

1.1 The skills gap between school and university



1.2 The gap

There was (perhaps) a time when one's educational path was fixed:

- First compulsory school, junior and lower secondary school
- Then high school, preferably a grammar school, because attendance there was preparation for higher studies
- Then university
- Finally a good job, for life

But things began to get complicated. On this path a first gap began to open up, which is visible to everyone: between what is learned during one's educational path and the demands of the workplace.

On closer inspection, however, before this gap there is another, perhaps even more important, gap: the difference between high school and university education.

What is of concern is not the knowledge gap itself, which has been obvious ever since access to university faculties was liberalised, regardless of the type of high school diploma obtained.

The problem today is the skills gap...

1.3 What is a skill?

For a long time, up until the 1970s, the central aspect of a course of study was the acquisition of notions, concepts and theories. This distinguished an "educated" person from all others.

Later, especially in the workplace, the emphasis shifted to skills, the ability to transform knowledge into concrete, measurable performance, within a specific context.

Today the key word is "competences", which we may define as the ability to effectively incorporate knowledge, skills, personal qualities and behaviour, applying them to work or study situations effectively, responsibly and autonomously.

There remains the problem of understanding what skills we are talking about, and which of these are useful at school, university and the workplace.

1.4 Which skills?

The best way to think about skills is to frame them in a specific context. Trying not to create a knowledge map, according to the myth of the encyclopedia in the era of Enlightenment, but rather to answer a specific question: "What are the necessary skills, here and now, for a given population?"

The answer lies in competence models that explicitly refer to the 21st century, the knowledge society, digital transformation and so on.

They are models based on theoretical frameworks that often overlap, creating a considerable amount of confusion and reading difficulty for those trying to compare.

Looking in particular at the gap between school and university, however, we are particularly interested in transversal skills, that is competences not limited to a particular disciplinary field. We will use a model resulting from study and comparisons of international scientific and governmental documentation...

1.5 A three-tier model

The list of transversal skills that have relevance for secondary school and university students now consists of 60 items. These are many, perhaps too many for effective reasoning. We have thus grouped them into 13 areas, which in turn are contained in three main categories:

- Media literacy, also known by the acronym MIL (Media and Information Literacy)
- cognitive skills
- socio-relational skills

Click on single areas to find out which skills are included in each one.

1.6 The survey

Are all of these 60 skills so relevant? Which should be prioritised?

To find out the views of secondary school teachers and university lecturers on these issues, a survey was conducted involving around 300 teachers from the 9 countries involved in the Up2U project.

Everyone was asked to consider each of the 60 skills to assess whether and to what extent they are needed when entering university.

For the same skills, only secondary school teachers were asked to assess whether students had them when leaving upper secondary school education.

In both cases, the evaluation was expressed with a score going from 1 to 4.

The results allow us to draw an initial picture of useful skills already possessed and those that need to be developed.

We also see how the opinions of secondary school teachers and university lecturers are not always the same...

1.7 Key competences for university lecturers - 1

This section summarises the opinions of university lecturers on the skills needed for students entering university.

The competences considered as being a priority related chiefly to two areas:

- Managing information
- Managing interpersonal relations

1.8 Key competences for university lecturers - 2

But if we delve into the details, we can see that the top two requested skills, "Respecting other people's ideas" and "Working with others to solve problems", are both related to the management of social relations.

Among those competences that score from 3 to 4 we can find, in descending order:

- Browsing the web, searching for and selecting information
- Cultivating one's interests with passion
- Taking notes effectively
- Understanding, analysing and summarising complex texts
- Evaluating the validity and credibility of information
- Knowing how to work efficiently in a team

A score higher than three indicates that, on average, university lecturers believe that the skill in question must be mastered in a "satisfactory" or "highly satisfactory" way.

This means that it is an essential skill!

1.9 Key competences for secondary school teachers - 1

The opinions of secondary school teachers are outlined below.

At first sight the priority areas are very similar to those indicated by university lecturers:

- Managing social relations
- Processing information
- Managing information

1.10 Key competences for secondary school teachers - 2

But looking at individual competences, it emerges that the top three fall into the category "media and information" and in particular the area "Managing information":

- Evaluating the validity and credibility of information
- Browsing the web, searching for and selecting information
- Consulting libraries and archives effectively

The other competences considered crucial, obtaining a score higher than 3, are in the area of social and character development:

- Increasing self-esteem and self-confidence
- Cultivating one's interests with passion
- Collaborating with others to solve problems

- Knowing how to work efficiently in a team

School teachers and university lecturers thus have different views on what is really important for students.

This is perhaps one of the causes of the skills gap. But not the only one.

Fortunately, however, school and university teachers did agree on one, quite surprising, point...

1.11 Least important skills

School teachers and university lecturers agreed on the skills that are least useful for university access and success.

Both put skills in the area of "Creative reuse of contents and storytelling" in bottom place, and low scores were also posted for some highly technological skills:

- Understanding the principles of programming and software development
- Designing and creating videogames

These are rather unexpected points of view, as they are at odds with the great educational value attributed today to computational thinking and to computer *coding*.

1.12 The gap

Secondary school teachers were also asked to evaluate, in addition to the skills ideally useful for university success, the skills actually possessed by students.

More than an evaluation of the actual degree of competence, we are interested in extracting from these new data the gap between the relevance of a competence and the degree to which it has been mastered by students.

The table below shows the five skills having the greatest gap.

There is a strong deviation concerning the ability to evaluate the validity and credibility of information which - in a world dominated by easy access to the web - is a very serious problem.

The other aspect to bear in mind is that all other skills form part of the socio-relational area: perseverance, time management, conflict management, self-esteem.

This assessment is already an indication of the ways in which to act to bridge the school/university gap.

But the survey also asked more direct questions, which provide us with other indications in this sense.

1.13 What can be done?

University lecturers were asked to list the three most important things that school teachers could do to prepare their students for university.

At the same time, school teachers were asked to list three concrete ways in which the school could increase the number of students embarking on and successfully completing university education.

Their answers were used to compile a list of areas to be developed.

The most requested actions relate to a content aspect, namely the promotion of students' key competences, and a method aspect, relating to the way of teaching and learning. Technologies as a learning method appear in third place.

Let us take a closer look at these three aspects...

1.14 Key competences

School teachers and university lecturers expressed some differences regarding a predetermined list of competences. However, when asked to freely indicate the competences to be promoted, views converged strongly on:

- socio-relational skills, such as collaborative problem-solving, teamwork, appreciation of diversity, project management
- cognitive skills, such as critical thinking and foreign languages
- character-related competences, such as autonomy, resilience, motivation, self-esteem and flexibility

It should be noted that these "character" traits in the model we used previously had been included in "socio-relational" skills.

1.15 Improving teaching methods

The second critical point relates to teaching and learning methods. University lecturers and secondary school teachers agreed that they had to be "improved".

So the question is, how? What innovative practices can be adopted?

Three main indications emerged:

- Practical learning, that is learning based on doing something concrete

- Collaborative learning, promoting the contribution of the peer group to provide support, share responsibility, achieve a common goal
- Learning based on complex projects (project-based learning)

It is clear that the three approaches have many things in common: doing, collaborating, having goals. Transforming schools into laboratories.

But what role do digital technologies play in all this?

1.16 What about technologies?

Digital technologies are an integral part of the students' world, almost by birthright.

Students are naturally able to use them, and use them effectively at school in order to:

- Find materials (mainly online videos, texts and exercises)
- Interact with peers and exchange information

What about teachers? They are convinced of the usefulness of digital media when preparing teaching materials (such as multimedia presentations), finding educational resources (so-called "OER", Open Educational Resources) and learning new teaching methods.

Teachers' aspirations are often hampered by the lack of equipped classrooms and adequate technical support.

1.17 Where can we start?

This survey started looking for a "gap" of competences when students start university. It found several:

- The gap, to which the research refers, between skills possessed by young people when finishing school and those needed for university studies
- The gap between the vision of secondary school teachers and university lecturers regarding priority competences
- The gap between the use of technologies by students to find information and their ability to produce them
- The gap between the "need for digital" in schools and its actual availability

Fortunately, interviewed teachers indicated a nodal point to which all others are connected in one way or another: what is missing is a vision of the school as a community of educational practices. A community:

- Based on participation and collaboration
- With teachers who invest in new learning models and innovative teaching methods



- and know how to make full use of the potential of technologies
- overcoming boundaries between one discipline and another and between these disciplines and the real world

Here we have a chance to make some progress.