

Supporting E-learning Design with Trello

ABSTRACT

This contribution aims to give feedback on the use of Trello, a task management tool, in a context of team coaching in e-learning design. The handling of this digital tool was carried out in the framework of the Erasmus+ CoNeCTE project in partnership with Lebanese higher education institutions. In the framework of this research, the Pedagogical Engineering and Digital Education Service (UMONS) accompanies teacher-researchers in the design of virtual learning environments. In order to monitor them, we created dashboards combining the Kanban method and the ADDIE model. Focus groups were conducted with the design teams to analyse the usability and usefulness of the Trello tool in this context. Our results show that Trello is a fast, efficient and easy-to-use tool for managing a project remotely, visualising progress, encouraging collaboration and supporting design teams. This contribution is also an opportunity to write some recommendations about the integration of the Trello tool in a team support context.

Keywords: Trello; Coaching; Instructional design; Distance learning, Kanban method.

Introduction

Within the framework of the CoNeCTE project (Collaborative Network for Career-building, Training, and E-learning), an Erasmus+ Capacity Building in Higher Education programme with European funding in partnership with Lebanon, the Pedagogical Engineering and Digital Education Department of the University of Mons trains, accompanies and advises teacher-researchers in the design of virtual learning environments.

The intention of the CoNeCTE project, launched in January 2020, is to improve the employability of students in the digital market by identifying their

future digital skills, as well as the needs of this future employment sector in order to propose innovative training (CCIB, 2021). It has four objectives:

1. To help universities adapt their programmes to meet the skills demanded by companies. To this end, a macroeconomic study has predicted future trends in the digital market (Noun, 2021).
2. Supporting teachers and students in their digital transition, particularly through distance and online training. The aim of the project is to create a virtual and collaborative learning environment offering students or young graduates innovative training related to the digital transition (CCIB, 2021).
3. To couple work-based learning with the online and distance academic pathway in order to acquire the required skills in a work context. The ambition is to develop work-study training in a Lebanese context where this type of education does not exist.
4. To bring companies and universities together to facilitate the integration of future graduates through a connected project. Indeed, CoNeCTE is the result of the collaboration of 11 Lebanese¹, European² and international³ public and private, academic and non-academic partners (Noun, 2021).

The CoNeCTE project emerged with the aim of promoting the evolution of technologies in Lebanon, where students must acquire numerous skills throughout their academic career, in order to face the various challenges of the job market marked by the digital transition of professions. This programme takes place in a context of deep economic and social crisis (Hariri, 2021 cited by Noun, 2021), as well as in a context of health crisis. Indeed, it began at the dawn of the COVID-19 pandemic in January 2020. Prior to this crisis, the design of distance learning by higher education teachers was only at an embryonic stage in Lebanon (Azzi, 2021) and knowledge of e-learning varied from one institution to another. Indeed, some higher education institutions had participated in the Erasmus ADIP project aimed at deploying distance learning and pedagogical innovation.

The context of the CoNeCTE project gave rise to two distances: a spatial distance (Jacquinot, 1993) between the European mentor and the various Leb-

¹ Chamber of Commerce, Industry and Agriculture of Beirut and Mount Lebanon, Basil Fuleihan Institute of Finance, Higher Institute of Applied Sciences and Economics – Cnam Lebanon, Islamic University of Lebanon, Jinan University, Ministry of Education and Higher Education, University of Balamand.

² Conservatoire National des Arts et des Métiers in France for the alternating education, Institute for advanced studies in Austria for the macroeconomic study and the University of Mons in Belgium for the virtual learning environment.

³ Agence universitaire de la francophonie.

anese teams and a socio-cultural distance caused by the health crisis between the members of the design teams. It is in these circumstances that we asked ourselves the question: how can we support the teams in the design of distance training? To achieve this, we turned to the Trello tool, which enabled us to set up dashboards and monitor each team. In this contribution, we present this tool and give you feedback on its integration.

Theoretical framework

Before presenting this feedback, we feel it is essential to go back over a few key concepts that will enable the reader to better understand the support provided in the design of distance learning with the Trello tool.

Teacher coaching

According to Paul (2009; 2012), coaching is defined as the action of joining with someone to go where they are going or where they want to go. This definition hides a real relational dimension where presence and availability are essential. Accompaniment is also a way of supporting a peer so that he or she can achieve objectives by giving the best of themselves (Boutinet, 2007).

Paul (2009) emphasises that it is a cooperative relationship where attention is focused on a task, a common objective. In her article, she also mentions two types of coaching.

On the one hand, there is what is known as “accompaniment/maintenance”, which is predominantly social and relational, and involves being present with a person in an existential situation, and on the other hand, “accompaniment/visioning”, which consists of energising this person in the realisation of a project. (Paul, 2009, p. 15)

Accompaniment can also be characterised by 5 postures (Paul, 2012):

1. An ethical posture that is reflected in a reflective and critical spirit. It is a non-violent relationship where there is no power or domination.
2. A non-knowledgeable posture where intelligence is born from exchanges where we support questioning rather than assertion and where we encourage a search for meaning.
3. A posture of dialogue where exchanges are established from person to person and not from professional to user or from teacher to learner.

4. A listening posture where the coach is attentive and responds to requests, as well as to questioning.
5. An emancipatory posture, it is a question of seeing the accompaniment as an opportunity for both individuals.

There are many forms of accompaniment (Paul, 2019): counselling, coaching, sponsoring, mentoring, tutoring or consulting. Counselling is a form of support that consists of helping someone to overcome personal difficulties by giving advice and guidance. The term coaching is associated with effectiveness. It is a form of coaching where action is emphasised. According to Tiffert (2021), today we can also talk about “virtual coaching”, i.e. coaching at a distance that can be set up using digital communication and/or task management tools such as Trello.

Coaching will differ according to the context, expectations, or the audience. In the CoNeCTE research programme, higher education teachers are being supported. The specific literature on support for this group highlights various points of attention. According to Chênerie (2011), the tutor must offer varied and personalised proposals. They must provide the pedagogical conceptual framework and the design methodology. They must adapt to different needs and inform the teachers’ choices in order to achieve the objectives they have set themselves. He or she is “a facilitator, a go-between, a watchdog, an emancipator” (Lhotellier, 2001, p. 87 quoted by Cros, 2009).

Chênerie (2011) also highlights the importance of close monitoring, suggesting that remote support is impossible. However, as Audran (2007, p.15) points out “distance is not the enemy of support insofar as each of the partners is able to use the existing means offered by a system”. The author also points out that, at a distance, the person being supported has a share of responsibility, as his or her action is ultimately quite decisive in the functioning of the system.

Design of distance learning

The CoNeCTE research programme aims to develop different e-learning courses to meet the needs of the Lebanese labour market and the digital transition of professions. Distance learning is characterised by a physical distance between the learner and the trainer during the learning process (Depover et al., 2007; Jacquinet-Delaunay, 2010). Indeed, this type of teaching device does not require the presence of students and teachers in the auditorium or in the classroom. There are different forms of distance learning depending on their format, their audience or their participation modalities: SPOC (Small Private Online Course),

MOOC (Massive Open Online Course), COOC (Corporate Online Open Course), SOOC (Small Online Open Courses), etc.

Instructional design requires a particular methodology. Throughout the literature on instructional design (Branch, 2009; Basque, 2017; Tricot & Musial, 2020), one model systematically comes up – the ADDIE model. Whether it is for face-to-face, distance or hybrid training, this model includes the essential stages of instructional design. As the ADDIE model is known to the Lebanese partners and was used by some of the institutions during the ADIP project (Azzi, 2021), we therefore used this model to support teachers in designing online training.

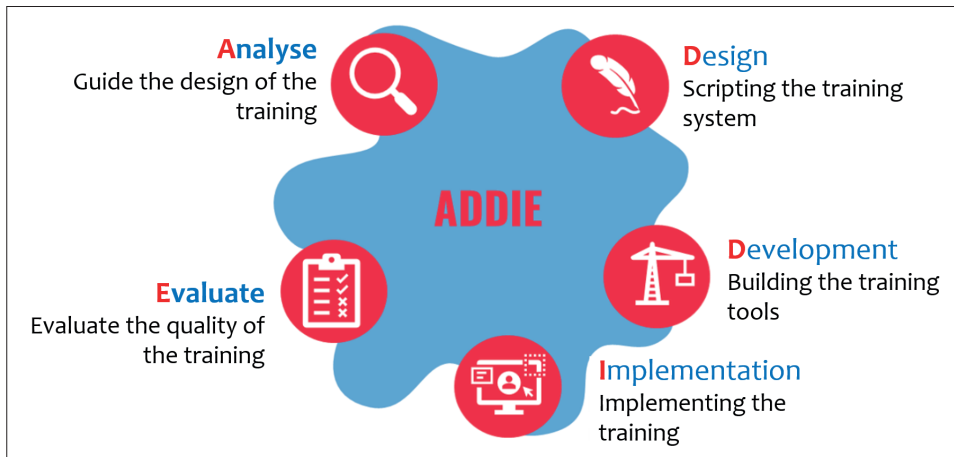


Figure 1. The ADDIE Model

Source: Branson et al., 1975.

Created in 1975 by the University of Florida, the ADDIE model has five phases (Figure 1) (Branson et al., 1975):

- The Analysis phase consists of taking into account all the parameters to guide the instructional design. This involves carrying out a needs analysis and identifying the context of the training, such as the target audience, the general objective, the human resources and the economic and material constraints (Branch, 2009).
- During the Design phase, the educational engineer writes the training plan. He or she defines the modular structure and, for each module, specifies the pedagogical objectives, the notional content and the learning activity.
- Then there is the Development phase, i.e. the construction of all the multimedia tools and resources for the training, such as the teaching aids or the video capsules.

- The fourth phase is Implementation, which consists of the implementation of the teaching device. This involves ensuring the facilitation, communication and logistical aspects.
- Finally, the Evaluation phase involves evaluating the quality of the training in order to adjust it.

To design e-learning courses, the Lebanese teams use the ADDIE model and also put into practice various e-learning design principles. Indeed, various authors (Horton, 2011; Basque & Baillargeon, 2013; Clark & Mayer, 2016) highlight various tips and recommendations. For example, the active engagement of the learner should be encouraged by proposing varied, engaging learning activities that are close to authentic situations and that encourage interaction and collaborative work (Basque & Baillargeon, 2013). The learner must be accompanied synchronously and/or asynchronously. To do this, the coach must be available, provide feedback, resources and discussion spaces. It is also advisable that distance learning designers favour the media format consistently. To do this, it is advisable that the instructional designer avoids redundancy between audio and text and uses visual cues, and varied representations (Clark & Mayer, 2016).

Digital tools for managing tasks and interactions at distance

The health crisis of 2020 required all sectors of activity to rethink their mode of remote management and allowed its development (Léon, 2020). Furthermore, the digital transition has offered a real change in the management of remote teams. According to Duport (2016), these are collaborative structures made up of sub-teams geographically dispersed over the same or several countries. In the framework of the Erasmus+ CoNeCTE project, bringing together European and Lebanese partners, we are truly involved in this case of remote work management.

Today, information and communication technologies facilitate distance management (Duport, 2016). Indeed, Depover et al. (2007) cite the different functions that digital tools can have: presenting content, communicating information to an individual or a group, structuring tasks, monitoring the team, motivating or even encouraging collaboration. In their book, the same authors characterise the tools for communication and management of remote interaction. First of all, they differentiate three modes of communication:

- Asynchronous mode, i.e. communication that takes place off-line where spatial and/or temporal constraints are non-existent (e.g. forum, e-mail, etc.);

- Synchronous mode, i.e. communication in real time where exchanges are direct and instantaneous (e.g. video conference, call or instant messaging);
- Predefined mode where interactions are defined or programmed during the design phase (e.g. an interactive website).

Trello tool

Trello and its functionalities

Trello is a team management tool, which helps to track the progress of a project and manage the workflow (Johnson, 2017). It is also a free, online tool that can be connected to a Drive system. The use of Trello is a suitable tool for virtual coaching and mentoring because the digital tool helps to accomplish goals (Boutinet, 2007). This tool is based on the Kanban method. This method, born in Japan and applied by Toyota in the 1950s, allows tasks to be visualised by placing labels on a notice board (Leopold, 2017). It aims to optimise production, efficiency and collaboration (Ahmed Mohamed, 2021). Initially adopted by the industrial sector, it has since spread to all sectors requiring task management.

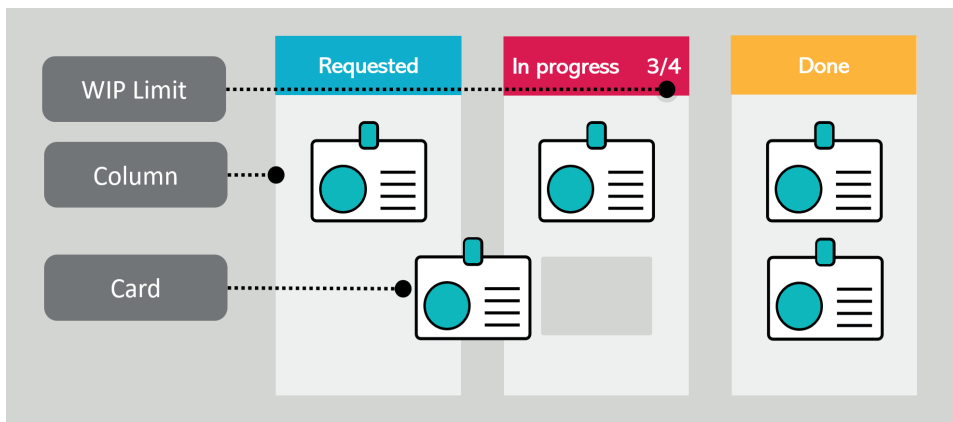


Figure 2. Diagram of the Kanban method

Source: Authors' own elaboration.

The task management board used in the Kanban method has three columns: "Requested", "In progress" and "Done" (Figure 2). Depending on their progress status, team members move the labels to the corresponding column (Leopold, 2017; Ahmed Mohamed, 2021). In Trello, the tags are called "capsules" and each

“capsule” includes a task. Once registered, users can create an unlimited number of boards for each of their projects. On the board, users have the possibility to assign tasks in the different columns.

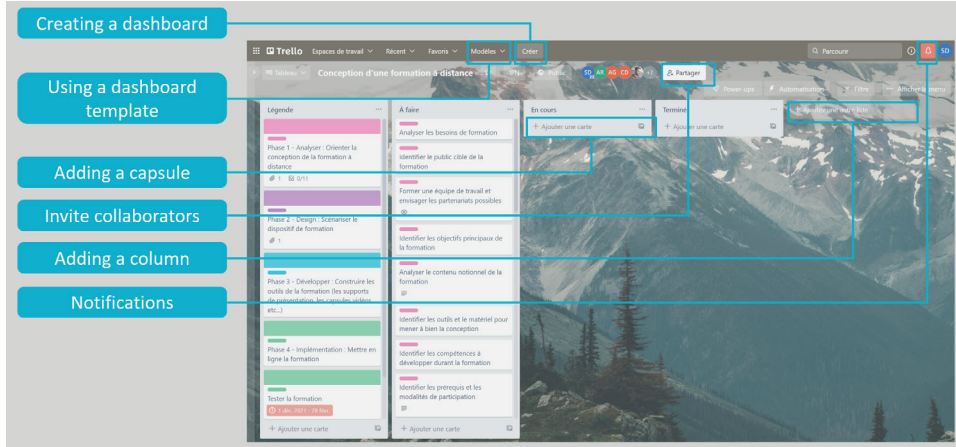


Figure 3. Illustration of the features on the Trello dashboard

Source: Authors' own elaboration.

Trello has various features. The user has the possibility:

- to create a new dashboard;
- to use a dashboard template. Trello offers a series of established dashboard templates for designing or managing projects in a variety of sectors: for example, designing a video game, monitoring recruitment or planning a training course. The user then has the possibility to adapt this model to his professional needs;
- to add a new “capsule”, i.e. a new task;
- to invite members of the design team by entering email addresses or creating a shareable hyperlink;
- to add a new column to include new “capsules” and therefore a new series of tasks;
- to view notifications. Here the user can access notifications about deadlines or task assignments.

In addition to the functionality of the table, each “capsule” has its own options that can be programmed. The left-hand side of the “capsule” consists of three parts:

1. In “Description”, the user can write a description of the task to be performed.
2. In “Attachments”, it is possible to consult the various attachments associated with this “capsule”.

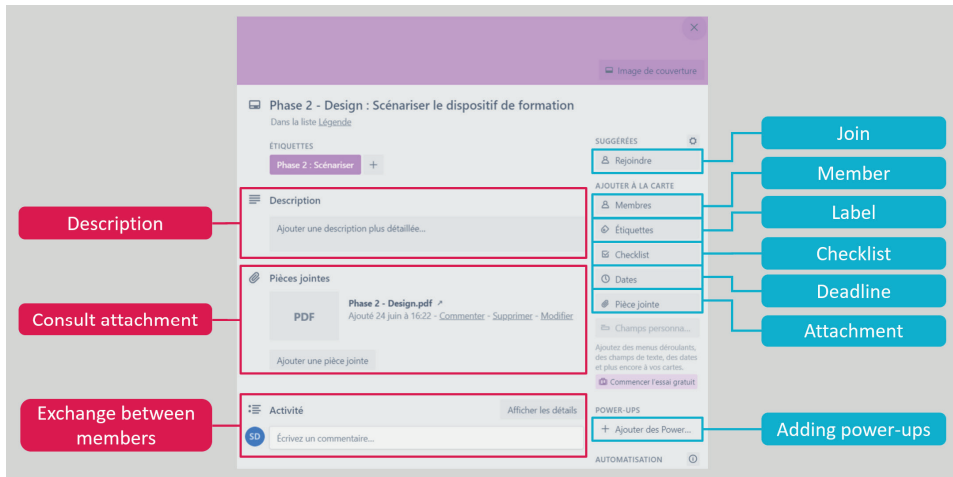


Figure 4. Illustration of the features on Trello “capsules”

Source: Authors’ own elaboration.

3. In “Activity”, the different team members have the possibility to communicate with each other synchronously about the task. The right-hand column also contains a number of other functions:
 - “Join” offers the user to assign a task to himself.
 - “Member” allows the task to be assigned to a team member by sending invitation emails directly from the project dashboard. Thus, contributors can easily coordinate the team by assigning tasks.
 - “Label” option allows you to assign a label, name and colour code to this “capsule”. This option makes Trello a visual tool. Note that Johnson (2017, p. 210) points out that for “colour-blind users, Trello offers patterned rather than solid-coloured labels, which can also be personalised with status words. These colour-coded labels offer the most efficient way to mark tasks as completed. Thus, this feature makes Trello an inclusive tool”.
 - “Checklist” offers the possibility to create a checklist of tasks. Once this option is activated, the team can track its progress with a progress bar that increases when an activity on the to-do list is completed.
 - “Deadline” allows you to set a deadline for the task. Team members will then receive notifications when the deadline arrives.
 - “Attachment” allows you to attach a document on a Drive to the “capsule”.
 - “Power-ups” section allows the integration of improvements such as a voting system.

The integration of Trello in the context of the Erasmus+ CoNeCTE project

In the context of the Erasmus+ CoNeCTE project, the Trello tool was used to create dashboards and monitor the progress of each of the e-learning design teams remotely. To design their virtual learning environment, the Lebanese teacher-researchers use the ADDIE model methodology. The dashboards were therefore constructed according to the stages of this model: Analysis, Design, Development, Implementation and Evaluation. Each phase comprises a series of subtasks and is highlighted by a colour code. Each design team has its own table. There are a total of four boards on Trello and the coach has access to these four boards to monitor the progress of each team in a personalised way.

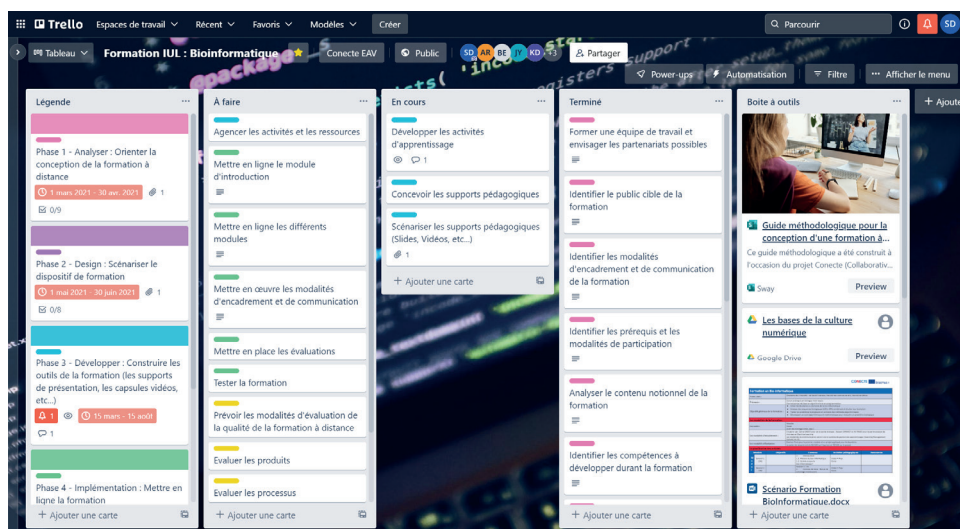


Figure 5. Example of a dashboard on Trello from one of the CoNeCTE project teams

Source: Authors' own elaboration.

The dashboard consists of 5 columns (Figure 5). The first column, “Legend”, uses the colour code and the different phases of the ADDIE model. We have also added a red colour code to highlight the urgent tasks to be carried out. Then, the dashboard is composed of the three columns used in my Kanban method: “To do”, “In progress” and “Finished”. The Lebanese teams move the “capsules” to the column corresponding to their progress, depending on their status. Finally, the last column is a space for gathering resources such as the methodological guide used by the teams to design their training, the link to the Drive space,

multimedia links to feed the work of the teams or a videoconference space so that the participants can communicate synchronously.

The teachers' point of view

In order to monitor the progress of the design teams and to validate the integration of Trello in the management of work tasks, meetings were held with each of the Lebanese teams. During these meetings, focus groups were held. In addition, the users were also asked to rate the usefulness and usability of Trello on Likert scales ranging from 0 (strongly disagree) to 5 (strongly agree). Woodclap, an interactive survey tool, was used during the focus groups. In total, 16 Lebanese teacher-researchers from the Erasmus+ CoNeCTE project were surveyed.

In order to validate this tool, the Technology Acceptance Model (TAM) items (Davis et al., 1989) were adapted to Trello. Our questionnaire consists of 9 items divided into 2 dimensions and each associated with a category:

- Usability⁴: ease, clarity, controllability and flexibility;
- Usefulness: speed, performance, productivity, efficiency, transfer;

Table 1. Presentation of items according to the categories of the Technology Acceptance Model

	Categories	Items
Usability	Facility	Trello is a tool that I found easy to use
	Clarity and Understanding	Trello is a tool with which the interaction is clear and understandable
	Controllability	Trello is a tool that is easy to use for managing teamwork
	Flexibility	Trello is a tool that I can interact with flexibly
Usefulness	Rapidity	Trello is a tool that allows me to complete my tasks more quickly
	Performance	Trello is a tool that improves the quality of my work.
	Productivity	Trello is a tool that increases my productivity.
	Efficacy	Trello is a tool that is easy to use for task completion.
	Transfer	Trello is a tool that will be useful in my professional context.

Source: Authors' own elaboration.

⁴ Usability is the ability of a tool or service to be used easily according to its design purpose.

Table 1 shows the different results. On the subject of usability, the analysis of Likert scales reveals that, according to the respondents, the interactions on Trello are very clear and understandable (mean score: 4.6). In addition, Trello is a very easy tool to use for managing teamwork (mean score: 4.6) and in general it is very easy to use (mean score: 4.4) by e-learning design teams. Finally, users were also able to interact flexibly with the tool (mean score: 3.8).

The perceived usefulness of Trello users was as positive as usability. Indeed, according to the subjects, Trello is a very easy tool to accomplish the task (mean score: 4.4). Users feel that the tool will be very useful in their professional context (mean score: 4.2). Moreover, several Lebanese partners (31.25%; 5/16) verbally state that they have started to use Trello in managing other projects and even with students. Moreover, according to the subjects, Trello improves productivity (average score: 4). Finally, it is also a tool that improves the quality of their work (average score: 3.8) and allows them to complete tasks more quickly (average score: 3.8).



Figure 6. Perceptions of Trello users in the Erasmus+ CoNeCTE project

Source: Authors' own elaboration.

Conclusion and recommendations

In conclusion, Trello appears to be an effective tool for managing projects with remote teams and it fits perfectly into our context of e-learning design support. Indeed, the analysis of the usability and usefulness of Trello obtained very good results and shows that its integration in the Erasmus+ CoNeCTE project is relevant. Trello is perceived as easy, clear, controllable, flexible, fast, efficient, productive, effective and transferable to other contexts.

Our dashboards use the proven Kanban method (Leopold, 2017) to effectively manage the progress of Lebanese teams in their project design.

In addition, Trello offers a series of features that enhance the visualisation of the development process such as colour coding, checklist system and progress bar. Trello's features also give the possibility to improve the collaboration within the team as options such as synchronous communication tools or the notification system are directly integrated.

Using Trello to support the design of distance learning courses also gives the opportunity to exercise various digital skills of the 21st century teacher. The DigCompEdu (Redecker & Punie, 2017) sets out the different digital competences of teachers and the use of Trello in this context offers the opportunity to work on several of them:

- For the “professional engagement” axis, these are the skills related to organisational communication and professional collaboration.
- For the “digital resources” axis, it is about creating and modifying digital resources, as well as the competence related to the management and sharing of digital resources.

The analysis of the integration of Trello in a context of e-learning design support has enabled us to draw up a number of recommendations both on team management and on the tool itself:

- Recommendation 1: even if Trello is an efficient synchronous activity management tool, for optimal coaching, it is essential to set a time for regular meetings between the team members and the coach. These meetings, even at a distance, are an opportunity to gather the designers' feelings about their progress, to collect support needs and to identify difficulties in handling the digital tool. These moments also help to strengthen motivation and social relations between the participants.
- Recommendation 2: Although Trello includes a synchronous communication system in the form of a chat for each “capsule”, we recommend inserting a videoconferencing space directly on the dashboard, for example by adding a hyperlink to a Google Meet. This functionality is not initially present on Trello. For this project, we added it to meet the needs of the teams. One of the strengths of Trello is its customisability. Indeed, it is possible to add extensions to meet the needs of the teams or the coach. For example, adding a voting power-up, a feature enhancement, will facilitate decision-making and cooperation.
- Recommendation 3: in the context of managing activities with Trello, we used the Kanban method. Thus, the dashboard was composed of three columns (“To do”, “In progress” and “Done”) where users have to move the “capsules” according to their progress. To these three columns, we have

added two more, including a place to store multimedia resources. We recommend not to limit ourselves to the predefined task lists of the Kanban method and to add more according to the needs of the teams. In the near future, we plan to add a “block” column where users can move tasks that are causing problems.

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