As I already mentioned in a previous editorial, there is an approach that I consider very helpful when it comes to understanding and improving the relationship between people and technology. This approach is called Actor-Network Theory (ANT).

Though it is not something new (the first papers from Callon and Latour go back to the late 1980s), and it has been used in different areas such as innovation adoption and IT project management, ANT has not been exploited much in the area of learning.

The main concept of ANT is the idea of actor-network. Actors and networks are mutually constitutive, meaning that there is no actor without action; that is, relationship with other actors, and the network is built on the mutual influences and intermediaries that actors exchange between each other. Actors in ANT are not only humans, but also nonhumans; as far as something acts, it is an actor. Thus, when regarding e-learning situations, the LMS, the technical infrastructure at learners’ homes as well as on the institution campus, the multimedia tools, the collaboration facilities (if any) among others, are actors as well as teachers, learners, and other human stakeholders. Being able to comprehensively identify all these stakeholders, take their diverse interests into account, and try to align at least some of these interests along common goals (what ANT calls “building the actor-network”) is a key step in the success of an e-learning development.

It is not because actors have been identified as taking part of the e-learning development process that they will really be implied. It is true also for nonhuman actors. A well-known example is the one of forums. You may include forums in a course and they are not used (or they are used for grading purposes only). You must imagine how to align your own interest as an instructor, the interests of the learners, and the interests of the forum (what makes it unique compared to other tools, for example) to have a chance of including the forum in the actor-network of the course.

The content (the subject of the course) is also a key actor in e-learning. What could be the interest of the content? To help students acquire new knowledge (in order to develop new skills, gain access to another course, an internship, or be able to participate in a project, etc.)? To help course authors (and/or teachers) gain recognition for their expertise in the field, build their place in the teaching community, in the scientific area; maybe add a line in a resume for a new position, and so forth? To contribute to the development of the discipline, the field, by
introducing new ideas, new points of views? To contribute to the development of the pedagogy by introducing new pedagogical aspects and modalities? It is sometimes difficult to align all these interests in a single course. It may be necessary to choose what kind of innovation I want to introduce into the content of this course. What is possible to align with the interests of my learners, of the programme, or of my institution?

The process that leads to making an actor-network work is a dual process called translation-inscription.

Translation means you have to translate (both displace and use another language) actors and actors’ interests in order to enrol actors in the actor-network. It is a negotiation process. It means that a shift is necessary, from the part of all actors, to understand others’ interests and how they could work together to reach a common goal. For example, this can be easily experienced in group-work. Negotiating the subject of the group-work, the schedule, the collaborative tools that will be used, may seem to be a waste of time at the beginning of a project. But, it is a way to build a strong actor-network for such an activity, and time might be well saved in further steps.

At some moments, in order to stabilize the ongoing processes, it is necessary to inscribe into durable material the fact that interests have been aligned. Inscription is often done by building artefacts that will testify some agreements (for example, a common document in a group-work or a jointly developed program in an IT course, or a commonly agreed on LMS in a department or an institution). Inscription is the result of a successful negotiated translation.

Once an inscription is considered sufficiently stable it can lead to a black-box. A black-box is the evidence that some steps have been covered, that the actor-network has reached some stability point, and that further steps can be taken from this one. A black box can always be reopened, but with a given cost. It is something many institutions are going through when deciding to adopt standards in e-learning. Choosing a kind of LMS needs to align interests of the community implied. Once a decision is made that “our standard will be this one,” it may be more or less compelling, depending on how the process took place. If it was participatory enough, then it probably will not be necessary to deploy too many efforts, at least to convince those who want to use an LMS, to use the “standard.” After a few years, it may be necessary to “reopen the black-box,” for example, to take into account the evolution of technology. Another example in e-learning is the adoption of SCORM standards when developing e-learning courses. You may be willing to develop non-SCORM courses because you want to fully use the power of multimedia interactive systems available on the market, or because you want to implement a very innovative pedagogy, that is not compatible with SCORM restrictions. Then you will have to reopen the SCORM black-box, knowing the counterpart for this (and possibly giving birth to the next standard?).

Another important actor in the learning actor-network is evaluation: applying the ANT point of view, once the evaluation process is inscribed in a procedure and some tools, it becomes a black-box, thus a new actor in the actor-network, the interests of which have to be aligned with the interests of other actors such as the teachers, the learners, the content, the pedagogical philosophy of the activity, the programme, the diploma, and so forth. This ANT perspective leads to the consideration of evaluation as a true participative activity which has to be consistent with the pedagogical design, the learning activities, the competencies acquired by learners and, naturally, the requirements of the programme and institution. Participative evaluation means that learner can take part
in their evaluation, either with self or cross
evaluation, which is specially interesting
when the learning design philosophy implies
high level learning activities, autonomy,
authentic activities, project-based learning,
and so forth.

When it comes to adopting new systems,
new points of view, new tools, and access
to new situations, ANT might be of help in
understanding not only why some stumbling
blocks may appear in the way, but also how
to overcome them, and even how to avoid at
least some of them. ANT focuses on the ac-
tor-network, that is, the persons and things
that play a role in the adoption process and
their interactions and mutual influences.
This symmetric view of people and things
as taking place in a network of interactions
is especially meaningful in e-learning where
people, technology, models, and activities
interact strongly to produce a new way of
considering learning.

The first article, “Role Adjustment
for Learners in an Online Community
of Inquiry: Identifying the Challenges of
Incoming Online Learners” by Martha
Cleveland-Innes, Randy Garrison, and
Ellen Kinsel, deals precisely with the ques-
tions of “building the actor-network” and
“aligning actors’ interests.” It emphasises
the question of presence (cognitive, social,
and teaching) and identifies several areas of
adjustment for new online learners. The role
adjustment process fairly looks like a succes-
sion of translations (in ANT sense) that enable
all actors — including technologies — to help
students “create learning communities” and
“achieve higher-order learning activities.”
It requires a “changed practice … for the
instructors as well as for the learners.”

The second article, “What Factors
Promote Sustained Online Discussions and
Collaborative Learning in a Web-Based
Course?” by Xinchung Wang, also ques-
tions the process of enrolment of actors to
build the online community actor-network. It
emphasizes the role of interaction (collabora-
tion, collaborative tasks, asynchronous and
synchronous exchanges). It stresses the role
of content, tasks, assignments, and assess-
ment as crucial actors in the process.

The third article, “Web-Based Imple-
mentation of the Personalised System of
Instruction: A Case Study of Teaching
Mathematics in an Online Environment”
by Willem-Paul Brinkman, Andrew Rae,
and Yogesh Kumar Dwivedi, evidences
the process that translates online learning
environments into personalised systems
of instruction. It is not a simple process. It
may often happen that tools act as inhibitors
for learning, though they were primarily
designed and implemented to facilitate the
learning process. To transform them into
promoters of learning (to enrol them as
promoters of learning) is probably the main
objective of course design. This article shows
how, in the case of a mathematics course, a
carefully designed use of a computer-aided
personalised instruction system may improve
the performance of students.

The fourth article, “Evaluation of
Computer Adaptive Testing Systems” by
Anastasios Economides and Chrysosto-
mos Roupas, discusses the value brought by
the use of computer-based testing systems
that are more and more in use. The article
suggests a framework to evaluate such sys-
tems regarding educational, technical, and
economical dimensions. Such systems are
considered black-boxes by most of their
users. As said in ANT, black-boxes can al-
ways be reopened, as far as the cost of their
improvement is economically balanced by
the value created by higher quality, greater
flexibility, easier use, and more valuable
feedback provided to users, for example.
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