The Strategic Role for Learning in the New Economy and its Implications

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Today's economy is a knowledge-based economy. Demographics studies tell us that there will be fewer workers available in the Western world, and newspapers tell us there is a high and growing need for high skilled workers. The ever-increasing speed at which new technology becomes available makes learning strategic. This paper discusses the impact that learning has on the new economy and vice versa, and points to solutions to accelerate learning for the individual.

The importance of education and training

Education and training are crucial, both to the organization and to the individual. You must have both if you want to improve or even keep your current economic position. This section gives some reasons why learning becomes strategic.

To the company

Today's economy is moving away from the industrial age at a fast pace. Money is becoming a commodity. Human Capital is the new bottleneck. It is new ideas that propel the economy. According to the U.S. Bureau of Labor Statistics (Kelinson &Tate, 2000), changes in technology and business practices cause some kinds of employment to decline (e.g. due to productivity gains), even if overall employment is expected to rise.

Internet companies can change sectors of the economy virtually overnight, like MP3's and Napster's Influence on the Music Industry[1]. The hot topic of the Internet is "time to market" or how fast you can master the technology to make this new idea work, before someone else does.

To the individual

In his book "*Manhood of Humanity*" (1921), Alfred Korzybski was the first to state: "human beings are characterized by their creative power, by the power to make the past live in the present and the present for the future, by their capacity to bind time - human beings are time-binders." Given that the body of available knowledge increases exponentially, it is becoming more difficult to have sufficient knowledge, to successfully "bind time," which explains the ever-increasing importance of learning. The world now has double the information every five years. If that trend continues, within a decade information that you learn this month may prove to be outdated within three months!

Time-binding helps explain why it's your level of education and your will to learn that predict how successful you will be in life. Your education level predicts your starting point in your career. Your interest to improve your skill through training indicates how your career will evolve.

In 1997, the average wage of a worker with a master's degree was twice the wage of a high school graduate[2]. According to a massive research project released in February 2000 by Norman H. Nie and Lutz Erbring at the Stanford Institute for the Qualitative Study of Society,

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[1] See "Study: Napster bosts CD Sales" by Lisa M. Bowman, ZDNet News, July21, 2000 and "Congress debates Napster, MP3" by Lisa Napoli, MSNBC.com, July 11, 2000
[2] Bureau of Labor Statistics, reprinted in Occupational Outlook Quarterly, Fall 1999

the most import factors facilitating or inhibiting Internet access in the United States are education and age, and not income or race/ethnicity or gender, which all proved to be statistically insignificant. Another study conducted by Jeffry Cole (2000) found that Internet users indicate that the Internet was one of their top 3 of most important source of information, after books and newspapers, but before TV and radio. If one adds up the results from both studies, this indicates that non Internet users not only risk having less education, but also are deprived from access to an important resource for continuous learning.

In a 1999 working paper of the BLS, Harley Frazis and Mark Loewenstein point out the very large returns of formal training, including a strong effect on wages. This effect is even significantly higher for more complex jobs.

In the current economy, stopping to learn is not a choice. As an individual, not following this rat-race may be like giving up your chances to prosperity. That's probably why David Kearns, former CEO of the Xerox Corporation, redefined *uneducated* as "not knowing how to keep on learning." In the new economy, the question is no longer "Do we need to learn?" but "How can we help everybody to keep learning?"

Given these findings, if a government wants to build the "third way," to come to an active, affluent society, it is not enough to focus educational efforts on the less developed and unemployed people. Government regulation should be all-encompassing, obliging companies to pay training for all their staff, as the French government has been doing for decades. Every effort of the government in this area will increase the wealth of the nation.

Assessment of the Current Situation

Even if the previous section has given arguments for the importance of learning to both individuals as to organizations, there are many questions to ask related to the quality of the current educational and training programs.

Learning as an individual

Several scientists (see Lens & Depreeuw, 1998) have pointed to capabilities and motivation or devotion as the most important factors influencing the obtained study results. The environment (e.g. parents) and the teaching staff can influence this motivation. As Maria De Bie pointed out, this might be the major problem of today's society. "Learning at school has become too instrumental. Apparently it can no longer be fun, not for the students and not for the teachers." (Personal communication, February 4; 2000).

The current tendency in Belgian Education is to tell parents that it's wrong to keep children in general secondary schools and that children should be sent sooner to technical education. Also, the organization of the education systems makes it too easy for schools to apply a cascading system: if a certain study part is considered too difficult for a student, the school is tempted to advise an easier part, in stead of increasing its efforts to help the student to get through the more difficult studies (e.g. see Lens & Depreeuw). However, if one studies the projections of the numbers of additional workers required (Kelinson & Tate, 2000), the question is whether the technical schooling recommendation and the cascading system will help parents to make the right choices for their children. Indeed, the growth areas include sales functions, as well in the retail industry as in several service industries, health services, human resources, computer industry, engineering; paralegal assistants, and more. In general, the strong growth areas require post-secondary education. Of course, given the changing demographics, there will be enough demand for blue collar workers, too, but these will face the strongest competition from immigrants. Also, the

added value from those jobs and the corresponding paycheck remains low and shows no growth in inflation-corrected terms. So parents would probably be right to urge their children to stay in the general secondary education system as long as possible. If the system doesn't improve, the complaints of children having poor attention, poor self-control, and excessive activity will continue to increase. Since these are exactly the "Attention Deficit Disorder" (ADD) symptoms, there is a serious risk that number of parents that will have their children diagnosed with ADD will also grow. Or as Diller (1998) states it: "all those famous, accomplished people (Edison, Benjamin Franklin, JFK and so on) were not impaired enough to fail in life … even if some of these notables might be offered Ritalin by today's diagnosticians." It is the education system that has to improve their degree of success in keeping students motivated to learn. A second important task, given the speed at which knowledge changes, is to shift the focus of the education system from being able to reproduce knowledge, which is essentially backward looking, to a more forward looking approach, teaching how to learn, that is, develop new knowledge and new solutions for the new problems that tomorrow will bring.

It is not having attended school (or training) that proves a person's competence and predicts what future an individual will reap. Several programs, such as MBA's, offered by series of accredited universities in the United States get a different rating and result in a different salary, depending on the University you have chosen (Jennifer Merritt, 2000). Next to education and training, an individual can learn in an informal way, by experimenting or just by doing his job. From an individual point of view, to problem of informal learning often lies in the proof of competence. Some certification systems, such as those set up by Microsoft and Cisco, and such governmental exam systems such as a "central examination commission," allow for more informal ways of learning, formally measuring the final result of the study, not how the knowledge was obtained.

Learning from a company perspective

For a company, learning is about performance. Given the growing importance of training and the budget increases that go with it (McMurrer, Van Buren & Woodwell, 2000), training and development now get the attention of the CEO of the company. As a consequence, training managers have to prove the Return on Investment of training (J.J.Phillips, 1997). Measuring results of a training program in companies is typically done by a first level of testing, asking participant's reaction to the program with what is commonly known as "happy sheet." A second level of evaluation measures what the participant has learned in terms of skills, knowledge and attitude changes. This corresponds to the testing level used by the schooling system, that in general doesn't do level 1 testing. From a company perspective, higher level testing is showing the real return. Level 3 measures changes in behavior on the job and specific applications of the training material, and level 4 focuses on the actual results obtained by the participants as they successfully apply the program material. Neither the education system nor most training programs in companies test on level 3 or level 4. However, if one wants to calculate the return on investment of a training program, the first 4 levels of evaluation need to be conducted. And one might find that much training fails to be transferred to the job. For instance, when organizations try to increase their capabilities in soft areas (such as leadership), "Most surveys show that efforts to implement these soft organizational capabilities have a 75% failure rate." (Ulrich, 1997, p.10)

Next to training, which can be seen as "formal learning," a lot of informal learning takes place in the company. The main difference of a company perspective is that the learning method is left "informal." Still, if learning is strategic, informal learning will have to be managed too, even if that may seem a contradiction. When measuring the results of learning, one needs to augment the results of training with the results of informal learning. The means using the learning is less important than the effect obtained in the end.

Increasing the effectiveness of training

As we have seen in the assessment, there is room for improving training both from the company's and the individual's perspective. This section of the paper will cover some of the possible improvements linked to the training process.

In his book *'Evaluating the Impact of Training,"* Scott B. Parry (1997) writes: "Human behavior in the workplace is shaped by what you know, how you feel, and what you can do: knowledge, attitudes and skills (KAS). Picture these as a three-legged stool: If any leg is missing, you won't get the desired performance." A competency is using a combination of KAS to reach optimal results in a specific domain, such as emotional awareness, constructive discontent, or creativity. What we can see is the behavior generated by the KAS as well as the results. The KAS itself is hidden below the surface, similar to an iceberg that remains 90% beneath the surface. To increase the effectiveness of training, all factors of the KAS need to be taken into account. Increasing the effectiveness of training can be done at 3 levels: while preparing the training, during the training program and in the follow up after the program. Any of these rules could be applied to the education system as well, even if this section will focus on corporate training.

Preparing training

Why would one train a person in sales skills if the attitude of the person will block him from using these skills effectively, or if his knowledge is insufficient to sell the product? An example of the first type is a person who believes that it is wrong to convince someone. Since selling includes convincing, the belief that doing so is wrong will block the person from being an effective salesperson. Related to the attitude problem, one also finds that mandatory courses produce lower leaning outcomes than voluntary learning does (Laurie Bassi & Amanda Ahlstrand, 2000). Given that it is often difficult to change people's attitudes, the conclusion is the saying "hire for attitude, train for competence." (Merlevede, 1997b, 2000a) An example of the second type is a person without IT knowledge that is supposed to go out and sell highly advanced IT consulting solutions. Selling such kind of services requires enough knowledge to be able to reason through a customer's problem and develop a custom solution for it. That's why companies such as IBM often need sales persons with an advanced university degree in either the application domain of the customer or either a degree with an extensive computer science part.

Instructors must make sure that the participants in their courses know the objectives, prerequisites, expectations and timing in advance. If this information is not known, people that cannot successfully apply the training because of attitude or knowledge misfit will waste their own time and the time of the trainer. One solution to check that is to do a pre-workshop questionnaire. Next to this questionnaire, one can also test the current level of skills, attitude and knowledge of the participants.

Another of the preparation issues is choosing a form of training delivery. Until a few years ago, training was mostly instructor-led and in the classroom, apart from rather marginal use of distance learning such as Open University and training on audio or video-tapes. The advance in multimedia computers and especially the internet has changed this drastically. Already in 1993, Filipczak indicated that 43% of US. organizations with more than 100 employees were using some form of Computer Based Training (CBT). In a current ASTD study (McMurrer et al, 2000), CBT is expected to be used by 92% of US organizations of more than 100 employees by 2002. Corporate training is now also offered in a series of variants of computer based training, on different supports (CD-ROM, LAN, internet), both synchronously and asynchronously. The return on investment (ROI) obtained with CBT variants is very impressive and CBT is now coming into the mainstream (Merlevede, 2000b). For social skills, most specialists do not believe a

CBT-only solution will be successful. Most recommend a combination of CBT with classroom training.

Even if one considers instructor-led classroom training necessary to get people to the desired level of competence, one of the main advantages of CBT is that it can be used to put all students at the same starting level. For instance, IBM's Leadership Development programs now require taking a first level of training using CBT, before students are allowed into the classroom. Another advantage is that CBT can replace most technical training that is focused to transfer knowledge, such as product training for sales people. Moreover, CBT can be taken "just-in-time," for instance when one has an urgent meeting to sell the product instead of months to prepare. In the old training model, the training might have been forgotten by the time the sales person needed it, given that in one month's time, one risks to forget more than 85% of unused knowledge that was transferred during training. Related to the knowledge transfer issue, one has to consider that today knowledge perishes faster, since a product may last less than a year before it is replaced by the next version. If one has to roll out a course on a new product over the complete world, this could take months with instructor-led training. If you use the Internet for an online conference, people worldwide can be trained at the same moment.

One can increase the retention rate in companies by giving people enough chances to develop themselves. These chances have to include training, without giving any judgment on what method of training delivery has to be used. It seems that the major counter-argument against CBT is that training is often used as incentive. Companies will keep their annual sales meetings and software companies will keep organizing user conferences, even if it may not be the most effective way to train people, but rather a way to reward the best employees.

Linked to attitude and training delivery, one also has to design the training program to take into account how people like to learn. For this, one needs to have a notion of the strategy or internal mental process used by the student. One of the best known systems to measure this is Kolb's Learning Styles Inventory (Kolb 1984). Research at Brigham Young University has shown that using the full spectrum of learning styles in teaching classes increases teaching results significantly. Also, explaining learning styles to students helps them to learn the course materials better (Felder 1996). In a study applying Kolb's learning style theory to CBT, Currie (1995) concludes: "Trainers should use a variety of techniques and training aids, encourage an awareness of learning styles and a broadening of the learner's range of styles." Given the current combination of possibilities already in place in current CBT software, elements such as case studies and role playing need to be added to CBT design. On the content side, present side bars with "hands-on examples" that show how people have applied the skills or knowledge to learn. Have links to detailed background information for those that want to know more. Related to this, Susan Montgomery (1995) advises that you assure that the presented content applies to all sensory channels offering a balance between auditory information (text and audio), visual information (charts, diagrams, pictures and eventually video), kinesthetic (motivating them, recalling related past experiences) and tactile information (learning by doing, active experimentation).

During Training

How one learns depends on previous knowledge, skill and attitude (values) in relationship to the needs one has in the current context. Learning is an active verb - you cannot learn for someone else. Each learner should be held responsible for his or her own learning. It's the individual's role to take what's offered and apply it in a way that's relevant for them. In Peak Learning, Ronald Gross (1999) found that this kind of attitude leads people to master more things and master things better than those that rely on being taught.

One way to increase this personal responsibility is by allowing time for job/work statements. At the beginning of the training, make sure that the individuals know what they want to get out of the training. The training delivery should be customized to take into account the students' goals. At the end of each training session, students should get time to summarize what they learned and what actions they will have to take to get to their learning goal in relationship to the material thought. At the end of the training program, ideally all training goals should have been covered, or at least the student should know where to get the missing pieces.

Even if the student has the right attitude, and the individual's goals have been set, the actual delivery can still make the training initiative fail. One cause of failure may be the training delivery form, even if preparation of the course predicted that a certain form of training delivery was the best choice. For instance, well-delivered CBT will yield positive results, but factors such as student isolation, slow feedback to students, ambiguous instructions for exercises, inadequate computer skills and technical problems may turn this form of learning into a frustrating experience, thus inhibiting the learning (Hara, 1998). CBT must be designed to be very user friendly, and highly interactive, allowing students to make choices and give them the freedom to select a nonlinear path through the course, so that it matches their learning style.

Research also suggests that written communication, which is mostly used for CBT (e-mail, newsgroups, chat-groups), risks to be more time-consuming than just having oral discussion, especially if those written communication forms are used inefficiently (Merlevede, 1997a). To this one can add the fact that the amount of communication is typically higher once chat and newsgroups are made available (Bates, 1994).

Thirdly, CBT is often self-paced. The advantage is that students get the time to review the material when they need it and as often as needed, until they feel confident. Or they can do it at somewhat less busy times, or review it at the very moment they need the knowledge or skill. On the other hand, it is important to keep them motivated to work through the program. This can be done to stimulate them with e-mail reminders, scheduled get-togethers in a chat rooms, or even deadlines to take online tests.

But also an instructor-led class in a classroom may run worse than expected, because some students do not fit the predefined class profile or because the trainer does not relate well to some students.

After Training

Given that even with good preparation the training itself may still cause problems, it is important both to the individual and to the company to monitor the performance of training programs[3], in order to improve programs for the future, and in order to help the student reach the learning goals.

At the first level of evaluation, one will only measure consumer satisfaction. That is important, but does not predict whether participants have learned new skills or new knowledge (Dixon, 1990). Indeed, not all learning is pleasant, as humans often have to learn from their past mistakes. Satisfaction is also linked to attitude: when one finds out during training that the beliefs one has are contradictory with the message from the training, this may lower the user satisfaction showing up at the end of the training. The same is true when one is obliged to participate in the program.

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[3] For readers wanting a concrete solution on how to measure this performance, we refer to the book "*Return on Investment*" (J.J. Philips, 2000). This book contains several detailed cases on how the results can be measured at the different levels.

At the second level, one will measure what the participants have learned in terms of new knowledge and skills. Tests and grading tends to cause stress, and stress and fear are the greatest enemies of learning. They may take away the learners attention from the task at hand. Also, again level 2 testing does not guarantee that the learned skills will be used on the job, since it may be the transfer of skills that fails (Broad & Newstrom 1992). For level 2 measurements, the point companies need to stress that testing is meant as a feedback system and won't be used for promotion reasons. A promotion comes from the results one obtains, combined with the belief that the person has (or will acquire) the skills required for the new job.

This brings us to level 3 testing. Both the attitude of the person and their environment can be sources for problems. For instance, the interaction with colleagues or the directives from the line management or higher levels of the hierarchy may block the effective application of learning. An example of the first type is what happens with time-management courses: if the course was not compatible with the company culture, the resistance from colleagues may have as effect that the person stops applying the skills learned. An example of the second type is when the management does not provide room on a person's schedule to apply the lessons learned. To resolve these problems, the training programs need to be aligned with the company's strategy and objectives.

The assumption behind level 3 testing is often that the results will follow if a person applies the new learned knowledge and skills in his job (Phillips, 1997, p.192). This is a dangerous presupposition. Suppose you train customer representatives to be more assertive when negotiation sales conditions and service terms. While this might save the company money in the short term, the overall business result might in fact deteriorate and stop the customer from reordering other products or services. Maybe the needed skill was a combination of assertiveness and empathy, a combination that is rarely trained in a "classic assertiveness course, but which is often found in an emotional intelligence course (Merlevede & Vandamme, 1999).

Good Level 4 evaluation will cover this problem by researching the impact of training in terms of the business results. Level 5 evaluation will finally add the ROI by comparing the benefits found at level 4 with the costs of the training program (Phillips, 1997, p.10).

Of course, measuring the results of training is not enough. One can considerably improve the effect of the training program using a follow-up system, including come-back training sessions and coaching. Especially the coaching can help to solve some of the attitude problems by helping people to resolve limiting beliefs (Merlevede & Vandamme, 1999). Depending on the company, one can see coaching as a part of the job description of the line-management, or one can set up special coaching groups.

If the ultimate measure for the company is the ROI of training, the ultimate economic measure for the individual becomes how taking training will impact the individual remuneration. The current compensation approaches used by companies increase the chance that there will indeed be some impact. The ASTD State of the Industry Report (Daniel P. McMurrer, Mark E. Van Buren & William H. Woodwell, Jr, 2000) indicates that knowledge and skill based pay is used by 41 percent of the 501 U.S. companies participating in the ASTD benchmarking Service, incentive compensation is used by 67 percent of companies. Most U.S. companies have annual performance reviews (98 percent), individual development plans (91 percent) and applied skill certification (73 percent).

Training in a larger strategic and tactical framework

It is clear that organizational learning does not stop with training. As mentioned, the application of learning is influenced by the people that learn and by context in which the material is to be applied.

Hiring and firing

When we combine the company perspective with the individual, the lifecycle of the employee within the company becomes the larger context frame to put training in. If we mentioned that people without the right attitude are hard to train, something that one should at least discover during the preparation phase of a training program, this also means this could have been discovered when hiring the person or when promoting the person to a new function (Merlevede 1997b, 2000a). If one finds out during or after training that the training doesn't help to improve a person's results, and it becomes clear that the cause of this lies in the attitude of the person, it may mean that the company made a hiring mistake or that the work environment has changed so much that the attitude that was acceptable at the hiring time has become outdated.

Hiring mistakes are often linked to internal promotions. For instance, a company may have a telesales desk and a classic sales force. Often, the company promotes their best telesales workers to other sales functions. However, the attitude required for the internal telesales function as quite different from the attitude needed for a outside sales function. A first difference is the amount of proactivity required to find customers: often telesales people have to react to phone calls, or get instruction on who to dial, while outside sales persons have to take more initiative in that area. A second important difference lies in the ability of the person to be independent, manage his own time and the stress that comes with the job. Again, the outside sales person has a more demanding job. If the attitude of the person doesn't match with the attitude of the job, often the best solution, both to the individual and the company, may be that the person gets fired from this job (eventually getting another function in the company), unless the company and the individual are willing to invest in a change of attitude, through coaching.

Aligning learning and strategy

Given an economy in which change becomes the only constant, it is often difficult for a company to plan learning. This shouldn't be an excuse for ignoring the elements that will increase the performance of formal learning. Formal, planned learning related to the vision and objectives of the company is one part of the solution. The learning organization, as advocated in the book "The Fifth Discipline" (Senge, P, 1990), requires several other building blocks, such as a personal commitment to learning, team learning and shared mental models. Discussing these elements lies outside the scope of this paper, but they will impact the effectiveness of learning as an organization.

Conclusion

Training today is about increasing revenue and reach. People need to move to stay up-to-date. They have to learn faster and more effectively, thus keeping their competitive advantage. The new economy is a driving force in this as it increases the speed at which one needs new knowledge. Yet, the technology behind the new economy can also help to increase and improve training delivery, offering more training opportunities at a lower cost and a higher speed. One element that is harder to train is the attitude of the individual. Even if training programs are well designed and take into account the learning styles of the individual, one may have to conclude that it may be difficult to train the person because applying the skills trained requires another attitude or environment. One might conclude that the person with the largest attitude flexibility

will be the easiest to train and will get a competitive advantage. Maybe this will also be the person with the biggest drive for learning informally. One might also conclude that the slogan "Know Thyself" gets a new meaning in the new economy. By being honest with oneself and inquiring more about the company's values and the job requirements in terms of attitude, one might conclude that there is no match between the job and the person. Ultimately, being the right person on the right place in terms of attitude and values makes work much more fun and increases the chances to be successful.

References

Bassi, Laurie & Ahlstrand, Amanda, 2000, The 2000 ASTD Leaning Outcomes Report, ASTD

Bates, A.W., 1994, Educational Technology in Distance Education (in The international Encyclopedia of Education (2nd Ed.), Oxford: Elsevier Science), p. 1573-1580

Broad, M.L. &Newstrom, J.W., 1992, Transfer of Training, Addison-Wesley

Cole, Jeffry, 2000, "Internet Study", Preliminary Results, UCLA Center for Communication Policy, August 21

Coy, Peter, 2000, The Creative Economy, Business Week, 21-28 August

Currie, G, 1995, Learning Theory and the design of Training in a Health Authority, Health Manpower Management, 21(2), p.13-19.

Diller, Lawrene H., 1998, Running on Ritalin, Bantam Books

Dixon, N.M, 1990, Evaluation: A tool for Improving HRD Quality, University Associates, Inc.

Felder, Richard M., 1996, Matters of Style, ASEE Prism 6(4), December 1996, p.18-23

Gross, Ronald, 1999, Peak Learning (Revised Edition), J.P.Tarcher

Hara, Noriko, 1998, Students' Perspectives in a web-based distance education course, Annual meeting of the Wid-Western Educational Research Association, Chicago, October 14-17, 1998

Kelinson, J.W. & Tate, P, 2000, The 1998-2008 Job, Occupational Outlook Quarterly, Spring 2000

Kolb, David A, 1984, Experiential Learning: Experience as the Source of Learning and Development, Prentice Hall

Korzybski, Alfred, 1921, Manhood of Humanity, E.P Dutton & Company

Lens, W & Depreeuw, E, 1998, Studiemotivatie en faalangst nader bekeken, Universitaire Pers Leuven

Phillips Jack J., 1997, Return on Investment in training and performance improvement programs, Gulf Publishing Company

McMurrer, Daniel P., Van Buren, Mark E. & Woodwell, William H. Jr, 2000, The 2000 ASTD State of the Industry Report, ASTD

Merlevede Patrick, 1997a, NLP toepassen in schriftelijke communicatie; een uitdaging in de virtuele samenleving?, Vijfde Nederlandse Congres voor NLP, 19 april 1997, Ede

Merlevede Patrick, 1997b, Analyzing language and behavior in Top Performers and its uses in the employment area, International Colloquium on New Technologies based Learning and Employment Support, Belgium, 17 to 19 September 1997

Merlevede, Patrick & Vandamme, Rudy, 1999, Zeven lessen in Emotionele Intelligentie, Garant Uitgevers.

Merlevede, Patrick, 2000a, "Emotional Intelligence as enabler for Better Business Results, Gestion 2000, June 2000 - Numero Special Ressouces Humaines, p. 163-172.

Merlevede, Patrick, 2000b, e-learning, de tendens voor opleidingen in de 21ste eeuw, (to appear in: HR Magazine, October 2000).

Merritt, Jennifer, 2000, Special Report: The best B-schools, Business Week, 2 October 2000

Montgomery, Susan M., 1995, Addressing diverse learning styles through the use of multimedia, ASEE/IEEE Frontiers in Education Conference Proceedings

Parry, Scott B., 1997, Evaluating the Impact of Training, American Society for Training & Development

Ulrich, D, 1997, Human Resource Champions: The next agenda for adding value and delivering results. Harvard Business School Press.

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