Learning journey captures how the knowledge is structured and transmitted to individuals. Learning journey denotes the way we learn including styles of learning and processes of learning on the one side and physical material and digital technologies on the other. Physical materials and digital technologies can be seen as enablers for effective learning journeys. Through learning style and processes, learning journeys foster new forms of education. These forms are learner-centric in that they allow people to learn with the support of the physical materials that are most conducive to their progress: post-its, sketches, prototypes, Lego bricks, etc.
5 Style: From individual and independent to team-based and collaborative learning

Learning style must take individual preferences and passions into account. Education systems need to better recognize that each individual learns differently and the systems need to move from didactic learning practices to collaborative learning where individual preferences are recognized and considered. Learning styles need to balance between individualistic and collectivistic preferences for learning and carefully design learning journeys by integrating these styles in a balanced and flexible way.

6 Process: From linear to iterative, exploratory and experimental

Didactic approaches to teaching where the teacher selects the topic, controls the content and receives a response in a linear way do little to build the depth of thinking and iterative exploration needed for a life-like experience. There is a shift toward more iterative, exploratory and experimental learning processes where play, experimentation and exploration are supported. A shift is needed to help learners iterate and balance between the objective and subjective, the practical and the theoretical, and the imaginative and the critical throughout their learning.

7 Physical material: From blackboards and textbooks to arts and crafts

Learning by doing in flexible environments is crucial, and play and playfulness demonstrate their importance in adult learning. Consequently, a new set of physical learning materials is increasingly being used in classrooms to facilitate teamwork, communication and experimentation. Many tools and techniques are available to make learning more interactive and engaging – sketches, post-its, prototypes and serious games (to name a few) demonstrate their relevance for facilitating the play and exploration needed for CIE.

8 Digital technologies: From one-directional to interactive uses

Technology has become part of everything that we do. Education is not an exception. In a world that relies on technology, analog and one-directional learning practices cannot prepare learners for what they will face as adults, or make them future ready. HEIs need to move from one-directional use of technologies to interactive uses that allow users to bridge learning within the university and connect it to the outside world.
5 STYLE: FROM INDIVIDUAL AND INDEPENDENT TO TEAM-BASED AND COLLABORATIVE LEARNING
In the past, even if education happened in groups, the same content was delivered to all students in the same way and students were expected to learn individually and independently. We are aware that education systems need to better recognize that individuals learn differently, and their preferences also change over time. In fact, education that focuses on creating the best possible learning experience drives the future of learning. Learning should be brought back to the learners to account for their preferences individually and in the group. Designing experiences that reflect the learning styles and preferences of each learner is crucial. RMIT School of Education Professor, Tricia McLaughlin, indicated “Experiences that allow collaboration, communication, and teamwork for all students often happen beyond classroom walls. We need to facilitate for these experiences in context, and our classrooms need to be a reflection of this.”

Learners are often conceptualized as active and engaged participants. Learner participation is central, where “learning by doing” is a founding concept. It is a “hands-on” task-oriented process, which is based on direct experience where learners are proactive in their education and collaborate with their peers. As the Head of Education at RMIT Activator, Dan Sleeman, pointed out:

> our focus mostly is on the development of capabilities and the facilitation of creative thinking in collaboration. Because we believe that growth is paramount for people’s development.

He also emphasized that

> we condition students as today’s recipients of information rather than contributors to information exchange and so where we’re trying to kind of break away from that idea of didactic learning and thinking more about how we learn through collaborative experience.

Collaborative experience requires teamwork and collaborative learning: spaces are designed to emphasize collaboration between students (see chapter on Spaces); openness and flexibility of the curricula. Collaborative learning is defined as a teaching approach that involves learners working in pairs or small groups to discuss concepts and find solutions to problems. In collaborative learning, students need to work toward a common goal. They should develop a sense of accountability among themselves and self-manage collaboration. The goal is to enhance critical thinking, communication skills and to foster responsibility. Collaborative learning does not imply only learning in groups: it is a combination of learning individually, in pairs and in teams while reflecting one’s own preferences for learning. The collaboration itself is not only among students but also includes teachers.
and other stakeholders (e.g., industry, government, start-ups, hospitals) to help students gain a variety of different perspectives.

To ensure effective collaboration experience, design-driven practices are used more and more in the classroom to facilitate collaborative learning experience:

Design is about creating ways to bring people together, who may not be used to the idea, into a rich, collaborative environment. (Stefan Jakobek, education lead at HOK)

As Almajed and colleagues indicated: “The idea is to put disparate people together in one place, so maybe if a person studying Ebola bumps into someone focused on the human genome, they might have this great conversation and new ideas are sparked.”

Learning is a social activity. Still, when thinking about collaborative learning, we need to carefully acknowledge different learning styles, and perhaps combine different learning activities:

What it did was to change the route dynamics in the classroom. So the quiet kids would, you know, be given the space to take the lead. And the loud kids would realize they learned something from the quiet kids as well. (Raya Bidshahri, Founder & CEO, School of Humanity, UAE)

EdTech companies are experimenting with spaces for personalized learning pathways, to cater to different preferences. To be able to integrate these preferences, many turn to neuroscience and neuroeducation:

So a lot of schools are taking this scientific approach, for example, having two classes, two different types of activities for the same content, and then measure which group does better... there is an increasing number of neuroscientists that are speaking to educators and creating that link between how we understand the brain learns best and then mirroring our school systems around that. So that’s a huge area that I think will inform best practices in the future. (Raya Bidshahri, Founder & CEO, School of Humanity, UAE)
There is a need to combine both collective and individualistic practices to learning:

> So you need both, you need the personal drive of the self-directed, lifelong learning individual, while it’s being held by peers in the collective so you have one foot in the individualistic and one foot in the collectivistic world of learning. (Sandra Otto, co-founder of Future of Work Collective)

Collaborative learning does not just occur within one discipline. HEIs around the world are creating spaces for interdisciplinary learning that are necessary for tackling complex problems (see Subject Matter and Spaces). CIE learning is interdisciplinary:

> It’s also responsive to students, and their interest in locating and bringing creativity to a broad spectrum of situations. I was teaching technology so you know, I often would also collaborate with our computer scientist, cross-disciplinary projects. (Vice President of Academic Affairs for Minneapolis College of Art and Design)

As prior research indicates, creative potential is enhanced by the diversity of different groups. Yet, at the same time diverse groups can lead to potential conflicts, absence of cohesion and information sharing. “Perspective taking” is emphasized to help individuals creatively manage their interactions. Despite the benefits of collaborative learning, training for collaborative problem solving is still scarce. Paul Gardiner conducted a review of different practices for collaborative learning and developed a framework scaffold for collaborative thinking in educational contexts to help students generate creative responses to complex problems. This framework for epistemic control focuses on developing students’ metacognitive understanding and epistemic awareness to enable meaningful epistemic shifting, perspective taking and cross disciplinary communication. Moving from epistemic awareness, through epistemic humility and epistemic empathy, students develop epistemic control. When designing collaborative learning experiences in interdisciplinary settings, we need to reflect upon the epistemic position within learning practices to ensure inclusive collaboration and to support creativity.

Finally, with an increasing shift to online and blended learning, we need to design optimal technology-supported collaborative learning (see Digital Technologies). Given the focus on people working together, there are complex and dynamic interactions that may, or may not, be easily identifiable by computers (e.g., body language, cultural differences, emotions, linguistic styles). Technology used for collaboration needs to include (1) a joint task, (2) communication, (3) sharing of resources, (4) engagement in productive processes, (5) engagement in co-construction, (6) monitoring and regulation and (7) finding and building groups and communities.
Collaboration is at the center of CIE learning practice and CIE is also an enabler for collaborative learning styles. Overall, cross-disciplinary learning practices give students the opportunity to view complex subjects through many different lenses, helping them to understand that one problem could relate to another and to learn how to deal with real-life problems.

*When three people work together, each can be the teacher in some aspects.* (Confucius)