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### THE ME-WE-ALL APPROACH APPLIED TO LEARNING

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## THE ME-WE-ALL APPROACH APPLIED TO LEARNING

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### Abstract:

Traditional higher education is usually research-based, many times designed for short-term (Abcouwer et al., 2019), equipping students with skills needed now or in the near future (Takács et al., 2019). Its primary focus is on transferring existing knowledge (Sia, 2015), resulting in educational programs with profound knowledge and also knowledge gaps. They mislead students in fully covering a discipline, as only specific knowledge within the area is transferred. Moreover, disciplines further develop and change fast in our turbulent times. How to manage in our dynamic world with a growing gap between the needed and offered competencies? The contribution of cooperative learning and life-long learning has been well substantiated. Building on that, we discuss de-linearised learning and the eight ways of learning for introducing a new approach to learning in an ecosystem, the so called 'Me, We, All' approach (Abcouwer et al., 2022).

**Keywords:** education, learning methods, life-long learning, ecosystem learning

## I. INTRODUCTION: LEARNING IN A DYNAMIC ENVIRONMENT

In educational theory a distinction is made in the different orientations we work for (Schilstra et al., 2021). The different identified fits highlight the orientation of learning (figure 1):

The *Person/Job fit* (Carless, 2005) is a fit between the occurring problems, well-defined competencies, and clear learning objectives, so when encountering a problem, we can intervene with the available knowledge and skills.

The *Person/Organisation fit* (Cable & Judge, 1996) describes the required education with flexibility to deal with new developments in short- to mid-term. Although the needed interventions are not available instantly, with thorough analysis of capabilities, new measures are developed to deal with the forecasted problems.

The *Person/Future fit* (Snowden & Boone, 2007; Taleb, 2010) is between people and unforeseen events in an uncertain future. In the long run, developments are not or inadequately predictable, so education must develop knowledge and skills for problems not known yet. Education plays an essential role in developing mechanisms that enable people to become life-long learners.

Education often focuses on the Person/Job fit. Standardising the programs results in the mass production of students with similar competencies. Recently, the impact of unforeseen developments is becoming more and more evident, like pandemics, massive energy consumption, environmental problems, water shortages, and so on. These challenges do not only affect people or organisations, but the whole society. This requires us to develop learning mechanisms and equip people and organisations with ability to engage in life-long learning. The focus will shift from the Person/Job fit, and Person/Organisation fit toward the Person/Future fit. The desired form of education no longer focuses on transferring existing knowledge but rather on creativity and adaptability. Competencies need to be

built for a situation that is not known yet. Wells and Claxton (2008) accentuate how important it is since globalisation creates uncertainties and new demands.

## II. SUGGESTED LEARNING APPROACHES

First, we need to take steps towards a flexible curricula and then to integrate them within the concept of life-long learning, see figure 2 (Schilstra et al., 2021).

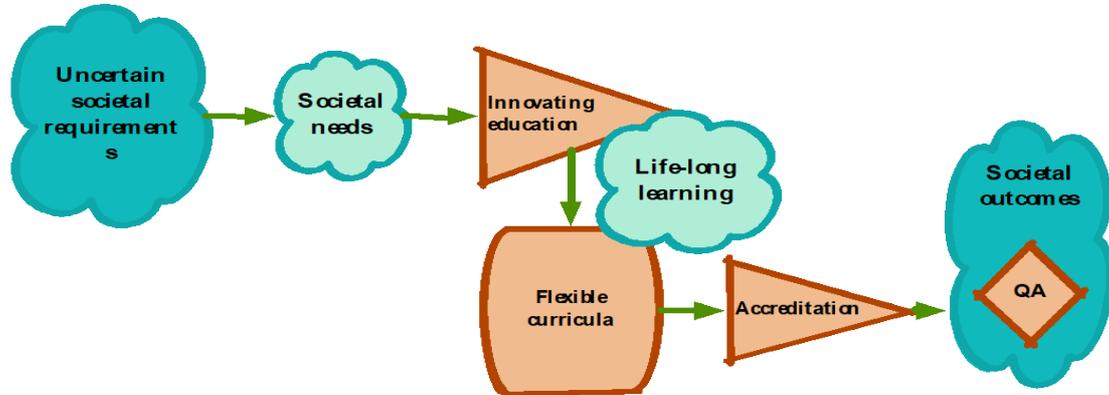


Figure 1: Innovating education

Complexity and uncertainty make it essential to engage in cooperative and life-long learning to manage these challenges.

### Cooperative learning

Since globalization is one of the causes of uncertainties in the future, problems will arise globally. Therefore, according to Sia (2015), intercultural competencies are needed to be resilient on a global scale. Ghilay and Ghilay (2015) demonstrate that cooperative learning improves students' learning process. Ruiz-Gallardo et al. (2012) corroborate this. They argue that cooperative learning, more than traditional education, improves skills of teamwork, self-understanding, communication, decision-making and leadership, which are all regarded as essential for their future professional development and resilience (Ruiz-Gallardo et al., 2012) in an unknown future. Cooperative learning provides a more student-centred approach (Jackson & Evans, 2017), which is essential to establish more flexible curricula. According to Tran (2014), cooperative learning broadens knowledge in a particular field of expertise and supports students' creativity (Harjono & Sahidu, 2018). A well-performing cooperative learning group is more than the sum of its parts, and students perform better than individually.

Revising the traditional (linear) way of research as described by Maxwell (2012), less structured versions tailored to a cooperative learning are proposed to stimulate creativity, increase flexibility, and result in new, innovative ideas (figure 3).

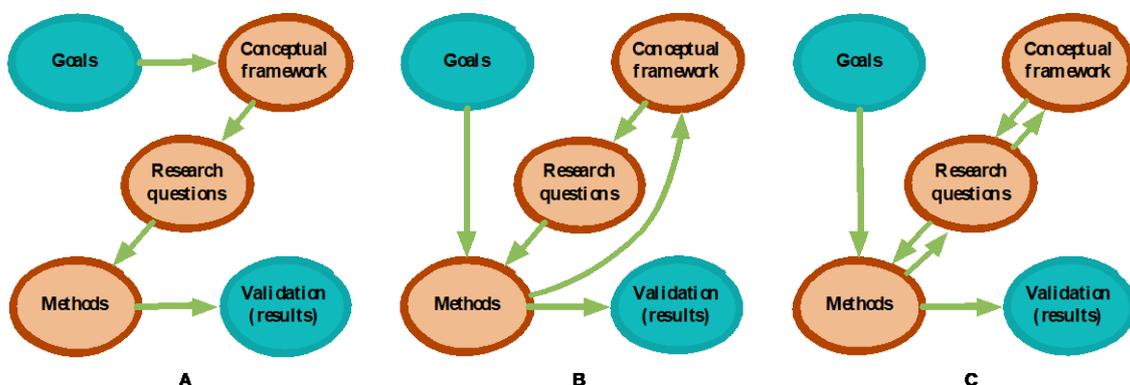


Figure 2: (Revised) models for research design based on Maxwell (2012)

The notion of learning is associated with the individual, transferring knowledge from source to receiver to create smarter people.

For life-long learning, an individual must develop a life-long learning attitude and apply it in life. From a broader perspective, society should develop this attitude, because many of the societal problems cannot be solved by a single person. They require cooperation and knowledge exchange. This reveals the relevance of cooperative and life-long learning.

### Life-long learning

McCombs (1991) stated that one needs to constantly improve to meet certain future needs. She delved into the possibilities of life-long learning and combined it with motivation. The role of adult educators is further elaborated by Candy (1991), who presents a three-part model to enhance people's self-directedness. According to Collins (2009) "Lifelong learning is attitudinal—that one can and should be open to new ideas, decisions, skills, or behaviours. Skills for lifelong learning relate to the need to acquire, process, and transfer knowledge. Lifelong learners need to determine what they need to learn and how to make and carry out a learning plan. They need to know how to locate appropriate information, evaluate its quality, organize it, and use it effectively. They need to be critical and creative thinkers, problem solvers, and decision-makers, and they need to practice regular self-reflection". The role of educators is to develop attitudes and prepare learners for life-long learning.

From a societal perspective, the need for life-long learners is undeniable. Society shifts from certainty to uncertainty (Gigerenzer, 2014) different steps are needed when dealing with a problem (Abcouwer et al., 2019). Figure 3 illustrates this shift and these steps. In certainty, when problems are well-defined and solutions are known, available knowledge can be used to them. In uncertainty, the problems are unknown or ill-defined, and new knowledge for the future is required (Abcouwer & Takacs, 2021). Constant developments demonstrate the need for life-long learning and a new task for universities.

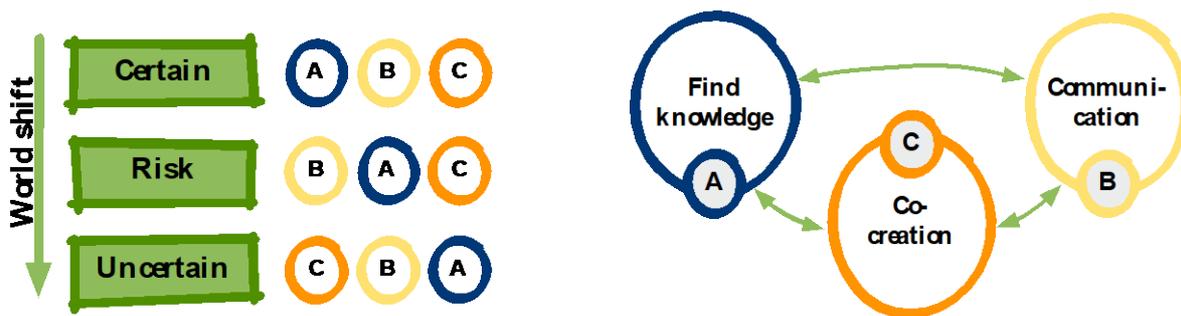


Figure 3: Forms of probability and steps when dealing with a problem

### Long-term and sustainable societal learning

It is a constant challenge to find balance between what we want, must and can (Heene, 2002). The Adaptive Cycle of Resilience (ACoR) model (Abcouwer, 2015a, 2015b) supports organisations in constant change to rethink the balance between the want-must-can dilemma. Change is a continuum with multiple and repeating phases, reflected in the cycle, in which learning plays an important part. Equilibrium, where relatively small and comprehensive problems or disturbances occur, the existing knowledge is well applicable. Whenever an external influence severely disrupts the organisation and pushes it towards the Challenge phase, the usual ways of working are no longer sufficient. The organisation is compelled to look for new solutions, appropriate competencies, attitudes and skills that will lead the organisation to New combinations. Here, the most suitable solution is chosen to be operationalised in the Operationalisation phase. The final choices are often made without sufficient knowledge about the solution's success. We use our intuitions and gut feelings to reach a new Equilibrium. The left quadrants of the model are more stable and clearer situation (we know what to do), while the right ones face a more complex environment (we do not know what to do). This logically requires different learning mechanisms.

Takacs and Abcouwer (2020) also outline that in the left two quadrants, the role of teams is inherently different from the role of teams in the right two quadrants (figure 4). In a more chaotic and complex environment, teams need to be led by a creative manager and free to experiment in scenario-based learning. It is argued that (high performing) cooperative learning groups are substantially more important in the right two quadrants since the situation is not suitable to simply divide tasks and get to work. At the same time, the left two quadrants allow for a structured (may it be complicated) approach. Cooperative learning is still a necessity with a more structured approach in the left quadrants, but the

importance of lifelong learning is leading. A critical pitfall to consider is failing to sustain a viable learning climate because a life-long learning continuum does not seem to be of enough importance due to the situation's stability.

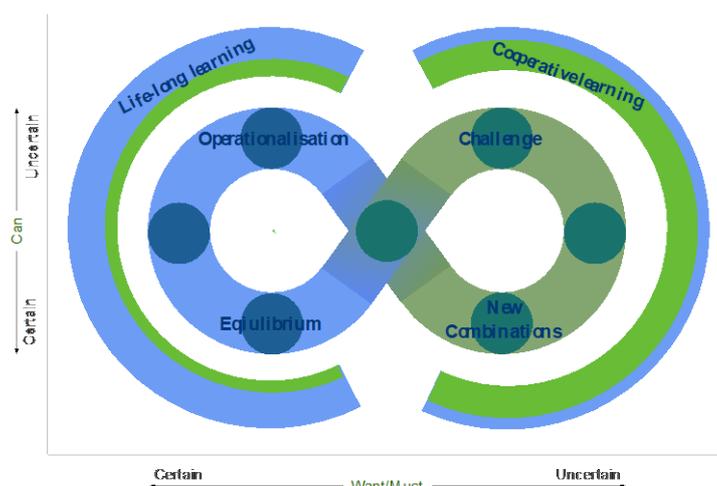


Figure 4: The role of life-long learning and cooperative learning

Resilience is of vital importance in the ever-changing environment. We must gather new knowledge and find the right learning mechanisms when dealing with uncertainty. Learning for individuals (Me) is different than for a team (We), or the society (All) (Abcouwer et al., 2022). More and more issues, like global environmental problems, require cooperation and the knowledge of all.

### Learning from the 'Me-We-All' perspectives

(Abcouwer et al., 2022) introduced the 'Me', 'We', and 'All' perspectives as means to identify a paradigm shift in society. One of the basic assumptions in organisational theory is that organisations form the linking pin between individuals and society. Putting the individual in the centre of the universe, as we did for decades in our individualistic society, does not help us understand the complexity and future orientation necessary for modern society to survive. Learning has different objectives, motivations, approaches and outcomes depending on the perspectives or views.

#### 'Me'

Learning for myself seems an individual process with personal motivation, but others help to reach the set goals. See pseudo-groups or traditional classroom groups (Johnson & Johnson, 1999). Individual needs are satisfied by finding information or knowledge via research or other people. The information is transferred and transformed to fit the personal context and link with existing knowledge. Rumelhart and Norman (1976) propose accretion, tuning and restructuring as the phases of learning. Accretion, to accumulate information and facts into already existing knowledge structures. Tuning requires the learner to devise new knowledge structures and interpretation. Restructuring continuously modifies the acquired and interpreted knowledge and generalise within the schemata of memory. This emphasises that knowledge is personal, customised to individual's context and existing knowledge structures. The newly acquired and processed knowledge yields a smarter person with advanced skills and competencies.

#### 'We'

Learning from the 'we' perspective is less about the individual gain. A high-achieving cooperative learning group needs a higher-level, shared objective (Schilstra et al., 2019), where all members are actively involved in reaching it. However, the motivation for learning can be individual and organisational. The cooperative learning approach enables organisations to realise a good balance between individual and group objectives and motivation. Additionally, the individual's personal knowledge and knowledge structures are extended. The newly acquired and processed knowledge is more than what the individual members would have achieved on their own. Competencies and skills are developed that cross the bounds of the individual.

#### 'All'

Learning for 'All' is learning for or with society: how do we get the knowledge that is needed in the places where it is needed, and how do we develop the knowledge that is needed when there are deficiencies?

The objectives are often ill-defined or uncertain, often because the situation is too broad and beyond the grasp of the individuals and groups or organisations living within. That means the responsibility lies with nobody, or everybody for that matter. The same goes for the accompanying learning aspect: the objective is short term because that is within grasp, and the individual or group objective is prioritised. It is usually only when governments apply rules to certain environmental dilemmas, we start changing our behaviour, and only within the boundaries of the framework. Does that make governments responsible? And from the learning perspective: does it make governments responsible for the setup of learning mechanisms or approaches?

Additionally, questions concern the societal differences in learning. Cultural aspects play a major role in the way learning is shaped. Learning style and education differs in various cultures (Manikutty et al., 2007). Moreover, cultural values and practices are assumed to influence motivation and subsequent achievement in learners (Salili et al., 2001). The foci of studies researching the influence of culture and context on student learning and motivation have been differences in cultural values (Stevenson et al., 1990), practices (Hess & Azuma, 1991; Salili, 1995; Stevenson & Stigler, 1994) and beliefs (Hess et al., 1987; Holloway & Hess, 1985). We must find universal tools and techniques to facilitate learning as a society ('All') throughout the various phases of the ACoR model. The eight ways of learning as identified by Yunkaporta and Kirby (2011) may provide us with a foundation to study and outline the role of the human factor.

### The eight ways of learning theory

In a complex life we live now, we try to innovate, and at the same time, we keep falling back to already invented practices. Finding a new perspective for learning, namely the 8 Aboriginal Ways of Learning<sup>1</sup>, is a good example of reinventing good practices, which can also innovate management and leadership. One issue Yunkaporta questions is the difference between growth and increase. In a report by Greendreamer<sup>2</sup>, he says that connection and relation increase the available knowledge and the experience, further grow the complexity and the beauty of that relationship. The increase is not physical. Other people would view it as reaching goals in relationships. He calls it "the absolute impossible physics of growth. When basic building blocks of existence, like energy and matter and resources and power are named, used, measured, valued, with value being created out of them. These are illusory value propositions that just go against reality and the basic physics of what is".

People think they fail because they lack unified objectives and goals, the assumed pre-packaged solution and a leader to follow. Things happen because they are organised based on mission statements, KPIs and a boss. But the truth, according to Yunkaporta, is that we must hand over and share all our wealth of knowledge and relationships. The way to save the planet is to "bring everybody back under the law of the land, and be very generous with our social systems, open them up and bring everybody back in." Diversity is important in finding the solution. "Each bioregion is responding to the unique spirit and entities of place there to build a patterning of relation and an economy, a governance structure, there... and then syndicating that with all the other bioregions around and syndicating out. We need syndicated diversity, balance, and constant tension and balance between autonomy and collectivity. Scalability relies on syndication."

The idea is that indigenous thinking works well in our world. It is based on self-identification, remembering, and collaborating. Today we face a collective memory and culture loss, where we do not know who we are and why we are here, how to know, be, do, value and learn.

The eight ways of learning are eight interconnected pedagogies, that are always changing in the different settings. The descriptions of the indigenous learning styles are adapted from Romano et al. (2021):

1. Story sharing: narrative-driven learning, approaching learning through telling a narrative story and connecting through the shared stories.
2. Learning Maps: a learning journey, a map with points of understanding, visualising the learning processes and picturing the pathways of knowledge.
3. Non-verbal learning is gestures, expressions, observing, hands-on reflective techniques, applying intra-personal and kinaesthetic skills to thinking and learning. See, think, act, make and share without words. The deeper knowledge is unspoken.

<sup>1</sup> <https://www.8ways.online/>

<sup>2</sup> <https://greendreamer.com/podcast/dr-tyson-yunkaporta-sand-talk>

4. Symbols and Images: draw, use of symbols, metaphors, images to understand concepts and content. Translate knowledge to one's own cultural meaning. Keep and share knowledge with art and objects.
5. Land Links: the knowledge of land and nature ensuring cultural integrity. Land-based learning links content to local land and place.
6. Non-linear processes: try a new way, find your own, indirect/synergistic logic, produce innovations and understand by thinking laterally or combining systems. Put different ideas together and create new knowledge.
7. Deconstruct/Reconstruct: Watch first, then do, modelling and scaffolding, working from wholes to parts.
8. Community Links: share, give and take, connect, centring local viewpoints, apply learning for community benefit.

The eight ways of learning can highlight how to lead and manage and how crucial it is to have various knowledge and skills in the team that can support and facilitate the movement through the Adaptive Cycle of Resilience. The role of cultural values and practices are assumed to influence motivation and subsequent achievement in learners. This is also true in moving through the ACoR and acquiring the necessary knowledge and skills for each phase.

### III. INTEGRATING THE LEARNING VIEWS

The magnitude of the situation, the tremendous possible number of parties involved, all with their own objectives, and the imprecise definition of responsibility for the societal objectives and motivations makes finding a universal learning approach challenging. Cooperative learning play an important role, but it must be extended using the concept of ecosystems. Any ecosystem form has its speciality, and the members and stakeholders within the ecosystem are involved in realising the shared goals. We can identify many forms of ecosystems in society, and we can even purposely establish them. We should shape our learning mechanisms accordingly to make us more adaptable to changes in this ecosystem.

Combining the concepts of the ACoR model, Maslow's extended motivation model (McLeod, 2007), de-linearised learning (Abcouwer et al., 2016), the eight ways of learning (Yunkaporta & Kirby, 2011), cooperative learning (Schilstra et al., 2019), life-long learning and ecosystems (Schilstra et al., 2021) is a stepping-stone to a more concrete learning mechanism to work with. This can be a starting point for establishing a resilient learning mechanism in which various partners can learn together and develop the necessary information, knowledge, skills and competencies to conquer ill-defined issues that cross the boundaries of the individual and organisations in an uncertain future.

Adaptivity is crucial for responding to change. The ACoR model supports it by focusing on the different actions needed in the different phases. Learning to respond to the new or modified case makes us function better in the changing environment. The 'Me-We-All' perspectives (Abcouwer et al., 2022) help us understand the various learning mechanisms required to realise adaptivity.

Technological developments targeted communication first because human nature is based on cooperation. Cooperation can bring magnificent results in learning, just like in working (Schilstra et al., 2019). In such a setting, the colleagues take advantage of each other's knowledge. Instead of knowledge transfer from teacher to student, knowledge exchange leads to a different style, the so-called de-linearised learning approach, which in practice proved to be more efficient (Abcouwer et al., 2016; Abcouwer & Takács, 2016).

How do we motivate people to participate in learning? Learning needs continuously change, and we need to adapt to the new circumstances: How do we stay aware of the different sources of change? The Happiness Hypothesis, the behaviour of our brain as described by Haidt (Haidt, 2006; Parker, 2010) describes an ancient truth to understand motivation. The mind is divided to conflicting parts: the conscious, reasoning part has limited control of what the rest of the brain does. This view on the brain shows the internalised tension between fast and slow thinking (Kahneman, 2011). When challenges emerge, there is a need for direct reaction versus the more reflective part of our behaviour. Being in control is not always the available alternative. Mintzberg (2001) refers to the difference between 'thinking first, seeing first and doing first' as different ways of acting. These subdivisions differ in how the four main keywords combine: conflict, control, risk, and safety. According to Tang (1992), money significantly impacts people's motivation and their work-related behaviour. Money is motivating in the case of motor skills; however, when it comes to cognitive skills, it increases stress and removes the possibility of thinking positively.

For understanding motivation, the hierarchy of human needs by Abraham Maslow is useful. The Needs grow from the basic biological and physiological needs, like food, water, housing to security and safety. The "better" developed the society is, the higher level people reach in the pyramid. The highest level is self-actualisation. In further research as performed by McLeod (McLeod, 2007) this highest level is further explored by making a distinction between decreasing and increasing needs. Understanding the different needs helps us switch and motivate to reach from the 'Me' towards an 'All' perspective. In the ACoR model the left quadrants define going concern: deficiency needs in Maslow model. After reaching the goals, the drive to stay the best is still there without the need for further improvement: the increasing needs. In the right quadrants, curiosity, creativity, and innovation are leading principles toward an unknown future. On this side, there is a permanent drive to continue.

Innovation is done by people, so shaping their knowledge, skills and attitude and innovate them is a starting point to reach long-term, sustainable results. Based on our practical experiences, we see that in the classroom students enjoy learning and do better when they are more intrinsically than extrinsically motivated and when they are more involved in setting educational goals. Intrinsic motivation refers to engaging in an activity for its own sake. To be intrinsically motivated means to feel both competent and autonomous. Students who are intrinsically motivated work on tasks because they find them enjoyable. In other words, participation is its reward and is not contingent on tangible rewards such as praise, grades, or other external factors. The same happens at work or in society. Intrinsically motivated people contribute better to goals and results. It means we need to find a way to develop intrinsic motivation for solving societal issues with a great magnitude.

In our view, a modern eLearning environment should focus on three main aspects:

- the identification of relevant sources of knowledge and information and their owners;
- the roles of the actors of the learning cycle mechanisms;
- changing the aspects of the roles of the different participants of the learning cycle.

We need to be more open to different ways of teaching and learning, choosing learning environments and supportive technologies. Our current and deep research work in the field of eLearning allows us to state that certain issues form barriers to efficient life-long learning:

- Identifying the right information to be taught to the interested parties is of growing difficulty given the dynamics of change processes that take place in the current societal setting.
- Identifying all the sources of relevant knowledge and information to be taught is increasingly difficult. The traditional view of the teacher who 'knows it all' and the student who is 'sponging knowledge and information' has proved to be increasingly irrelevant. Finding relevant knowledge and information is becoming a new and intriguing field of study. Modern eLearning environments should facilitate this search. Current eLearning environments are by no means able to facilitate this process of getting access to relevant and necessary information and knowledge.
- When the right information has been found, identifying the right methodology and tools to transfer it to the interested parties and preserve it for future use is not supported by current-day traditional learning technology. However, the development of new systems is starting up.

As mentioned earlier, in a dynamic and rapidly changing world we need to be more adapting, and more open to new ways of learning, which leads to different requirements for the IT support for learning. We need to:

- restructure the roles of students, teachers, researchers, practitioners, and those who possess knowledge, and actively involve them in the learning cycle. It is not only the teacher teaching, or the researcher creating knowledge. Everyone plays the above roles, given their setting. Everyone is an important source of information that might be of use for someone else, and even broader, relevant information may come from unexpected places.
- become aware that the demand for knowledge and skills is no longer focusing only on individual needs. Organisations and society require knowledge that facilitate them dealing with future demands.
- to be partners in learning. Learning by sharing and contributing to each other's knowledge help to regard each other as learners, teachers, researchers, practitioners. This way, we

can take full advantage of available sources of knowledge and information, which is crucial considering the uncertain societal issues we face and encounter.

Johnson et al. (1998) has set the basics of cooperative learning. They explain the new paradigm of teaching where students and faculty jointly construct knowledge. Students are active constructors, discoverers and transformers of knowledge, and the faculty guides their development. We recognise here the link with de-linearised learning. The five basic elements of cooperative learning are positive interdependence, individual accountability, face-to-face promotive interaction, interpersonal and small group skills, and group processing. In their research, they particularly focus on the aspect of knowledge exchange.

As a tool to successfully implement cooperative learning, Schilstra et al. (2019) developed an implementation framework with relevant factors, categorised in four themes: preparation, facilitation, evaluation, and climate (figure 5).

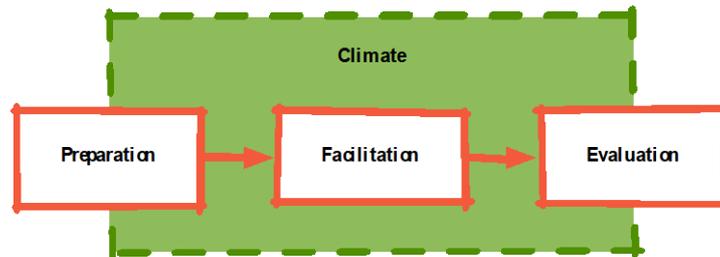


Figure 5: Cooperative learning implementation model (Schilstra et al., 2019).

We recognise the necessity of cooperative learning especially in the challenge and new combinations phase in the ACoR model, in which the role of creative teams and managers is of definite importance (Takacs & Abcouwer, 2020). Moreover, cooperative learning is an essential method in any setting where learning is required. Additionally, cooperative learning can support the search for a life-long learning attitude in individuals ('Me') useful for organisations ('We') and society ('All').

We keep searching for sustainability, long-term thinking and working in our research. Until now, we understood the power of cooperative learning, communication and information exchange, feedback, and evaluation. They all point out the inevitable role of the human factor.

In this respect we propose the use of the 8-ways of learning theory for structuring the learning process and the way to support it with IT. Below we suggest a first indication of how the ACOR and 8-ways of learning might interact.

**The ACOR end 8-way of learning combined**

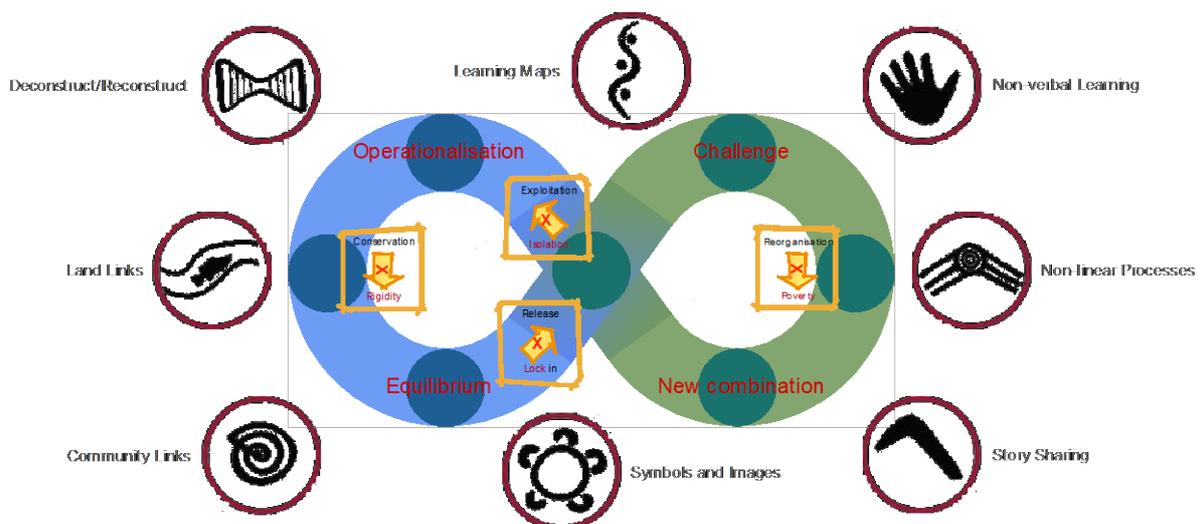


Figure 6: ACoR and the 8-ways of learning pedagogies

Figure 6 shows the eight ways of learning integrated with the ACOR model. For all the phases, the eight ways of learning provides the needed support in the process.

### **Release** –moving from Equilibrium to Challenge

Learning maps



We realise that the known ways of working are no longer sufficient. Learning maps drawn show that disruptive changes need new approaches to understanding the future. We need to look at points of understanding along the way instead of only looking at the end. Learning journeys never take a straight path, but wind, zigzag or go around. We recognise and learn different views and approaches and form new solutions.

### **Reorganisation** – moving from Challenge to New combinations

Non-verbal learning



Here we are compelled to evaluate the new solutions and identify the preferred ones. We should use all knowledge that can be acquired or understood. We link to Gardner's multiple intelligence approach and the accompanying non-verbal learning styles, including gestures, inference, expressions, eye movement, kinaesthetic learning, images, and revealed knowledge such as dreams, insight, inspiration and reflection.

Non-linear processes



Starting from the awareness of circular logic at centre, the need for a switch is apparent. Opposites meet to create something new with symmetry, balance concepts valued above oppositional thinking. Learning bends out to the side, bringing in knowledge that might seem off-topic, but creates deeper understanding and richer learning. This out-of-the-box thinking and evaluating various sources of knowledge in cooperative learning makes it non-linear.

### **Exploitation** –the move from New combinations to Operationalisation

Story sharing



Before convincing people that the suggested change is necessary, we must tell them the stories. It starts by telling the old ways and showing the need for change, focusing on the future and intended impacts explaining that life is never the same. Sustainable change cannot be realised by one person. Story sharing is a powerful tool to help forge, enhance relationships (Rhodes, 2019) and strengthen the ties between people and teams.

Symbols and images



We use symbols and images to share our insights, representing words and concepts or learning processes. They are essential in understanding change intentions from the old life to the future. The proposed solutions in the New combinations phase are framed using drawings, models, symbols and images to attain an enhanced understanding of the situation and encourage stakeholders to activate and develop their knowledge and skills.

### **Conservation** – when moving from operationalisation to a new equilibrium

Deconstruct/reconstruct



Knowledge can be learned by back-tracking through the concept and the whole in supported stages, then reproduced independently. The depicted shape shows the balance between independence and support. This also links to the Concept-knowledge theory introduced by Hatchuel (Hatchuel et al., 2004; Hatchuel & Weil, 2003, 2008).

#### Land links



Change happens within the boundaries of existence. All animals, plants, and geographic forms in land and water contain deep knowledge in the Indigenous way of knowing. They provide metaphors for concepts. Proud of the past and curious for the future helps the move from Operationalisation to a new Equilibrium. New knowledge and ways of working with related learning mechanisms embedded in the existing context ensure cultural integrity. Land-based learning links new content to local land and place, present in the new equilibrium.

#### Community links



By focusing on the community, we learn to reason from an 'All' perspective, showing how non-local information is viewed and used from local standpoints for community benefit, with all learning returning to the community.

In line with the insights of the Indigenous way of knowing, many change processes evolve in parallel. Every learning pedagogy should be in place in the community, which stresses the association with the ecosystem way of thinking.

The description above may suggest that there is a fixed sequence in the process of dealing with change. For sake of simplicity, we used this sequential description but in current practice in organisations different cycles of ACOR are actual. So, every phase comes into practice at the same time while dealing with challenges. This does not make the description less relevant. At the same time, we must deal with all the phases in ACOR and thus also with all ways of learning in the pedagogical model of the 8-ways of learning.

When we translate this to an integrated model for learning we must let go of the idea that learning is a sequential process with a beginning and an end. An ecosystem approach might in this respect be more practical and relevant. We will describe our ideas in the following paragraph.

## IV. APPLYING THE ME-WE-ALL APPROACH: ECOSYSTEM THINKING IN LEARNING

The proposed perspective is on ecosystem thinking, digital education and life-long learning. This research is based on the understanding that the world is constantly changing and facing us with challenges to which we do not have the solutions. One clear example of this development is COVID-19. Our research has focused on how we can react properly to this type of development, and life-long learning plays a crucial element in this. We have brought together inherently related concepts to have an answer to our questions: learning approaches such as de-linearised learning, cooperative learning, life-long learning and the eight ways of learning all related to the Adaptive Cycle of Resilience (ACoR) model and the concept of ecosystems.

By combining these concepts, we could rethink our learning structures. In this light, two questions are raised. One, how do we make sure we are prepared for unforeseen events like COVID-19? And two, what is the role of evaluation in preparing for the unknown? How do we know what to evaluate? The main concepts are structured into a proposed integrated ecosystem architecture to facilitate life-long learning, which contributes to laying the foundation of the development of ecosystems in which life-long learning, to assist in realising sustainability and resilience, is the main objective.

An ecosystem in nature can be applied to an established business or innovation ecosystem: all the parts actively work together to create a balanced system, where self-regulation is essential. Audretsch et al. (2019) argue that "ecosystems are by definition characterised by cooperation and network externalities", demonstrating the relevance of cooperative learning ecosystem thinking. They facilitate flexible, adaptive cooperative learning and working. Engaging in an ecosystem makes the members more

resilient because of the mutual dependency and cooperation within the environment, focusing on the well-being of 'All'. This is reflected in stronger ties between the stakeholders compared to a regular network setting, with its focus on 'We'. Especially in the current times with many stakeholders, the rapidly changing environments, and the challenges it brings, it is important to work together. Using the ACoR model, the right two quadrants focus on cooperation and co-creation. Scharmer and Yukelson (2015) show that engaging in an ecosystem requires ecosystem awareness, which is established by going through the four stages and structures of engaging with the social field. On a macro and mundo level, one can speak of an ecosystem.

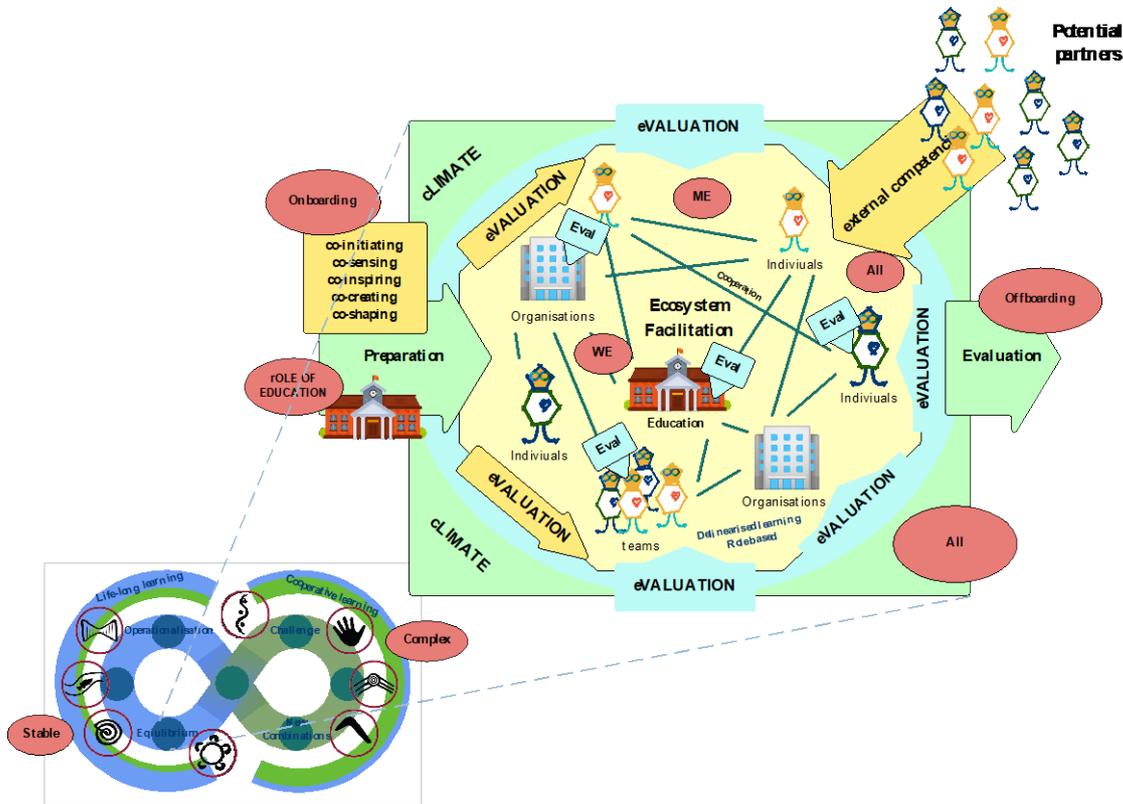


Figure 7: Proposed integrated ecosystem architecture to facilitate learning

Figure 7 depicts the discussed elements in a proposed integrated ecosystem architecture. Firstly, it shows the individuals ('Me'), teams, organisations and educational institutions ('We') that are stakeholders in the era of life-long learning in society ('All'). Secondly, the aspects of cooperative learning are integrated. Preparation functions as the onboarding phase in which participants are prepared for the cooperative life-long learning process in which they will play an important part. Here, life-long learning attitudes and cooperative learning attitudes are brought to the desired level. Additionally, participants are subjected to the five stages that are required to transform and shift the level of awareness they are operating from: co-initiating, co-sensing, co-inspiring, co-creating and co-shaping (Scharmer & Yukelson, 2015). Within the ecosystem, tools and mediums facilitate the cooperative processes. Lastly, four forms of evaluation are included: after preparation (yellow), centralised (blue circle), decentralised (blue signs) and during offboarding (green). As discussed before, self-reflection is an important aspect of the life-long learning attitude. It forms the basis for regular decentralised evaluation, which is imperative for both individuals, teams, organisations and educational institutions. The earlier mentioned course evaluations or regular organisational audits may be seen as decentralised evaluations. An additional centralised evaluation framework must be established and integrated adaptively to match the participant or stakeholder. Firstly, centralised evaluation permits monitoring the functioning of the ecosystem within society (top and bottom). Secondly, centralised evaluation facilitates monitoring of the learning and working climate within and outside the ecosystem. Lastly, the cooperation ties between the nodes in the ecosystem can be monitored using a centralised evaluation strategy. This four-fold evaluation structure establishes a certain resilience in the ecosystem because the ways of working are monitored and can be adapted if any (unforeseen) disturbances in society or the ecosystem are detected.

Self-reflection is an important aspect of the life-long learning attitude and forms the basis for regular decentralised evaluation, imperative for all stakeholders: individuals, teams, organisations and educational institutions.

The suggested evaluation structure establishes resilience in the ecosystem since the ways of working are monitored and can be adapted if any (unforeseen) disturbances in society or the ecosystem are detected.

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