[DSA Newsletter piece on IO1- UAH]

Digital skills in context

In DSA, we focus on skills rather than competences. 'Skills' means the **ability to apply knowledge and use know-how to complete tasks and solve problems**. We focus on *cognitive* skills involving active and creative use of ICT, and consider their use in the workplace, for lifelong-learning and also to become integral digital citizens.

We have approached digital skills by looking for which are **perceived as more relevant to the different stakeholders**. For that reason, we considered the groups of *students* (mainly Higher Education students in the final years of their degrees), *employers*, *teaching staff*, and also other institutions as *civic organizations*. The point of departure was considering that maybe not all types of digital skills are considered as equally important, and that some of them may be considered more important for some particular stakeholder groups. Insights on that direction would eventually allow for prioritizing training to accelerate the acquisition of key skills and having a better understanding of what is considered as a "good digital literacy" for the workplace. Our findings, as briefly described later, actually supported these hypotheses.

Insights on the most important skills

In DSA, we considered two types of research. On one hand, **surveys** were used to gather perceptions from respondents in each of the stakeholder groups. On the other hand, insights from the surveys were supplemented with the planning of **focus group** activities for some of the stakeholder groups that allow for detailed qualitative insights to be collected.

Since there are different accounts for digital competences and skills, we decided to use "*The Digital Competence Framework for Citizens*" (DigComp[1]) 2.1 as a reference framework, since it is comprehensive, detailed and includes a description of levels, from foundation to highly-specialized. This allowed us to have a unified terminology to discuss and guide research, and later instructional design and the development of training materials. DigComp considers 21 competences grouped in five competence areas: "Information", "Communication", "Content creation", "Safety" and "Problem solving".

It was found that around 30% of employers consider that students entering the workforce are not properly trained in digital skills, and the opinion of Higher Education staff also considers there is room for improvement. Survey results also revealed differences in importance of competences among stakeholder groups. Concretely, HE staff and employers share a very similar view on the relative importance of digital competences, concretely considering "Information" and "Communication" competences as the most important in the top six, with the exception of "Developing content" that is considered important for employers only and belongs to other category. Surprisingly, students consider "Protecting devices" as one of the most important competences, and also in the communication group "Engaging in online citizenship" is in the top ones, unlike in the other stakeholder groups. Other insightful qualitative findings include the perception of an uneven

[1] https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework

intensity of training for different competence groups, and the difficulty employers find in assessing digital competencies at recruiting time.

From skills to meaningful training

DSA has identified **sociocultural learning theories** as the key to integrate digital skills development and a professional context. For example, *problem-based learning* (PBL), a widespread instructional design method, combines collaboration with self-defined learning objectives, that are critical to develop the **autonomy** required for many digital skills as those related to finding information and critically assessing its quality in the Internet. This is why early in the project we committed to using those approaches, emphasizing simulation of realistic settings that mimic typical problems that are encountered in daily activities in the workplace.

Since in DSA employment and entrepreneurship are considered important drivers, the initial design of the training used as a framing scenario that of the inception of a startup, using the widespread *Lean Startup* methodology to give the training a coherent setting. The DigComp competence areas considered as more important by different stakeholder groups were mapped first to the narrative of the initial iterations in the life of a hypothetical startup, then the rest of the competence areas were included to complement these.