

MyRubric

A co-creative journey
to activate learning communities

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MSc Design for Interaction
Master thesis report

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MyRubric, a co-creative journey to activate
learning communities
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Abstract

Nowadays, designers deal with increasingly complex and meaningful challenges. Because of that, design schools are required to deliver professional designers capable of handling what future decades might bring. Therefore, resilience, generally described as the process of adapting well in the presence of adversity, makes it a valuable quality future generations of designers could develop.

As resilience is still an abstract concept within the education domain, this thesis aimed to explore how it could be built and enhanced in such a context. The approach chosen to tackle that question was initially to analyze the literature regarding resilience. Then, to perform an in-depth autoethnographic study in a moment I believed resilience was systematically achieved in the Industrial Design Engineering faculty: the COVID19 lockdowns. Finally, I synthesized the learnings from that period and previous literature research into a theoretical framework that aims to assist educators in conceptualizing interventions to foster Resilience in Learning Systems.

This framework was implemented to design and evaluate MyRubric, a co-creative guide for adaptive assessment, which aims to offer a constructive, resilient alternative to the current rubric.

Acknowledgements

This project was indeed a journey for me and not precisely an easy one. The outcome of it, however, is worth every single bump in the road.

But I was not walking alone.

An extensive list of amazing people accompanied me through it and made this master thesis possible. Words fall short of saying how I feel about all of you, but I will do my best.

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Elisa, as I said before, words seem vague to describe emotions. Thank you for encouraging me to write about what we all experienced last year. Our story deserved to be told, and you felt it. Thank you for believing in me to share it. This project would never have existed without you.

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I want to express my gratitude to the people in IDE for their willingness to participate in my research and design inquiries, such as interviews, workshops, or sessions. Your contribution to this project and our community is unique.

Moreover, I would like to appreciate the opportunity to join the StudioLab family here in the faculty of Industrial Design. You all made me feel welcomed and warm.

On a personal note, I wanted to acknowledge the support of the family and friends spread around the world.

Gracias a mi familia, por vuestro apoyo desde lejitos. Apoyo en todos los sentidos posibles de la palabra. Ya lo dije, esta victoria es mia, pero en parte también vuestra. Gracias por estar ahí para mí. Os quiero.

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And last but not least, I would like to thank myself. As said before, this thesis was a bumpy ride, but I am still grateful for not giving up on seeking what I thought was best. With this thesis, I desire to give visibility to the importance of mental health to deal with daily problems. Furthermore, I want to acknowledge all the people currently fighting mental issues and still try to get better day by day.

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1

INTRODUCTION



Designing for Resilient Learning Communities

1

It was the beginning of 2020 when the COVID19 pandemic made our lifestyles change radically. The whole world was living in uncertainty, trying to adapt to the situation, as it was iteratively evolving day by day (Paredes et al., 2021). That demanded a change of mindset from all of us.

Nowadays, the urgency that led us to such transformation vanishes as we are slowly recovering our lifestyles. However, despite the severe nature of the crisis the world was and still is experiencing, this moment can be seen as a basis for further innovation in the education field.

There is no doubt that that period had a massive impact on our lives in various aspects. Still, for those involved in teaching and learning, indeed, it shifted the way we experienced our education. Institutions were required to close their doors, causing all teaching activities to move online practically overnight. Consequently, curriculums had to be re-imagined, tools to provide online education enabled, and we had to do all this within the possibilities our cozy homes could offer.

I believe that what we achieved back then was to cope with the massive effects the lockdown produced in our education, bounce back, and prosper. That is described as resilience.

Today, we can further take the learnings from that period to design educational tools that will foster resilience that will equip future designers to tackle complex 21st-century problems.

Only such unexpected and unfortunate events had the power to bring members of IDE's learning system together and collaborate to outweigh the current situation. Institutional staff, educators, and students were working to shape our learning experience in ways it could fit the needs of the circumstances at that time. That could be considered a pure act of design, as we were revisiting, co-creating, and iterating together educational practices constantly, tailoring them according to our joint vision, making them not just for us but also by us.

As chair of Infuse - the Design for Interaction Master Committee - I found myself in a position where I was part of this relevant shift. My fellow mates, Course Coordinators, Master Director, and I witnessed how the system could transform and thrive thanks to the synergy between its different parts.

1.1 Scope

Now more than ever, designers deal with increasingly complex and meaningful challenges (Meyer & Norman, 2020). One example of those could be dealing with the effects that the COVID19 pandemic had at a global scale. In any case, the future decades will also bring all sorts of new threats that designers will need to face, such as poverty, food and water scarcity, consumption and production impact, health crises, inequality, overpopulation or climate change, just to name a few (United Nations Sustainable Development, 2015).

Complex problems require complex solutions and new ways of thinking and doing, as they often involve elaborate systems of stakeholders and issues; therefore, they need to be approached in a multidisciplinary way (Bijl-Brouwer & Price, 2021).

Design itself integrates business and engineering, social sciences, and arts (Norman & Klemmer, 2014). Most of the theory in design today comes from these and/or other disciplines, which provide theories and principles designers can apply in their work (Bijl-Brouwer & Price, 2021). Therefore, it seems fair to claim that design brings a broader perspective into solving problems by combining all sorts of interesting areas that lead to innovative and creative solutions.

However, designing for such complexity is not easy, especially in a world that is changing and evolving at a fast pace. On that line, (Price, 2020b) explains that “there are inherent challenges within the design process that when poorly managed or misunderstood can make designing a particularly stressful activity”, which could potentially affect the designer’s well-being and their ability to tackle such problems. Furthermore, the magnitude of those future global challenges adds to the designers’ sense of responsibility to make a meaningful contribution to the world.

Design schools are required to deliver professional designers capable of handling what future decades might bring. Despite that, the current design education system does not always prepare students to face these problems (Meyer & Norman, 2020). Consequently, innovation in Design curriculums is required to ensure that the next generations of designers can tackle them successfully.

As briefly mentioned before, resilience is described as the process of adapting well in the presence of adversity or, in other words, bouncing back despite difficulties that might arise along the way and thrive. Those characteristics, along with others that will be further explored in this project, make resilience essential quality designers must learn to be ready to face the challenges of the 21st century.

This project aims to research how resilience can be built and enhanced in the education domain and concludes with the design of a tool that will facilitate the integration of such resilience in Learning Communities, such as the one created by IDE’s Master education.

1.2 Relevance

Interest in resilience has grown recently in the academic research and education community (Brewer et al., 2019; Panter-Brick, 2014). Being that more salient in the current times, due to the pandemic’s impact on people’s physical and mental well-being, which produced a massive shift in the focus from biological to social health (Panter-Brick, 2014).

Although mental resilience is a widely known concept in psychology, unfortunately, it is not clear yet how it can be conceptualized within the education domain, and the methodology to implement it in higher education’s curriculum is still under research (Brewer et al., 2019). Consequently, some questions arise from that, such as if resilience is present in our current design education, how it manifests, and, most importantly, how it can be embedded in educational practices or structures.

This project, and most concretely the Resilient Learning Communities framework, provides insights into how this abstract concept can be translated into specific actions that Learning Communities can perform to achieve resilience. Moreover, the final intervention proposed in this thesis aims to convey research in resilience into a single practical intervention, ready to be piloted and iterated in the faculty of Industrial design Engineering.

It also intends to collect and share the events that took place during the COVID19 Lockdowns, in which the whole learning community collaborated to outweigh the situation. Even though it was a difficult time of increasing uncertainty, it brought remarkable and positive outcomes that deserve to be brought to light.

Last, but not least, the outcomes of this thesis aim to inspire future educators and students to embrace new ways of teaching and learning.

1.3 The context of IDE MSc Education

The faculty of Industrial Design Engineering at TU Delft educates students and alumni to be professional designers or researchers of tomorrow who can tackle complex problems and are able to bridge people, technology, and business.

Currently, there are three master programs offered in the faculty that revolve around one of those three pillars: Integrated Product Design (IPD), Design for Interaction (Dfi), and Strategic Product Design (SPD). While IPD focus' is in the product and the integration of design and technology; Dfi's core relies on 'the user perspective' and to have a meaningful impact on user's behaviour; SPD's focal point is business related to design and how to create value for all the parties involved in production, sales, and use of products (IDE TU Delft, 2017).

However, over the last decade design, technology and society have changed dramatically, bringing new challenges increasing in complexity (Meyer & Norman, 2020). Such complex or 'wicked' problems require new ways of working and thinking (van der Bijl-Brouwer & Price, n.d.). Consequently, the faculty of Industrial Design is under an Educational Renewal process, in which both Bachelor and Master's degrees are being revisited and redesigned to prepare designers for this complex and challenging future.

Such a significant change in the Master programs provides plenty of room to innovate in their structure, content, or pedagogy, which is the main reason why the Master Renewal would be used as a future context for this project's design explorations.



Figure 1, Faculty of Industrial Design, September 2021.

1.4 Reading guide

This thesis report is structured to explain the overall process followed to tackle the question posed in its earliest stage. The most important parts of it are included in the main text of the report. However, detailed explanations of some parts of the process are further explained in its appendixes.

Each chapter has an introduction and conclusion pages in which the most important information is highlighted.

Chapter 1, Introduces the project approach and overview of its methodology.

Chapter 2, Explores resilience from a theoretical perspective in order to understand better the concept and its characteristics in the educational domain.

Chapter 3, Depicts the autoethnographic study carried to identify how resilience is present in IDE's learning ecosystem. The chapter concludes with a framework, synthesized from previous research, which aims to assist educators into conceptualising interventions to enhance resilience in Learning Communities.

Chapter 4, Closes the first phase of the project with a design statement that will guide the following design activities.

Chapter 5, Explores possible solution spaces for the development of an intervention that intends to enhance resilience in the members of IDE's LC.

Chapter 6, Explains the characteristics of the final concept, MyRubric, a co-creative guide for adaptive assessment aimed to offer a constructive, resilient alternative to the current rubric.

Chapter 7, Collects all the insights gathered when evaluating MyRubric in a session with IDE's students and staff and ends with recommendations for further experimentation with the concept.

Chapter 8, Presents final conclusions of the project, recommendations and a personal reflection.

Glossary

LC

Learning Community: Complex social-ecological system defined by three main stakeholders: institutions, educators, and students and their surroundings.

IDE

TU Delft's Industrial Design Engineering Faculty

Dfi

Master degree in Design for Interaction

CCs

Dfi's Course Coordinators

Infuse

Dfi's students Master Committee

SDT

Self-Determination Theory developed by Ryan & Deci, 2012

BPN

Basic Psychological Needs, which are Autonomy, Competence and Relatedness

LO(s)

Learning Objective(s)

1.5 Project approach and methodology overview

The creative process of this project followed the Double Diamond design model (Design Council, 2015) depicted in Figure 2, which is characterized by having four different stages, being those Discover, Define, Develop and Deliver, grouped in two main phases.



Reading tip!

The two phases of the project, being **theoretically-driven** and **design-driven**, are **represented through this report in two colours**. Feel free to check the last pages of each of those chapters if you wish to skim through. Just search the glasses icon.

The first phase of the project focused on understanding the concept of resilience, whether if and how it is present in the context under study to construct a framework that can be applied in similar contexts and also a design vision that would guide the rest of the design process.

The second phase of the project intended to bring, along with that vision, all the knowledge gathered about resilience and the IDE's context into the design of an intervention that could be prototyped, validated, and iterated upon with the intention to be implemented in the coming years.

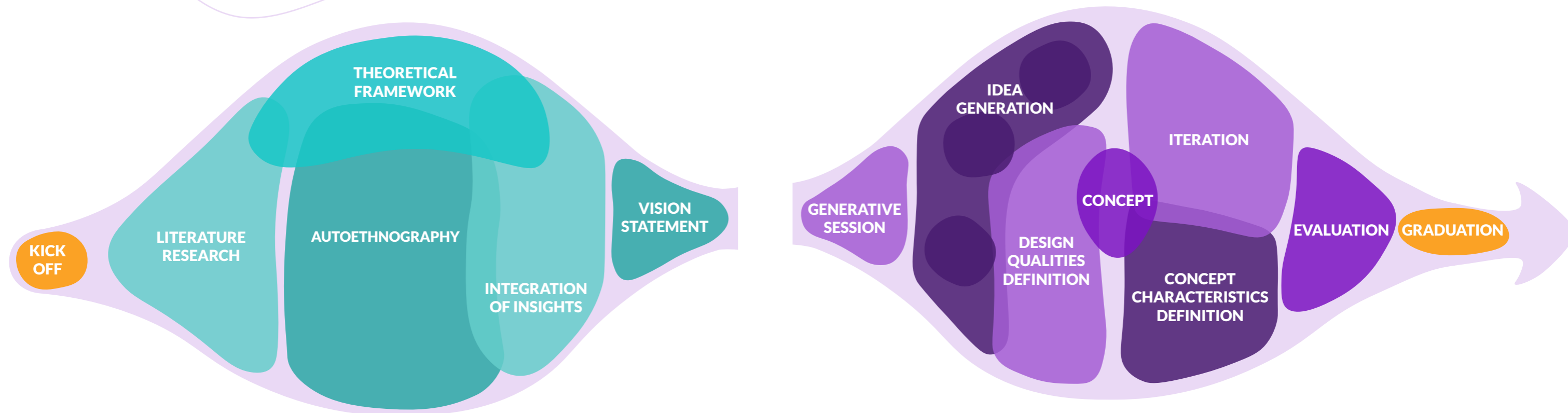


Figure 2, Overview of the design process, following the double diamond structure

Discover



LITERATURE RESEARCH

Theory in Resilience

As mentioned before, resilience is an ambiguous concept to conceive within the domain of education, which is why an extensive literature review was needed to initially understand what resilience entails in such an environment.

Experiencing Resilience

Autoethnography was used as the main method to explore the culture present in IDE's Masters during a specific range of time, the COVID19 Lockdowns, which represented a threat to Education and how it was perceived until that moment. Autoethnography is a form of qualitative research in which the researcher, through self-introspection and reflection, writes about and analyses their personal experience and links that autobiographical narrative to wider socio-cultural meanings (Ellis et al., 2011). Autoethnography was used as the main method to explore the culture present in IDE's Masters during a specific range of time, the COVID19 Lockdowns, which represented a threat to Education and how it was perceived until that moment. The insights collected during the process were enriched and contrasted with interviews with other IDE's Learning Community members.

The context exploration phase aimed to answer the following research questions:

RQ1: Is resilience present in our current education and how does it manifest?

RQ2: What factors made resilience flourish in our context?

RQ3: How do students, teachers and institutions offer potential for resilience in others?

AUTOETHNOGRAPHY

Define



THEORETICAL FRAMEWORK

The Resilient Learning Framework

Complementary to the desk research and autoethnographic inquiries, a framework on how to build and enhance that resilience was created and iterated as the project unfolded. Its main intention was to serve as a structure to conceive actions that will serve in resilience development in educational settings. The framework was generated by merging 2 theories from literature research the main key factors from autoethnography.

Generating a vision

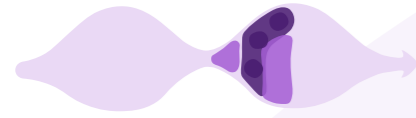
All those Insights drawn from theoretical research, Autoethnography, and interviews were integrated, and mapped holistically. To structure and describe the main patterns and approaches to build and maintain resilience, Vision in Product Design method developed by (Hekkert et al., 2011), was used as an inspiration to create a worldview. Additionally, the insights gathered in the context explorations are collected in an ecosystem map of IDE's Learning Community (LC). From a systemic approach, the ecosystem map (Forlizzi, 2013) illustrates the main stakeholders and actors from the LC that are perceived as a source of resilience and how they interact.

As a result of the analysis and reflection on those worldviews, a vision statement was formulated, which provided direction and purpose for the design phase.

INTEGRATION OF INSIGHTS

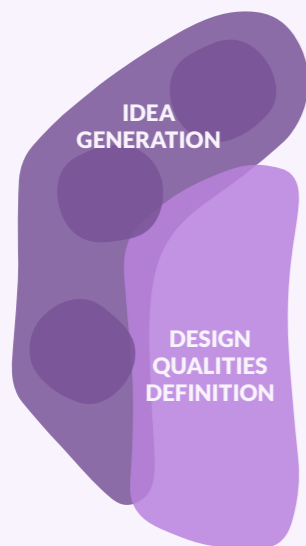
VISION STATEMENT

Develop



Exploring the solution space

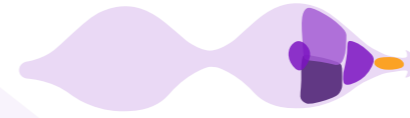
One part of the whole system of IDE was strategically chosen to be the context of design experimentation, the space created between coaches and students. To clearly define the nuances of that space, a generative session with coaches and students served to identify where the need for resilience was more salient in their interactions. The session unveiled 4 major points of intervention.



Co-ideation with experts

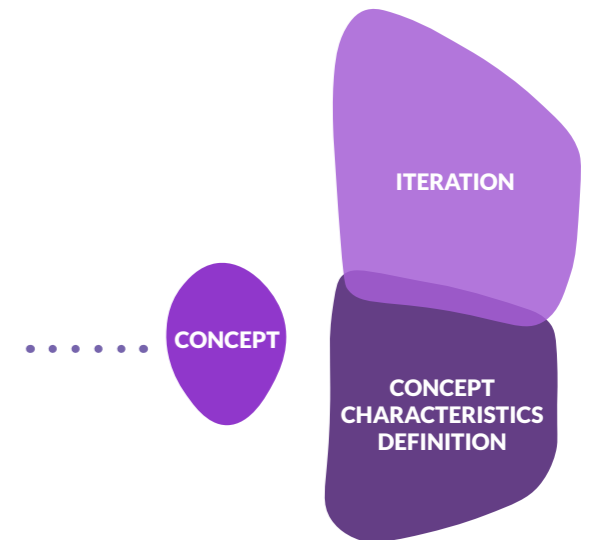
Expectation misalignment was selected to be the most promising direction because when tackled from a resilient perspective, it would most definitely assist coaches and students in their learning experience. Consequently, three different co-ideation sessions with design students were carried out to develop the desired characteristics, functions, and possible embodiments for the future concept.

Deliver



Final intervention, MyRubric

All the knowledge generated through the process is embodied in the final design. 'MyRubric' is a co-creative guide for adaptive assessment aimed to offer a constructive, resilient alternative to the current rubric that is used by educators and students. The idea emerged out of the co-ideation sessions and its characteristics were detailed and crafted through a variety of design practices, such as customer journey mapping and prototyping together with storytelling.



Evaluating MyRubric

A single evaluation session with IDE's coaches and students was carried out to study the real potential that the design could have in our community and to find its blind spots. The evaluation, which counted with 7 participants, aimed to answer the following research questions:

- RQ4: Does MyRubric positively facilitate the expectation alignment of the coach-students in a course?
- RQ5: Does MyRubric contribute to building or enhancing participants Resilience?
- RQ6: What would be the design's actual impact on the community?

Future steps

Does the journey of MyRubric end here? Because of its promising contribution and the ongoing shift the university is making, it was relevant to gather a few recommendations for the possible experimentation that the faculty of IDE could undertake to embed educational tools that foster resilience in their curricula.

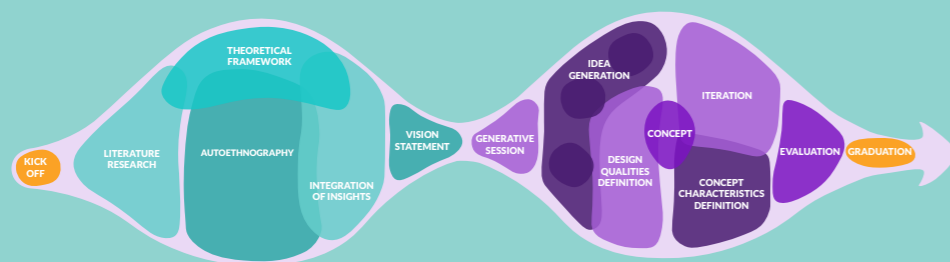
INTRODUCTION

This chapter was meant to introduce this project's aim and approach. Through it, it is explained why resilience is a quality that future generations of designers will mostly benefit to have. Because of that, it can be considered a valuable practice to be implemented in design schools' curriculum to prepare designers to tackle the increasingly complex 21st-century problems.

Due to the fact that resilience is a concept that is still difficult to conceptualize within the educational domain, this thesis aims to explore ways in which it can be embedded in our current education practices.

The outcomes of this project aim to assist educators in conceptualise resilient interventions in higher education systems. Furthermore, they can also be used for further innovation in the ongoing process of Master Renewal that the faculty of Industrial Design Engineering has undertaken.

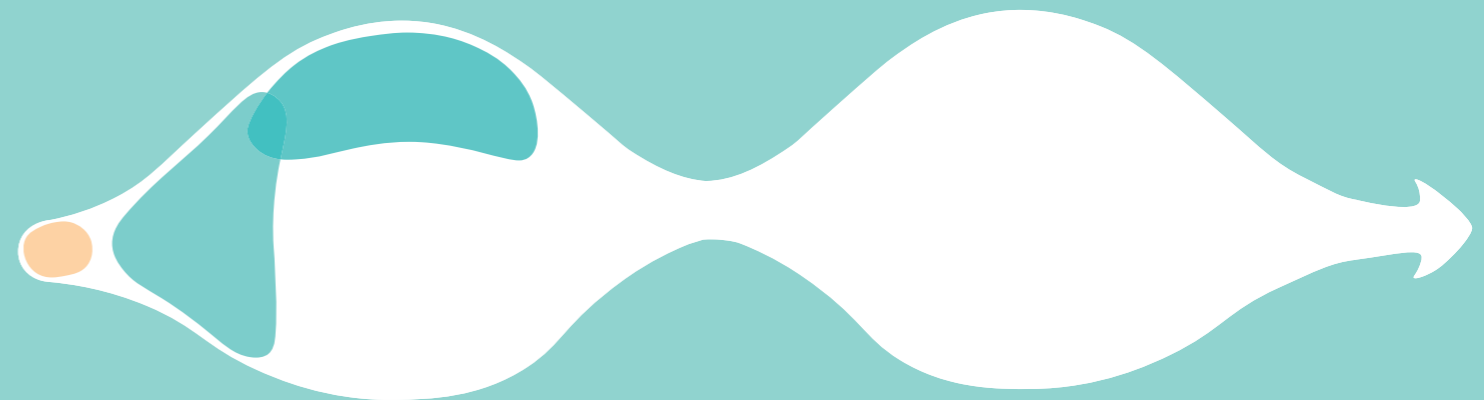
Several methodologies and research activities were performed to achieve those outcomes, which process follows the double diamond structure that has helped so many designers in the past arrange their design process.



2

UNDERSTANDING RESILIENCE

Until now, resilience was briefly explained and reasons why designers should integrate it in their everyday practice were stated. In this chapter, an in depth explanation of what the literature has to say about the concept is provided, as well as an analysis of resilience in relation to the educational domain. The chapter concludes with a concrete definition of Resilience within the context under study, together with the foundation of a theoretical framework, which will be iterated into its final version through this project and that can be used as a reference to build and enhance Resilience in Learning Communities.



2.1 Defining resilience in education

Resilience has no universal definition (Brewer et al., 2019); it can be observed in many ways and those can vary in function of the context within it is described. When getting a better understanding on the term of resilience, it is important to consider from the beginning that it is not just a trait or characteristic that someone does or does not own, but a dynamic construct or process (Shastri, Priyvadan Chandrakant, 2013).

As that might seem a bit complex to put into practical perspective, (Knight, 2007) proposed a three-dimensional framework for educators to effectively describe the different dimensions of resilience and bring them into the field. That framework will be used through the chapter to explain how resilience can be understood as a state (what is it and how does one identify it?), a condition (what can be done about it?) and a practice (how does one get there?).

2.1.1 Resilience as a state: What is resilience?

As mentioned before, resilience has many different and valid definitions. However, instead of committing just to one, it is important to clearly define which characteristics are valuable to consider within the domain of education to create a definition that can be applied specifically in IDE's context. After an exhaustive desk research on resilience definitions, 4 different variables were identified as to be essential for academic resilience.

Resilience as the capacity to overcome challenges

Resilience is generally described as the capacity to recover quickly from difficulties. But involves more than that, the (American Psychological Association, 2012) defines Psychological resilience of individuals as the process of "adapting well in the face of adversity, trauma, tragedy, threats, or significant sources of stress". Furthermore, when looked at it from a systems perspective, resilience is characterized as the "capacity of a complex social-ecological system to continually change and adapt yet remain within critical thresholds"(Folke et al., 2010).

Therefore, resilience needs to be associated with an element of adversity or threat, in which overcoming process, may resilience flourish.

Resilience as the capacity to manage well-being and stress

The Cambridge dictionary defines well-being as "the state of being healthy and happy". During their studies, students report high levels of stress or anxiety (Chapman Houlton, 2013) that affect directly to their physical and emotional well-being. Resilience then plays an essential role in supporting students overcome the challenges that produce these levels of stress by managing their overall well-being and helps them complete their studies (Brewer et al., 2019).

In addition to that, (Knight, 2007) also mentions that the act of teaching itself can involve also stress as such, and that it is important that practitioners are able to manage and deal with it by adopting a "resiliency attitude".

Resilience as a source of personal growth, developing identity and structure

As mentioned above, resilience involves "bouncing back" from the challenges and difficult experiences (American Psychological Association, 2012). But bounce back to what?

A significant portion of resilience's definitions outline the ability of individuals or systems to retain, maintain their function of identity and/or structure when facing difficulties (Folke et al., 2010)(Keck & Sakdapolrak, 2013). Therefore, by developing, acknowledging, and sustaining those core elements they can successfully deal with adversity.

Moreover, due to the resilience's self-transformational dimension (Sriskandarajah et al., 2010), which gives the opportunity to learn from difficult experiences, individuals have the chance to reflect and adopt those learnings as a part of their core elements, allowing them to be prepared for further situations that might arise, fostering change, endurance, and easier recovery.

Resilience as the capacity to embrace setbacks as learnings

In any case, to be resilient does not just mean to be able to overcome challenges easily, but also learn from them. (Chapman Houlton, 2013) argues that one of the most important resilience's traits is to see the opportunity to learn from experiences that others might consider as 'tragic'. In that line, (Keck & Sakdapolrak, 2013) explain that being fully resilient means dealing with future crises by learning, and to see those moments as changes for innovation and development. Moreover, some authors like (Sriskandarajah et al., 2010) even support embracing learning as resilience and encourage learning about one's learning processes as means to achieve academic resilience.

2.1.2 Resilience as a state: How does Resilience manifest?

Now, the concept of resilience should be clearer, as its most important variables in regard to education have been described. But how does one identify this resilience? What qualities characterize resilient individuals? In order to easily distinguish those qualities (Knight, 2007) gathered resilient manifestations in three categories: emotional competence, social competence, and futures oriented.



Emotional competence

Resilient individuals possess great internal cohesion of thoughts, emotions, and actions. They also hold a positive self-concept and self-esteem (Shastri, Priyvadan Chandrakant, 2013) as well as a fluid understanding of identity (Chapman Houl, 2013). They have the ability to shift their focus from vulnerability to strength (Panter-Brick, 2014), what makes them able to cope with critique (Price, 2020b). In general, they own emotional intelligence and come across as notably autonomous (Knight, 2007).



Social competence

Despite this autonomy, a Resilient person is also able to form stable relationships and secure links (Shastri, Priyvadan Chandrakant, 2013), which are characterized by their need of connectedness, belonging and empathy (Knight, 2007). As they tend to be good communicators, they are willing to socialize, but are able to keep a balance between inclusion and exclusion from peers (Chapman Houl, 2013).



Futures oriented

Resilience encourages individuals to adapt positively to unfortunate life experiences (Shastri, Priyvadan Chandrakant, 2013). Having a clear sense of purpose and an optimistic nature facilitate such adaptation, and provide resilient individuals the possibility to be flexible (Knight, 2007). Furthermore, they are likely to be good at problem solving and effective when dealing with complexity (Price, 2020b). Finally, (Chapman Houl, 2013) explains that Resilient learners “have faith in the process, which they consider stronger than them” as they are aware that the process might be painful, but that in the end, they will benefit from it.

Therefore, the first Research Question that emerges from this is

RQ1
Is resilience present in our current education and how does it manifest?

2.1.3 Resilience as a condition

The description of resilience as a process, and not just a quality that one does or does not have is prominent in the literature. (Shastri, Priyvadan Chandrakant, 2013) defines it as a developmental process, which can be indeed modified as new threats or strengths emerge along life events. In other words, the resilience process is performative, mutable (Chapman Houl, 2013) and dynamic, as a consequence of living in a world that is constantly in flux (Keck & Sakdapolrak, 2013).

Authors generally refer to those threads as risk factors, which represent a detrimental effect on an individual's basic psychological needs such as protection, emotional security, attachment and social

interaction (Shastri, Priyvadan Chandrakant, 2013). (Knight, 2007) argues that the level of resilience depends on internal and external factors and that might arise from an individual's personal life events or circumstances.

However, (Chapman Houl, 2013) assures that it is possible to create environments with conditions for resilience to flourish. Along her line, (Knight, 2007) claims that by recognizing these risk factors, educators can help create interventions that reinforce protective ones and build or enhance student resilience.

RQ2
What factors made resilience flourish in our context?

2.1.4 Definition of Resilience within IDE's context

The aim of the first literature explorations was to clearly define what resilience is within the domain of education in order to create a suitable and relevant definition for the context of IDE. Consequently, the final Resilience definition was created by combining the essential variables described above. Note that, from now on in this report, when referring to Resilience (with capital letter), this will be the characteristics that will be considered when doing so.

Resilience is the process in which members of a Learning Community are able to successfully overcome challenges, focus on their learning as well as maintaining their overall well-being and sense of identity.



OVERCOME CHALLENGES



FOCUS ON LEARNING



MANAGE WELLBEING



HAVE SENSE OF IDENTITY

Figure 3, Definition of Resilience in the educational domain.

2.2 Learning how to build and enhance Resilience

Everyone can potentially become resilient; the challenge however, is to come up with ways in which this Resilience can be built and enhanced (Grotberg, 2003). One key element that can surely assist and promote Resilience are social systems such as families, schools and universities or communities (Knight, 2007).

To make that easier in the education domain, (Knight, 2007) proposes the last dimension of her framework by envisioning Resilience as a practice, which refers to the practical application of the knowledge on Resilience in order to achieve positive outcomes.

2.1.1 Resilience building blocks

When coming up with strategies to make that Resilience flourish, it is important to first take a closer look at Resilience's building blocks and their characteristics.

As (Grotberg, 2003) mentions in her book, "Resilience can be promoted at any age", therefore it seems fair that literature on how Resilience is formed comes from the study area of child welfare. From their literature inquiries considering also Grotberg's research, (Mitchell, 2011) and (Shastri, Priyadan Chandrakant, 2013) then describe three fundamental building blocks of Resilience, that serve as supports for Resilience to flourish.

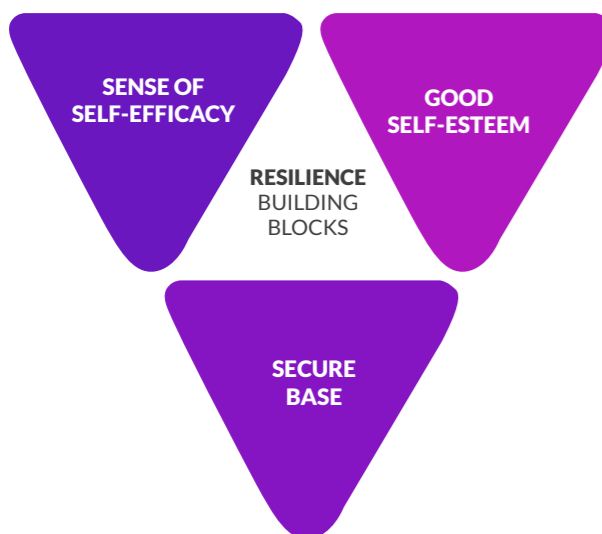


Figure 4, Resilience's building blocks.

SECURE BASE – I HAVE

Individuals need a good network of external support figures that encourage Resilience by providing a sense of belonging and security. Examples of that could be having good role models, close relationships with people one can trust or to possess a stable family or community.

GOOD SELF-ESTEEM – I AM

Having a good perception of internal qualities, which are seen as strengths acquired over time that sustain individuals while facing difficulties. In other words, to have an internal sense of worth and competence. That means, for example, being a person that has respect for oneself and for others, also being confident or optimistic and having a good sense of empathy.

SENSE OF SELF-EFFICACY - I CAN

Resilience also may flourish in individuals that have an internal sense of mastery and control, meaning that they possess a deep understanding of their personal strengths and limitations and how to use them in different situations. These are also described as problem-solving skills such as the generation of innovative ideas, perseverance, self-behavioural regulation, or the ability to express thoughts and feelings with others.

2.1.3 Bringing resilience building blocks into education

Resilience's building blocks provide a starting point in how to envision learning environments that support Resilience development. However, the question then will be what kind of strategies shall be followed or adopted by the Learning Community members, which may allow those developments to succeed in their current context.

In order to design learning environments that support such vision, it is essential to connect Resilience's building blocks to behavioural theories that correlate with the variables identified as key to build Resilience in IDE's context.

The Self Determination Theory

The Self Determination Theory, or SDT, (Deci & Ryan, 2012) explains behavioural self-regulation and differentiates between autonomous motivation and controlled motivation. That is, the desire to do something because it is interesting, enjoyable, and valuable for someone, which contrasts with engaging in activities due to pressure, demands, rewards or punishments.

Autonomous and genuine motivation, has proven to have positive effects in enhanced performance, persistence, creativity, self-esteem, and general well-being (Ryan & Deci, 2000), which directly contribute to the achievement of Resilience's characteristics defined beforehand.

The SDT has its roots in the fulfilment of the basic psychological needs of relatedness, competence, and autonomy, which appear to be fundamental for social development, growth, and integration, as well as personal well-being. Those three fundamental needs, match perfectly with Resilience's building blocks described above, being Autonomy, Competence and Relatedness illustrated in Figure 5.

NEED OF AUTONOMY (SENSE OF SELF-EFFICACY)

It is related to volition and the self-regulation of experiences and behaviour. In other words, to be the cause of one's actions instead of feeling that external conditions have control over one's decisions (Desmet & Fokkinga, 2020a). The need for autonomy shows an alignment between one's interests and values and his or her actions.

NEED OF COMPETENCE (GOOD SELF-ESTEEM)

Feeling confident and effective. It is the need to perform with mastery within an environment, feeling in control over it by being able to use one's skills to overcome possible challenges (Desmet & Fokkinga, 2020a).

NEED OF RELATEDNESS (SECURE BASE)

The need to be socially connected. (Desmet & Fokkinga, 2020a) also described it as the need to have mutual, warm, and trustful relationships, rather than feeling isolated or lacking personal connections. It is also related to feelings of belonging and significance among others.



Figure 5, Self-Determination Theory (SDT), and the 3 Basic Psychological Needs of Autonomy, Competence and Relatedness.

2.1.4 Building the Resilient Learning Community framework

As mentioned before, it is indeed possible to create conditions for Resilience to flourish in learning environments (Chapman Hout, 2013). Because of that reason, the Resilient Learning Community Framework aims to provide a holistic understanding in how to build and enhance Resilience by combining relevant theories and practices. In this chapter, the foundation of the framework is explained and iterated upon as the autoethnographic research unfolded in chapter 3.

At the core of the framework there is the SDT, which needs autonomy, competence and relatedness represent each of Resilience's building blocks.

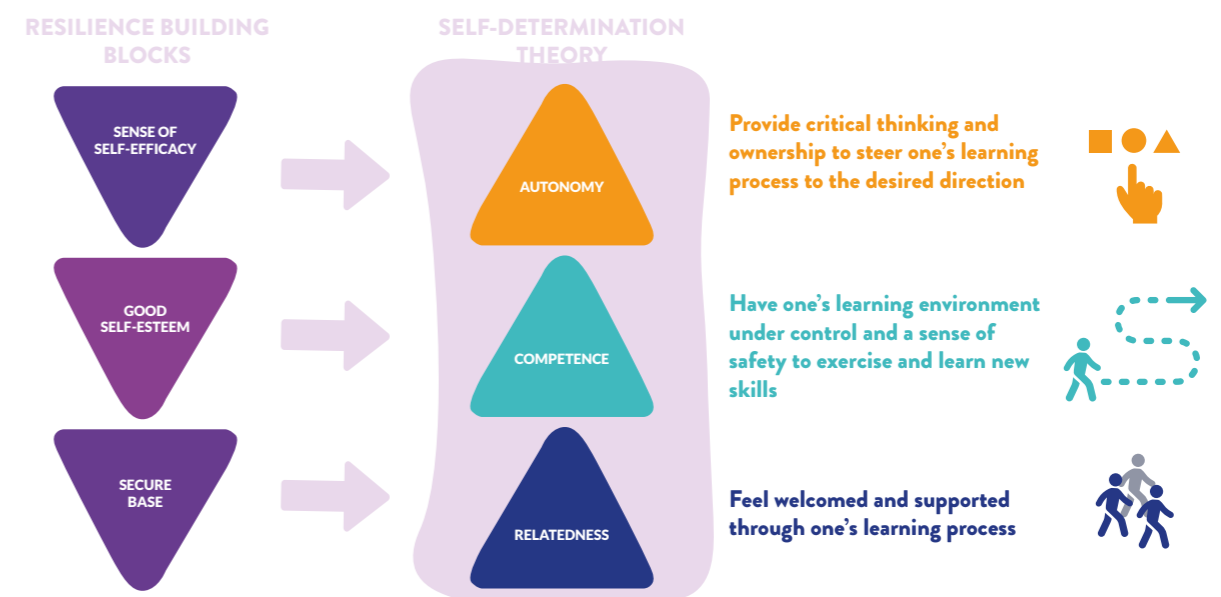


Figure 6, Comparison between Resilience's building blocks and the SDT

Resilient Learning Communities are learning environments that support the satisfaction of the basic psychological needs of the individuals that constitute them, support their well-being, and facilitate integration of extrinsic motivation.

One of the important characteristics of Resilience in Learning systems, such as IDE, is expressed perfectly by (Chapman Hout, 2013), she goes "Resilience occurs in the space in between the learner, the teacher and the institution ", therefore the development of Resilience will substantially rely on those interactions. That insight leads to the third and final main research question for the autoethnographic exploration of the IDE's Learning Community.

RQ3
How students, teachers and institutions offer potential for resilience in the others?

When it comes to education and learning, there are several studies that confirm that fulfilling the three basic psychological needs had a direct impact on the way students perceived their studies, with a significant decreasing on their stress and enhancement of their well-being and Resilience (Bunce et al., 2017; Cantarero et al., 2021; Neufeld & Malin, 2019).

Through SDT lenses, (Ryan & Deci, 2000) identified different types of motivation, named intrinsic and extrinsic motivation. Intrinsic motivation explains why humans engage in activities by the inherent satisfaction that those bring to their lives. Extrinsic motivation, on the other hand, focuses on the performance of activities that provide separable outcomes to individuals. Many of the activities

people do not always arise from intrinsic motivation, especially as the process of growing up brings more responsibilities, problems, or challenges to go through.

Along that line, although education is necessary and chosen by members of the LC, they are subjected to perform activities that conflict with and diminish their intrinsic motivation such as getting grades, hand in assignments and reports or deal with strict deadlines. However, by creating learning environments that promote the BPN, autonomous regulation for such extrinsic motivated behaviours can be promoted to strive for self-determined, healthier individuals.

UNDERSTANDING RESILIENCE

Resilience is a complex term to bring into the educational domain since it can be defined in so many ways and applied into different contexts. However, an easier way to conceptualise it is as a state, condition, and practice, as it is not an ability that someone possesses or not.

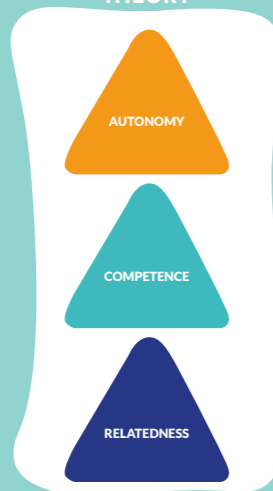
Resilience as a state indicates what Resilience is, what it looks like. In the context that this project addresses, the definition of Resilience would then be:

Resilience is the process in which members of a learning community are able to successfully overcome challenges, focus on their learning, maintain their overall well-being and sense of identity.

RESILIENCE BUILDING BLOCKS



SELF-DETERMINATION THEORY



Resilience building blocks refer to the practical application of Resilience's knowledge. Those building blocks appear to be essential for Resilience development. The similarities between those and the Basic Psychological Needs of autonomy, competence and relatedness that nurture the Self-Determination Theory or SDT (Deci & Ryan, 2012) are highly noticeable. The SDT which explains behavioral self-regulation and motivation to engage in specific tasks, constitutes the basis of the Resilient Learning Communities Framework, which will be further explained in the following chapter.

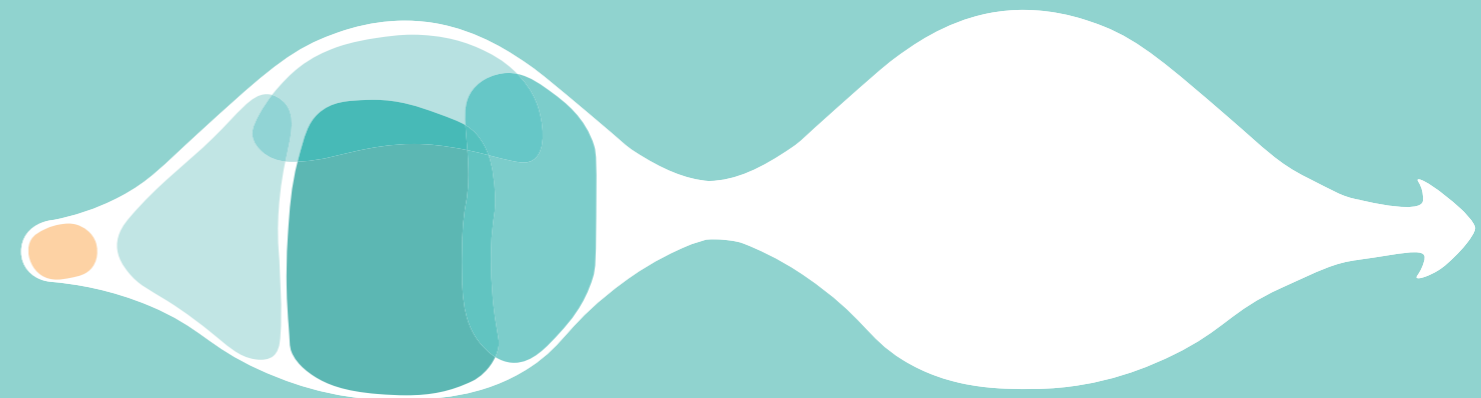


3

EXPERIENCING RESILIENCE

Autoethnography is a method in which the author unpacks his or her personal experience in a given period of time and uses it as a principal source of data for the study of wider concepts. It is a controversial method, due to its subjectivity, but it is also praised by the depth of the insights that can be drawn from it, since it depicts first hand experiences on a relevant topic.

The decision to use Autoethnography as one of the main research methods in this project is because this project claims that IDE's Learning Community underwent a process of building Resilience during the COVID19 Lockdowns. As a student and also chair of Design for Interaction's Master community, Infuse, I was in a privileged position to witness this transformation. Because of that, it seemed best to collect the learnings from that period and abstract the values and actions that made resilience flourish in the context under study in order to develop a proper intervention that could be possibly implemented in the faculty. One of the final outcomes of the autographic exploration is the Resilient Learning Communities framework, which foundation was presented in the previous chapter and iterated in this one due to the insights gathered in the following research explorations.



3.1 Autoethnography in design research

Autoethnography is a form of qualitative research based in self-introspection, in which an author reflects and writes about personal experiences to connect them to wider sociocultural meanings and understandings (Keck & Sakdapolrak, 2013). In other words, the researcher uses their own experience as the main source of data to analyse and explore the relationship of that experience to culture (Xue & Desmet, 2019).

Qualities

Autoethnography involves self-reflection and reflexive investigation, which brings richness to the research, as it provides detailed and deep understanding of human conditions, making it potentially useful for experience-driven design (Xue & Desmet, 2019).

Unlike other traditional research methods, instead of limiting subjectivity, Autoethnography embraces it by making the author's emotions, thoughts, and feelings visible for the reader. Consequently, the readers might see themselves in the researcher, making "characteristics of a culture familiar for insiders and outsiders" putting under the spotlight sensitive topics and private troubles (Ellis et al., 2011).

Due to that subjectivity, the method has been questioned in its validity, described as unscientific, biased, and rejected by its emotional component. That is the main reason why it is important for authors to contrast their own experiences with interviews, images, journals, etc. that help with recalling events, balancing introspection and extrospection, objectivity and subjectivity (Xue & Desmet, 2019).

Autoethnography "depicts people struggling with adversity and figuring out what to do", which indeed gives a powerful and thought-provoking perspective on how humans deal with adversity. For that reason, it perfectly fits this project and the concept of Resilience, and can be used as means to study, analyse, communicate, and learn from the events that occurred last year at IDE, when the COVID-19 pandemic forced education to go online.

3.2 Case study

It was March 2020 when the COVID-19 pandemic forced governments worldwide to take extraordinary health measurements to prevent the spread of the virus. Those measurements involved quarantining, use of protective face masks and the initiation of social lockdowns and self-isolation periods (Paredes et al., 2021). In consequence, public institutions such as the TU Delft were forced to close doors to their students and personnel and make a transition towards online education (Brewer et al., 2019).

Up to the date, facing the consequences of the pandemic was (and still is) one of the biggest challenges the institution ever had to face. A change of this magnitude had a huge impact on the physical and mental well-being as well as the learning of the members of the TU Delft's Learning Community (Bijl-Brouwer & Price, 2021).

Coping with the situation

From an academic point of view, TU Delft had to adapt to the current situation as fast as possible, having as its main goal to ensure the continuity of education and research for students and staff (TU Delft Delta, 2020). In just a matter of days, tools to transition academic activities to an online setting were enabled. It was equally important that courses, learning objectives and examinations were revised and readjusted considering home-office's conditions of the members of the LC. But adaptation was just the first step, as the circumstances in which the LC was living under were changing day by day. Therefore, future scenarios and possibilities had to be thought upon to be prepared for any further negative effects or diminish their impact.

Effects and consequences in mental health

Consequently, the mental health of the members of the LC was thoroughly tested in so many ways. Students and staff had to first acclimate places in their houses to be able to work from home, being that particularly challenging for students, as they had relatively limited access to spaces that could potentially be used exclusively for working (Price, 2020a). Besides that, the fact that members of the LC were working from a home environment, made

them spend lots of hours in front of their screens, sometimes even during weekends or after hours. Furthermore, interactions were strictly limited as the measurements required to maintain a self-isolation context.

The well-being Assessment made at the TU Delft (Lomas, 2021) could shed light in the evaluation of students and staff well-being perception and the consequences of all those changes. Students and staff reported negative effects of the body due to their working-from-home environment; but also, negative psychological effects such as mental exhaustion, decrease of performance and therefore, increase of stress. In addition, the lockdown restricted relationships between individuals, which produced an effect of disconnection among the members of the LC and in some cases, feelings of loneliness and exclusion.

Designers doing design

Even though the recollection of these events might seem devastating, positive things emerged from that period. The obstacles brought by the pandemic made students and staff of IDE make use of their creative side that characterizes them as designers, who constantly embrace problems not as just problems, but challenges to solve and learn from. Which in essence, is what Resilience is about.

Actants within the system



Students

When referring to students in the autoethnography study, that is the Design for Interaction student community, including Infuse, Dfl's Master Committee. The community includes approximately a hundred students, although that number might vary from year to year. Design for Interaction MSc unfolds through two years, and when the pandemic started, the student community found themselves in the second half of the first year of their compulsory courses. It is important to understand that is a crucial timing for students, as the first year of the MSc is meant to be highly explorative and particularly hands-on to let students experience different aspects of interaction design.

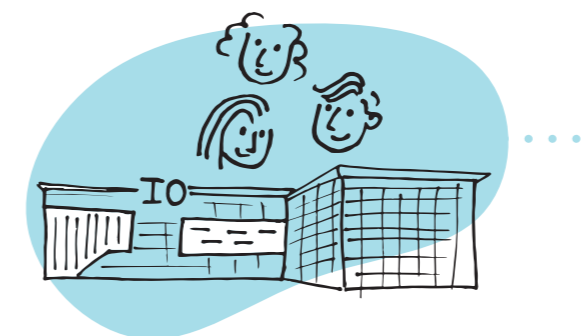
Educational staff

The educational staff is formed by the Course Coordinators (or CCs) of the main courses offered in the MSc and their team of coaches, who assist students in their journey. Dfl's educational team consists of experienced designers, engineers, and educators, who are dedicated to contributing to different design areas with their research and educational practices. Such contribution benefits mostly to the Human-Centered design field, which emphasis relies on human-product interactions (TU Delft, n.d.).



Institutional staff

Eight are the faculties that belong to the TU Delft's institution. The autoethnographic studies of this project, however, include the Industrial Design Engineering faculty staff that are responsible for the MSc education. Being the Master Coordinator, the Management team composed by the Dean, the heads of the main departments of the faculty, the research and education directors and faculty secretary; as well as the Board of Education (OD) of the faculty. The organizational structure of the staff and its members can be observed in the organogram found at Figure 7.



That is the main reason why that period was chosen to be the focus of this Autoethnographic research, in which the events occurred from March to July 2020 and their effect were revisited and analyzed to draw conclusions in if and how Resilience is present in IDE's Learning Community and what are the main learnings that could be taken for further innovation in education field.

Therefore, the context exploration for this research is based in my personal experience as a Dfl student and chair of Infuse (Dfl's specific Master Community); that together with other Dfl students, Dfl Course Coordinators and Master Director worked together to outweigh the pandemic's effects and thrive, setting a base to inspire news ways of learning and teaching.

3.3 Defining research questions and actants

Once the concept of Resilience and its manifestations were defined and understood from the literature, it was necessary to create a research framework to use it as a support for in depth context explorations. Three main research questions were drawn from the literature research and would constitute the limits of such framework:

RQ1

Is resilience present in our current education and how does it manifest?

This question intends to identify what caused Resilience to emerge in the context under study and provide examples of those.

The aim of this question is to determine whether if and how Resilience played a role when facing the consequences of COVID19 pandemic and the nature of Resilience's manifestations at IDE's LC.

RQ2

What factors made resilience flourish?

RQ3

How students, teachers and institutions offer potential for resilience in the others?

One of the most meaningful findings of the literature research of this project is that "Resilience occurs in the space in between the learner, the teacher and the institution" (Chapman Houlft, 2013). Therefore, it was essential to inquire in what ways Resilience was provided by each of those parties to the others. Those three actants are the main subjects under study for this project:

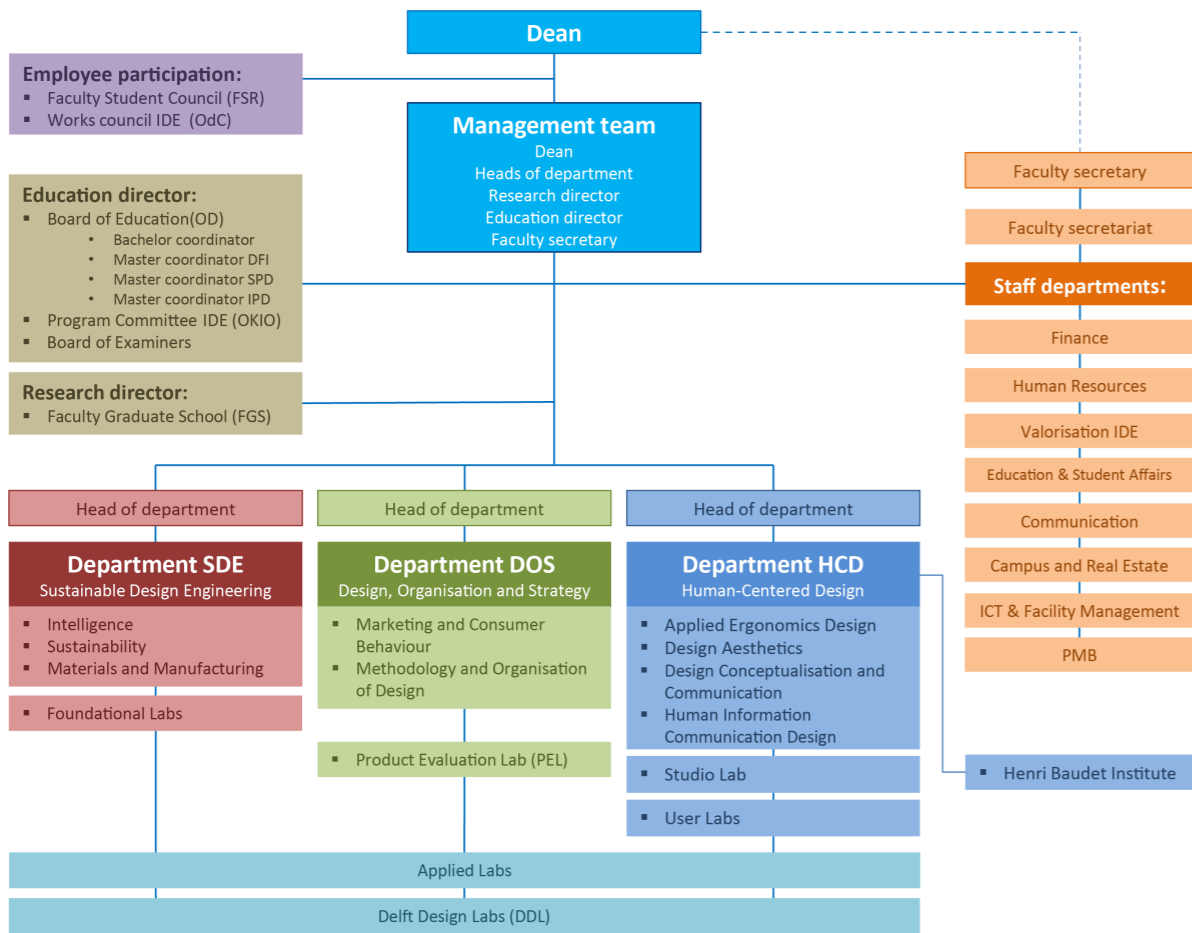


Figure 7, TU Delft's Industrial Design Engineering Faculty's Organogram

3.4 Gathering data

3.4.1 Collecting experiences

I will now briefly explain how I gathered the knowledge for my autoethnographic research. In Appendix A.1 there's more detailed information to complement this section.

Firstly, to collect experiences related to Resilience I revisited that period and tried to write about those moments I thought were key to build Resilience and brainstormed about them with post-its. After that first round, I used images, emails, and videos as visual support for my memory to recall those and other moments to get a better understanding of them and their qualities.

Then, I arranged those experiences in a Miro board and wrote briefly about them, extracting different aspects of them, which I labelled according to my own perception on whether they were positive or negative. Simultaneously, I sought patterns between those experiences and explored in what way they were related to the 4 variables from my Resilience definition to cluster them subsequently.

Once the experiences were clustered, I selected those that somehow evoked strong emotions or that I considered highly relevant Resilience-wise. Before writing about them in detail, I explored their personal and collective emotional residue taking as reference (Desmet & Fokkinga, 2020a)'s Human Experience Catalogue in which both positive and negative emotions are thoroughly explained.

While researching about Autoethnography, I decided to use an online blog as a writing platform, a digital journal in which I would write about my own opinion on them: my thoughts, feelings, or emotions I considered valuable and significant. Besides that, I supported them with visuals. My intention was to make my stories as real and human as possible for the reader to fully empathize with the content and get a sense of what I wanted to communicate. After

that, I reflected on which were the learnings that could be extracted for each event and included them in each post as actionable insights for further development.

Lastly, I analyzed my experiences considering how they contributed to the fulfillment or satisfaction of basic psychological needs described by (Deci & Ryan, 2012) in the Self-Determination Theory. In addition to that, since previously in the process I examined the emotional residue of those experiences using (Desmet & Fokkinga, 2020)'s research, I also decided to extend the framework I was developing to explore how their inquiries on the 13 psychological fundamental needs were related to Resilience (in which Autonomy, Competence and Relatedness are also considered).

3.4.2 Resilience Storm

The blog was called Resilience Storm as a wordplay that references the core value of the project, Resilience, and the strong qualities of a Storm, which symbolizes difficulty, but also strength and power. The collection of the posts, together with an overview of the autoethnographic process, can be found in the Appendix A.2. of this report, but I considered it important to display one of those while reporting my research activities.

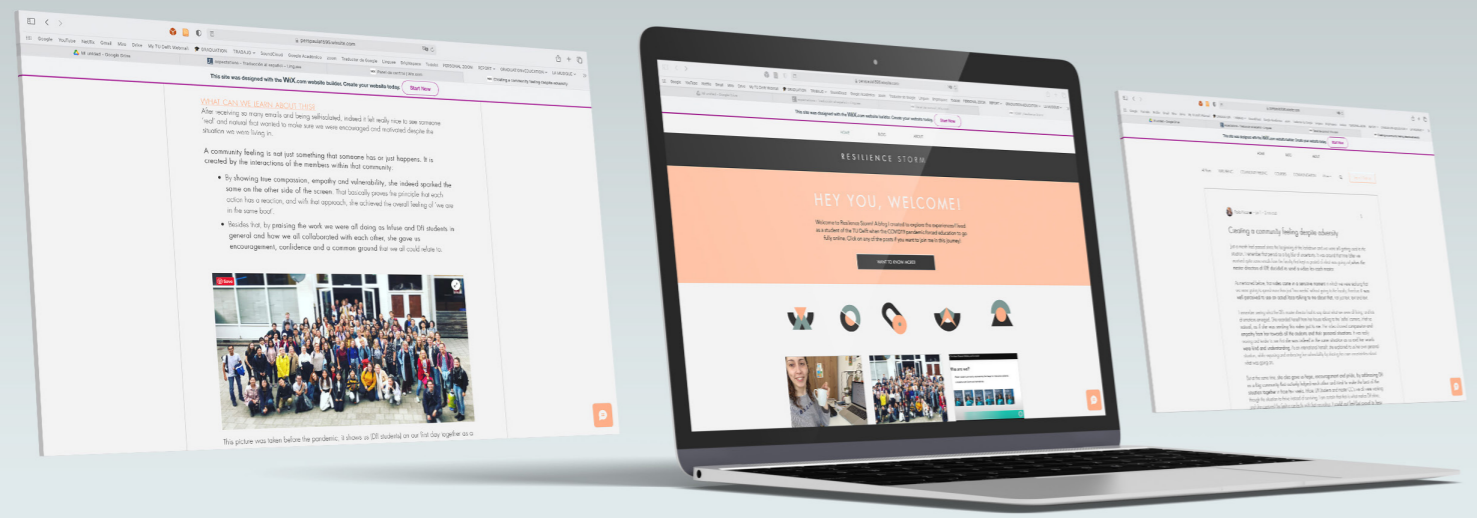


Figure 8, ResilienceStorm online blog.

“Let’s make the best out of this, together”

In this post I wanted to explain how the process of co-creating the courses with the coordinators, how it affected the relationship we had with them as students and what that meant for me.

To get you all on the same page, I will start by explaining what Infuse is. Infuse is a student association for the Design for Interaction’s (Dfi) master’s programme. It is formed by 6 students from the programme and its main purpose is to create a community feeling among the Dfi students. Beginning 2020, I had recently become the chairperson of the association, and a new semester was starting, full of events and new courses, we were excited to see what next year will bring for us.

When the pandemic forced the institutions to close doors and shift towards online education, we were pretty much affected by it. There was

a lot of uncertainty at that moment... We soon understood that the situation would last more than expected and we would have to deal with the challenges of working online for more than just a few weeks. All the activities planned for the year were cancelled (like our yearly trip, among others) and we tried to keep the spirit up by organising online events. However, students (and I also include myself in this group) were exhausted from being all day long in front of a screen attending lectures or zoom meetings, so just a few of them were joining the events planned.

But it was in the ‘backstage’ where Infuse started to play a different and important role in the transition to online education. It all started because of the hectic nature of the first days, when the university closed its doors. I thought it would be a great idea to reach out to all

the Course Coordinators (CCs) and the Master Director of the programme in case they needed any kind of help while facing all the uncertainty we were living. We discussed it with the board and all of us agreed it was the best thing to do, and at that time we were hoping to become a bridging means of communication between the CCs and the Dfi student community.

To be honest, I felt pleasantly surprised to witness their responses. In such a stressful situation, they were warm and welcoming, willing to help and listen to anything that we wanted to say. We agreed to have Skype meetings or simple calls (where Zoom was not even a thing) with all of them. Those meetings were deeply encouraging for us as students, as we could directly see and empathise with the struggle the Course Coordinators were going through to change and adapt the courses to the online world. That was not an easy task, and some of them were wrestling to find ways to transfer learning objectives from highly physical courses (in which we had to prototype each week, plus test with other peers) to a self-isolation and online setting.

Our contribution was mainly to provide information on how we (as Infuse, but also Dfi students) were dealing with the situation and how we perceived the courses and the activities planned, as well as proposing ways to approach the situation that could benefit both students and staff.

I can say that it felt amazing to be considered in such a strong way, which made us seek for students that were willing to share their concerns and opinions as well, so we could bring those into the table for open discussion. For the first time, we were one together with the CCs, helping each other and steering the courses into directions that were most beneficial for all of us in real time. If you really think about it, what we did there was a pure act of design, as we were co-creating and iterating together the courses every week by giving input that the CC’s could

work with, tailoring the courses according to our vision, making them not just for us, also by us in a way. How powerful is that, right?

Figure 9, Infuse, Dfi’s Master Committee, keeping the distance and posing for a board picture in Spring 2020.



3.4.2 Interviews

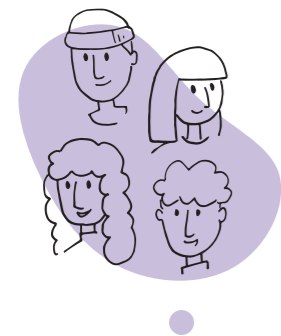
As mentioned before, Autoethnography is mainly sustained by reflective introspection. Even though I intended to be as objective as possible in my writings, it was also important to contrast and validate the insights drawn from my Autoethnographic research with the experience of other members of the Learning Community. The insights drawn from the analysis of those experiences were contrasted with other members of the Learning Community that were willing to share their own and played a role in that period.

Therefore, I conducted 11 semi-structured interviews, which recruitment was based on the decision to include representatives of the three main actants

described above. More details of the methods used and setup of the interviews can be found in Appendix A.3.

Lastly, I analyzed my experiences considering how they contributed to the fulfillment or satisfaction of basic psychological needs described by (Deci & Ryan, 2012) in the Self-Determination Theory.

In addition to that, since previously in the process I examined the emotional residue of those experiences using (Desmet & Fokkinga, 2020)'s research, I also decided to extend the framework I was developing to explore how their inquiries on the 13 psychological fundamental needs were related to Resilience (in which Autonomy, Competence and Relatedness are also considered).



4 Dfl Students that were involved in the same courses I was following, one of them an Infuse member



3 Spring Semester Dfl Course coordinators (CCs) of



Dfl's Master Director, 3 Members of the Management team of the faculty: Dean, Education Director and Head of Student affairs



Figure 10, Some of the interviews performed via to other members of the LC via zoom.

3.5 Insights from the case study

This part of the report contains the integration of insights from the Autoethnographic research, which were analysed through the theoretical lenses that were thoroughly explained in the previous chapter. Each part contributed to the richness of the insights, being the theoretical framework the lenses with the Autoethnographic research was analysed and first hand experiences of the members of the Learning Community were used as a complementary source for experience validation. The insights of this part of the chapter are supported with quotes extracted either from my personal writings collected in ResilienceStorm or the interviews performed. Conclusions drawn from the integration of all that knowledge set the base to develop a design direction.

3.4.3 Research questions

The clearest and most effective way to communicate the insights drawn from the research activities is by explaining them in regards to the three main research questions previously determined at the beginning of this chapter.

RQ1

Is resilience present in our current education and how does it manifest?

To answer this question, it is necessary to remember what the definition of Resilience for the particular context being addressed was and what were the variables that characterise that Resilience in order to draw insights.

Resilience is the process in which members of a Learning Community are able to successfully overcome challenges, focus on their learning as well as maintaining their overall well-being and sense of identity.



RQ1

Is resilience present in our current education and how does it manifest?



OVERCOME CHALLENGES

Design as a Resilient source for the community

One of the things that make design unique is the ability of designers to envision problems as challenges. That ability provided the members of IDE's LC the spirit of 'doing something' and the courage to deal with the situation by envisioning it as a challenge to overcome. Therefore, the whole community managed to cope with the detrimental effects of the pandemic by doing what they are best at and thrive.

"The meetings with the CCs had all the aspects of physical design, bouncing things back in, learning from each other, prototyping, testing and implementing straightaway."

"I see education as a continuous design."



FOCUS ON LEARNING

Performance and achievement under the spotlight

In a previous context to the pandemic, members of IDE's Learning Community valued the most performance and achievement as means to measure their efficiency in overcoming challenges. While focusing on performance might provide a drive in the moment to tackle specific issues, it can also cause stress and generate conflicts with the learning process in the long run. When adversity knocks on the door, people tend to focus on what is most important: in this case, learning, instead of performance.

"Whenever it comes to your academic life, the focus was always on the performance of students and staff as well as measuring their efficiency".

"The two main responsibilities of the faculty at that time were to continue with research and education."



MANAGE WELLBEING

Maintaining overall well-being

Enhancement of well-being, essential for Resilience
In the past, well-being was perceived by the members of the LC that came as a secondary position in their educational activities that as mentioned above, revolved around performativity. However, due to the pandemic and the effects produced by self-isolation contexts, higher attention was (and still is) being paid to staff and students' wellness. Naturally, this was well received in the community and encouraged its members to acknowledge each other's physical and mental health and balance it with their educational activities.

"There was a lot of resonance from the university in understanding that situation and accepting the struggle of students."

"Everything was based on performance, but now this has changed: it's about taking care of each other".



HAVE SENSE OF IDENTITY

We are all in this together

The sources of that Resilience, however, vary in between individuals. Some described that Resilience was the result of personal past experiences, others confirmed that while facing the effects of the COVID19 pandemic, their Resilience was affected positively. In any case, Resilience and its effects are inherently considered from an individual perspective, rather than as a collaborative construct.

However, in the face of adversity, members of the LC turned to community and tried to strengthen each other by combining their skills in a unique way. That sense of identity came from a collective perspective, as in, 'we are all in this together', we are a community.

"I wanted students to know that my door is open. That I was experiencing the same and we were in the same boat together and could help each other."

(Referring to Dfl's Master Director) "She also gave us hope, encouragement and pride, by addressing Dfl as a big community that actively helped each other and tried to make the best of the situation together in those few weeks."

RQ2

What factors made resilience flourish?

After clustering those experiences related to the positive transformation of the system in order to adapt to the current situation, six Resilience factors were identified to directly contribute to building and enhancing Resilience in IDE's LC:

Structure, clear goals and purpose

Having a clear vision, specific goals as well as structure in how to get there proved to be highly effective when coping with the effects of the lockdown, especially those that emerged in its initial stage, where the situation was most chaotic. Firstly, the priority of the institution was to ensure the continuity of education; secondly, the Course Coordinators and teaching staff's main concern was that learning objectives were achieved; and lastly, students' focus was to achieve those learning objectives by successfully passing their courses.

Moreover, setting a planning and communication strategy was key since both students and staff were clinging for structure and effective communication due to limited or non-existent contact between peers or staff from the faculty.

Enabling the right tools to let staff and students

choose their own pathways to reach a common goal

Flexibility provided by members of the LC allowed them to adapt to the situation by making use of the most convenient tools or skills, being those useful for either technical or mental support in their individual paths. To facilitate such flexibility, the institution enabled tools to let CCs re-structure and accommodate courses into an online environment. On the same line, CCs tailored those courses by making them malleable to match students' learning objectives, interests, or schedules.

Forming partnerships across the faculty to strengthen each other

To outweigh the situation, all three groups of the learning community turned into and strengthened each other when working together to tackle the effects of the situation leaving hierarchical structures aside. Examples of that could be staff initiatives and teamwork to come up with strategies and tools to face the situation. Other examples would be how student committees and the institution worked together to get the student perspective to reach the faculty organisation, or CC's willingness to let students in the process of re-framing courses in an online setting.



VISION



FLEXIBILITY



COLLABORATION



SUPPORT



CONNECTION



WELL-BEING

Having open communication that provided safe spaces to voice needs, issues and concerns and act accordingly

As the time was full of uncertainty and social disconnection; direct communication channels were enabled between students and staff to voice their current needs and concerns. Those open channels provided members of the LC safe spaces to bring to discussion difficult questions and issues and seek advice and support from others. That is the case of the triad formed by Infuse, Dfl's CCs and its Master director.

From a student perspective, it does not come as a surprise that guidance and coaching directly affected the way students perceived courses. However, this was even more salient while working from home. Therefore, it was essential for students, but also staff, to have mentors and/or peers that could provide such support that helped in coping with adversity.

Creating trust and meaningful relationships based on empathy and kindness, provide a community feeling

Even though the unfavourable effects of the COVID19 pandemic, members of the LC felt a change in the way they were approaching each other as people were kinder, empathetic and more understanding. Those interactions led to forming meaningful connections and trust relationships between the members of the LC.

Moreover, it was essential to create and promote a community feeling of "we are all in this together" in a context in which 'togetherness' was just possible in people's minds. The online setting allowed members of the LC to see each other's struggle and fight to overcome the negative effects of the pandemic. That had an overall humbling effect on them, who valued the fact that the whole community was willing to 'embrace the human side of education'. This period brought a new perspective in how essential social interactions and physical spaces are to enable these kinds of connections.

Changing priorities from performing efficiently to balancing work and personal life in healthier ways

As mentioned earlier in the chapter, wellness awareness and acknowledgement felt valuable for the members of the LC, especially coming from the institution and educational staff. There was a sense of acceptance of students and staff's struggle when coping with the effects of the pandemic, such as stress, anxiety, or social exclusion. But further than acceptance, educational figures were actively promoting physical and mental well-being by launching different kinds of initiatives or bringing such awareness into their everyday practices. To sum up, maintaining members of the LC's overall well-being was key to thrive.

RQ3

How students, teachers and institutions offer potential for resilience in the others?

When looking at the behaviours that emerged from a systemic perspective, there is a specific pattern that contributed to the system's transformability. When approaching a complex system, (van Ael et al., 2021) suggest to look for causal loops to understand what are the influencers of its dynamics and identify leverage points connected to the variables of the exchanges produced in the system.

When approached systematically, the main causal loop that facilitated the transformability of the system was created first by having to face the changes the community was undergoing. In that moment of uncertainty, safe spaces to reach out were enabled by specific members of the LC. As a response, other members made use of those spaces to voice out their needs, concerns and hopes in an open and honest way. Finally, those needs were heard, understood and transformed into actionable insights that fostered the change and iteration of the community's strategies to cope with the situation in healthier and effective ways. This causal loop can be observed in the dynamics between the three main actants of the system, as in students-teachers, students-institution, students-students, teachers-institution, and so on.



Figure 11, Dfl Bi-weekly meetings between CCs, Master director and Infuse, Spring Semester 2020

Now, we have seen that by allowing safe spaces and communicating among each other, members of the LC were able to build Resilience systematically. But, let's take a closer look in how each of those actants contributed to the transformability of the system. Through the section, bits of the writings are shared to provide a better understanding of the situation back then.

INSTITUTIONAL STAFF



Vision

Provide a clear purpose, future vision and optimism to staff and students, set a direction to strive for inspired members of the LC motivated to work to get there.

Flexibility

Enabling the right tools to support members of the LC to reach their common goal, which in this case is coping with the effects of the lockdown, was key to thrive. From the technical side, it was necessary to quickly implement suitable software and hardware that allowed staff and students to preserve their educational activities in the new online environment. (E.g. setting up Zoom, Teams or Miro accounts for staff and students, and facilitating hardware supplies such as screens or chairs).

Connection, collaboration and support

Foster a community feeling that facilitates open conversations between the members of the LC. Before COVID19, the faculty's strategy was to implement collaboration in IDE's curriculum. During the pandemic lockdown, in which the lack of physicality challenged collaboration, having frequent and close meetings with students and staff created safe spaces within the community where they were able to communicate their needs and hopes (for example, having weekly open meetings in which students could just show up, internal faculty departments, student council or associations.).

As a result, the institution could use the outcomes of the meetings as input to adapt their strategies to ensure that education was still going on and that the members of IDE's LC were doing fine, while keeping the debate open among all of them. Furthermore, educators appreciated the fact that institutional requirements softened due to the situation and that organizational department representatives were more understanding of their personal situations.

After some time the lockdown started, the master director decided to 'open her door' through zoom for casual weekly meetings with students or anyone that wanted to reach her out and have a chat. As Infuse, we also wanted to be present in such meet-ups, just to see how other students were doing as well. They were casual and engaging as they just lasted half an hour and we would usually talk about relevant things that affected us or just how we were doing in general. I was personally looking forward to them, as I just wanted to talk to her because I admired her human touch on the situation and her willingness to help despite her tight schedule. I was also pleased to see that others were in my same position and reached out to her or to Infuse to voice their concerns and doubts. They relied on her as much as I did because of her compassion, kindness and her feeling of worship towards the Dfl community.

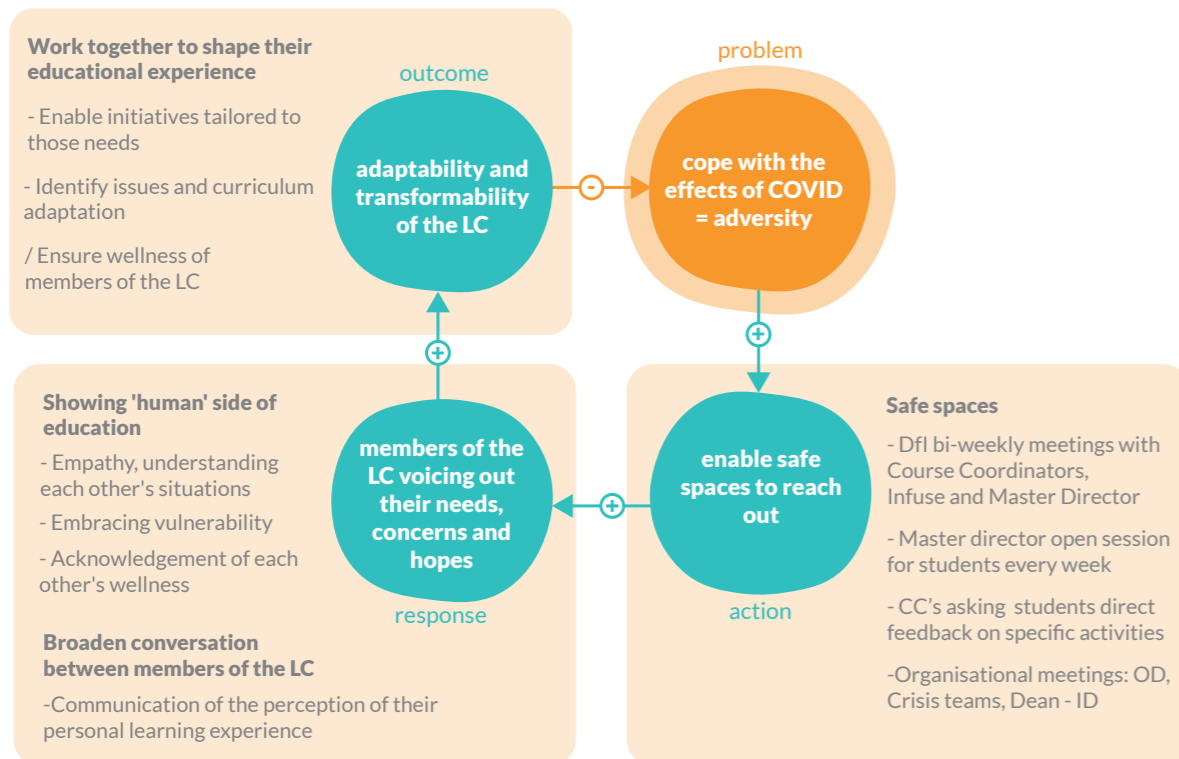


Figure 12, Main Causal loop that allowed Resilience to emerge in IDE's LC through the COVID19 Lockdowns.

Well-being

Ensure well-being of the members of the LC by considering it as part of the education system. Consequently, they were eager to have open conversations about their personal needs, which would create a debate in the institution to adapt its strategies to them. Some examples are:

- Creation and support of well-being initiatives (such as the Well-being Assessment (Lomas, 2021), TU Delft's Well-being week (TU Delft, 2021a), 179th Dies Natalis: Week of Resilience (TU Delft, 2021b), Workshops and coaching activities (Delft University of Technology, 2021).
- Investing money in increasing mental support or counselors for students and staff.
- As leaders, being open about vulnerability.

It is also important to consider the personality and mindset of the institutional leaders and their perception on Resilience. As they will guide the community, their personal decisions will directly affect other members in one way or another.

Vision

The main goal the university had was to ensure the continuity of education, therefore it was essential for educators to ensure that their courses' learning objectives were met by the students without being able to access the campus facilities and its physical learning environments. To do that, it was key to provide students a range of tools adapted to the courses' new requirements, as well as clear and concise instructions that they could follow.

Flexibility

Even having the right tools provided by the institution, the transition to an online setting was challenging and had critical effects in some of the courses, which had to be re-framed by the CCs. Some of them changed almost completely due to the need of physical environments or tools that were not available since the campus closed its doors. CCs then decided to make the courses flexible to provide students different pathways to reach their mail learning goals and increase their motivation.

The course started on April, so we were already working from home. Since the course coordinator herself was coaching the students, I believe she sensed that we were struggling to deal with the situation.

As a consequence, she decided to propose us to choose which one would be our most suitable final deadline. She brought the issue in one of our plenaries by asking about it directly to us if that would be something we would be interested in doing, instead of taking the decision by herself. That flexibility provided by the course coordinator allowed me to focus on what I really wanted to get out of the course and deliver something accordingly, while dealing with the workload of the other courses as well.

Collaboration

Since the beginning of the lockdown, staff was eager to collaborate across the faculty to facilitate transition to online education. One example of that is the creation of a collaborative repository of available online tools and software that will assist blending education.

Besides that, CCs were also willing to involve student representatives such as Infuse in the coordination meetings of the course, to get a better sense of how students were doing and use them as a support in decision-making. Furthermore, CCs strongly relied on Teacher Assistants, being them considered as members of the coordination team and a crucial source bridging student networks with CCs.



Support

Since the beginning of the lockdown, Course coordinators were open about their own uncertainties about the courses and where they might lead to. Because of that, they were broadening that conversation by directly asking for student feedback on how they perceived the new approach to the courses and things to be improved. At the same time, that openness and honesty was well received for the students, who in some cases reached CCs to give their opinion.

It is necessary to outline the fact that the pandemic affected not just students, but staff as well. Coaches and mentors had a great influence in students' perception of the courses, especially since they were the main connection between them and the course. Therefore, having a great network of coaches in the course team that were able to guide students was key to thrive.

Connection

Connection emerged because of collaboration and support between students and staff, who in the first place, provided safe spaces to let students voice their needs, concerns, and fears. Such conversations lead to shared moments of empathy, in which students and staff could be openly heard and understood.

Well-being

Well-being has been explored by IDE's researchers for a while now. Therefore, in the light of the events, some of its members offered themselves to lead and/or be involved in initiatives related to well-being launched for the whole university, such as the Well-being assessment (Lomas, 2021) or the Graduation Community Programme.

From a course perspective, staff acknowledged student well-being and spotted those students that were struggling the most. Because of that, some decided to diminish or restructure the workload for their courses, considering the negative effects of the lockdown on students and change their communication approach towards them.

Vision

As mentioned before, it was essential to provide a clear vision and goals for students to reach their mail learning objectives, who were willing to pass their courses in the best way they could. In any case, it came as a surprise to some educators the fact that despite the gravity of the situation, students were performing even better than past years and the outcomes delivered had great quality.

Collaboration

During the lockdown, it was difficult to get a sense of how the students were doing, that is why strong partnerships between student representatives and educators were formed. Some examples of that are: Infuse was willing to help Dfl's CCs as much as they could by, for example, being present in staff meetings to provide the student perspective, give input on how the students were doing or ask around the student community for concerns and communicate them openly to the CCs. The student Council, ID Association or OKIO also were having periodical meetings with the Dean of the faculty and other members of the Management team to keep them updated on how the student community was dealing with the situation.



Support

As the courses were being revised and adapted to the online situation, the CCs were willing to hear students' feedback on them. Because of that, they were actively seeking the opinion of the students, who in some cases were also open to honestly reflect on the courses and their own perception on educational activities in a constructive way. That was also the case of students showing up in Dfl's director open meetings, in which they could reach her out to talk about how they were doing. TAs and other peers were also a great source of support for students.

Connection

As mentioned before, the pandemic brought to the university the 'human side of education', and students are not an exception to that mindset transition. Educators described that during that period, students showed their empathy and kindness and were more understanding than other years. Also, the fact that educators were willing to provide such safe spaces for students to talk freely about their studies, empowered them to voice their opinions and be open and vulnerable about their personal situations.

Since almost the beginning of the lockdown, we (Infuse) reached the Course Coordinators (CCs) of the ongoing courses to offer our help in whatever we could and provide student perspective. In a moment in which teachers and coaches were not able to get an overall feeling on how the students were doing and also performing, that initiative was well received by the CCs, who opened their arms towards that help.

Our contribution was mainly to provide information on how we (as Infuse, but also Dfl students) were dealing with the situation and how we perceived the courses and the activities planned, as well as proposing ways to approach the situation that could benefit both students and staff.

But it was not just Infuse that was actively taking initiative to contact the CCs, a few other students felt as well the urge to share their opinion to the CC's, coaches or Teacher Assistants (TA). They did that in order to give specific feedback to improve the activities proposed to students or to reflect on the overall course.

3.6 The final Resilient Learning Community Framework

As aforementioned, the Resilient Learning Community Framework suffered few iterations through the project as a result of the Autoethnographic exploration activities.

To briefly summarise the foundation of the framework, it is necessary to Remember the Self-Determination theory, which needs of Autonomy, Competence and Relatedness (or BPN) were equivalent to Resilience's building blocks of Self-efficacy, Self-esteem and Secure base.

Apart from those universal basic psychological needs, (Desmet & Fokkinga, 2020b) identified 10 more that build up on Maslow's theory (McLeod, 2018). Those 13 Fundamental needs, organised in a design-focus typology, are considered essential for growth and happiness. While analysing the experiences from that period and how they contributed to Resilience, the correlation between the (rest of) the needs and the basic ones became clear. Furthermore, that interrelationship served the purpose of exemplifying in what way those fundamental needs could support the basic ones

of Autonomy, Competence and Relatedness for Resilience development.

On the same line, the factors identified to make Resilience flourish in IDE's Learning Community nurture those specific needs and equip educators and designers with explicit, but broad actions that can be done in order to implement Resilience in their practices.

Finally, reflection acts as a bond that ties those needs and actions to the mindful development of Resilience. (Harvey et al., 2016)'s ecology of reflection theory explains how beneficial reflective practice in experiential learning is. Reflection is a key support for members of a Learning Community in their own learning processes, which may lead to transformative learning, improvement of self-regulation abilities and development of individual's identity (Tracey & Hutchinson, 2013).

As a result, this is the final Resilient Learning Communities Framework:

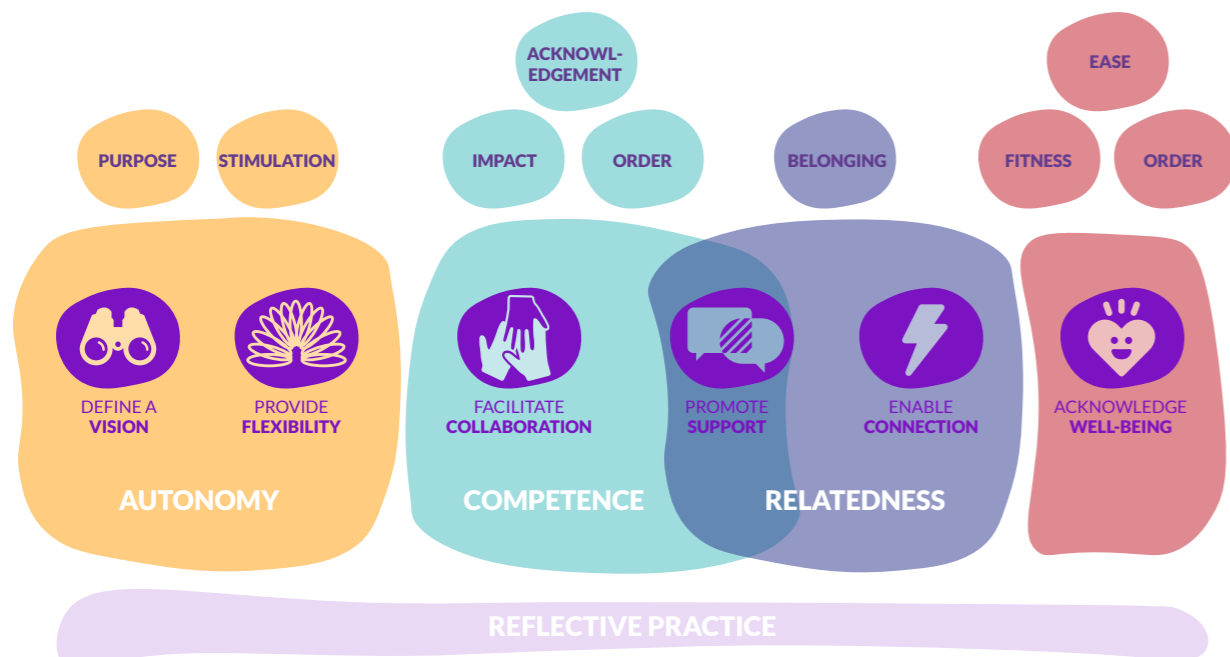


Figure 13, The final Resilient Learning Communities Framework developed from the main insights from research inquiries.



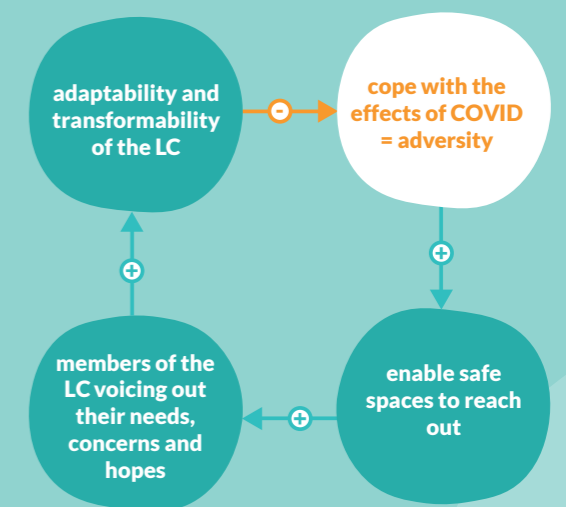
EXPERIENCING RESILIENCE

To see how Resilience was present in our culture it was necessary to go back in time and reflect in a period in which it was systematically achieved in IDE.

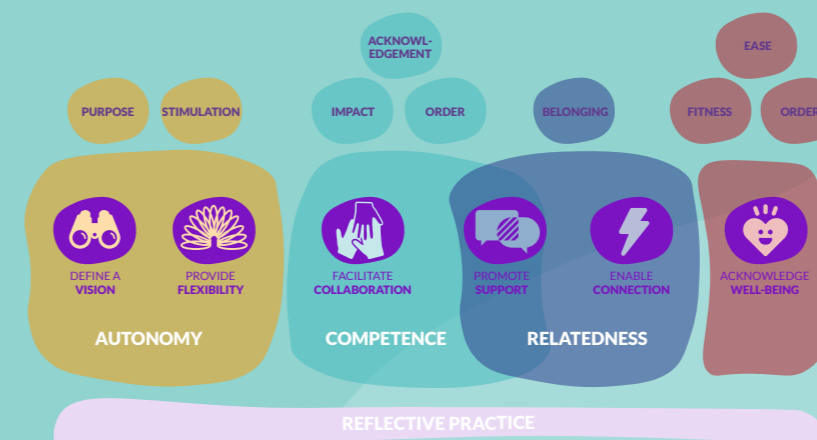
The main factors that allowed Resilience to flourish were:



In order to identify what facilitate the system's transformation, it was essential to look for causal loops in the experiences lived. The loop that allowed Resilience development was:



The chapter concludes with a framework, synthesized from previous research, which aims to assist educators into conceptualising interventions to enhance resilience in Learning Communities.

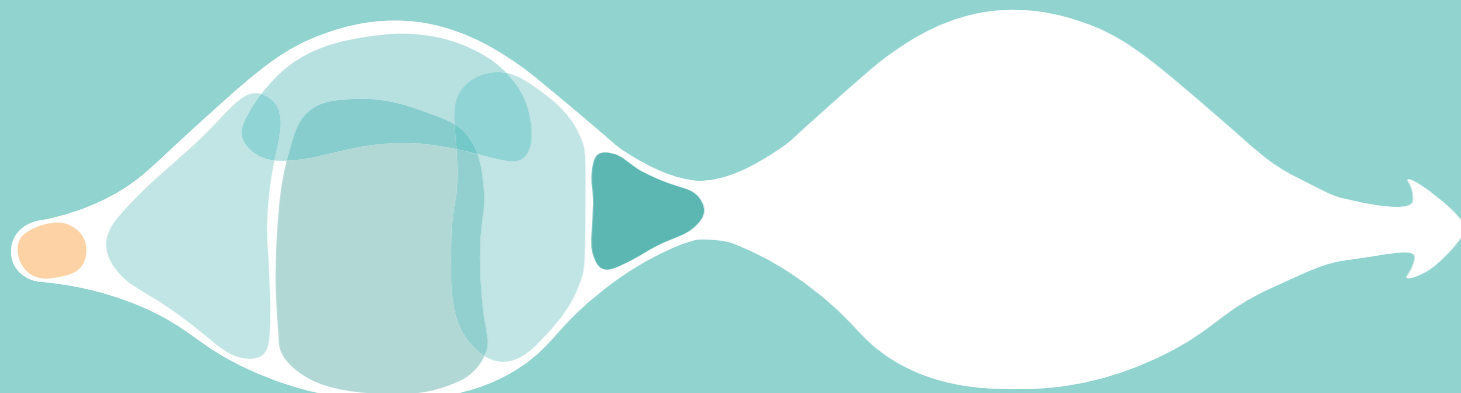


4

ENVISIONING THE FUTURE

Until now, Resilience was analysed from a theoretical perspective and explored in what ways it was present in IDE's faculty in a moment in which it was mostly needed. The insights gathered in previous chapters prove that Resilience is something that was and can be present in our current education and that there are specific actions that can be taken in order to build and foster it in future contexts.

In this chapter, a behavioural worldview is presented, which will help envision the Resilience approach of the current culture of IDE and identify possible design directions. The chapter concludes with a design statement that is meant to be used as main inspiration for the second phase of the project, in which an intervention to promote Resilience in IDE's Learning Community is proposed.



4.1 Resilience worldview

Worldviews are created to envision complex contexts in a clear and effortless way. Therefore, it seemed as a great idea to organise the insights drawn from the interviews and autoethnography so the different approaches to building Resilience in IDE's LC are visible in one same construct. Furthermore, it also serves as a map that displays the desired behaviour that could potentially be adopted or designed for members of IDE to build Resilience in the coming future.

Vision in Design or VIP uses worldviews as key element to visualize and define contexts to guide designers in their process.

The factors that composed this worldview can be found in Appendix B.1, alongside with an explanation for each single cluster. In conclusion, this worldview aims to define the possible approaches a Learning Community can adopt when building or enhancing the Resilience of its members:

The process to build this specific worldview was inspired by (Hekkert et al., 2011), whose method

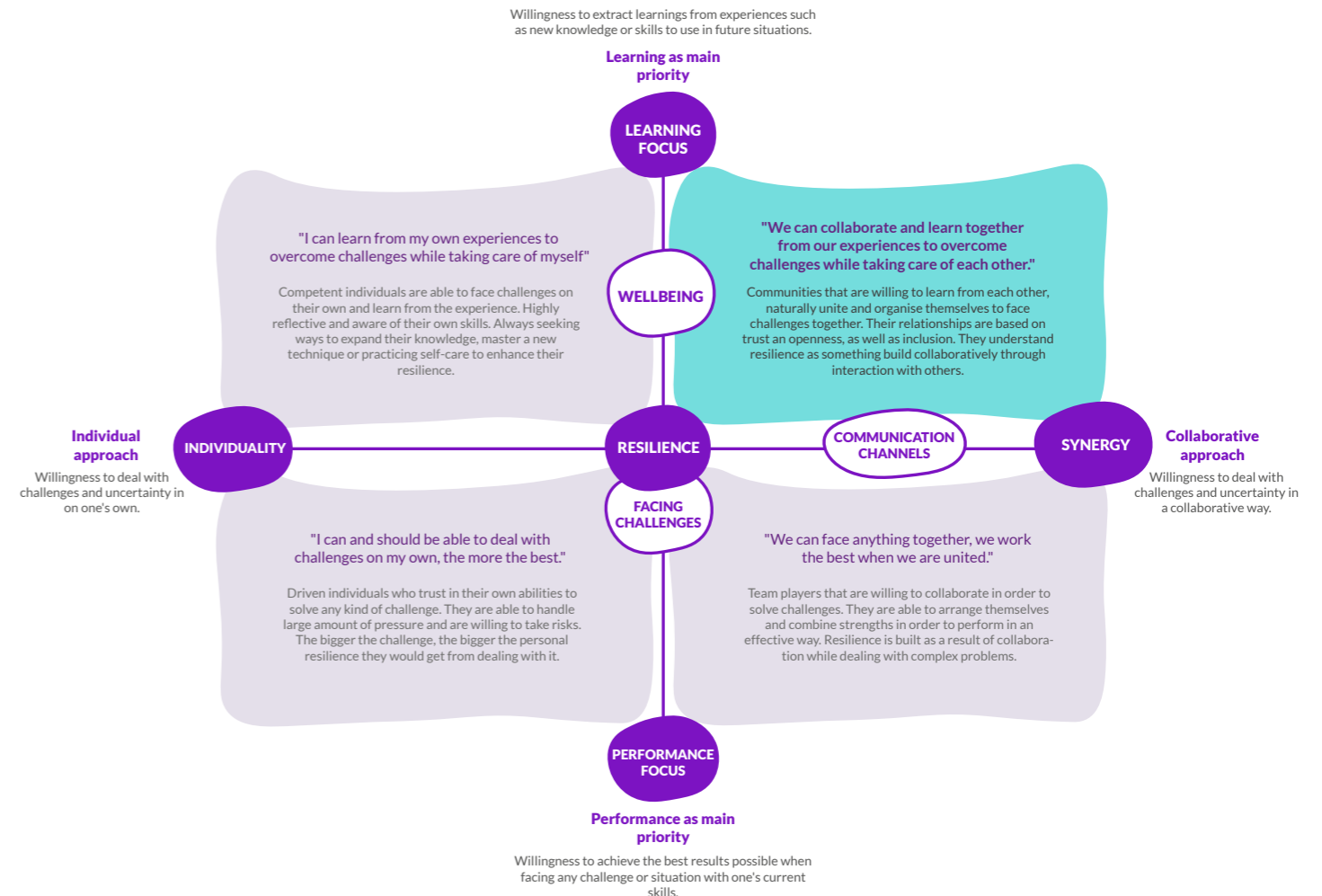
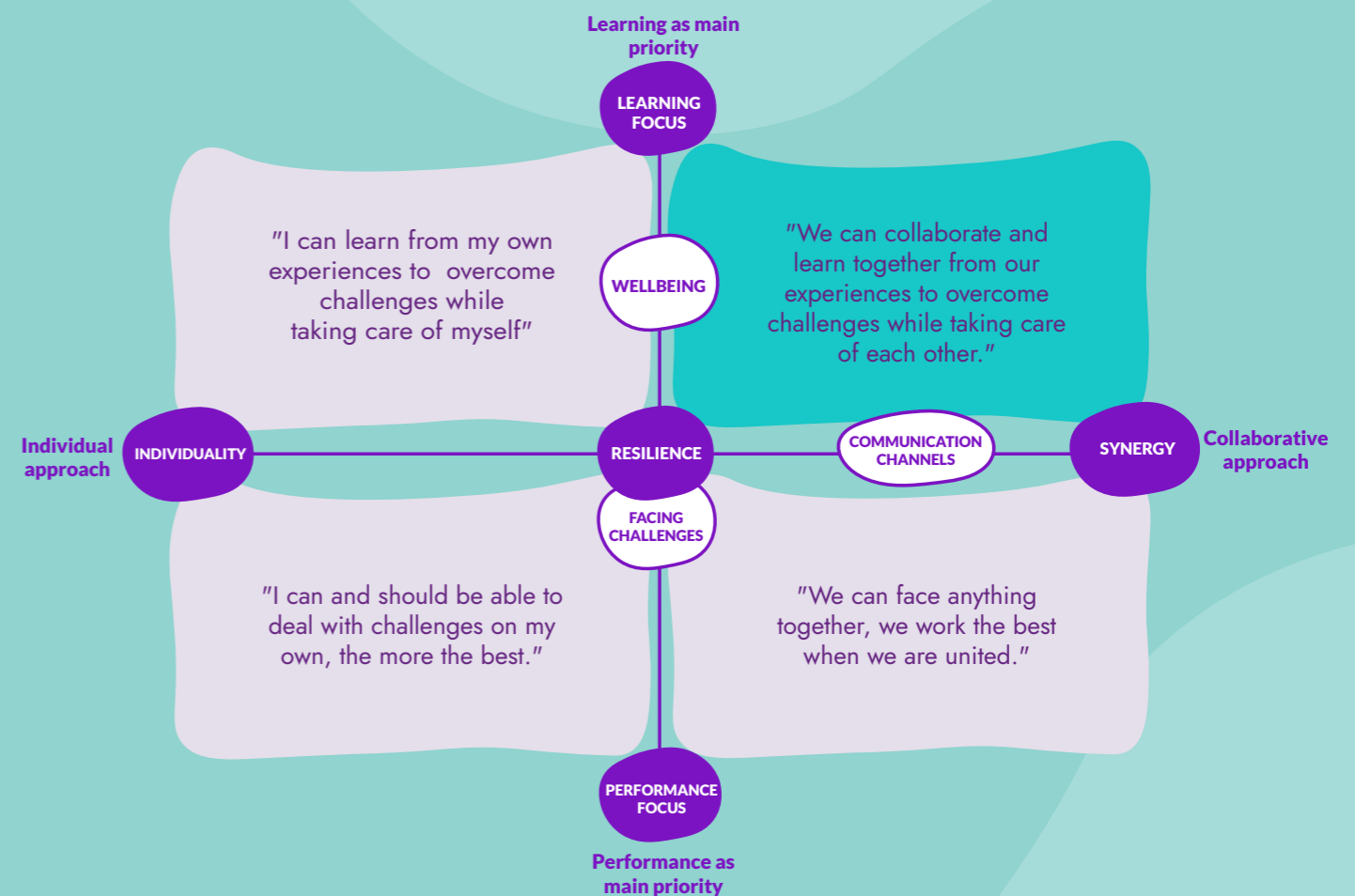


Figure 14, Resilience worldview, inspired in the VIP Method.



ENVISIONING THE FUTURE

This chapter provided an overview of different behaviour approaches to Resilience development. In order to formulate a design statement that will define the second phase of the project, it was necessary to choose what kind of behavioural approach would be the desired one. Therefore, the decision was to position the future design in the area that merges synergy and learning approaches.



The following design statement emerged as a consequence of merging the Resilience worldview and the causal loop described in the autoethnographic research:

I want Learning Communities to build Resilience...

...by providing them safe 'in between' spaces to voice their needs, concerns and hopes.

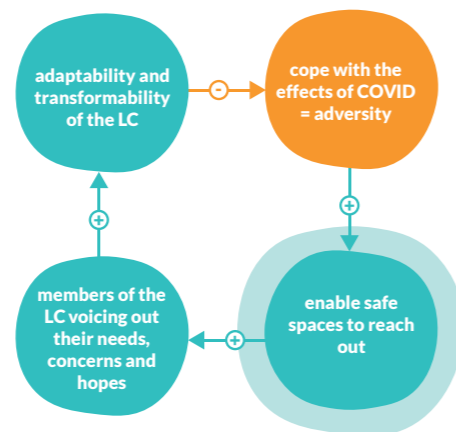
...by acknowledging each other's well-being.

The research activities performed to understand the dynamics of IDE's faculty showed that the members of its community can be situated on the right-down quarter of the worldview due to the fact that team work is strongly implemented in the curriculum and the communication and collaboration among its members is noticeable when compared to other faculties. Although there are some activities, such as grading, in which individuality comes to play.

In consequence, the desired direction proposes a shift in the performative culture deeply embedded in the members of the community. In contrast, it suggests that people within this system are willing to learn from each other, naturally unite and organise themselves to face challenges together. Their relationships are based on trust and openness, as well as inclusion and they understand resilience as something built collaboratively through interaction with others.

4.2 Design statement

The design statement that will guide the second phase of the project was crafted by unifying the most important insights from the context to be addressed, the ones drawn from the behavioural worldview and Autoethnography's conclusions.



I want Learning Communities to build Resilience...

...by providing them safe 'in between' spaces to voice their needs, concerns and hopes.

...by acknowledging each other's well-being.

Firstly, the main goal refers to the desired Resilient behaviour to be adopted by the members of the Learning Community (students, teachers and institutions), which is a combination of having a bold and strong learning and collaborative approaches when dealing with challenges.

Then, the mechanisms proposed in order to reach that goal stem from the identified factors that contributed the most to build Resilience in IDE's Learning Community and the causal loop of such development. Each mechanism is framed as a positive strategy and will address different aspects of the design.

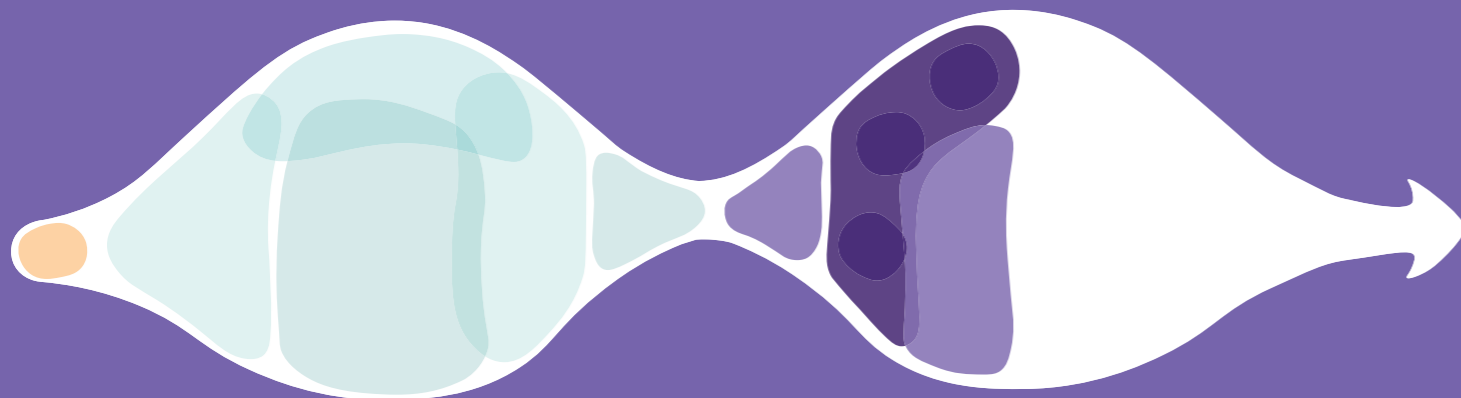
Learning Communities: Main users of the final design, as in students, teachers and institutions to build Resilience: the desired effect and intention of the design, which contemplates Resilience as a collaborative learning process.

5

EXPLORING THE SOLUTION SPACE

The second part of the report centers on the design of a tool that unifies the insights gathered until now.

This chapter in particular, describes the different solution explorations prior to the final intervention. It describes the reasoning behind the decision to choose a subsystem within the IDE's LC for design inquiries. The chosen subsystem is the one delimited by the space created by the coach and students. Through the chapter, tension points of that relationship are unveiled to develop an intervention that will foster Resilience in that specific context.



5.1 Finding what fits

The design statement that concluded the previous chapter provided a direction to be followed during the second phase of the project in which an intervention that aims to foster and build Resilience in Learning Communities will be carefully assembled. But before that, there were some decisions that needed to be taken for the sake of the project's continuity. Hereby are some reflections that helped to steer the design process in order to achieve positive results.

5.1.1 Research context vs. future context

The conclusions drawn from Autoethnography indeed depict the Resilient Learning Community of IDE, which succeeded in facing adversity and thrived. Facing a worldwide pandemic that kept members of the Community 'blind' in their homes and had to rebuild their conception of education was not an easy task. It is true that some of the behaviours that occurred during that period of time emerged out of imminent necessity. It was then important to consider that those conditions, although they benefited education in some ways, are (hopefully) not likely to repeat again. Therefore the mismatch of those two contexts should be considered when developing the solution.

5.1.2 Finding a context

In consequence, the mindset of the people that the intervention will be delivered to, will not be the same that is described in the autoethnography, but it will not be as before either as there are plenty of learnings to absorb from that time. Although designing for the transformability of IDE as a system seems really inspiring, it will also be highly ambitious to carry out individually within the time frame designated for a graduation project. It was then essential to find what fitted the aim of this graduation project and set realistic objectives that match with its design goal. Because of that, the best option seemed to be to choose a subsystem within IDE's ecosystem as a solution space.

5.1.3 Choosing the context

As previously stated, the interactions between the members of the LC were not completely linear. Each actant had their particular role in how to promote and provide Resilience among IDE's Learning Community, and there were other factors that contributed to such quest. Because of that, it was necessary to approach the third research question from a systemic perspective and at the same time, study each of those roles.

To be able to holistically analyse the interactions between the three main actants, an ecosystem map of IDE's LC was created. Ecosystem maps (Forlizzi, 2013) are used in systemic design to explore not only the relationship between the main stakeholders of a system, but also links with actors beyond them, such as places or technologies. They allow designers to map those interactions according to their influence in a product or a value, in the case of this project, Resilience.

By taking a closer look at the map displayed in Figure 15, Resilience is placed in the centre, as it is the focus of such explorations. Then, around the focus, the main factors that contributed to the building and enhancing of such Resilience are displayed as qualitative values. The key observations that can be extracted from the Ecosystem map, are those that target the interactions among students, educators, and institution and the sub-actants involved in their interplay. Those interactions occur in different learning environments created by the spaces between stakeholders.

Finally, the Resilient resources available for all members of the community are arranged around the Ecosystem map, and refer to technology, physical spaces, initiatives that arose during that period or resources that contributed to their overall wellness.

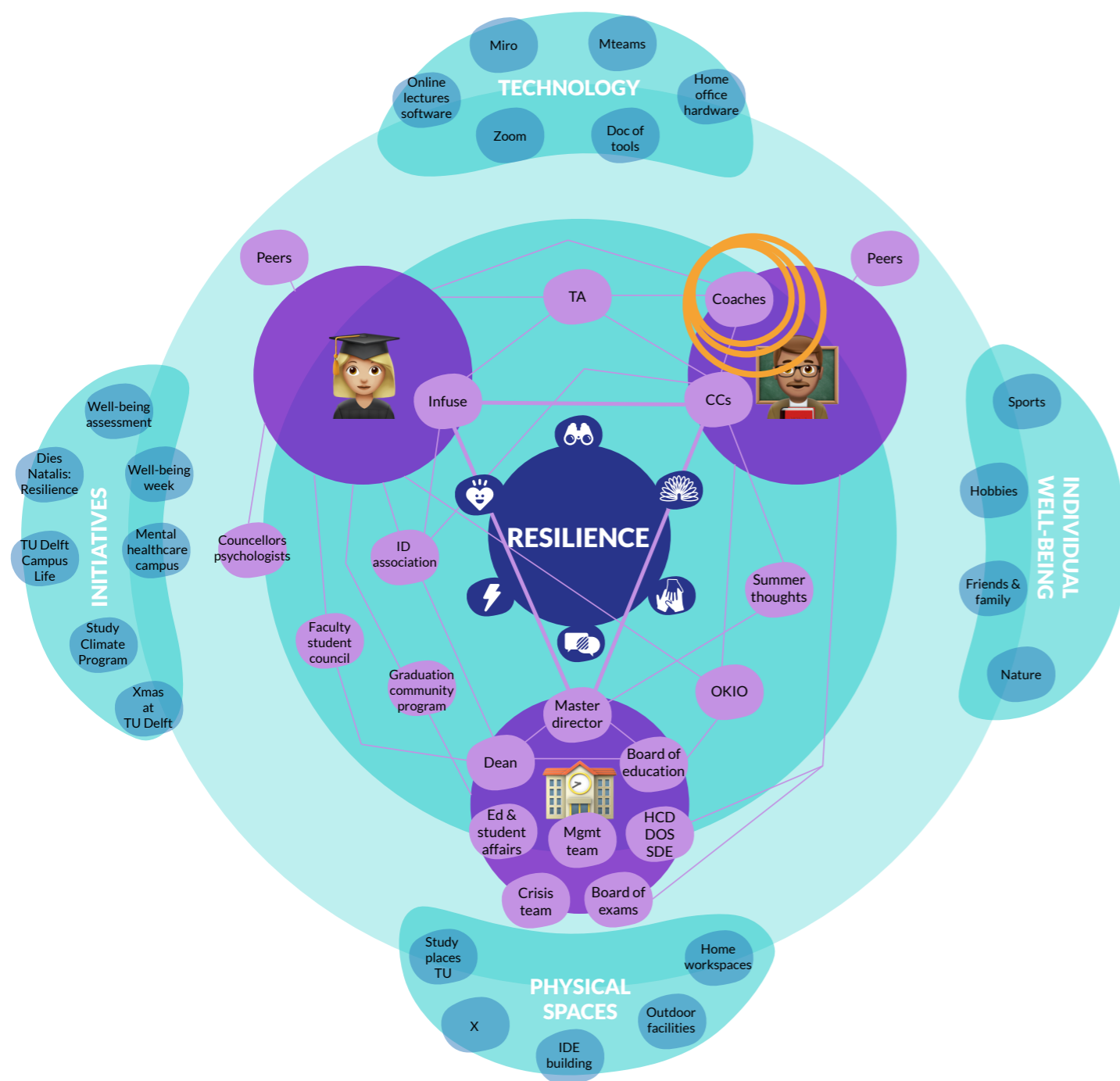


Figure 15, IDE's Ecosystem map during the COVID19 Lockdowns

Looking back to the conclusions of chapter 3 and design goal, the main causal loop described that the potential for Resilience occurred when there were safe spaces provided by and for members of the community to voice their needs and act upon them. That gave the system the ability to transform, rather than just cope with consequences. The enablers of those safe spaces were considered as nodes, and they were essential for Resilience development as they contributed to the connection between actants.

In systemic design, those nodes are called leverage points, which are places in the system in which one small shift can make an important difference (Meadows, 1999). After looking carefully at the map and considering different options, the leverage point that was chosen to develop the final solution is the one composed by coaches for the following reasons:

From students' perspective

- They directly affect the 3 BPN of the students and the way they perceive a course, therefore they have a direct impact on the students' ability to build Resilience
- Students are closer to their coaches than to Course Coordinators
- They possess an holistic and rich perspective of their own and students' learning experiences

From institutions' perspective

- They are in contact with the whole student cohort of a course (where institution finds difficulties to reach all the students)
- In the ecosystem map, coaches are isolated from the institution. As the aim of this project is to build Resilience in future designer generations through interconnections, the context that will be used for further design explorations is the space created by coaches and students.

As the aim of this project is to build Resilience in future designer generations through interconnections, the context that will be used for further design explorations is the space created by coaches and students.

5.2 Analysing the subsystem

Once the subsystem and context were chosen, there were some questions that arose from there. For instance, if Resilience is the process of withstanding adversity and then thriving, what would be the main 'adversities' present in the subsystem or when could be a nice moment to intervene.

Because of that, a generative session to find answers to those questions was planned following the principles of (Sanders & Stappers, 2012)'s Convivial toolbox. The use of generative research and tools is characterised to support participants to evoke memories, explore underlying motivations and feelings and imagine possible futures that fit their needs and context. In Appendix C.1 can be found the setup of the session as well as the materials used and produced in it. In brief, the session counted with 5 participants, a note taker and a facilitator. The participants recruited consisted of a mixed group of 2 coaches, 2 students and 1 teacher assistant.

Generative session goals

- Define adversity in student-coach relationships
- Identify reinforcing and tension points
- Get fresh ideas for potential solutions

Results

The session did not go completely as expected, but it had successful results. The activities designed as a tool to uncover the needs and desires of the users in the session were not completely necessary to fulfill that purpose.

Far from feeling lost or not given a lot of thought to coach-student interactions, the participants of the session engaged in a lively discussion about their own experiences as coach, teacher assistant or student. In doing that, tension points in which both perspectives were not aligned were unveiled and explored by the participants as well as possible solutions to such tensions. Those points represent potential design opportunities in which Resilience can be fostered. Through The session that lasted approximately 2 hours, there were several topics that the participants discussed, but above all those there are 4 main observable tension points that could potentially be tackled.

Figure 16, Generative session carried out in StudioLab with Dfl coaches and students.



5.1.2 Four tensions

The role of the coach as 'God'

The perception of the role of the coach in the student community is as if he or she had all answers to their struggles. It was discussed that students have one dimensional vision of the coach, who will steer the project in the 'right' direction with his/her feedback. This comes in contrast with the reality, in which a coach as a human being, is a multidimensional figure with many nuances depending on their personality. That is why the role of the coach is not set in stone and the relationship between them and students is something that both parties need to work on. The portrait of the coach as 'God' is clearly one of the results of cultural and educational heritage, in which the figure of the teacher has always been the main source of knowledge and reasoning.

Misalignment of expectations in courses

Students are used to setting high expectations for themselves and coaches feel impressed in how often courses can become challenging and hard processes for students due to that. The only articulation of what is expected from students during a course is its rubric. However, students still struggle with finding out what is exactly expected from them in relation to their work. Coaches and students expressed disappointment to 'treat projects as a checklist' and agreed that the rubric should also not be prescriptive as each design project is unique.

Students not owning their projects and coach assuming they do

Another notable tension was that students do not always take the initiative to own their projects. Finding what one wants and applying that in a project is not an easy task, that is the main reason why coaches are there to support this process that students undergo to find what they stand for. However, they tend to rely on the figure of the coach up to the point that they understand it is their duty to 'please' the coach in order to get a good grade or result, and by doing that they are not taking full responsibility for their actions on their learning progress.

The desire to perform in courses clashing with mental health and emotions

It is clear that our emotions affect the way we work. Insecurity, fear of failure and stress affect directly how students perform, and that can also be applied for coaches. The tension between performance and mental health is something that became even more salient after the pandemic.

To each member of the relationship, it is clear that the main desire is to be perceived and understood as a human being.

5.3 Chosen direction: Expectation Misalignment

The decision on what direction to choose was taken with the support of experts in which would be the best contribution to IDE's Learning Community. Finally, it was concluded that the best option was to focus on expectation alignment as expectations influence the way people perceive and understand their environment and therefore, their overall learning experience. To explain that, (Trafton, 2019) clarifies that prior beliefs people have 'help us make sense of what we are perceiving in the present,

based on similar past experiences'.

On one hand, students are used to setting high standards for themselves and struggle with finding out what is exactly expected from them in relation to their work, finding it difficult to see it reflected in a rubric. Besides that, they strongly rely on their perception of the figure of the coach as the ultimate guide, up to the point in which the ownership of their projects is compromised.

On the other hand, coaches feel impressed by how often courses can become challenging and hard processes for students. They assume that students own their projects and that their presence should be seen as a sparring partner that accompanies them in their learning process, rather than someone that dictates what students should or shouldn't do.

Besides that, although expectation misalignment was identified as one of the main tensions in coach-student interactions, it can also be considered as an umbrella term for the other three directions. As a consequence of expectation alignment, the other three domains previously contemplated could be potentially affected, such as the role each person plays within the group, ownership of one's learning process and opening up to one's needs and emotions.

Expectation alignment and Resilience

And the question then would be, how expectation alignment is related to the Resilience of the members of the community?

The main goal of the intervention should be to promote Resilience among students and staff, who are able to withstand possible adversities that will come up through their journey and learn from them. With expectation alignment, the two or more people involved in the subsystem's dynamics co-construct a vision on what the successful criteria of their journey would be since the beginning of it. In other words, by ensuring there is a shared goal and common understanding to strive for, members of the LC could feel safer and willing to develop their skills as they reflected on their previous experiences and collaboratively build up a 'way' in how to acquire these new abilities.

The intervention then, will stem from the main pillars of Resilience, being those the basis of the Resilient Learning Communities Framework.

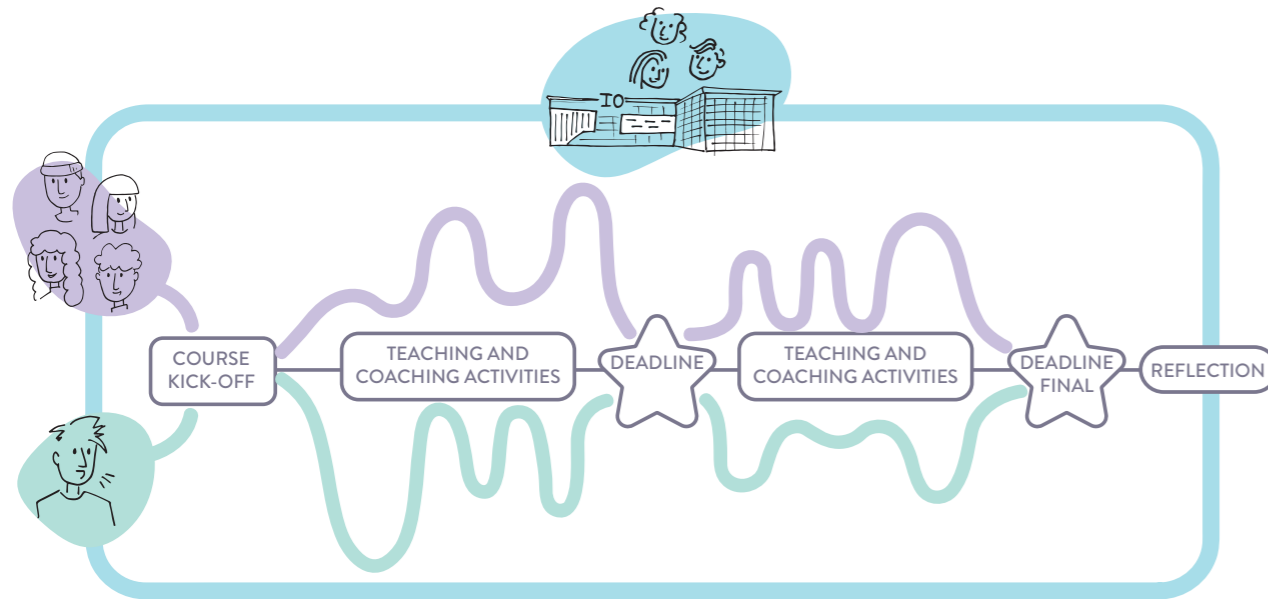


Figure 17, Expectation misalignment diagram

Elements to align

The generative session was also helpful to identify some of the elements that in some cases, lack alignment between coaches and students. They are listed in Figure 18.

In any case, the elements to be aligned depend on the individuals of the group, their expectations and communication abilities. Therefore, the final design should be 'open enough', so users can decide on those things they feel are important to be aligned.

However, the concept needed a common ground and what mainly connects students and coaches is the course they are involved in. The course's Learning Objectives (LO) should be the ones that shape the vision on what the course will bring into their personal experience. Those LO are synthesized and translated into learning outcomes in the rubric, which should be a tool that both educators and students use to align such expectations in an instructive, but not prescriptive way. Despite that, the current situation is that the rubric is used mainly at the end of the course to assess student's work quantitatively, not as a reference to recur through the learning process.

How to align them? Function analysis

Until now, the characteristics of the solution space should be clearer, but in order to develop an effective intervention, all those qualities had to be collected and structured. The function analysis method, which is described in the Delft Design Guide (van Boeijen et al., 2014), that is meant to assist designers to describe the intended functions of a product and relate them to its parts as analysing such functions and sub-functions can provide inspiration to develop meaningful embodiments for them. The qualities composed in the function analysis derive from previous research and the generative session. The definitive functions and sub-functions are depicted in Figure 19. Finally, those different embodiments were discussed and elaborated in the different co-ideation sessions organised with students that participated in the generative session. The setup of those sessions can be found in Appendix D.1.



Figure 18, Scheme of elements to be aligned in coach and student interactions

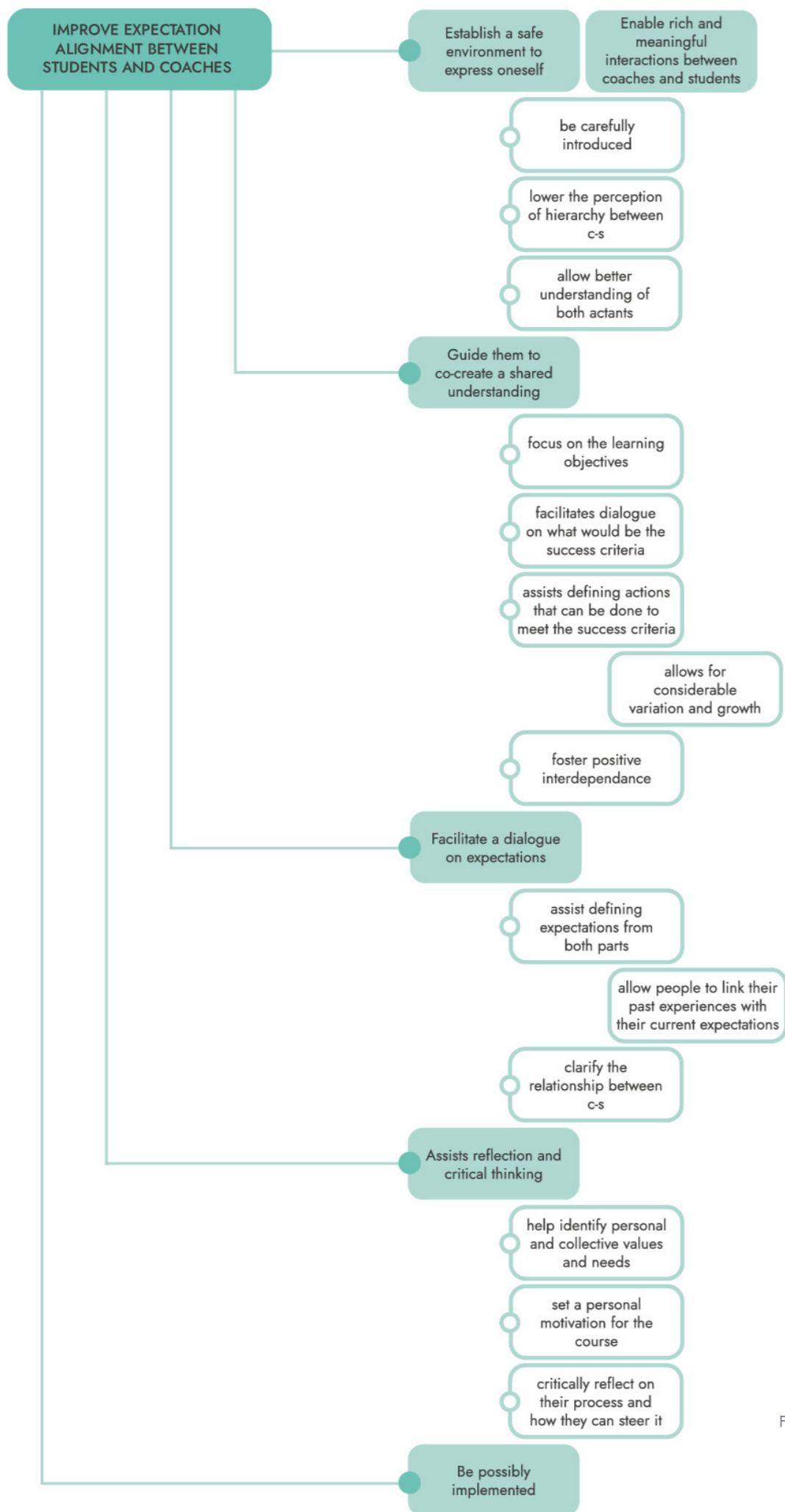
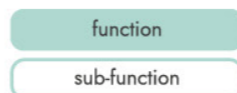


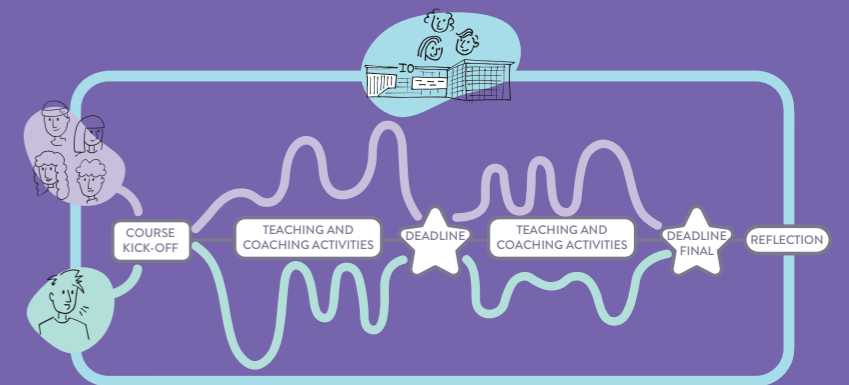
Figure 19, Function analysis



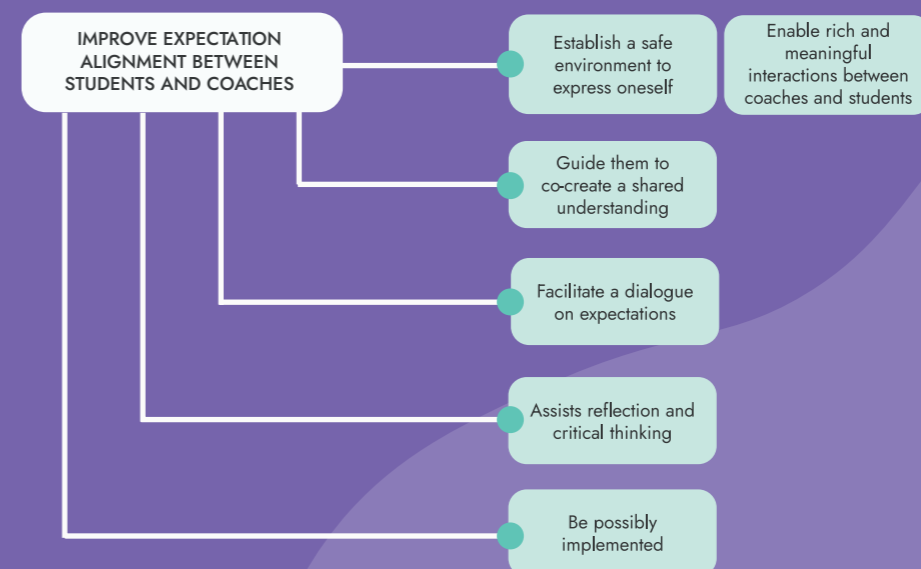
EXPLORING THE SOLUTION SPACE

In order to develop an effective intervention in the second phase of the project, one part of the system was chosen further design experimentation. As coaches were identified an interesting leverage point within the LC, the space created by them and students was the one selected.

A generative session with Dfl coaches and students was conducted in order to identify those tension points in which Resilience could be enhanced in that sub-system. As a result, expectation misalignment was agreed to be the central tension point to tackle.



The chapter concludes with a definition of a scheme of functions the intervention should address in its design in regards to Resilience. These are the main functions contemplated in the scheme:

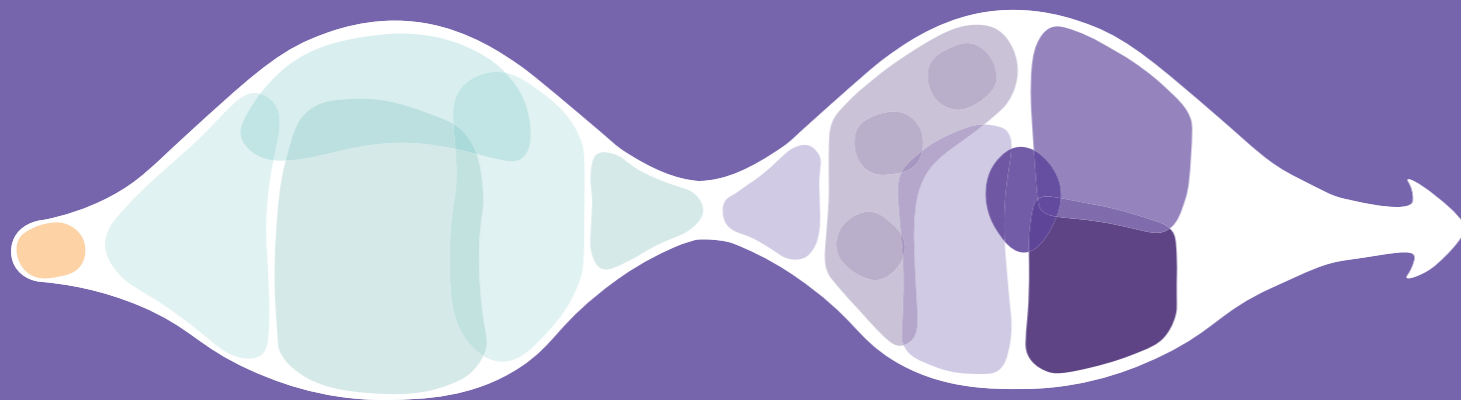


6

FINAL INTERVENTION MyRubric

All this project's research and design activities' outcomes concluded in the creation of a set of tools that can be implemented in a course's curriculum and aim to foster Resilience in Learning systems. The design intends to provide a safe 'in between' space for coaches and students to co-create their learning journey. The facilitation of this process will guide them in generating a common vision, and developing awareness and ownership of their personal learning experience.

In this chapter, the desirable impact, characteristics and transformative potential of the design will be explained.



6.1 Impact

MyRubric

A co-creative journey
to activate learning communities

MyRubric is a co-creative guide aimed to offer a constructive and resilient alternative to the current rubric, based on adaptive assessment of students and educators' learning process.

It intends to do that in the following ways:



Feel welcomed and supported through one's learning process

- Enrich the interactions that shape the relationship between coaches and students.
- Provide the group an environment in which they are welcomed to explore.



Have one's learning environment under control and a sense of safety to exercise and learn new skills

- Define on the outcome ought to be achieved, possible actions to get there and assessment criteria.
- Bridge past and future experiences to facilitate such reflections.



Provide critical thinking and ownership to steer one's learning process to the desired direction

- Define a common vision that will give purpose and direction, let people make their own choices to get there.
- Trigger self-reflection and assessment on one's learning process.

In a nutshell, MyRubric will assist the development of Resilience in IDE's Learning Community by:

1. aligning expectations between coach and students
2. facilitating active reflection and dialogue
3. facilitating the co-creation of their learning journey

Intervention moments

MyRubric focuses on three main intervention moments scheduled throughout a course and will be carried out simultaneously to the usual teaching activities and coach meetings. To illustrate that, in Figure 20 is depicted the structure of a standard course and the intended moments in which MyRubric will be applied.

Those three intervention moments are scheduled strategically to facilitate students and coaches' expectation alignment and management through the co-creation of their learning journey.

The first one, meant to set initial expectations consists in a single kick-off session in which coach and students will start their journey together.

The second and third moments intend to bring awareness of what was 'agreed' in the first session of the programme and how it relates to their personal experience. Both of them involve an individual reflection and a small session between student and coach in which those thoughts can be shared.

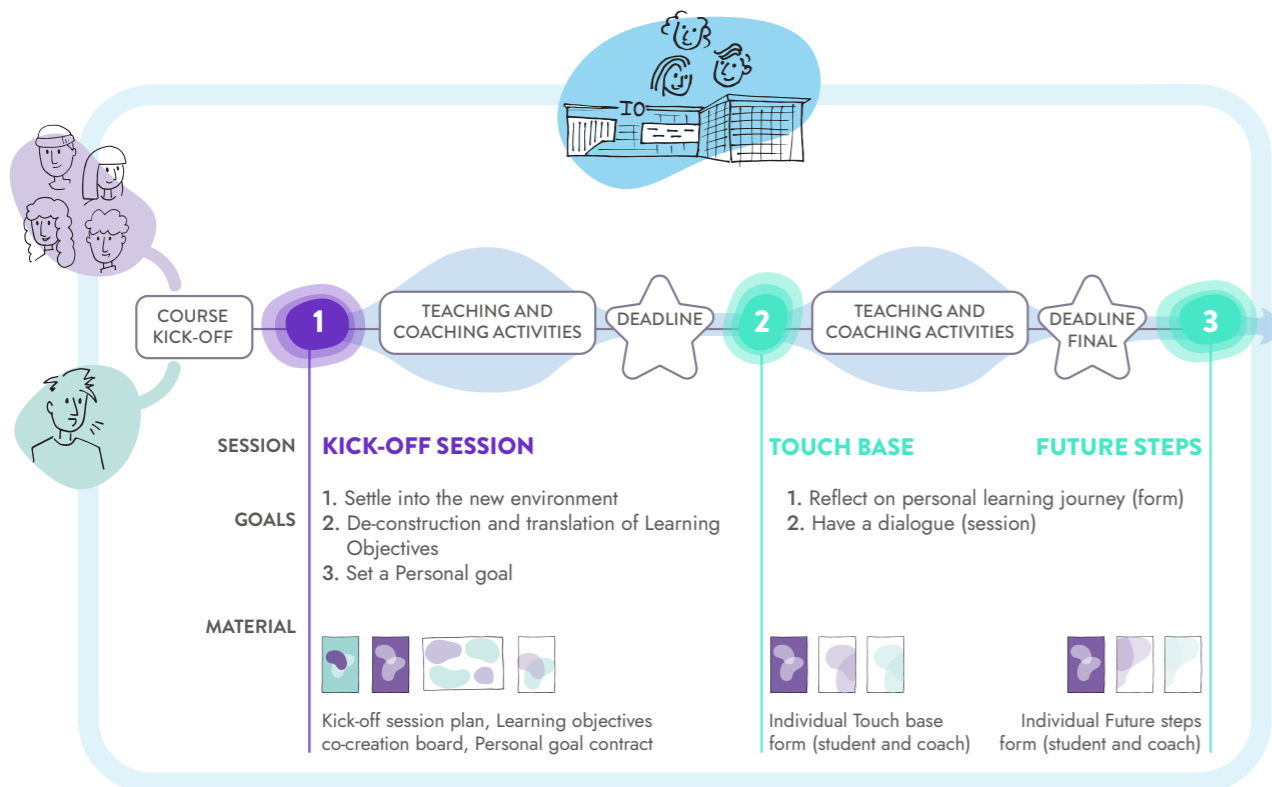
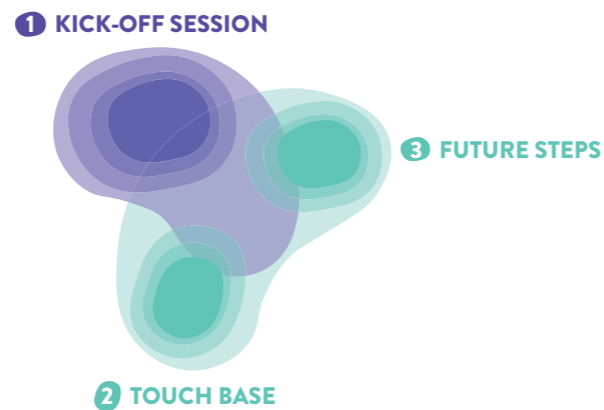


Figure 20, Overview of MyRubric's intervention moments, their goals and material

6.2 Design Elements

6.2.1 Materials

To lower the threshold of accessing MyRubric, all of its tools can be just printed. Hereby is a list of them.

Manual

The purpose of the manual is to be used as a guidance when using MyRubric. It is meant to be read by coaches prior to the course as it explains the intention of the design and provides an overview of MyRubric's goals, process, and materials.

Kick-off Session plan

In the session plan are included a brief explanation of the session, a schedule that the coaches can follow to get an overview of the timings and its process, a visual summary and explanation of the activities to be done throughout the session and some other practical tips.

Templates

Printable templates to be downloaded for the sessions:

- Learning objectives co-creation board (A2)
- Personal objective contract (for both coaches and students)
- Touch base template (one for the coach, one for the student)
- Future steps template (one for the coach, one for the student)

Other material

The sessions might require other external materials to be prepared in advance such as: post-its, boards, markers or pens or even online collaboration tools enabled for blended environments. Depending on the group's preferences and circumstances for the session (e.g. physical or online settings).

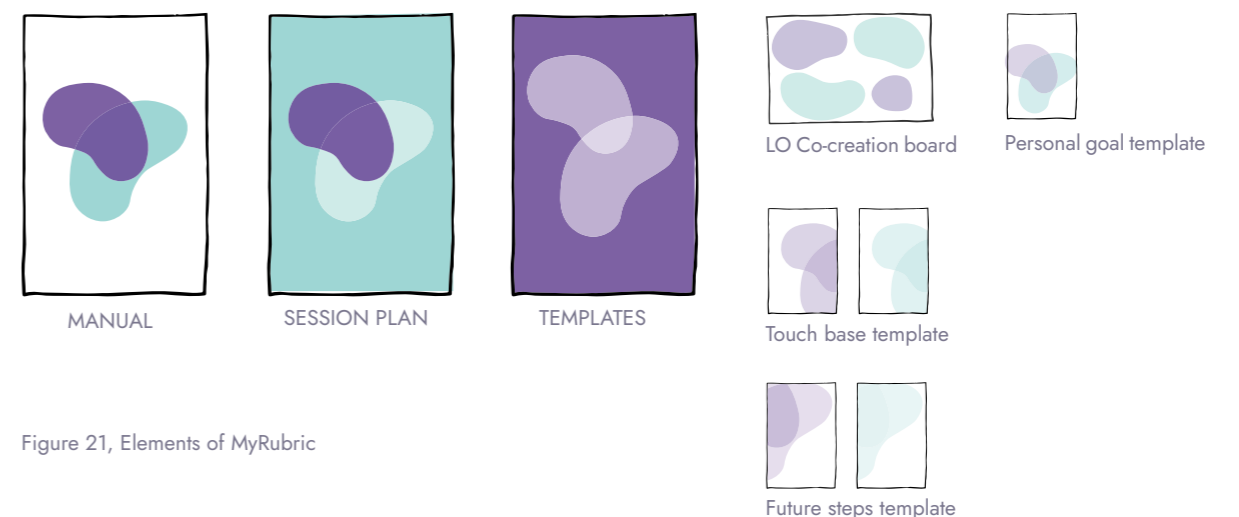


Figure 21, Elements of MyRubric

6.2.2 Kick-off

As mentioned before, MyRubric will facilitate the co-creation of coaches and students' learning journeys. This session scheduled at the very beginning of the course represents the first step in that direction. Through it, they will get familiar with their group, co-create a shared understanding of the course's Learning Objectives and reflect about their own personal motivation for the course. The core of the session will be the deconstruction and translation of the course's Learning Objectives into actions that will contribute to the group's learning process and outcomes. The session's main goals define its structure and activities, which are depicted in the following scheme Figure 22:

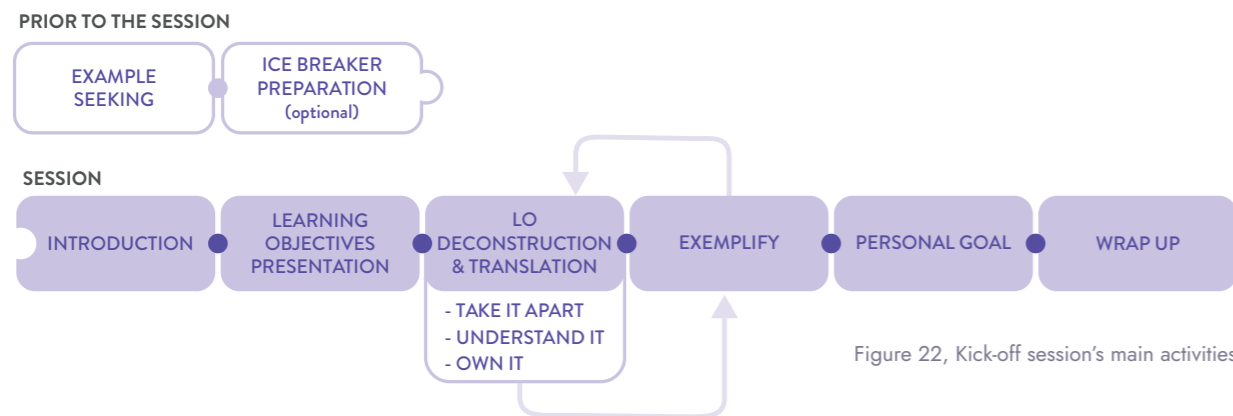


Figure 22, Kick-off session's main activities

Kick-off session's goals

1. Settle into the new environment

Create the safe space between coaches and students, in which they can feel at ease with the others and express themselves.

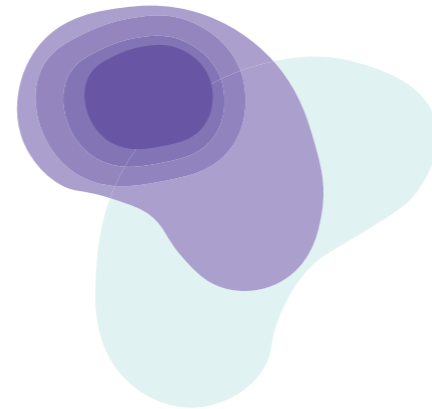
2. Co-creation of Learning Objectives

The Learning Objective Co-creation boards, shown in Figure 23, assist in identifying key aspects of the course learnings, discussing and defining what would be their ideal success criteria, brainstorming together on ways to 'get there' and exemplifying them through storytelling.

3. Set a Personal goal

Make students and coaches reflect on what they want from the course and state that personal ambition in a template, triggering ownership towards their learning experience from the very beginning.

1 KICK-OFF SESSION



LEARNING OBJECTIVE XX

Observe and analyse existing interactions in a specific situation through a variety of research and design explorations.

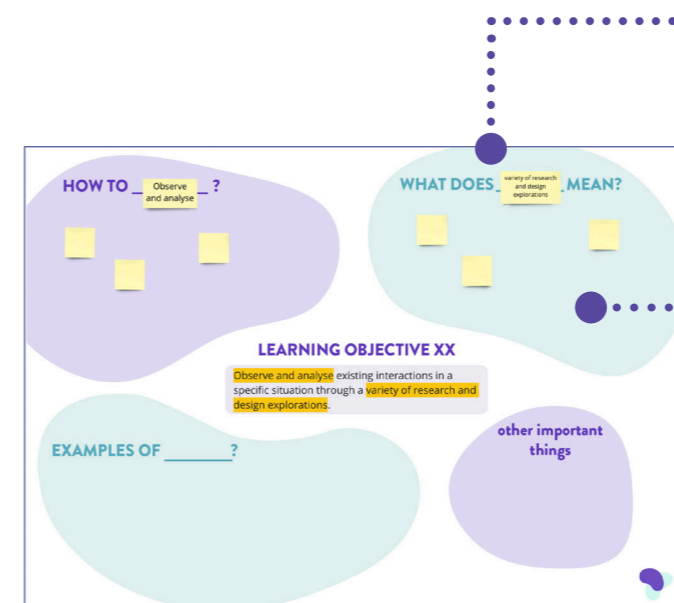


Figure 23, LO Co-Creation board

Key concept: Take it apart, understand it, own it (and exemplify)

Given the example of a Learning Goal, extracted from the Dfl course, Exploring Interactions:

LO1: Observe and analyse existing interactions in a specific situation through a variety of research and design explorations.

1. Take it apart

Once each Learning Objective is uncovered, it will be 'broken down' in pieces, selecting ambiguous verbs, nouns, and/or adjectives.

2. Understand it

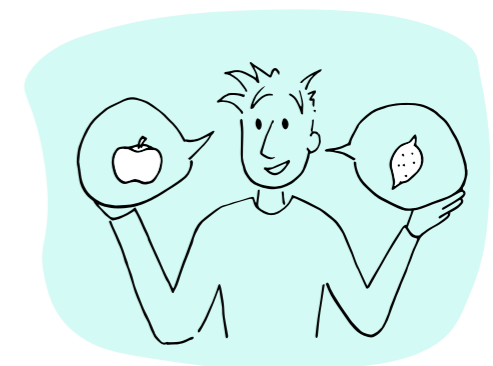
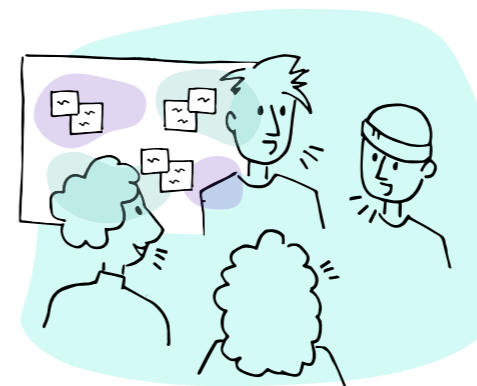
The trigger questions in the Learning Objective co-creation board are meant to make the group reflect all together on the purpose of each objective and 'translate' it into viable Learning Outcomes. The questions are versatile and allow students and coaches to choose what they want to clarify for each objective.

3. Own it

During or after the discussion, all the important insights should be noted down on the board. Those insights make reference to what would be the success criteria and what actions can lead to mastering that specific Learning Objective.

4. Exemplify

The coach then illustrates each LO with short, practical and understandable stories. The main intention behind this is to conclude the deconstruction process by providing students with specific examples on what they are supposed to do. In that way, the coach can express his or her opinion on them, which will also help students to understand the thinking process behind the assessment of each goal.



6.2.3 Reflective moments

Both reflective moments intend to bring awareness on what was agreed on during the Kick-off session. They aim to answer the questions *What has happened until now? What does it mean to me?* and *What can be done about it?*

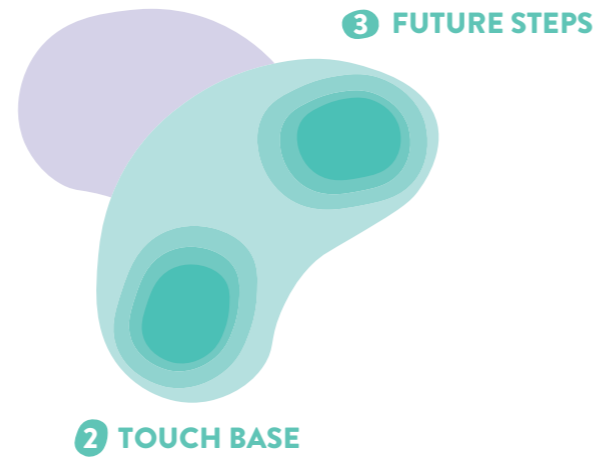
There are two reflective moments scheduled in the programme. In both of them, students and coaches first have to fill in an individual form and then have a small session together to discuss it.

Touch base

As its name might indicate, the first reflective moment intends to bring awareness back to what was discussed in the kick-off session. It will be carried out somewhere in the middle of the course, preferably after an important deadline when the first main learning cycle is completed, e.g. after a mid-term exhibition.

Future steps

The second one will be executed at the end of the course and it will serve as a wrap up assessment of their overall learning experience. In this moment, student and coach will assess the student journey and discuss what are those things they both take for the future.



Key concept: Assessment based on growth

In her blog, *Cult of Pedagogy*, (Gonzalez, 2021) introduces the concept of hyper rubric, created by Jeff Frieden and Tyler Rablin, two English language teachers that challenge the role of the traditional rubric by replacing its static descriptors for progressive ones. They called it the Learning Progression Rubric, which inspired the Mindful assessment exercises.

“It was, These are all the things I can’t do. I’m weak at this. The later levels were the better ones: Good is here and bad is here. When I was giving students that feedback they were not getting the message of, You’re at the beginning stage in this learning process. They were getting the message of, You’re not doing well at this. When you hand that to a student, it just, it crushes them, and there goes motivation almost right away.”

Their proposal to change the usual scores by words that indicate qualitative but also quantitative progress completely changes the message behind the rubric. Those words are Beginning, Developing, Approaching, Applying and Extending and they clearly represent an assessment of a new skill based on growth, which pushes students to move forward in their learning.

As a consequence, the Mindful assessment exercises are shaped in a way students and coach evaluate the student’s progress in mastering each Learning Objective.

Reflective moment’s goals

1. Individually reflect and assess their progress

Reflection is induced to coaches and students with forms containing self-introspection questions regarding:

- Self-assessment of LO based on their progress.
- Relating the learning process to the outcomes of students and coaches’ work by defining strong elements of it and aspects one can take action to improve.
- Reflecting on the student-coach relationship and in what ways they both contribute to their personal learning journeys.

2. Dialogue facilitation

After both coach and student fill their forms, there should be a session to discuss what they reflected on by filling it.

Those reflections will be articulated in specific sessions that will provide students and coaches a safe space in which both can talk about their own personal learning experience. They should not be considered as an assessment in which the student is evaluated, but as an opportunity to discuss what the learning experience brought to each individual.

Note

The templates are displayed on the following pages of the report.

During the evaluation, participants mentioned that they would modify the word ‘Extending’, as they found it a term difficult to be relate to. They concluded that for the purpose of self-assessment the word ‘Mastering’ will fit best.

Therefore, the following templates include Mastering instead of Extending, as they are in their final version to be included in this report.

6.2.4 Printable material

HOW TO _____ ?

WHAT DOES _____ MEAN?

LEARNING OBJECTIVE XX

DOES IT NEED TO BE RE-WRITTEN?

EXAMPLES OF _____ ?

other important things



PERSONAL GOAL

Co-creating your learning journey.

NAME

Today,, in we co-created the following Learning Goals, which will serve as a guide to assess the progress in this course:

- LO1
- LO2
- LO3
- LO4

And concluded that my own personal objective for the course will be:

Hereby, I state that I understand what has been discussed today in this session. Through the course, there will be 2 other moments in which a conversation on my progress will take place.

Signature

TOUCH BASE

STUDENT FORM

NAME _____

Now it's time to check your progress. Give a look at the Learning Objectives from the kick-off session and fill out this form.

1. How are you doing with the course's Learning Objectives?

LO1	LO2	LO3	LO4
<input type="radio"/> Beginning	<input type="radio"/> Beginning	<input type="radio"/> Beginning	<input type="radio"/> Beginning
<input type="radio"/> Developing	<input type="radio"/> Developing	<input type="radio"/> Developing	<input type="radio"/> Developing
<input type="radio"/> Applying	<input type="radio"/> Applying	<input type="radio"/> Applying	<input type="radio"/> Applying
<input type="radio"/> Mastering	<input type="radio"/> Mastering	<input type="radio"/> Mastering	<input type="radio"/> Mastering

And your personal objective?

<input type="radio"/> Beginning	<input type="radio"/> Developing	<input type="radio"/> Applying	<input type="radio"/> Mastering	<input type="radio"/> It changed
---------------------------------	----------------------------------	--------------------------------	---------------------------------	----------------------------------

2. What would you consider the strongest parts of your project?

3. Now, think about those things that you could work on to improve.

4. How can your coach support you in your journey?



TOUCH BASE

COACH FORM

Time to check on the course progress. Assess how a particular student is keeping up with the Learning Objectives of the course. Then, reflect on your experience.

STUDENT NAME _____

ASSESSMENT

1. How are they doing with the course's Learning Objectives?

LO1	LO2	LO3	LO4
<input type="radio"/> Beginning	<input type="radio"/> Beginning	<input type="radio"/> Beginning	<input type="radio"/> Beginning
<input type="radio"/> Developing	<input type="radio"/> Developing	<input type="radio"/> Developing	<input type="radio"/> Developing
<input type="radio"/> Applying	<input type="radio"/> Applying	<input type="radio"/> Applying	<input type="radio"/> Applying
<input type="radio"/> Mastering	<input type="radio"/> Mastering	<input type="radio"/> Mastering	<input type="radio"/> Mastering

And your personal goal?

<input type="radio"/> Beginning	<input type="radio"/> Developing	<input type="radio"/> Applying	<input type="radio"/> Mastering	<input type="radio"/> It changed
---------------------------------	----------------------------------	--------------------------------	---------------------------------	----------------------------------

2. What kind of impact do you have on your student? In what ways you are contributing to their learning process?

3. Now, think about those things that you work on to improve.

4. What did you learn from your student?



FUTURE STEPS

STUDENT FORM

NAME _____

The course has come to an end and lots of things happened. Check on your previous answers on the Touch Base form. How things changed? How was your evolution?

1. How did you keep up with the course's Learning Objectives?

LO1	LO2	LO3	LO4
<input type="radio"/> Beginning	<input type="radio"/> Beginning	<input type="radio"/> Beginning	<input type="radio"/> Beginning
<input type="radio"/> Developing	<input type="radio"/> Developing	<input type="radio"/> Developing	<input type="radio"/> Developing
<input type="radio"/> Applying	<input type="radio"/> Applying	<input type="radio"/> Applying	<input type="radio"/> Applying
<input type="radio"/> Mastering	<input type="radio"/> Mastering	<input type="radio"/> Mastering	<input type="radio"/> Mastering

And what about your personal objective?

Beginning Developing Applying Mastering It changed

2. What are you most proud of your project?

3. Can you think about 3 things of the course that had an impact on you and take them for the future?

4. What did you learn from your coach?



FUTURE STEPS

COACH FORM

The course has come to an end and lots of things happened. Check on your previous answers on the Touch Base form. How things changed? How was your evolution?

STUDENT NAME _____

ASSESSMENT

1. How are they doing with the course's Learning Objectives?

LO1	LO2	LO3	LO4
<input type="radio"/> Beginning	<input type="radio"/> Beginning	<input type="radio"/> Beginning	<input type="radio"/> Beginning
<input type="radio"/> Developing	<input type="radio"/> Developing	<input type="radio"/> Developing	<input type="radio"/> Developing
<input type="radio"/> Applying	<input type="radio"/> Applying	<input type="radio"/> Applying	<input type="radio"/> Applying
<input type="radio"/> Mastering	<input type="radio"/> Mastering	<input type="radio"/> Mastering	<input type="radio"/> Mastering

And what about your personal objective?

Beginning Developing Applying Mastering It changed

2. What did you appreciate the most about coaching your student? Do you recall any specific moment?

3. What are the learnings from this period of time you will take for future practices?

4. What did you learn from your student?



6.3 Transformative potential

Until now, the main elements of the programme have been described. However, there are several ways in which the institution can nurture itself from it, besides the idea of enhancing the educational experience of their students and staff. (Kligyte et al., 2021) already suggest that partnerships between students and staff can lead to transdisciplinary and systems change, but still there exists a necessity of ongoing experimentation to achieve such transformation. That is the main reason why the possibility to implement this programme is a step forward an evolutionary change in the university. However, there are also some actions the institution can do to gain valuable knowledge of the dynamics of its system.

Involving coaches in institutional practices

One of the main foreseeable outcomes of this programme is that the relationship between coaches and students will be enriched and deepened. Therefore, one strategy that can be adapted from higher levels of the hierarchy is to include the coaches that underwent the programme in institutional meetings. By keeping close contact with those coaches, the institution could potentially reach the whole cohort of the faculty's students, as they might not engage in institutional activities, but yes in specific courses.

Another way the coaches can help is by letting them play a role in how the curriculum is shaped. By combining the strength of coaches and institutions, the education provided could be iterated year by year, creating an organic rhythm in which courses can evolve together with the overall master or bachelor's curriculum.

Defining an holistic vision for the faculty

Although this programme was designed specifically to align coach and students expectations in regards to Learning Objectives, it has much more to offer. Universities and institutions also have goals and values embedded in their identities that in some cases are not reflected in their practices. That phenomena is natural, because institutions are large organisations with lots of elements to coordinate and balance. Because of that, this programme can be an opportunity for institutions to re-evaluate their practices by aligning their perspective with students and staff. For instance, if those values and goals are contemplated in a session with members of the different parts of its system, the outcome of that session can lead to proposals on how to emulate those values from the other perspectives and therefore, to an adjustment of the institutional practices.



MYRUBRIC

MyRubric is a co-creative guide aimed to offer a constructive and resilient alternative to the current rubric, based on adaptive assessment of students and educators' learning process. It contemplates 3 intervention moments within a given course.

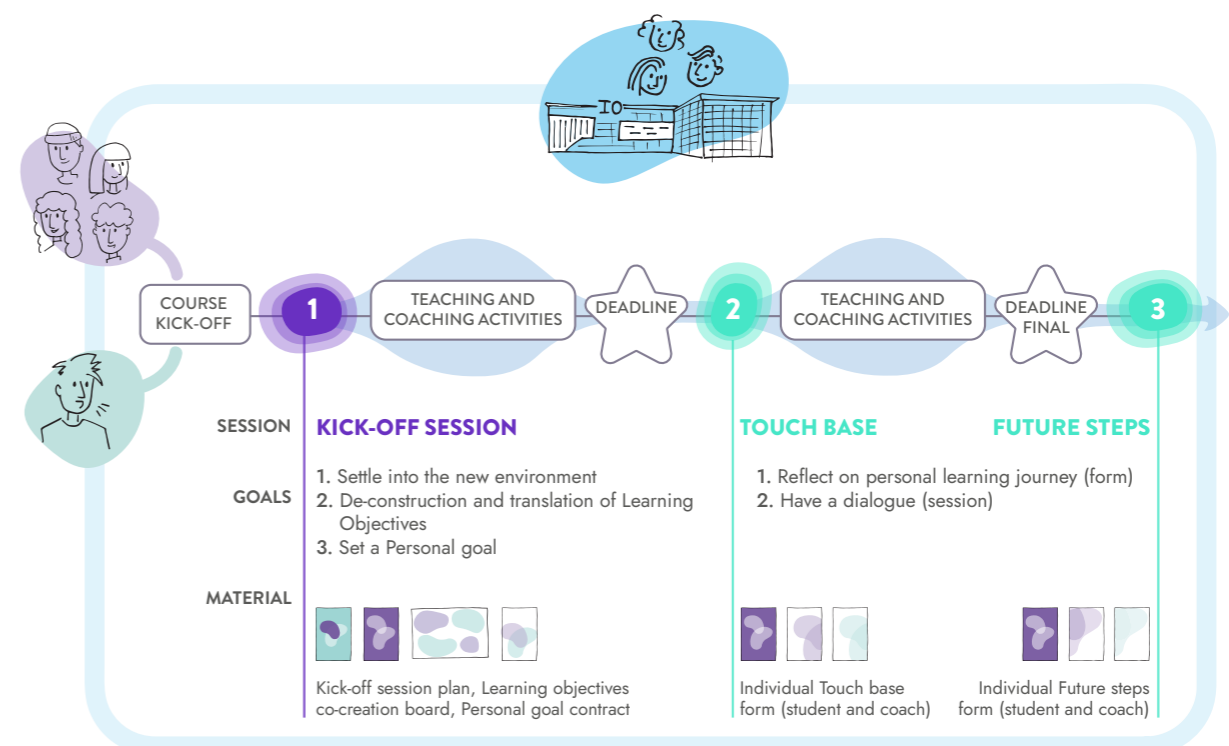
KICK-OFF

MyRubric intends to facilitate the co-creation of coaches and students' learning journeys. This session scheduled at the very beginning of the course represents the first step in that direction. Through it, they will get familiar with their group, co-create a shared understanding of the course's Learning Objectives and reflect about their own personal motivation for the course. The core of the session will be the deconstruction and translation of the course's Learning Objectives into actions that will contribute to the group's learning process and outcomes.

REFLECTIVE MOMENTS

Both reflective moments intend to bring awareness on what was agreed on during the Kick-off session. They aim to answer the questions *What has happened until now? What does it mean to me? and What can be done about it?*

There are two reflective moments scheduled in the programme. In both of them, students and coaches first have to fill in an individual form and then have a small session together to discuss it.



7

EVALUATING MYRUBRIC

Once the design was finished, it was essential to conduct a session with coaches and students to evaluate its potential. Seven coaches and students from the faculty of Industrial Design Engineering evaluated and reflected on MyRubric. This chapter presents an overview of the insights gathered in the session and final recommendations for the concept. The complete session plan and set up can be found in Appendix E.1.

7.1 Evaluation setup

The primary purpose of the evaluation session was not to seek validation coming from members of the community but to learn more about the potential impact of the design and find weak points or blind spots that could be further improved. Accordingly, three main research questions were defined from that intention and previous research and contributed to shaping the session:

RQ4

Does MyRubric positively facilitate the expectation alignment of the coach-students in a course?

RQ5

Does MyRubric contribute to building or enhancing participants Resilience?

RQ6

What would be the design's actual impact on the community?

Evaluation setting

The evaluation session, which lasted a total of 2.5 hours, included 7 participants and a facilitator. Out of those participants, 3 of them were coaches and 4 students. All the attendants belonged to the Design for Interaction community as the session revolved around a particular Dfl course, Exploring Interactions (EI).

Procedure

The intention was to let the participants get a sense of MyRubric by roleplaying EI's first coach meeting and discussing how their journey in the course would have changed if the design had been implemented in its programme.

Time-wise, it was not feasible to evaluate or test every element of the concept, as in its process, the guide, the session plan and the templates. Therefore, the facilitator's duty was to guide the participants through the session by explaining MyRubric's process and letting them discuss and experiment a bit with the LO Co-creation board, Touch Base, and Future Steps templates.



Figure 24, Evaluation session with IDE coaches and students conducted in StudioLab

7.2 Results and final insights

RQ4

Does MyRubric positively facilitate the expectation alignment of the coach-students in a course?

Through the session, it was mentioned that the course learning experiences of coaches and students genuinely rely on their mutual understanding of quality.

The ideal attributes to be achieved in a course are intended to be collected in common rubrics. Still, through the session, coaches agreed that those rubrics often lack or even miss focus on students' quality of work, which generally drives final decisions on how they grade.

In the end, what defines those quality standards is not the rubric itself, but by whom applies it, coaches and students. Therefore, the participants found it valuable to discuss what the LOs personally mean to them. Furthermore, they acknowledged the opportunity this discussion brings to address things that do not just refer to the LO perse but represent elements that might affect a project and are never contemplated in a rubric, such as personal core values.

The students stated that taking the LO apart could potentially be helpful to get a better grip of what the course is about and what is expected from them. In addition, both coaches and students agreed on the importance of examples when aligning expectations, which is something already contemplated in the design. They also concluded that those examples should not be limited to those projects that present outstanding results or impressive grades but rather focus on the process or depict failure as something that can be used as means of learning.

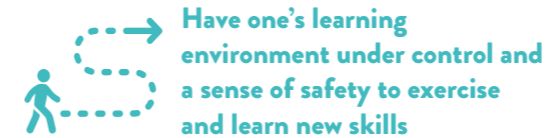
A reflection worth mentioning that resonated through the participants was that the Learning Objectives Co-creation might be confusing or overwhelming for students when carried out at the beginning of a course. For that, the first coach meeting might not be the best moment. However, they suggested that a solution for that could be to develop an overall vision a bit less specific and rational than directly discussing the LO to get a sense of the course. Then, find a moment a bit further in the program, perhaps in a few weeks, to perform the deconstruction and Co-creation of LOs.

It is indeed true that this research question might be misleading at first glance, as acquiring Resilience is a process one must undergo through time and therefore, Resilience enhancement cannot be evaluated in a single session.

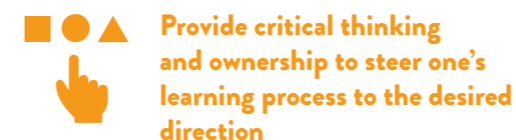
Nonetheless, the participants did discuss the impact the design might have on their journey. Those arguments unveiled how MyRubric could contribute to the three basic psychological needs of Competence, Autonomy and Relatedness within their learning journeys.

RQ5

Does MyRubric contribute to building or enhancing participants Resilience?



Expectation alignment contributes to the three BPN, but the need for competence is significantly benefited from the mutual understanding of quality between coaches and students to define the ideal steps to undertake and map their learning context. Students agreed that having a midway point where together with their coaches, they could go through the reframed LO and discuss their evolution was positive and comforting. Besides that, both coaches and students valued the possibility of exemplifying specific aspects of their work and linking them to their learnings.



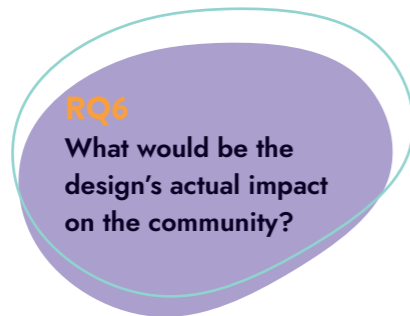
The participants appreciated that with MyRubric, students and coaches' awareness of their learning process might be enhanced by assisting them to discuss their individual journeys throughout the course. By conveying that the process is open, debatable and non-linear, they felt they could steer it to the most inspiring directions.

Despite that, some of the tools provided to facilitate critical thinking and self-assessment through the course arose different opinions during the session. What produced doubtful responses were the



One of the main features of the design is that it intends to facilitate the connection between coaches and students. Participants concluded that the design helped understand each other's perspectives and allowed them to introduce meaningful topics, such as past experiences that shape one's perception, personal views or even core values. On a special note, the students particularly appreciated the questions included in the templates that were supposed to trigger reflection on students and coaches on what they learned about each other.

exercises to evaluate how students met the LO in each Reflective Moment. The participants primarily argued about the accuracy of the assessment words and the possible mismatch they might experience when relating them to mastering a new ability. To conclude, some students commented that they might feel judged if they did not reach the mastering level of all the LO.



When assessing the impact a concept like MyRubric would have in IDE's system, it was necessary to note the participants' remarks on the foreseeable future for the concept.

Changing the role of the rubric

The current role of rubrics was questioned during the session by the participants. For instance, one of the coaches mentioned that they had been trained to create them, but not to use them in discussions or give feedback, which is equally important. Students, the 'receivers' of this criteria, look at the LOs and do not feel that they relate to them, so they find themselves going with the flow and using the rubric just at the end of the course to check if they 'miss something'.

MyRubric then challenges those dynamics by examining when and how do we use rubrics. It represents a shift to the rubric's purpose, which can be reframed to be used in ways that benefit the community as a tool that:

Acts as a support for the learning journey from the start.

Can be used to identify flaws in learning goals architecture and get them to course coordination.

Evolves and can be adjusted through the course, as the people involved in it evolves too.

Conscious collaborative learning

The participants agreed that reflection on the learning experience itself is highly valuable for them. By raising questions early on in the learning process on what the LOs mean to the group, which is something unusual, participants considered that they would be more mindful of what they are actually learning.

Besides that, it was also suggested that discussions drawn from these questions and the ones presented in the reflective moments might extend beyond the LOs and determine their learning experience. By facilitating that self-assessment in students and coaches, they would have access to more information that could allow them to change and steer their experience while remaining connected.

7.3 Recommendations and limitations

Although the session results were favourable, some limitations need to be considered to understand the potential of MyRubric fully.

Beforehand, it is key to mention that the evaluation unfolded throughout a morning instead of several weeks or months like a regular course would do. Consequently, its outcomes are based on what the participants expected or imagined likely to happen. They admitted that the best would be to experience MyRubric in the intended context to judge the actual impact on learning experiences. Therefore, the ideal scenario would be to pilot a more extensive experiment to test the concept in a real setting where the LO are still unknown for students. Besides minor practical features of the design, the three main topics that brought scepticism or confusion to the table were fairness, time and self-assessment accuracy.

Firstly, the participants stated that one of the things that should be considered when changing or co-creating their rubrics within their studios or groups is fairness. Rubrics are supposed to bring people together under a specific set of criteria. From their perspective, when developing the 'new rubric', it would be essential to seek that fairness and coherence instead of making the gaps between groups bigger. Despite that, they acknowledged that developing an agreement among their particular group might help diminish that feeling, as that will contribute to their own learning experience.

Furthermore, the possibility of 'collecting' those LOs that appear confusing or raise discussion and re-adjusting them from top course coordination seemed a good solution for that issue.

Secondly, coaches expressed concern about how limited their time in courses is and that there are plenty of tasks to perform during that period. Although they saw the value in the activities and tools proposed, they stated that those should not be highly invasive in the course. However, a recommendation for Course Coordinators is that given how students and staff valued reflection and similar non-graded activities; it would be essential to make time and prioritize those practices that, although not graded, contribute to the learning process.

Thirdly, as mentioned earlier in the chapter, the design element that raised more debate was the LO self-assessment included in the templates of the Reflective Moments, and more specifically, the words chosen to facilitate that assessment. The words Beginning, Developing, Applying and Extending were perceived as slightly inaccurate to evaluate students' progress. A few proposals came out of that discussion, such as changing the word Extending for Mastering or asking students to openly exemplify each LO through their work. All those solutions were interesting and worth testing by trying different template configurations or alternative wording that might fit better the self-assessment purpose.

7.4 Next steps

The limitations described in the previous section define in some aspects the outcomes of the concept evaluation. Those limitations, however, allow extra room for further experimentation with MyRubric. Because of that, some future steps have already been thought to continue the research regarding MyRubric.

Test the Kick-off session in a natural setting

As aforementioned, the ideal would be to pilot the Kick-off session at the beginning of an MSc course and on a bigger scale. For instance, it would be interesting to experiment with at least three different groups with an equal set of learning objectives given by the course coordinator. In that case, the results obtained in each of those sessions could be contrasted to identify how they differ.

Further experimentation of the self-assessment

Self-assessment was the element that brought more discussion amongst the participants. Its great value, however, was agreed upon by all the participants. Building on what was discussed before, the best scenario would be to experiment with different configurations of self-assessment questions through the templates. Some possibilities for that could be changing their wording, formulating open questions, grading on a different scale that students could relate more to, such as quality, or assessing their progress in groups of peers as a discussion instead of individually.

Exploring other settings

As concluded in chapter 6.3, the potential of the Learning Objectives Co-creation board goes far beyond the discussion of course objectives. It indeed serves the purpose to align expectations on abstract goals, reflect on them and define ways to achieve that purpose. Therefore, the suggestion to try out this practice with institutional goals seems promising. Under my impression, it would be

precious if the faculty could conduct a session to see how their ambitions are translated into students' and staff's domain and investigate how the members of our learning ecosystem perceive the university's values.

Moreover, it is also possible to test MyRubric in other settings. For instance, facilitating expectation alignment between mentors and students in graduation projects, when Resilience is much needed, would be indeed valuable.



EVALUATING MYRUBRIC

Even though all of them had completed the course, how they understood the LO still led them to lively opinion exchange.

Mutual understanding

The LO Co-creation board assisted participants to discuss what the selected Learning Objective personally meant to each of them. Thus, they concluded that having that discussion would definitely be helpful at the beginning of a course. Moreover, they valued the fact that it could assist coaches and students to reach a mutual understanding of quality and to address things that might affect a project, but are not contemplated in the current rubric, like core values.

Bringing coaches and students together

Beyond quality, they asserted the importance of the opportunity MyRubric offers to talk about particular examples or stories to reach that mutual understanding. But not only regarding the course objectives yet to understand the other's way of thinking, bringing coaches and students closer. Furthermore, the questions posed in the templates concerning the personal relationship between student and coach were positively received, especially from students.

Recommendations and limitations

Due to the fact that the evaluation unfolded through the timespan of solely a morning, more experimentation should be carried out to unveil MyRubric's real impact on people's resilience. Fairness between different groups, time, and self-assessment accuracy were the main reasoned concerns.

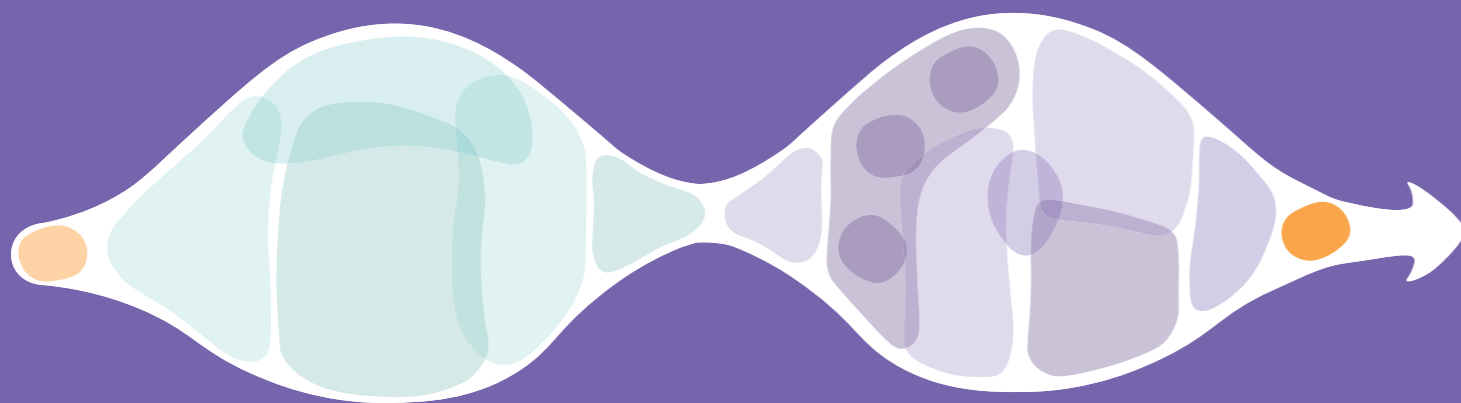
Further testing with self-assessment is recommended, as the participants primarily argued about the efficiency of the methods applied on that. They debated about the possible mismatch they might feel when relating that the wording chosen in the exercises to their personal experience.

Challenging education as we know it

MyRubric opens a debate for questions in how the future of education might be. It does that by proposing to rethink and reframe its traditional tools and practices, like the current rubric, and explore ways in which they will most benefit the members of our learning community. Furthermore, it intends to innovate in curriculum structures by inducing conscious collaborative learning through reflection.

8

CONCLUSIONS



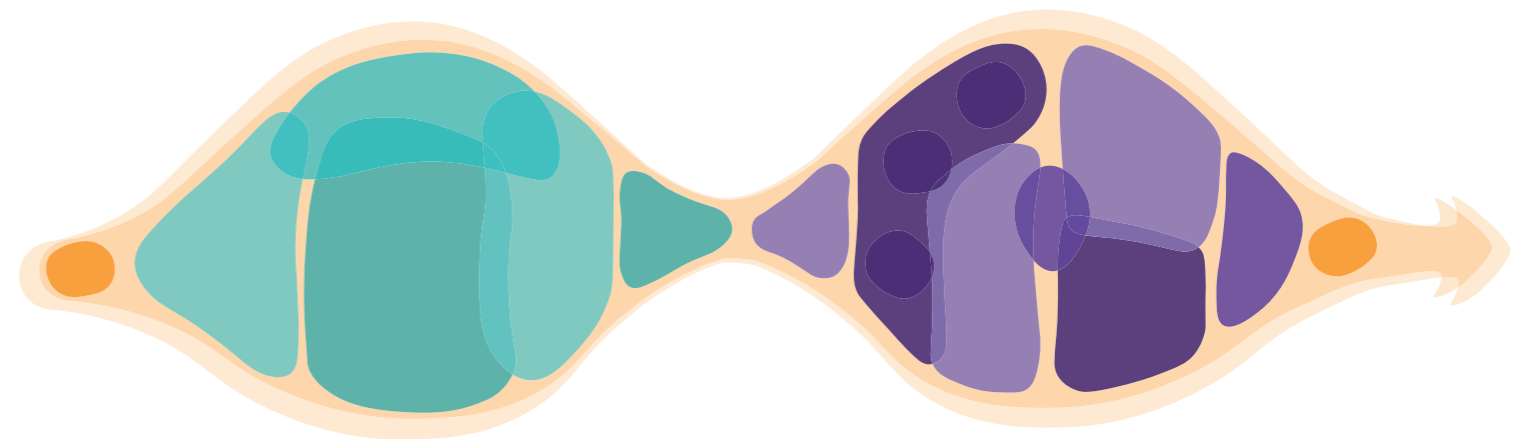
8

Conclusions and reflections

This thesis aimed to explore how Resilience could be built and enhanced in the education domain to conceptualize interventions or mechanisms to assist Resilience development in higher education systems. The approach chosen to tackle that question was to analyze the literature regarding the concept and perform an in-depth autoethnographic study in a moment in which Resilience was most needed, the COVID19 Lockdowns.

Two are the main contributions this thesis presents to the area of Resilience. The first one refers to the construction of a framework, which aims to assist educators in conceptualizing actions to foster Resilience in Learning Systems. The second one is the design of an intervention derived from all the learnings from the process that proposes a constructive, resilient alternative to the current rubric.

In this chapter are included the final conclusions and reflections of this project.



8.1 Conclusion, reflection and limitations of the overall process

As aforementioned, the project started with the exploration of the abstract concept of Resilience concerning educational systems. Through it, Resilience was initially defined as the process in which members of a Learning Community are able to successfully overcome challenges, focus on their learning as well as maintain their overall well-being and sense of identity. The literature explorations led to three main research questions that would be used to identify if and how Resilience is present in our learning system. Those questions were the ones that framed the context exploration, in which autoethnography was used as the main research method.

Autoethnography uses one's personal experience as the principal source of data for research inquiries (Ellis et al., 2011). Therefore, I revisited a period in which I believe Resilience was systemically achieved in IDE's Learning Community. I used my experience during the COVID19 pandemic as Chair of the student association Infuse to answer the questions posed in the desk research. The insights gathered during that process were complemented with interviews with fellow students, teachers, and institutional representatives to avoid bias.

From my point of view, Autoethnography served perfectly to explore how Resilience was present in IDE. Furthermore, it also was a singular way to capture the learnings of that period and tell the story of IDE as a Resilient system. What we achieved together back then was genuinely inspiring and shifted my view on how I conceived education. Hence, my main concern was to find the right words to convey that message while trying to be as analytical as possible.

All the knowledge generated from the literature and autoethnographic studies was synthesized in

the Resilient Learning Communities Framework. It was initially conceptualized at the beginning of the project and iterated as the autoethnographic research unfolded. It merges human developmental theories and practices, being those the Self-Determination (Deci & Ryan, 2012), 13 fundamental needs (Desmet & Fokkinga, 2020b), Reflective Practice (Harvey et al., 2016), and the factors that made Resilience flourish in IDE's Learning Community. The framework can be used as a guideline for educators who wish to build and enhance Resilience in learning ecosystems.

The field research also provided insights on Learning Communities' approach to developing Resilience, which were mapped in a worldview (Hekkert et al., 2011) used to develop a design statement that would guide the project's second phase. The design statement was created by choosing the desired approach to building Resilience, defined by collaboratively embracing setbacks as learnings and a strong focus on well-being.

The truth is that the most challenging part of the project was translating those abstract learnings into the design of a concept. Reflecting on it, I believe it felt challenging because this thesis did not emerge out of a problem that needed to be solved but rather as an opportunity to explore new pathways in education. Furthermore, the ecosystem of IDE is large and complex, with lots of different stakeholders with their particular needs. Therefore, to develop an effective intervention to create those 'safe in-between spaces,' it was necessary to choose a part of the system, which would serve as the context for design experimentation.

That decision, however, was taken strategically. Earlier in the process, an ecosystem map (Forlizzi, 2013) on IDE's Resilience flow was assembled to have a holistic view of the whole system. That map was used to identify crucial leverage points of the faculty structure. Consequently, coaches were determined to be a pivotal leverage point within the ecosystem due to their proximity with students and their role in institutional practices. As a student

myself, I concluded that coach-student interactions delimited the most inspiring sub-system for design explorations.

A generative session (Sanders & Stappers, 2012) was set up to explore the sub-system's tension points in which Resilience was most needed. Four were the directions that could serve as solution space, but expectation misalignment was the one finally chosen. Several co-ideation sessions with IDE students and other design activities such as prototyping with storytelling or customer journey mapping were carried out to determine the characteristics of the final design.

MyRubric, a co-creative guide for adaptive assessment, is the final contribution of this project. It aims to facilitate expectation alignment between coaches and students by offering a resilient alternative to the current rubric, based on the adaptive assessment of their learning process.

MyRubric has three intervention moments in a standard course structure. Students and coaches co-construct a shared understanding of the course Learning Objectives and set a personal ambition in the first one. The second and third moments occur later in the process and aim to bring awareness to what was discussed at the beginning. Both are designed to facilitate active reflection and dialogue between coaches and students of their learning process.

Members of IDE's Learning Community evaluated the final concept. The session had overall positive results, although the design was slightly adjusted. One of the most remarkable insights is that MyRubric served to align expectations, as they acknowledged that discussing the LOs at the beginning of a course seldom occurs, but it is indeed helpful. Nevertheless, it also represented an opportunity to openly address things not contemplated in the course objectives but certainly affect a project, such as quality definition and personal values.

The evaluation occurred within the timespan of a morning session, not like a regular course would do, as it unfolds through several months. Therefore, more experimentation regarding Resilience development is required to see tangible effects of MyRubric in a natural setting. Even so, MyRubric could potentially contribute to the main aspects of Resilience as it assists students and coaches have their learning environment under control and feeling welcome and supported in the learning process. To an extent, it facilitates critical thinking and ownership as it provides the opportunity to look back at one's process, reflect on it, and steer it in more promising directions. However, more tests regarding self-assessment should be carried out to unlock its full potential. On a final note, it was valued that MyRubric could assist in identifying flaws in learning goals architecture, having the possibility to adjust, and making them evolve, as the people involved in the course would also do.

Implementing a concept like MyRubric in our current education system would pose a challenge to education as we know it. It questions the role of traditional tools employed in higher education systems, such as the current rubric. More than that, it also proposes to reframe their purpose and application to directions that benefit Learning Communities the most.

8.2 Final recommendations

This thesis aims to embrace the learnings that such a difficult period as the COVID19 pandemic left us. It took a world crisis, but we had a glimpse of what the future of education could be. One in which students, teachers, and institutions collaborate to maximize their learning experience and mental health and well-being form part of our contemporary education.

The urgency that led us to leave hierarchical structures aside and work together to outweigh the situation is slowly fading. Furthermore, radically changing our mindsets takes time, although they have already started to undertake a transformation.

Because of that, now that educational activities are returning to their normal state, it is the best moment to question, reframe, and experiment with new, innovative, and inclusive ways of teaching and learning.

Therefore, my suggestion as a member of our Learning Community would be to direct our focus towards examining the role of performativity, wellness, critical thinking, and experiential learning in our culture and their effects on our learning experiences. Thus, we could use this period to research, test, and train educators and students in those subjects to take a step forward in our future education.

Furthermore, I encourage researchers not to limit their work to research but to develop interventions that would benefit our community. Once, I was told, 'We research too much but practice too little.' One of the most significant learnings of this project is that, in the end, trying any intervention that aims to contribute to a bigger purpose, even if it is small, could make a big difference.

Last but not least, this thesis was set up with the intention to provide insights for the upcoming Master Renewal process that the faculty is undertaking. Under my impression, the knowledge

gathered through the process can be used to conceptualize and innovate in (self)-exploration-centered curriculums to understand the impact we have as designers in our world from a collaborative perspective. Moreover, I would suggest continuing to investigate practical ways in which active reflection can be effortlessly integrated into course structures.

8.3 Personal reflection

I would describe the graduation process as a rollercoaster. What a ride!

Indeed, writing this thesis was one of the most challenging experiences I have ever had to face. However, it was one of the most rewarding as well. During these last months, I believe I learned many things, not just academically speaking but also about myself.

Through this project, I felt my abilities as a designer were tested in several ways. However, I consider it an opportunity to prove that I could combine all sorts of research and design activities into something I would be proud of. Through it, I got to try new methods, such as autoethnography, and put in practice those I considered already good at, like my facilitation skills. I also learned how to manage large quantities of data and organize interviews, generative and co-design sessions myself.

All that was not easy, and I found it challenging because the graduation process is highly confrontational since everything depends on you. At some point, I felt really lost and could not see 'the light at the end of the tunnel' as I believed my ideas were 'not good enough' or that 'missed something.'

Resilience is described through the thesis as a process, and indeed, I feel this dissertation was a practical example of how to develop Resilience as it unfolded. It is curious how you can read about something, talk about it, even believe you are resilient. However, you need to experience it yourself to understand that it is always a process, and one cannot do anything but try to get better at it.

As designers, we have been told that we have the power to 'change the world for the better,' that we can solve wicked and highly complex problems with our out-of-the-box ideas. All those ambitions are inspiring and indeed provide us with a drive to design amazing things that contribute to a better future.

However, sometimes the pressure to 'change the world' becomes too much in your back, especially when designing on your own. For those cases, the most helpful thing is to ground yourself in the idea that the best is to trust the process and yourself. Perhaps that is one of the most important learnings I take for the future. Indeed, what took me out of stagnation was putting aside those thoughts that kept me from making decisions and doing what felt best. Once I did that, once I trusted the so-called 'gut feeling' and followed my ambition, only then was when I started to feel proud and satisfied with what I was doing.

When you are so invested in a project like that, taking that leap of faith seems daunting. However, now I can say I could not have done it without the support of my mentors. Both were a great source of inspiration and confidence and acted as a lighthouse where it was so dark for me to see the way. But after rowing in the darkness... Isn't design beautiful when in the end, everything comes together?

I am so grateful for all that this thesis brought to my life. I could fill pages and pages trying to describe it. The marvelous people I met, the challenges I had to face to get here... But what I will take forever with me is that even before undertaking my graduation journey, this last year led me to discover one of my biggest passions, learning how to learn.

In regards to that, I feel that tons of things remain unexplored, and I cannot wait to see what the next steps on that journey might take me.

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