courseware certification (eCC) system. This system began accepting applications for certification in July 2001 for the following categories: information technology, desktop applications, and soft skills. Below, we provide a synopsis of the proposed ASTD standards. The ASTD initiative is interesting because it aims to offer an exhaustive schema to evaluate eLearning offerings and then actually score offerings by its criteria. The ASTD criteria are worth examining in greater detail because they cast light on an emerging understanding of what constitutes best practices in eLearning.

According to the eCC system, an optimal eLearning solution has the following characteristics:

- Solution package is easily navigated.
- Learner is always aware of where he is in the course, i.e., each page has a title.
- Users receive quick correct/incorrect feedback.
- Links function well.
- Links are labeled and easily visible.
- A help feature is always visible and easily accessed.
- Help directions are accurate and complete.
- Text is visually readable.
- Text does not contain errors in grammar, spelling, etc.
- Courseware provides complete list of required hardware, software, etc.
- Courseware is easily installable by end users.
- Courseware can be easily uninstalled.
- Courseware's responsiveness is competent; download times are shown, screen transition takes less than four seconds.
- An exit icon is visible at all times.
- Learning objectives are clearly communicated to user.
- Learning objectives exist that require learners to apply new knowledge to work-relevant scenarios.
- Instruction gains attention and sustains interest; uses games, anecdotes, puzzles, humor, role-play, etc.
- Material motivates and engages users; coursework is goal-oriented.
- Courseware provides applied practice activities.
- Courseware promotes use of tools that users will use in real work: spreadsheets, machinery, and other software programs.
- Activities and problems are varied in terms of sequence and situation.
- Later course material builds on the previous lessons; learners must use previously gained knowledge in later learning applications.
- Instructional feedback is provided, explaining consequences of users' responses.
- After user errors, courseware offers helpful explanations and the opportunity to try again.
- Courseware requires learners to review and reflect upon mistakes before trying again.
- Courseware offers the option to have learning guidance diminish as course progresses.
- Learning assessments are valid and reliable.
- Learning experience enhanced by incorporated media elements.
- Solutions do not burden learners with more information than is necessary.

Source: www.astd.org

Conclusion

Market forces, including client demand for compatible components and alliances among vendors, may go a long way promoting the interoperability that is the goal of standards. Overall, we think that actual technical progress combined with buyer circumspection will continue to push the maturation of the industry. However, the obstacles to the emergence of standards remain real and visibility in this arena is poor.

THE EVOLVING LANDSCAPE

THE EVOLVING LANDSCAPE

“Content is king, but infrastructure is God.” – Tom Kelly, Vice President of Worldwide Training, Cisco Systems, Inc.

We believe that in the last year our thesis that investments in infrastructure will in general precede investments in content has been confirmed. The primacy of infrastructure is justified because extensive or enterprise-wide deployment of eLearning requires the type of thorough planning, management, and administration that is facilitated by infrastructure systems, such as learning management systems. LMSs promise to be the brains and nerve centers of enterprise eLearning deployments. Alternatively, one can think of an LMS as the skeleton around which educational efforts, traditional and online, can be built. In the last few quarters, both Docent and Saba have announced impressive enterprise LMS wins. Similarly, companies such as Centra and Interwise, who develop software that provides the infrastructure for synchronous eLearning, have made impressive announcements in recent quarters.

We anticipate continued industry consolidation and heightened competition. Additional evidence for the importance of infrastructure involves the internal development and acquisition of learning management systems. On Tuesday, June 22, Sun Microsystems announced that it had signed an agreement to acquire ISOPIA, a Canadian-based LMS provider. The terms of the acquisition were not disclosed. On the same day, SAP announced that it would internally develop an LMS system. Following acquisitions of external technologies, Arista and icGlobal, respectively, both DigitalThink and SmartForce have introduced LMS systems to complement their content offerings. We expect heightened competition and consolidation, particularly as stingy capital markets have rendered many companies ripe for picking. Moreover, we think that many leading enterprise software companies are migrating to Web services companies; i.e., instead of shipping and installing software applications, we think software companies will increasingly offer applications over the Web. Such a shift is exemplified by Microsoft’s .Net initiative. The acquisition of eLearning companies, many of whom base their solutions on this mode of delivery, therefore makes good sense for companies such as Sun. Thus, we think that it is quite possible that other leading software companies will make acquisitions in the eLearning space and that both private and public companies are plausible candidates. Moreover, we think the Sun and SAP developments represent another validation and endorsement of the eLearning space. Given the expected size of the market, there is room for a number of players. Since we are in the early stages of this market, and we expect rapid growth, it follows that there should be room for multiple competitors. In a mature market, the ascendance of one player generally implies the decline of another. This, however, is not the case in the young eLearning industry.

Stingy capital markets, reticent technology spending, and competition have forced out many smaller players. Many second and third tier companies have fallen to the wayside as they have been unable to secure funding needed to becoming market contenders. In many cases, young companies have been caught in a “Catch 22”. On the one hand, buyers will not purchase their goods and services for fear that the vendors will not survive, leaving their wares obsolete and unsupported. On the other hand, investors have been reluctant to fund young companies that do not show traction. While unpleasant for smaller players, this vicious consolidation is a boon for others as it reinforces the lead of first-mover and well-funded public companies. Also, this industry consolidation may clarify decisions for buyers of eLearning. We believe that the field of eLearning players has shrunk from around 400 players last year to around 300 players currently. We expect this place of consolidation to persist until economic conditions improve.

Although chastened, the capital markets for eLearning is not dead. Once again, we believe, the pattern of funding has reinforced leadership positions. In one of the worst private equity markets in years, as a general rule, only those companies with proven revenue traction, a well-articulated path to profitability, and differentiated products, have received funding. The market has had little tolerance for early-stage companies or companies within niches that are perceived to be crowded (despite the early stage of the industry). Not only is the selection process more winnowing but also more protracted. We have noticed that the amount of due diligence performed by prospective investors has increased substantially. Interested investors are and have been conducting extensive interviews with management teams, partners, clients, and industry experts. Increased industry knowledge has allowed this more in depth examination and thus extended funding cycles. Nonetheless, some notable deals have been closed.

Example of Private Equity Raises in 2001

Close Date	Company Name	Amount (in millions)	Post-Money (in millions)	Investors
06/15/2001	Cenquest	\$6.00	N/A	Sevin Rosen Funds, Sevin Rosen Funds, U.S. Trust Private Equity, Venture Partners AG
06/15/2001	Learning.com	\$5.20	N/A	Individual Investors, Empire Ventures
06/01/2001	Element K	\$18.00	N/A	Wasserstein & Company, Rustic Canyon Ventures
05/10/2001	Quisic	\$9.50	N/A	Investor Growth Capital
05/09/2001	eMind	\$7.00	\$57.00	Clarity Partners, Knowledge Universe, Northwestern Mutual Life
05/06/2001	Blackboard	\$52.00	N/A	Aurora Funds, Internet Capital Group, Dell Ventures, Individual Investors, Dain Rauscher Wessels, Novak Biddle Venture Partners, Carlyle Venture Partners, Oak Hill Venture Partners, Microsoft, Pearson PLC, America Online, Morgan Keegan
05/02/2001	Global Learning Systems	\$10.00	N/A	Hampshire Equity Partners
04/23/2001	Knowlagent	\$11.00	N/A	Arbor Partners, Imlay Investments, Blue Chip Venture Company, River Cities Capital Funds, First Analysis
04/01/2001	Classroom Connect	\$15.00	\$165.00	Brentwood Associates, Spire Capital Partners, Spire Capital Partners, Allegis Capital, Pearson PLC, Intel Corporation, U.S. Trust Private Equity
03/31/2001	Horizon Live Distance Learning	N/A	N/A	Argentum Group, Early Stage Enterprises, First Analysis
03/31/2001	ThinQ Learning Solutions	\$20.00	N/A	HLM Management, Bessemer Venture Partners, Blue Rock Capital, Charles River Ventures, Charles River Ventures, BCI Partners, Mellon Ventures, Windspeed Ventures, CIBC Capital Partners
03/15/2001	Project ACHIEVE	N/A	N/A	Sprout Group, Sprout Group
03/14/2001	MedCases	\$9.05	\$28.60	Individual Investors, PA Early Stage, PPM America, Adler & Co., Eurolink International, CIP Capital, Brooks Capital Group
03/12/2001	Aegis Learning Group	\$4.00	\$10.00	Tobat Capital
03/02/2001	Ninth House	\$25.00	\$50.00	J.P. Morgan Partners, J.P. Morgan H&Q Partners
03/01/2001	Knowledge Impact	\$24.00	\$55.00	Tudor Investment Corporation, Ironside Ventures, Boston Millennia Partners, Arcadia Partners
03/01/2001	VuePoint	\$11.00	\$23.00	Wheatley Partners, Hudson Ventures, Dalewood Associates

Source: VentureSource and Morgan Keegan Research

An inhibitor in the eLearning industry involves buyer confusion stemming in part from noise in the marketplace as multiple vendors clamor for attention. In our experience of tradeshow, for example, buyers must endure a cacophony of competing superlatives as a multitude of players promise “the best technology, bar none,” and “the only true end-to-end solution”. Buyer confusion (and investor confusion) is only exacerbated by subtle and unsubtle bashing among vendors. We think that a contraction in the number of players as well as buyer education has brought, and will bring, some clarity to the market.

We think that eLearning has been adopted disproportionately by large enterprises. An ASTD survey suggested that the use of eLearning (measured in terms of delivery time) in smaller firms leveled off between 1998 and 1999, decreasing slightly from 8.5% to 8.4%. On the other hand, large companies saw eLearning capturing an increasing share of education time, up from 12.3% in 1998 to 13.8% in 1999. This divergence in adoption makes sense as we think large corporations with dispersed workforces have the most to gain from eLearning (expensive travel, complex management and administration demands, for example). We believe that in 2000 and so far in 2001 the migration to eLearning has accelerated, particularly for larger companies. Indeed, IDC projects that worldwide expenditures on eLearning grew by 102% in 2000 and will grow by 86% in 2001.

Competition is heating up with direct feature and price comparisons. As we argued earlier, the sales pitch for corporate eLearning has become much more precise and concrete. Whereas the promotion of eLearning was typically general in nature, vendors increasingly attempt to delineate the cost and payback of their investments and contrast and compare their product’s functionality with that of competitor products.

THE MORGAN KEEGAN CORPORATE eLEARNING INDEX

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THE MORGAN KEEGAN CORPORATE eLEARNING INDEX

Construction of Index

In order to understand more precisely the relationship between leading eLearning companies and the NASDAQ, we constructed an index of pure play eLearning companies focused on the corporate space. The index consists of 10 stocks, each of which meets the following set of criteria:

- 1) a business plan focused on providing corporate solutions or else focused on corporate workers, and
- 2) a market capitalization exceeding \$25 million.

Due to the relative youth of this industry and the lack of clear leaders/followers, we gave each stock equal weight.

Morgan Keegan & Company, Inc. eLearning Index

• Click2learn Inc.	CLKS
• Centra Software Inc.	CTRA
• Docent, Inc.	DCNT
• DigitalThink, Inc.	DTHK
• HealthStream, Inc.	HSTM
• ProsoftTraining	POSO
• Saba Software, Inc.	SABA
• SkillSoft Corporation	SKIL
• SmartForce plc	SMTF
• University of Phoenix Online	UOPX

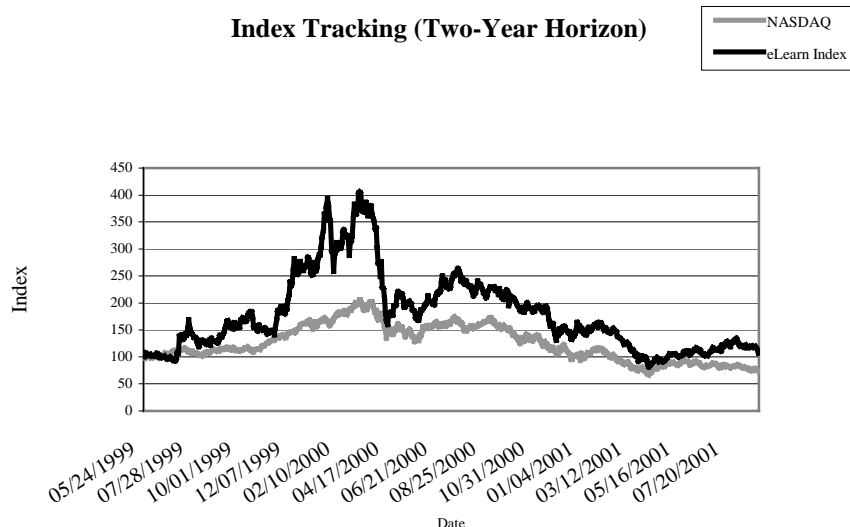
We compiled this index over several time periods in order to understand the way the relationship of these eLearning stocks to the broader market has evolved.

We tracked this index over three time horizons.

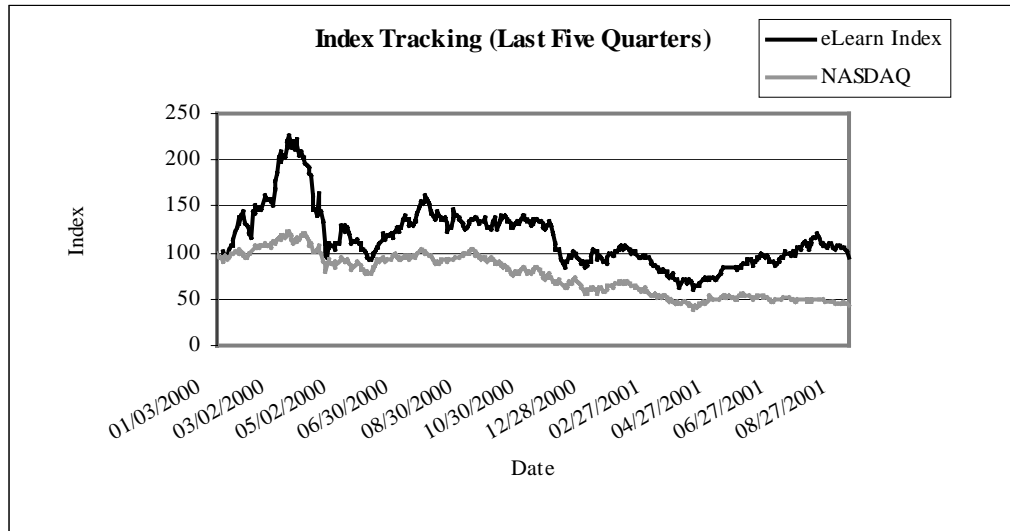
- Two years (starting May 24, 1999)
- The last five quarters (starting January 1, 2000)
- Year-to-date (starting January 1, 2001)

Note: Except for CLKS, SMTF, POSO, each stock was added to the index on the date of its IPO. All stocks were publicly traded as of September 27, 2000.

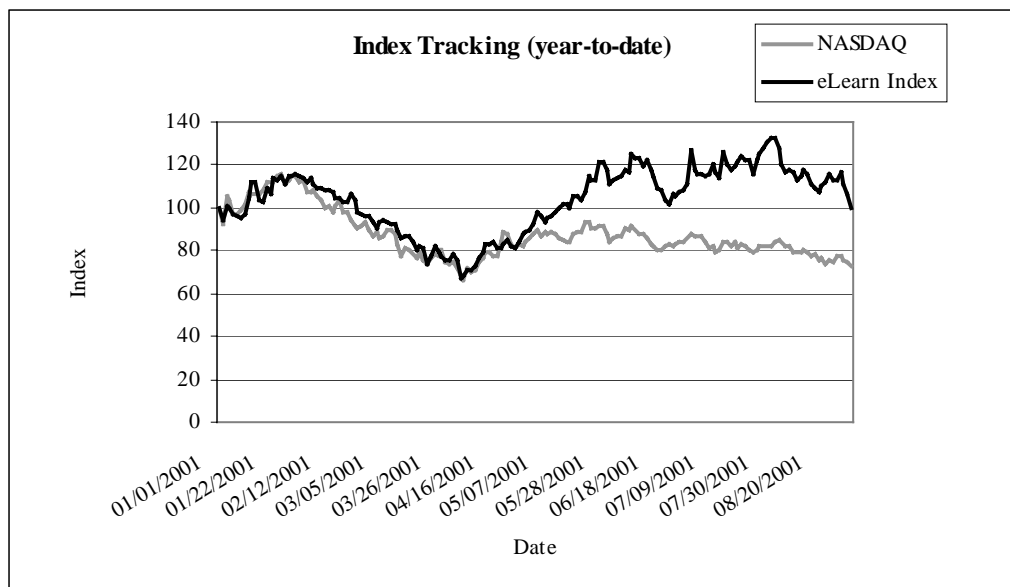
Index Tracking (Two-Year Horizon)



Source: Morgan Keegan Estimates



Source: Morgan Keegan Estimates



Source: Morgan Keegan Estimates

Findings

A statistical analysis confirms what is immediately apparent from a visual inspection of the Index: the correlation between the eLearning portfolio and the NASDAQ index is very strong over the past two years. eLearning companies offer technology, content and services that compete for training budgets with traditional forums of education. More generally, emerging eLearning technologies must compete with a myriad of other technologies that promise to accelerate business processes, enhance customer interactions, effect corporate alignment, and so on. From the standpoint of investors, eLearning investments bear characteristics similar to other emerging industries: rapid predicted growth, a concentration of superior performance in few leading companies, and above-average risk and return, among other factors. Thus, it comes as no surprise that eLearning stocks track closely the movements of the NASDAQ as these “look like” other technology investments. Correlation measures the strength of the relationship between up and down movements of the indices. The maximum correlation is +1, which implies perfect linear correlation. In other words, when one index increases, the other always increases. Contrast this with a minimum correlation of -1, which implies that one index always increases whenever the other decreases. Statistical analysis shows the correlation between the percentage changes in the NASDAQ and eLearning indices over the two-year period to be slightly greater than 85%.

This correlation establishes, with a high degree of confidence, that there has been a strong relationship between our index and the market.³ However, to date, the year 2001 has seen this correlation diminish. In fact, from the period beginning January 1, 2001, the correlation between the eLearning index and the NASDAQ index has fallen to 37%. This indicates that eLearning has begun to establish itself as a distinct and viable concept within the technology sector. Moreover, this implies that eLearning is gaining traction in the marketplace and that investors are not looking upon eLearning with the same reluctance with which they are currently pursuing other opportunities within the technology sector.

A second interesting statistical tool to apply to understand the relationship of our index and the market is a regression analysis that quantifies the degree to which the eLearning index moves relative to movements in the NASDAQ index. For example, a coefficient of two would indicate that a one-point gain in the NASDAQ index would correspond to a two-point gain in the eLearning index, and so on. A regression analysis of the data shows that the coefficient on the eLearning index relative to the NASDAQ has moved from slightly above two over the two-year horizon, to around 0.5 for the time period beginning January 1, 2001. It should be noted that each of the above coefficient estimates maintained a statistical significance at a level of confidence well above 99%. Again, the statistical analysis confirms that eLearning’s subjectivity to market risk in the technology sector is declining and that eLearning concept is becoming one of the more feasible tech-based opportunities for the risk-averse investor.

Conclusion

Looking at the trends in the coefficient yields some interesting results that confirm our hypothesis about investor confidence, risk tolerance, and the returns yielded by this emerging industry. Our analysis shows that eLearning has, without question, experienced the growing pains of a young technology. This is evident in the market volatility that it has demonstrated over the past two years. However, our year-to-date figures indicate that eLearning’s overall market risk level is declining. While we admit that it will be a long time before these stocks represent steady, portfolio-stabilizing assets, we are encouraged by our statistical findings. As market correlation falls, an investment in eLearning represents more of an investment in the promising concept rather than a bet on the overall movement in the market. This is a favorable scenario for eLearning as knowledge becomes a more coveted asset in the new economy and corporations begin to seek its strong ROI potential. However, in this struggling economy, we view eLearning stocks as at the low end of the very high-risk technology cluster.

³ It might be objected that it is unsurprising and uninformative to observe that there is a strong relationship between our index and the NASDAQ since our stocks are part of the NASDAQ. For example, the conclusion that one’s body hurts because one’s leg hurts is certainly true, but not very interesting. However, since (1) our stocks are few in number relative to the NASDAQ, (2) our stocks have relatively small valuations (the largest is SMTF at around \$1.5 billion is the largest), and (3) the NASDAQ is a value-weighted index, it follows that the relationships between our stocks and the NASDAQ are not explained to a large extent, by the part/whole relationship.

FINANCIAL PERFORMANCE OF eLEARNING COMPANIES

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FINANCIAL PERFORMANCE OF eLEARNING COMPANIES

On page 40, we outline the pro forma operating results for the companies in our index over the 12-month period beginning with calendar Q3:00. Below, we provide further analysis of the revenue growth in our index versus growth in the S&P 500 companies, in the entire technology sector, and more specifically, in the computer service software industries.

Significant Revenue Growth

From a financial standpoint, the most attractive aspect of the eLearning group has been the top-line growth exhibited by its leading companies. We view this growth as a good indicator of the potential of this emerging industry. As is evident in the following table, the companies in our index have outperformed the companies in the entire technology sector and those in the software and computer service industries within that sector on a revenue basis over the trailing 12 months (TTM). While revenue growth exceeding 180% is certainly a characteristic of a young industry, we are encouraged by the performance of eLearning companies relative to other technology stocks and the slumping economy. We hypothesize that the strong ROI potential of eLearning solutions and the overall criticality of education distinguish eLearning from other technology-based concepts. ELearning competently and simultaneously provides necessary service and significant cost reduction. For this reason, demand in this industry has remained stable in the face of reticent technology spending.

Growth Rates (%)	Morgan Keegan eLearning Index	S&P 500 Index	Technology Sector	Software & Programming Industry	Computer Services Industry
Revenues (Q2:01) vs. Q2 year ago	120%	6%	0.08%	15%	14%
Revenues (TTM) vs. (TTM) one year ago	184%	14%	18%	18%	20%

The Path to Profitability

As one can see from the following truncated financial statements, many eLearning companies still fall well short of operating profitability. However, we look for the majority of eLearning companies to achieve cash flow profitability within the coming year. We think that if continuing revenue traction allows, leading eLearning companies will demonstrate excellent operating leverage for the following four reasons.

- 1) Entrants face steep cost barriers associated with entering and distinguishing oneself in this highly technological industry. ELearning companies must make sizable initial investments in technology, branding, and infrastructure. We believe that industry leaders will be able to leverage these investments as the market matures. For example, Saba was able to reduce its marketing expenditures after its initial branding success.
- 2) Due to the relatively low costs associated with replicating and distributing software solution products, low variable costs imply a large proportion of revenue gains go straight to the bottom line.
- 3) Many of the companies within the index were able to drive efficiencies from the service and sale operations. During periods of aggressive expansion, eLearning companies have had to hire and train service and sales personnel aggressively. This naturally leads to under-utilization. Moreover, we expect our companies to drive efficiencies as personnel mature and implementation and sales methodologies are honed.
- 4) The maturation and expansion of partner and reseller relationships allows eLearning companies to magnify their business model. First, the sales forces of established systems integrators and consultants, for example, are large and well-established among Global 2000 corporations. Similarly, their implementation capacity generally dwarfs that of young eLearning companies. Lastly, implementation partnerships often positively impact gross margins by diverting lower-margin (relative to software licenses) revenues.

What Do the Numbers Say?

By in large, we think that the financial performance of the 10 stocks in our index bears out our belief that the leading public eLearning companies are starting to reap the rewards of early infrastructure, technology, and branding investments and are beginning to capitalize on the operating leverage inherent in their business models.

Looking at the big picture, we see substantial improvements in the average operating and gross margins for our 10 companies. The elements of these averages are displayed on page 40.

	Avg. Operating Margin	Avg. Gross Margin
Recent TTM	-69%	59%
TTM one year ago	-185%	46%

Analysis of Pro-Forma Operating Results

Click2learn

	TTM	Q3:00	Q4:00	Q1:01	Q2:01	TTM
Total Revenue	\$39,017	\$11,067	\$11,194	\$10,665	\$11,696	\$44,622
Year to Year Growth		22%	16%	8%	12%	14%
Sequential Growth		6%	1%	-5%	10%	
Cost of Revenue	\$19,053	\$5,575	\$6,604	\$6,282	\$5,891	\$24,352
Gross Profit	\$19,964	\$5,492	\$4,590	\$4,383	\$5,805	\$20,270
Gross Profit %	51%	50%	41%	41%	50%	45%
Operating Expenses*	\$33,097	\$8,589	\$9,139	\$8,633	\$8,742	\$35,103
Operating Profit	(\$13,133)	(\$3,097)	(\$4,549)	(\$4,250)	(\$2,937)	(\$14,833)
Operating Margin	-34%	-28%	-41%	-40%	-25%	-33%

* excludes one-time marketing write-off and amortization of goodwill

Centra Software, Inc.

	TTM	Q3:00	Q4:00	Q1:01	Q2:01	TTM
Total Revenue	\$14,537	\$6,335	\$7,830	\$9,027	\$9,760	\$32,952
Year to Year Growth		133%	160%	138%	95%	127%
Sequential Growth		26%	24%	15%	8%	
Cost of Revenue	\$4,415	\$983	\$1,260	\$1,667	\$1,798	\$5,708
Gross Profit	\$10,122	\$5,352	\$6,570	\$7,360	\$7,962	\$27,244
Gross Profit %	70%	84%	84%	82%	82%	83%
Operating Expenses*	\$24,270	\$9,688	\$10,848	\$10,888	\$12,046	\$43,470
Operating Profit	(\$14,148)	(\$4,336)	(\$4,278)	(\$3,528)	(\$4,084)	(\$14,226)
Operating Margin	-97%	-68%	-55%	-39%	-42%	-49%

* excludes compensation charge for issuance of stock and amort of R&D, goodwill, and other intangibles

Docent

	TTM	Q3:00	Q4:00	Q1:01	Q2:01	TTM
Total Revenue	\$3,084	\$2,863	\$5,624	\$7,094	\$8,919	\$24,500
Year to Year Growth		1263%	1272%	870%	415%	694%
Sequential Growth		65%	96%	26%	26%	
Cost of Revenue	\$3,949	\$2,065	\$3,149	\$2,864	\$4,148	\$12,226
Gross Profit	-\$865	\$798	\$2,475	\$4,230	\$4,771	\$12,274
Gross Profit %	-28%	28%	44%	60%	53%	50%
Operating Expenses*	\$24,528	\$12,102	\$14,309	\$15,641	\$14,967	\$57,019
Operating Profit	(\$25,393)	(\$11,304)	(\$11,834)	(\$11,411)	(\$10,196)	(\$44,745)
Operating Margin	-823%	-395%	-210%	-161%	-114%	-183%

* excludes one-time and non-cash charges

DigitalThink

	TTM	Q3:00	Q4:00	Q1:01	Q2:01	TTM
Total Revenue	\$15,903	\$8,760	\$10,787	\$12,849	\$15,010	\$47,406
Year to Year Growth		310%	239%	197%	140%	198%
Sequential Growth		40%	23%	19%	17%	
Cost of Revenue	\$8,347	\$4,263	\$4,502	\$4,664	\$5,158	\$25,069
Gross Profit	\$7,556	\$4,497	\$6,285	\$8,185	\$9,852	\$29,492
Gross Profit %	48%	51%	58%	64%	66%	62%
Operating Expenses*	\$30,435	\$11,908	\$13,562	\$14,135	\$14,663	\$80,659
Operating Profit	(\$22,879)	(\$7,411)	(\$7,277)	(\$5,950)	(\$4,811)	(\$51,167)
Operating Margin	-144%	-85%	-67%	-46%	-32%	-108%

* excludes write-off of in-process R&D, goodwill amortization, and stock-based compensation

HealthStream, Inc.

	TTM	Q3:00	Q4:00	Q1:01	Q2:01	TTM
Total Revenue	\$5,102	\$2,729	\$3,277	\$3,054	\$3,523	\$12,583
Year to Year Growth		319%	308%	111%	60%	147%
Sequential Growth		24%	20%	-7%	15%	
Cost of Revenue	\$4,708	\$1,034	\$1,315	\$1,505	\$1,112	\$4,966
Gross Profit	\$394	\$1,695	\$1,962	\$1,549	\$2,411	\$7,617
Gross Profit %	8%	62%	60%	51%	68%	61%
Operating Expenses*	\$14,763	\$8,025	\$8,615	\$8,015	\$9,107	\$33,762
Operating Profit	(\$14,369)	(\$6,330)	(\$6,653)	(\$6,466)	(\$6,696)	(\$26,145)
Operating Margin	-282%	-232%	-203%	-212%	-190%	-208%

* excludes proceeds from Web-MD interaction

ProsofTraining.com

	TTM	Q3:00	Q4:00	Q1:01	Q2:01	TTM
Total Revenue	\$15,956	\$6,643	\$9,464	\$9,152	\$7,187	\$32,446
Year to Year Growth		119%	150%	129%	40%	103%
Sequential Growth		29%	42%	-3%	-21%	
Cost of Revenue	\$8,973	\$3,187	\$2,894	\$4,010	\$3,684	\$13,775
Gross Profit	\$6,983	\$3,456	\$6,570	\$5,142	\$3,503	\$18,671
Gross Profit %	44%	52%	69%	56%	49%	58%
Operating Expenses*	\$6,175	\$2,736	\$4,067	\$4,028	\$4,763	\$15,594
Operating Profit	\$808	\$720	\$2,503	\$1,114	(\$1,260)	\$3,077
Operating Margin	5%	11%	26%	12%	-18%	9%

* excludes restructuring charge & depreciation and amortization

Saba Software, Inc.

	TTM	Q3:00	Q4:00	Q1:01	Q2:01	TTM
Total Revenue	\$17,992	\$10,048	\$12,923	\$14,523	\$15,482	\$52,976
Year to Year Growth		489%	270%	179%	104%	194%
Sequential Growth		32%	29%	12%	7%	
Cost of Revenue	\$9,020	\$4,826	\$5,358	\$5,686	\$5,471	\$21,341
Gross Profit	\$8,972	\$5,222	\$7,565	\$8,837	\$10,011	\$31,635
Gross Profit %	50%	52%	59%	61%	65%	60%
Operating Expenses*	\$49,140	\$20,324	\$21,849	\$21,048	\$17,992	\$81,213
Operating Profit	(\$40,168)	(\$15,102)	(\$14,284)	(\$12,211)	(\$3,981)	(\$49,578)
Operating Margin	-223%	-150%	-111%	-84%	-52%	-94%

* excludes amortization of deferred stock compensation

Skillssoft Corporation

	TTM	Q3:00	Q4:00	Q1:01	Q2:01	TTM
Total Revenue	\$8,856	\$5,511	\$8,034	\$8,510	\$9,382	\$31,437
Year to Year Growth		330%	341%	303%	158%	255%
Sequential Growth		51%	46%	6%	10%	
Cost of Revenue	\$1,062	\$424	\$525	\$529	\$537	\$2,015
Gross Profit	\$7,794	\$5,087	\$7,509	\$7,981	\$8,845	\$29,422
Gross Profit %	88%	92%	93%	94%	94%	94%
Operating Expenses*	\$32,055	\$10,584	\$11,553	\$11,775	\$12,018	\$45,930
Operating Profit	(\$24,261)	(\$5,497)	(\$4,044)	(\$3,794)	(\$3,173)	(\$16,508)
Operating Margin	-274%	-100%	-50%	-45%	-34%	-53%

* excludes amortization of deferred stock-based compensation

SmartForce

	TTM	Q3:00	Q4:00	Q1:01	Q2:01	TTM
Total Revenue	\$177,483	\$45,572	\$57,699	\$61,184	\$66,148	\$230,603
Year to Year Growth		-9%	-7%	114%	82%	30%
Sequential Growth		25%	27%	6%	8%	
Cost of Revenue	\$26,721	\$7,456	\$9,409	\$9,637	\$10,708	\$37,210
Gross Profit	\$150,762	\$38,116	\$48,290	\$51,547	\$55,440	\$193,393
Gross Profit %	85%	84%	84%	84%	84%	84%
Operating Expenses*	\$155,501	\$42,566	\$48,682	\$49,809	\$51,879	\$192,936
Operating Profit	(\$4,739)	(\$4,450)	(\$392)	\$1,738	\$3,561	\$457
Operating Margin	-3%	-10%	-1%	3%	5%	0.2%

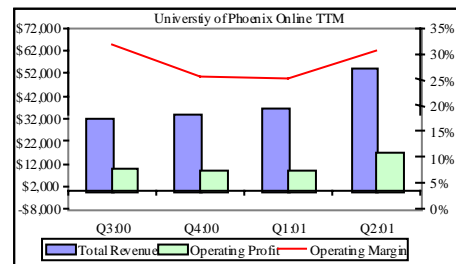
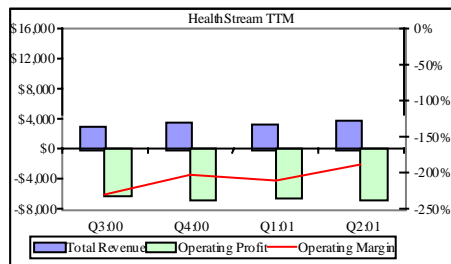
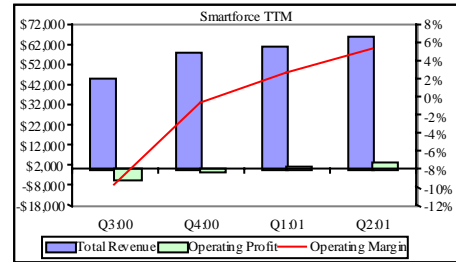
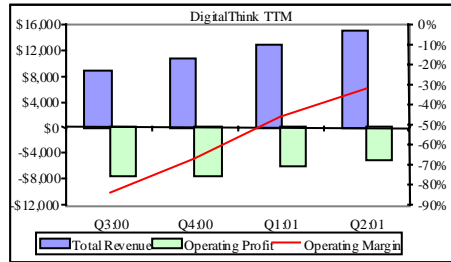
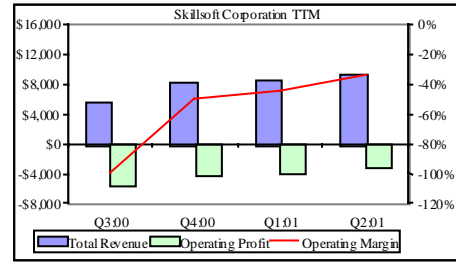
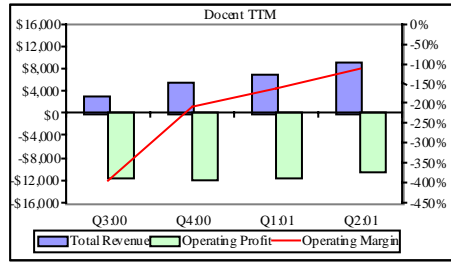
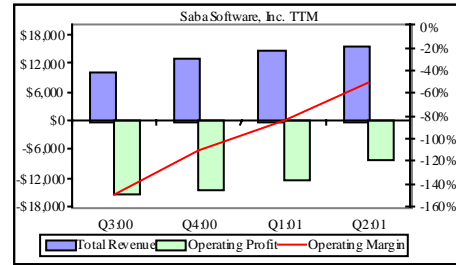
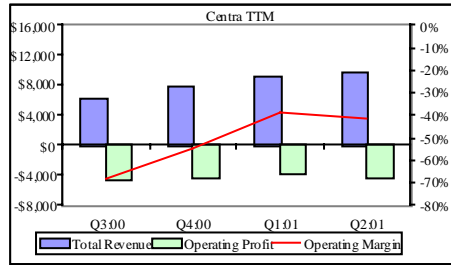
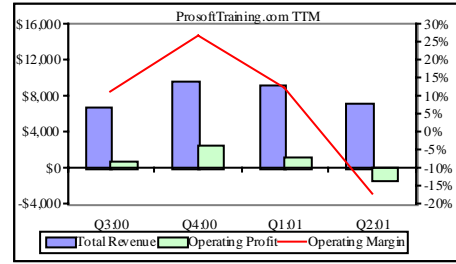
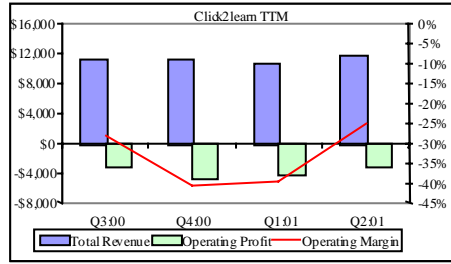
* excludes amortization of intangibles

University of Phoenix Online

	TTM	Q3:00	Q4:00	Q1:01	Q2:01	TTM
Total Revenue	\$90,284	\$31,661	\$34,087	\$36,125	\$54,071	\$155,944
Year to Year Growth		64%	65%	65%	91%	73%
Sequential Growth		12%	8%	6%	50%	
Cost of Revenue	\$47,963	\$13,525	\$15,646	\$15,687	\$20,783	\$65,641
Gross Profit	\$42,321	\$18,136	\$18,441	\$20,438	\$33,288	\$90,303
Gross Profit %	47%	57%	54%	57%	62%	58%
Operating Expenses*	\$20,623	\$8,041	\$9,701	\$11,293	\$16,649	\$45,684
Operating Profit	\$21,698	\$10,095	\$8,740	\$9,145	\$16,639	\$44,619
Operating Margin	24%	32%	26%	25%	31%	29%

Source: Morgan Keegan Estimates

Last Four Quarters' Financial Performance



Source: SEC Filings and Morgan Keegan Estimates

Looking at the most recent quarter more closely, we see good evidence of operating leverage. The table below shows incremental revenues, gross profits, and pro forma operating expenses. It should be noted that the stocks in the index enjoyed brisk revenue growth as, on average, revenues increased 13% sequentially. The aggregate revenues for the 10 companies for the two quarters increased 17%.

Most Recent Quarter	Sequential Δ in:				Ratio:
	Revenues	Cost of Revenue	Pro Forma Operating Exp.	Pro Forma Op. Profit	Δ Operating Profit / Δ Rev
Click2learn	\$1,031	(\$391)	\$109	\$1,313	1.27
Centra Software, Inc.	\$733	\$131	\$1,158	(\$556)	-0.76
Docent	\$1,825	\$1,284	(\$674)	\$1,215	0.67
DigitalThink	\$2,161	\$494	\$528	\$1,139	0.53
HealthStream, Inc.	\$469	(\$393)	\$1,092	(\$230)	-0.49
ProsoffTraining.com	(\$1,965)	(\$326)	\$735	(\$2,374)	1.21
Saba Software, Inc.	\$959	(\$215)	(\$3,056)	\$4,230	4.41
Skillssoft Corporation	\$872	\$8	\$243	\$621	0.71
SmartForce	\$4,964	\$1,071	\$2,070	\$1,823	0.37
University of Phoenix Online	\$17,946	\$5,096	\$5,356	\$7,494	0.42
Total	\$28,995	\$6,759	\$7,561	\$14,675	0.51

Source: Morgan Keegan Estimates

In other words, the table shows the sequential changes in these main income statement components. For example, looking to an interesting case, relative to the preceding quarter, Saba increased its operating profit by \$4.2 million. This increase was driven by around \$1.0 million in extra revenue, a \$215,000 reduction in cost of revenue, and a substantial \$4.2 million reduction in pro forma operating expenses. The ratio in the last column expresses the extent to which incremental revenue dollars flowed through to operating profits. For example, in the case of DigitalThink, \$0.53 of every incremental revenue dollar flowed through to operating profits in its most recent quarter. In the case of Click2learn, in large part due to a reduction of gross costs, every incremental revenue dollar produced \$1.27 in operating profits. Looking to the aggregation of the changes in these three items, we see that the growth in revenue outstripped by a large margin the growth in gross and operating costs. All in all, each incremental revenue dollar produced \$0.51 in additional operating profit. Thus we think that an analysis of the most recent quarter for these public companies validates our theses concerning operating leverage enjoyed by these companies and their path to profitability.

In order to check that the above analysis is not overly distorted by seasonal factors, we performed a similar analysis that compared the most recent quarter to the same quarter last year.

Most Recent Quarter	Year-over-Year Δ in:				Ratio:
	Revenues	Cost of Revenue	Pro Forma Operating Exp.	Pro Forma Op. Profit	Δ Operating Profit / Δ Rev
Click2learn	\$1,283	\$328	\$395	\$560	0.44
Centra Software, Inc.	\$4,745	(\$959)	\$3,472	\$2,232	0.47
Docent	\$7,186	\$2,142	\$5,568	(\$524)	-0.07
DigitalThink	\$8,748	\$1,865	\$4,044	\$2,839	0.32
HealthStream, Inc.	\$1,322	\$72	\$1,938	(\$688)	-0.52
ProsoffTraining.com	\$2,041	\$831	\$2,970	(\$1,760)	-0.86
Saba Software, Inc.	\$7,896	\$1,672	(\$352)	\$6,576	0.83
Skillssoft Corporation	\$5,743	\$204	\$2,348	\$3,191	0.56
SmartForce	\$29,755	\$4,787	\$11,878	\$13,090	0.44
University of Phoenix Online	\$25,704	\$6,356	\$10,517	\$8,831	0.34
Total	\$94,423	\$17,298	\$42,778	\$34,347	0.36

Source: Morgan Keegan Estimates

Again, we see general progress as in aggregate each incremental dollar in revenue produced \$0.36 in operating profit. In order to perform another check on seasonal factors, we performed the same analysis with the penultimate quarter (generally the first calendar quarter of 2001) with the sequentially prior quarter. Once again we saw aggregate evidence for operating leverage. Each incremental revenue dollar flowed through to an incremental \$0.18 in operating profit.

VALUATIONS

VALUATIONS

Drawing strong conclusions from comparative valuations is tricky given the early stages of the eLearning industry and the subsequent smallness of projected earnings in the relative near term. Anticipated earnings for 2002 are small since many eLearning companies are only expected to turn profitable during that year. Therefore, both P/E ratios and growth rates are exaggerated for this group. Similarly, growth from small bases distorts the meaning of revenue expansion. Nonetheless, we think we can make the argument that these stocks are attractively valued given their strong traction, anticipated growth rates, and potential upside, relative to major indices as well as bricks-and-mortar education companies.

Revenue valuations suggest that prices have descended to attractive levels. The eLearning stocks trade at around 4.1x and 3.0x estimated 2001 and 2002 revenues on an enterprise basis, respectively. This compares to the S&P 500 which trades at 1.5x sales. We expect average top-line growth of 55% for these eLearning companies in 2002. Also, compared to high points in valuation for eLearning stocks, our companies are well off year highs in terms of enterprise value to forward-revenue ratios. Particularly, using the year highs for each of the shares in the index, we estimate that our group traded at an average of around 9.4x expected 2002 revenues. Without a doubt, the prior market exuberance has been quenched and valuations have collapsed. However, we would note that in the case of eLearning, valuations have collapsed even while revenue and earnings expectations have remained stable or firmed.

Consulting the table on the facing page, the stocks comprising our index are trading at around 57x expected 2002 EPS. The S&P 500 is trading at around 24x forward earnings. Given rapid anticipated growth in revenue, we think that eLearning stocks are attractively valued. Again, both in terms of their financial results and anticipated results, we have argued that leading eLearning stocks are superior to the general market. If we compare anticipated 2002 EPS with expected secular growth rates for our companies, we see that our group is earning a PEG ratio of around 1.5x. However, it is crucial to recall that this ratio compares relatively near-term earnings with long-term anticipated growth rates and therefore overstates the expensiveness of eLearning stocks, in our opinion. We are unfortunately hamstrung by the lack of EPS estimates in the out years. In order to get a sense of the proportion of the understatement of the PEG ratio, we look to our tentative 2003 EPS growth rates for the companies that we officially cover for whom we expect an inflection in earnings. Looking to Docent, DigitalThink, Centra, Saba, and SmartForce, we expect average EPS growth of over 300% in 2003. Therefore, as we approach this year, we expect rapidly declining PEG ratios. More precisely, for these five companies, we expect a PEG ratio of 0.4x relative to our tentative 2003 numbers. Leading traditional education companies are trading at around 1.4x their anticipated growth rates. Again, as we close in on profitability, we think the relatively firm valuations for leading traditional for-profit education companies will form a good umbrella for eLearning companies.

Morgan Keegan eLearning Index Comparative Revenue and EPS Tables

Company	Ticker	Rating	Price (08/30/01)	% Chg YTD	Mkt Cap (Mil)	Enterprise Value	Revenues			Market Cap / Revenues			Enterprise Value / Revenues		
							CY00	CY01	CY02	CY00	CY01	CY02	CY00	CY01	CY02
Centra*	CTRA	M/S	\$9.89	155.2%	\$240.8	\$192.5	\$23.0	\$46.4	\$78.9	10.5 x	5.2 x	3.1 x	8.4 x	4.1 x	2.4 x
click2learn.com	CLKS	O/S	\$3.70	-62.1%	\$73.8	\$68.8	\$43.9	\$49.9	\$59.0	1.7 x	1.5 x	1.3 x	1.6 x	1.4 x	1.2 x
DigitalThink*	DTHK	O/S	\$12.35	-27.6%	\$432.3	\$371.4	\$30.1	\$59.4	\$83.3	14.3 x	7.3 x	5.2 x	12.3 x	6.3 x	4.5 x
Docent*	DCNT	O/S	\$5.21	-40.5%	\$218.6	\$129.6	\$11.0	\$42.9	\$100.7	20.0 x	5.1 x	2.2 x	11.8 x	3.0 x	1.3 x
HealthStream, Inc.	HSTM	NR	\$1.45	45.0%	\$30.8	\$3.2	\$9.7	\$15.0	NA	3.2 x	2.1 x	NM	0.3 x	0.2 x	NM
Prosoft*	POSO	M/S	\$1.10	-90.9%	\$25.0	\$18.0	\$25.3	\$27.5	\$27.9	1.0 x	0.9 x	0.9 x	0.7 x	0.7 x	0.6 x
Saba*	SABA	O/S	\$8.00	-49.2%	\$351.4	\$322.5	\$35.8	\$64.5	\$104.5	9.8 x	5.4 x	3.4 x	9.0 x	5.0 x	3.1 x
SkillSoft	SKIL	NR	\$27.91	48.9%	\$374.0	\$282.4	\$18.7	\$44.0	\$69.0	20.0 x	8.5 x	5.4 x	15.1 x	6.4 x	4.1 x
SmartForce*	SMTF	O/S	\$27.72	-26.2%	\$1,457.5	\$1,359.6	\$168.2	\$271.6	\$376.1	8.7 x	5.4 x	3.9 x	8.1 x	5.0 x	3.6 x
University of Phoenix Online	UOPX	NR	\$31.20	45.1%	\$1,663.0	\$1,574.5	\$54.7	\$171.0	\$254.0	30.4 x	9.7 x	6.5 x	28.8 x	9.2 x	6.2 x
Average				-0.2%	\$486.7	\$432.3	\$42.0	\$79.2	\$128.2	12.0 x	5.1 x	3.5 x	9.6 x	4.1 x	3.0 x

Company	Ticker	Rating	Price (08/30/01)	EPS			P/E			Secular Earnings Growth	PEG
				CY00	CY01	CY02	CY00	CY01	CY02		
Centra*	CTRA	M/S	\$9.89	NM	NM	\$0.22	NM	NM	44.3 x	60%	0.7 x
click2learn.com	CLKS	O/S	\$3.70	NM	NM	\$0.06	NM	NM	57.5 x	25%	2.3 x
DigitalThink*	DTHK	O/S	\$12.35	NM	NM	\$0.14	NM	NM	87.4 x	55%	1.6 x
Docent*	DCNT	O/S	\$5.21	NM	NM	\$0.06	NM	NM	89.5 x	50%	1.8 x
HealthStream	HSTM	NR	\$1.45	NM	NM	NM	NM	NM	NM	50%	NM
ProsoftTraining*	POSO	M/S	\$1.10	\$0.11	\$0.03	\$0.02	10.0 x	36.7 x	55.0 x	25%	2.2 x
Saba*	SABA	O/S	\$8.00	NM	NM	\$0.19	NM	NM	42.6 x	28%	1.6 x
SkillSoft	SKIL	NR	\$27.91	NM	NM	\$0.76	NM	NM	36.7 x	40%	0.9 x
SmartForce*	SMTF	O/S	\$27.72	NM	\$0.40	\$0.72	NM	69.3 x	38.7 x	40%	1.0 x
University of Phoenix Online	UOPX	NR	\$31.20	\$0.2	\$0.32	\$0.48	127.3 x	97.5 x	65.0 x	38%	1.7 x
Average							57.4 x			40%	1.5 x

^ If company had its IPO this year, price given is the offer price.

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OUTLOOK AND INVESTMENT OPINION

Outlook

Our “emerging themes” represent our take on the forces that have shaped, and will shape, this young industry. Therefore, we believe that we will see a continuation of the trends identified in each area. Rather than rehashing these, we would like to highlight two trends in content and technology.

We believe that content will become more interactive and more dynamic in order to discourage incompletions. eLearning’s dark secret concerns course completion rates: some estimate that the drop-out rate for eLearning courses is north of 60%. While this figure is startling, dropout does not imply failure in a straightforward way. In many cases a student may discontinue a course when he or she gleans the desired information or skills. Again, the lines between a knowledge management system and learning management may be blurred. Put otherwise, it makes perfect sense that in just-in-time learning information is delivered on a piecemeal and ad hoc basis. Nonetheless, in order for eLearning to thrive, practitioners must tackle this issue and we believe that two means are effective. First, we think that courses should become highly interactive so that students’ attention is either attracted or compelled.⁴ Accordingly, we believe that courses will include elements of games, simulations and other elements that ensure that learners cannot “game play” his or her way through a course and miss essential material. A second way in which eLearning can combat learner defection involves personalized delivery of content. We believe that technology that adapts content and the manner of its delivery to the learner will increase the effectiveness of eLearning. Focused eLearning should increase learner satisfaction by reducing exposure to already-mastered material and therefore quicken time-to-competence.

Lastly, it may be wise to conclude our industry comments by emphasizing the uncertainty inherent in this emergent industry. Visibility is twice corroded by high levels of technological innovation and uncertain market acceptance of this technology. There is a danger that pace of product development may outstrip customer ability to assess and use new technology. For example, it is hard to ascertain whether the preferred learning management systems will be those with relatively thin but broad functionality or those that are focussed and deep. Some integrators push learning management systems that do the basic block-and-tackling for their clients while others, at least for some clients, suggest “industrial strength” systems that must be deeply integrated with other front and back office applications. Given buyer confusion, winners may be determined more by balance sheet strength, partnerships, and marketing than the core competency of applications and courses. Our hope is that investment opportunities will accrue to the investor with foresight or who at least can react quickly to the evolving landscape.

⁴ Heraclitus said, “All sheep are driven to pasture by blows.”

Investment Conclusion

In this report we contend that investors should take a good look at the emerging eLearning industry.

It is trite but true to say that an investment should be assessed according to both fundamentals and valuation. Throughout the report we have argued that the prospects for leading eLearning companies are not only firmer but also more clear. Each of emerging trends suggest (with some equivocation on the part of industry standards) that corporate eLearning is gaining traction and is fast becoming an important mode of training. However, more than this, we think that enterprises are beginning to see eLearning not as a type of training but as a powerful strategic tool that can transform business practices, empower sales forces with skills and information, and enhance customer-facing interactions with differentiated products and sticky educational content. Our more conceptual performance is confirmed, we believe, by the impressive financial performance of the stocks that comprise our universe. In a macro-economic environment that has been harsh to corporations in general and brutal to enterprise software companies in particular, leading eLearning companies have performed quite well so far. For the six companies that we currently cover, DigitalThink, Docent, ProsoftTraining.com, Saba, SmartForce, and Centra, we are forecasting year-over-year revenue growth of 129% in 2002. Excluding ProsoftTraining.com, the company with the smallest proportion of its revenues deriving from bona fide eLearning, the average growth rate is forecast to be 146%.⁵

Simultaneously, during the past year or so, technology stocks have been battered and have pulled eLearning stocks with them. For example, the NASDAQ is down over 50% from highs struck a year ago. Consequently valuations for eLearning have descended to more rational levels. Indeed, a series of discounted cash flow analyses (no 100x terminal EBITDA multiple assumptions) suggest that the stocks in our group are attractively valued.

Moreover, as leading eLearning stocks turn the corner on profitability, they should fall under the generous halo effect of traditional for-profit public education companies. Stocks of companies such as Apollo Group, Inc., Career Education Corp., Corinthian Colleges, Inc., DeVRY, Inc., and ITT Educational Services have performed quite well and on trade at multiples in excess of their growth rates. Now, when they turn profitable we believe that leading eLearning companies will enjoy substantially swifter bottom-line growth with their superior projected top-line growth (146% for our group) and leverageable business models. As we have noted before, we expect all of the companies in our universe to turn profitable by calendar Q2:02.

Thus, we think that there are good fundamental and valuation arguments that can be made on behalf of eLearning stocks. Also, for investors who think of stock picking as a beauty contest (a la Keynes), we think that eLearning is a great story. The investment narrative includes familiar elements of corporate training, the sizzle of profitable Internet ventures, and a sweep of vision that hearkens to the dawning knowledge economy. The eLearning story has beguiled investors, and given the expected strong financial performance, these stocks could certainly galvanize the interest of investors again.

⁵ Clearly, the growth rates of some of the young companies benefit from small bases and consequently the arithmetic mean of their average growth rates may have an upward bias. To correct for this, we can aggregate the total revenues of the five "pure eLearning" stocks for CY:00 and CY:01 and check the resultant growth rate. Such a comparison yields a projected growth rate of 88%.

Public companies mentioned in this report:

<u>Company Name</u>	<u>Ticker</u>	<u>Price</u>
7- Eleven Inc.	SE	\$12.89
Accenture	ACN	\$14.95
AnswerThink	ANSR	\$9.00
Apollo Group	APOL	\$42.50
Apple Computer	AAPL	\$17.83
Arista Investors Corp.	ARINA.OB	\$1.65
Cablevision	CVC	\$46.03
Career Education Corp.	CECO	\$66.25
Centra Software	CTRA	\$9.89
Cisco	CSCO	\$16.01
Click2learn Inc.	CLKS	\$3.70
Corinthian Colleges, Inc.	COCO	\$52.85
DA Consulting Group	DACG	\$0.35
DeVRY, Inc.	DV	\$34.14
DigitalThink Inc.	DTHK	\$12.35
Docent, Inc.	DCNT	\$5.21
EDS	EDS	\$59.02
First Consulting Group	FCGI	\$9.33
Ford Motor Company	F	\$19.76
Gartner Group	IT	\$9.65
General Electric	GE	\$40.20
General Motors	GM	\$54.21
HealthStream, Inc.	HSTM	\$1.45
IBM	IBM	\$100.36
ITT Educational Services	ESI	\$33.89
kForce Consulting	KFRC	\$5.25
KPMG	KCIN	\$14.99
Kelly Services	KELYA	\$24.91
McGraw-Hill	MHP	\$58.60
Microsoft	MSFT	\$56.94
Pearson	PSO	\$15.08
ProSoft Training	POSO	\$1.10
RWD Technologies	RWDT	\$3.00
SAP	SAP	\$34.15
Saba Software, Inc.	SABA	\$8.00
Skillsoft Corporation	SKIL	\$27.91
SmartForce plc	SMTF	\$27.72
Sun Microsystems	SUNW	\$11.07
Tenera	TNR	\$0.40
University of Phoenix Online	UOPX	\$31.20

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