WHAT ARE THE FACTORS THAT AFFECT E-LEARNING?

Gwyn Ellis

MA Module DO7
Effective E-Coaching in Business & Education essay

January 2003
WHAT ARE THE FACTORS THAT AFFECT E-LEARNING?

WHAT IS LEARNING?

Learning has been discussed for centuries and thoroughly researched for decades to a general conclusion that a human's capacity for learning is remarkable and that it is vitally important. But there are differing views on the structure, causes and consequences of learning and varying definitions of the process. Shuell (1986) defined it as:

“An enduring change in behaviour, or in the capacity to behave in a given fashion, which results from practice or other forms of experience.”

But the basic issue is the factors that affect learning and this is where there are two main schools of thought, grouped as Cognitive and Behavioural theories. The latter views learning as a change of behaviour where environment is of vital importance whilst cognitive theorists focus on the mental processes and assign a more prominent role to memory.

WHAT AFFECTS HOW WE LEARN?

What these differing ideas and theories dictate is that a teacher who is trying to get his pupils or students to learn something new needs to consider a variety of issues or factors. This means that the teaching methodology that is employed has to be the main consideration when discussing how people learn since it has to consider and respond to all the ideas and logic that have been deduced from the considerable research made into the field.
FACTORS THAT AFFECT LEARNING

SOCIAL ENVIRONMENT
- E.g. observational modelling
- Peer issues
- Bandura, Vygotsky

LEARNING STYLE
- E.g. Audio/visual/kinesthetic
- Perceivers/Processors
- Concrete or Abstract
- Active or Reflective

PERSONALITY
- E.g. age/gender, resources, genetics, social environment
- Piaget, Montessori

TEACHING METHODOLOGY
- Maslow
- Herzberg

RESOURCES
- E.g. Time, Equipment, Finance

MOTIVATION
THE THEORIES – WHAT TO TEACHERS HAVE TO CONSIDER?

To begin with there is the obvious need for the teacher to consider the time that is available for teaching and practicing new skills and the equipment that is required as well as the financial constraints of undertaking certain tasks. Bruner (1966), whose constructivist theory is a general framework for instruction based upon the study of cognition, agrees that there are basic concrete considerations to be made to begin with, such as those of available resources which include an appropriate, balanced and developmental work-scheme. He stresses that this curriculum should be organized in the manner that will be most readily grasped by the learner and in a spiral manner so that the student continually builds upon what they have already learned. He also points out the importance of trying to encourage the learners to discover principles by themselves and the need for the teacher to translate information to be learned into a format appropriate to the learner's current state of understanding. He also says that a theory of instruction should address the student's predisposition towards learning.

Bandura (1977), on the other hand, stressed the importance of the social emphasis to learning and explained that humans learn a great deal from observation and through modelling others. His social learning theory explains human behaviour in terms of continuous reciprocal interaction between cognitive, behavioural and environmental influences. Complimentary to Bandura is the work of Vygotsky and his social development theory which focuses on the fundamental role that social interaction plays in the development of cognition and the fact that the range of skill that can be developed with adult guidance or peer collaboration exceeds what can be attained alone. Thelen, Fry, Fehrenbach & Frautschi (1979) take this even further by suggesting that multiple models increase the probability that observers perceive themselves as similar to at least one of the models or may be swayed by the influence of several peers accomplishing a task. Schunk and Hanson (1985) also showed how self-efficacy and skills were more enhanced by peer modelling than by teacher or no
modelling. Of course, within this issue of group learning there, also, needs to be
coloration of the difference between collaborative learning and co-operative
learning. As John Myers (1991) defines it co-operative learning is where
students work together to achieve a certain goal led by the teacher and with a
more product orientated goal whilst collaboration refers to the whole process of
learning from and teaching each other.

"Learning is enhanced when it is more like a team effort than a solo race. Good
learning, like good work, is collaborative and social, not competitive and isolated
Sharing one’s ideas and responding to others’ improves thinking and deepens
understanding" (Gerdy, 1998).

Learning collaboratively and with influence of peer modelling as well as
teacher modelling all contributes to development of skills in a variety of
individuals. The social aspect is a vitally important component of the learning
process and fostering the correct ethos and environment to achieve this should
be the main aim of a teacher if they are to be successful. Since a classroom of
any age or ability will have learners that have their own personality traits,
motivation and learning styles as well as genetic, financial, time or resource
constraints or social issues which could affect these factors the teacher will
have to show flexibility and a willingness to attempt a variety of techniques.

Piaget suggests that we all pass through four stages of development and that
without the proper stimulation we will not reach our potential whilst Erikson and
Kohlberg agree that everyone learns in a different way at different stages in
their life and Kohlberg also stresses the influence of a person’s social
environment or background. Dr. Maria Montessori also suggested that Children
pass through Sensitive Periods, which are periods of intensive sensitivity to a
certain area of development or concept forming. For example, walking, writing or
reading and therefore age has to be crucial in terms of learning. She, also,
claimed that all children are intrinsically motivated and have an Absorbent Mind
from birth to six years. This Absorbent Mind gives the child an amazing capacity for absorbing information and concepts. She believed that all Children want to learn and that there isn’t much need of motivation. However, this is not true of all ages and as Maslow (1963) and Herzberg (1959) have shown there are many factors that affect a person’s motivation and willingness to work hard and therefore his willingness to learn. They stress the importance of environment as well as what is actually being done. Deci identifies the differences between intrinsic and extrinsic motivation, where the latter revolves around rewards or punishment given in a learning environment whilst;

“Intrinsically motivated behaviour occurs as a result of a person’s innate need to feel competent and self-determining in dealing with his or her environment.”

Weiner (1990) points out that behavioural theories tend to focus on extrinsic motivation while cognitive theories deal with intrinsic motivation. Motivation is a pivotal concept in most theories of learning. It is closely related to arousal, attention, anxiety and feedback or reinforcement. For example, a person needs to be motivated enough to pay attention while learning. Anxiety can decrease our motivation to learn and receiving a reward or positive feedback for an action usually increases the likelihood that the action will be repeated. This again shows the importance of creating a comfortable and encouraging environment or society of learning where the teacher’s influence is pivotal.

Individuals also have differing learning styles with regard to how they begin to concentrate on new information, process and then memorise it. Some teaching techniques will prove effective with certain students but not so with others. A person’s brain is as unique as their fingerprints and according to Michael Grinder (National Director of NLP in Education) the style chosen by a person in his or her infancy is the one given preference during the rest of his or her life. There is a bank of research on the different styles encompassed in a classroom by researchers such as American Mathematics Professor Anthony
Gregorc who claimed that each classroom will have students showing varying enjoyment of the lesson (from strong to hardly any enjoyment) and that they can be divided into four groups that cross gender, age, ability, socio-economic background and race. These divide the population into 27% Abstract Sequential, 27% Abstract Random, 27% Concrete Sequential and 18-20% Concrete Random learners. Ekwall, Shankar & James (1988) also stated that people usually remember:

- 10% of what they read
- 20% of what they hear
- 30% of what they see
- 50% of what they see and hear
- 70% of what they say
- 90% of what they say and do at the same time.

In addition to this is the research done during the late 70’s through the 80’s that showed the differences in learners when they are taught through their preferred personal style, be it audio, visual or kinaesthetic (e.g. Trautmen, 1979, Carbo, 1980, Shipman & Shipman, 1983, Shea, 1983, Vinitsha 1983, Della Valle, 1984, De Bello, 1985, Hodges, 1985).

So, to summarise, I believe that learning is a social activity when at its most effective where motivation, peer issues, modelling and consideration of individual differences have an important role in placing the student in a comfortable and attractive environment which encourages the presentation and comprehension of new information which can be stored and then retrieved when appropriate.
SO WHAT ABOUT E-LEARNING?

So how does all of this relate to e-learning, and what, exactly, does e-learning mean? The term e-learning has been defined in several ways. Some commentators take it to mean e-delivery and administration of courses, rather than focusing on the student learning aspect. One example is found in Pollard and Hillage’s (2001) report:

“E-learning is the delivery and administration of learning opportunities and support via computer, networked and web-based technology, to help individual performance and development. It is more than just ‘training on a computer’ as it encompasses dissemination of information, performance support and knowledge management. It involves not only access to training materials but also offers the management of learning - providing both content and administration.”

Others, such as Trondsen (2001) do focus on the learning element in their definition of e-learning:

“The use of electronic media and the power of networks - primarily those based on Internet technologies - to enable more efficient, flexible, personalised and engaging learning.”

The e-learning activity can include so many different aspects, which makes it a challenge to define. In addition to learning, it also encompasses aspects of teaching, information provision and knowledge management. As Tansley and Hussey (2001) suggest, perhaps the best way to understand e-learning is to take the position that:

“E-learning constitutes a set of learning activities that can be undertaken by individuals, groups and knowledge communities, drawing upon information and interactive learning materials provided via accessible electronic communications...
media to enable knowledge development for the improvement of their organisational performance. Support for e-learning requires the provision of administrative and quality monitoring procedures, such as joining procedures, registration and candidate tracking and this is increasingly provided via learning websites where links to other websites can be found”.

WHAT ARE THE BENEFITS OF E-LEARNING?
There are obvious benefits to such modern approaches to learning such as improved accessibility since the learning could take place at the time, place and pace that best suits the learner. Also integrated tests, assignments and the provision of automated record keeping enhance the assessment of learning effectiveness and the elimination of physical resources such as books or conventional classrooms simplify the logistics. It can increase the speed of access to information and expertise, broaden experience and offer you a range of formats to choose from. It can also reduce the travel costs of a company substantially as well as the time spent by employees in training and, therefore, the overall training costs are much less than they would have been. However, there are also some limitations. According to Forrester Research, only 30% of employees bother to complete an e-learning course.

WHY?
WHAT DO WE NEED TO DO TO MAKE E-LEARNING SUCCESSFUL?
This is the big question and the success of an e-learning approach is exactly the same as the success of any learning environment. I have interpreted the teaching methodology as being pivotal in the learning process due to the need to consider all the other important factors that have been suggested as having an effect upon learning, well I believe that this is exactly the same in an e-learning situation and unless these factors are properly addressed then success will be difficult. The reason behind the low percentage of completed e-learning courses is probably due to the fact that the factors stated above as
being important in the learning process were not sufficiently considered. The process of E-learning is, undoubtedly, in its infancy and although Information Technology as a subject is probably developing quicker than any other aspect of education in general there needs to be obvious consideration of the undeniably important aspects that affect learners before it will be deemed an effective technique. If online learning takes a content focussed and instructor centred atomistic perspective towards learning where there is minimal interaction with a teacher and the learning is mostly individual and without collaboration with other students then I believe that the important factors of learning are being ignored and, therefore, the process will not prove effective. This type of approach is knowledge based and the learners are in isolation and miss out on the benefits of collaboration.

At its most appealing e-coaching should be able to adapt to individual styles and personality traits by the mere fact that it could offer a vast array of techniques or methods for fulfilling tasks as opposed to a one-dimensional teacher – pupil relationship. However, there remains doubts as to whether such a method of teaching will give enough consideration to the fact that there are considerable benefits of collaborative learning and motivational aspects of working in an environment where you can model peers and interact effectively on a task. Co-operative learning could be done but it is the collaborative aspects that I see as being less effective. The physical distance between students means that observing others undertaking tasks is difficult even if modelling can be done retrospectively. In order for it to succeed there needs to be collaboration where resources, references, ideas and work can be easily and quickly shared. Discussions need to be had within groups of online students as well as one-to-one conversations and the students need feedback from a significant amount of interaction with teachers and peers. This type of holistic approach to e-learning is much more community based and of a sound social perspective which I believe to be vital to encourage successful learning. The benefits of introducing the computer and all its possibilities and wizardry is an
incredibly potent resource for the classroom, be it in a traditional environment or an online community bit in order for e-learning to prove appealing and effective the social aspect and its different considerations have to be addressed and given appropriate attention since this, in my opinion, is one of the most important factors that affect learning and the one that is in danger of being lost with online learning. Dr. Gilly Salmon, a full time academic in the Centre for Innovation, Knowledge and Enterprise at the Open University Business School, has published extensively on the subject in recent years and she recognises the role of the teacher and the working environment as being vitally important. She states:

“What we know from 10 years of online learning is that moving online does not have to mean a loss of active and social learning. The key to success is a balance between applying useful older concepts about learning and the implementation of innovations using the best of networked technologies. Successful and productive online teaching is a key feature of positive, scalable and affordable e-learning projects and processes. Regardless of the sophistication of the technology, online learners do not wish to do without their human supporters.”
REFERENCES

Learning Theories - An Educational Perspective
Prentice-Hall Career and Technology

Peter Scrimshaw (1993)
Language, Classrooms and Computers
Routledge

ICT and Interthinking
Centre for language and communications, Open University

Ted Panitz (1996)
A definition of collaborative versus cooperative learning
Deliberations

How does collaborative learning actually work in a classroom situation and how do students react to it? A brief reflection

Ekwall, Shankar and James (1988)
Diagnosis and remediation of the disabled reader

Jim Kelly (20001)
Constructivism and learning objectives, supporting learner anarchy
Trinity College, Dublin

Paul Ginnis (2002)
Thinking Ahead - Head teachers' conference

LinguaLinks
www.ethnologue.com

Theory into practice database
www.tip.psychology.org

Gilly Salmon website
www.oubs.open.ac.uk/gilly