ELEARNINGNEWS ARTICLE

Year 6 - number 198 Wednesday 13 april 2022

Psychology and eLearning, the learning guidelines

In the field of education, psychology provides important theories on how to ensure satisfactory learning outcomes. Let's discover the three main theories.

In order for training to become an established practice in companies, its content must have a solid foundation. More than a hundred years of psychological research has provided professionals with theories that provide indispensable guidelines.

Three useful theories

Technology makes an important contribution to the continuous improvement of eLearning. In just a few years, solutions such as 5G and **Artificial Intelligence** have made it possible to create tailor-made training content. All this power needs to be channelled to best achieve the training goals of learners and businesses. As they say, power is nothing without control, and psychology offers us its help to manage this technology: learning is one of the research fields that different schools of thought have addressed. Three of these have provided important conclusions on the subject and on the solutions to be adopted to ensure satisfactory results.

Behaviourism

If the surname **Pavlov** sounds familiar, then you have an idea of what Behaviourism is. Its basic principles state that:

- Behaviour is learned through interaction with the environment
- The stimulus-response sequence is the key to interpreting behaviour
- Behaviour can be conditioned with a procedure involving rewards or punishments
- Appropriate repetition of this **conditioning** can permanently modify the behaviour.

In particular, it is possible to obtain

- **Positive reinforcement**, by rewarding positive behaviour
- **Positive punishment**, with negative stimuli to negative behaviour
- **Negative reinforcement**, by removing negative stimuli to positive behaviour
- **Negative punishment**, by removing a positive stimulus in the face of negative behaviour

Translated into business terms, the desired behaviour of an employee can be incentivised with bonuses or leave (positive reinforcement) or with greater decision-making autonomy (negative reinforcement); similarly, disciplinary measures can be taken to deter a behaviour in accordance with the law (positive punishment) or by removing bonuses and commissions (negative punishment).

Cognitivism

With Cognitivism we enter the black box: the focus shifts to how students construct their knowledge through **mental processes** such as logic, reasoning and memory. We have moved from the empiricist approach of Behaviourism - experience perceived through the senses is the only source of knowledge - to a rationalist one, in which human reason can be the source of knowledge. The motivation to learn is of central importance. Learning is the way a learner processes information through reasoning.

In the business environment, a cognitivist approach leads, for example, to considering incentives such as salary or career as motivation stimuli.

Constructivism

With constructivism it is the **individual** who builds the tools for understanding according to previous experiences. There is no single mental process common to all students: each one, alone or in a group, interprets and solves a problem in his or her own way.

In business, this phenomenon can be observed when evaluating different strategic choices: if those who are confronted are informed and in good faith, different positions can be caused by different approaches to ill-defined problems.

Suggestions for Instructional Designers & co.

Having illustrated the different approaches, it remains to be understood what their suggestions are for eLearning courses to the following figures:

- The Course Writer (CW), the author of the course
- The Instructional Designer (ID), the **architect of the course**
- The Subject-Matter Expert (SME).

In progressive order of specialisation, the Course Writer is the author of the content, on which he/she has a good background, without necessarily being a Subject-Matter Expert, the person with a thorough knowledge of all aspects of the subject matter. The Instructional Designer is the designer of the course, a sort of project manager whose task is to coordinate the execution of the work.

For these three figures to produce an effective course, their collaboration must:

- Combine research indications with the subjects taught
- Consider the learning styles of the users
- Set out a method of evaluating the benefits of the course

First of all, it is important to assess the subject matter and the degree of depth you want to teach. For an introductory level, where a subject new to the students is presented, the aim is to simplify the information blocks and link them into a homogeneous pathway, so as to simplify general understanding and relevant details. A **behaviourist** approach should be adopted here:

- Repeated exercises
- Question and answer sessions
- Guided practice
- Timed revision sessions

Good performance in these activities should be encouraged through positive reinforcement mechanisms such as praise and rewards. A limitation of this procedure is that not everything can be learned through repetition: success with well-defined tasks and notions is not the same for analytical skills or tasks requiring complex evaluations before action.

At a more advanced level, the user is encouraged to reflect on the presented topics. Questions and exercises should be aimed at understanding the logic of the proposed content. The aim is to improve problem-solving skills and increase the level of informed understanding of the tools proposed. This level should be designed with reference to the dictates of cognitivist theory, having in mind the importance of the user's motivation to attend the course. Also at this level, an eLearning platform operating with an LMS system makes it possible to propose a well-defined study path.

Finally, at an expert level, the course should bring doubt back into the learner. The idea is to stimulate reflection on the limitations and simplifications learned at the beginning of the course. This transition to a constructivist approach should take place when the user has already acquired the necessary competences to orientate him/herself autonomously in the subject. In this phase it is important to enhance the **social aspect of learning** with other users. An expert user is someone who has finished the path designed for him and is able to choose with good autonomy the direction: this is the ideal level to benefit from a **LXP system**, where an eLearning platform allows to navigate autonomously among the offered contents. Also here, transported in a business context, one can understand how this level is suitable to develop problem solving and complex problem management

skills. It can also be useful at an operational level: a technical expert who is stimulated to think about the tools might find a more effective way of using them.

Learner-friendly

Courses should then be designed with in mind that each learner has his/her own way of learning. This refers not only to the level of attention, but also to the way of understanding and fitting new notions into a familiar pattern and recalling content and procedures at the appropriate time.

Four different learning styles are illustrated in Peter Honey and Alan Mumford's model:

- The active
- The reflective
- The theoretical
- The pragmatic

For learners with an **active style** it is important to be involved in new experiences, they tend to favour immediate activity and usually do not prepare before lessons or review content after attending them. They are at their best when tackling new problems and working in teams or in role-plays: they are the ones who learn to swim after diving into the deep sea. On the other hand, if they are isolated or subjected to long theoretical lessons, they have difficulty absorbing large amounts of data and information or following precise instructions to the letter. Their key word is 'learning by doing'. A course designed for them should include **group work**, simulations and concrete examples to introduce the theoretical content.

People with a **reflective style** tend to consider a situation from different points of view and to gather comprehensive information about concepts and to review and reflect carefully before coming to a conclusion. They are at their best when they can observe others at work and can produce analyses and reports without the pressure of a deadline. Conversely, they are uncomfortable if they have to take a leadership role, especially in a simulation in front of a group of people, or if they have to perform a task without having prepared in advance. A reflexive person might watch how the whole pool swims before putting on a swimming cap: when they manage to emulate these patterns, then they can even compete. Their keyword is 'learning by watching'. A course that engages them should present the content well in advance and with a short deadline and provide the opportunity for further study.

For theorists it is important to integrate observations into coherent theories, to formalise solutions to problems in well-defined step-by-step procedures because the purpose for which a problem is addressed is important to them. They are the kind of people who need to know Archimedes' buoyancy and the principles of hydrodynamics before they go swimming, but who then float ships. For these people, a problem is never too complex if it is well defined and can be reduced to its simple components. They perform best when they can test the premises and their own conclusions. Conversely, they do not perform well in contexts where the human component is an important variable or where insufficient information is provided to frame the problem or where they are ignorant of fundamental principles or concepts. Their key word is "learning via models". An appropriate course for these people should include clear tasks and **well-defined problems**, even if complex, and whose results can be measured against the objectives to be maximised.

A **pragmatist**, finally, is someone who is focused on field testing procedures and concepts. The more practically applicable to their work, the better. Long-winded and theoretical discussions are not for them. If they have to swim, they choose the freestyle, which is the fastest and most reliable; perhaps after excluding all others. They learn best when it is clear to them the connection between a course and their work, when they can test the concepts they have learnt in the field and realise the benefits. Any lesson that does not bring a clear and immediate benefit is seen as a waste of time. Their keyword is "**learning by experimenting**". A course aimed at them should include a lot of practice in the field, perhaps under the supervision of an expert with a similar professional profile.

In reality, a student may not be aware of his or her own learning style. And course designers may not know in detail to which of them it will be offered. eLearning technology solves this problem through **adaptive learning**: by evaluating the user's responses to an initial test and measuring their behaviour during the course, the software can assess their specific learning needs and modify its interaction with the learner. In this way it can come closer to providing an experience tailored to each training need.

A learning organisation

In order to make eLearning training a business practice, it is not enough to understand what the users need. Designing contents and modes of delivery adapted to each type of user is certainly the central point, but for a company to adopt this practice it is necessary that the advantage is shared at every level. In other words, the company must become a Learning Organisation (LO), an organisation that perceives itself as a set of individuals who continue to learn and adapt their collective behaviour - not just that of individuals - to the needs of the environment.

We are far beyond mere training. Implementing this approach requires defining a shared method for **assessing the benefits of training**, **rethinking Human Resources** by creating figures such as the **Chief Learning Officer (CLO)** who are in direct contact with company management, and fully adopting a programme of continuous integration between learning and strategy (**CILS**). Adapting to change can be traumatic, but - for companies and people - it is the best way to a healthy growth path, both economically and socially.

Translated with www.DeepL.com/Translator