IMPLEMENTATION OF FUTURES LITERACY LABS AS A REALIZATION OF THE 17TH POINT OF SDG IN DISASTER RISK REDUCTION

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Abstract : This research is motivated by the urgency to find new way of looking at Disaster Risk Reduction (DRR) in the TUNA (Turbulent, Uncertain, Novel, Ambiguous) era after the COVID-19 pandemic. The purpose of this research is to explain the implementation of UNESCO's Futures Literacy Labs international system or strategy in realising the 17th SDG point on disaster risk reduction. This research uses a qualitative approach with descriptive methods to understand the meaning of the research objectives. The theory used in this research is constructivism theory. The results of this study found that Futures Literacy Labs are able to create a space of togetherness and cooperation to respond and form a collective understanding of the future, by utilising imagination, communication, and overcoming the boundaries that may exist in views and actions related to disaster risk.

Keywords: Futures Literacy Labs, Disaster Risk Reduction, Constructivism Theory, UNESCO

INTRODUCTION

The shock caused by the COVID-19 pandemic has generated a lot of reflection, anxiety and action. Equally important are the natural and climate-induced disasters that have occurred during the pandemic. The pandemic, which emerged in today's dominant systems and processes, now appears to be influencing how we respond to disasters, how we view *Pengurangan Risiko Bencana (PRB),* and what resilience means to us Pengurangan Risiko Bencana (PRB), (UNESCO et al., 2022: 4).

Pre-pandemic *PRB* strategies and activities were based on perceptions, choices

and decisions made in the past. The ongoing COVID-19 pandemic shows that decisions and actions based on pre-pandemic "normalcy" will never be suitable for dealing with future uncertainties or embracing the new. Our quest for certainty and repetition (of the past) has created the conditions for a vulnerable and fragile society in the face of a plethora of unprepared disasters. By being rigid about the future, approaching it only through a risk approach, we have built fragility. By only preparing, we also limit the learning we can get from new phenomena: unexpected changes, or new human behaviors. The future has much to teach us, which we can only learn by adopting an attitude of humility (UNESCO et al., 2022: 4-5).

Disasters are a growing international concern, leading to the development of political strategies and policies from international to local levels. In the policy field on this subject, and also in related research, the main focus is on action in terms of possible and appropriate interventions, such as how to increase preparedness, anticipate disasters and mitigate their consequences. Analyzing how a particular issue is shaped through its representation in policy form and through proposed actions, offers a way to look beyond the dominant understanding of the issue. It invites us to consider which issues are left unaddressed or de-emphasized as a consequence of a particular way of representing the issue. By identifying how a particular policy problem is represented, we can also illustrate where responsibility is directed, as well as how responsibility can be shifted by changing the way the problem is represented. Thus, by analyzing the problematization of disasters and how they are constructed as policy problems, it is possible to identify the value dimensions implicit in technicalities and show that there are several alternative courses of action that can be taken (Berg & Majo, 2017: 147-167).

With regard to global disaster policy, the international community has agreed on two main frameworks, namely the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters ("Hyogo Framework for Action 2005- 2015: Building the Resilience of Nations and Communities to Disasters"), and the Sendai Framework for Disaster Risk Reduction ("SFDRR"). The constitution of these international frameworks is not only shaped by global norms; they can also be considered as expressions of global norms in this regard. However, there is currently limited research that addresses global strategies for disaster risk reduction (Berg & Majo, 2017: 147-167).

Therefore, to add to the repertoire of knowledge about global strategies in disaster risk reduction and global partnerships to achieve the goals (point 17 SDG), this research will offer ideas about the influence of Futures Literacy Labs

which is a system or strategy on disaster risk reduction through global partnerships. Futures Literacy (FL) is a skill that enables people to better understand the role of the future through what they see and do. It allows us to be aware of the sources of our hopes and fears, and enhances our ability to harness the power of future images. Understanding the future empowers our imagination, enhancing our ability to prepare, recover, and innovate as change occurs (UNESCO et al., 2022: 10). FL is important in disaster risk reduction because what has been mentioned above is that during the current pandemic and post-pandemic period, decision-making and actions regarding disaster risk reduction are no longer relevant to deal with future uncertainties when referring to decisions and actions made during the pre-pandemic period. decisions and actions that were made during the pre-pandemic period. Moreover, international attention on disasters continues to increase, so new breakthroughs are needed in dealing with increasingly complex disaster problems and future uncertainties. The target to be achieved in this research-in relation to SDG point 17-is based on the Guidebook for Measuring Sustainable Development Achievements in the SDG Perspective by Agus Sugito and friends, namely increasing global partnerships to support the achievement of sustainable development goals and encouraging and enhancing effective cooperation between government, private sector, and civil society (Sugito, Agus dkk, n.d.). Enhancing global partnerships and the effectiveness of public, private and civil society cooperation is critical as disasters cause greater devastation to increasingly vulnerable communities (Malhotra, 2020).

In the Introduction above, the main problem, according to this research, is how our current knowledge and understanding can deal with future uncertainties, especially with regard to unprecedented disaster risks.

The era change from VUCA (Volatile, Uncertain, Complex, Ambiguous) to TUNA (Turbulent, Uncertain, Novel, Ambiguous) which began during the pandemic to the current post-pandemic has changed the way we understand and respond to a problem. This means that problem-solving methods that worked yesterday may or may not work in the future. When the pressure of the TUNA era reduces the success of the problem-solving methods that have been applied in the VUCA era, we are required to respond by predicting the future. This is also justified and supported by Dr Angela Wilkinson and Saïd School Professor Rafael Ramirez in their teaching program "The five-day Oxford Scenarios Programme (OSP)" by saying that (Gordon, 2016), "At Oxford we strive to try to break through the futurology that's out there, and (instead) empower people who have the resources and ability to do things better."

From the acquisition of the main problem above, the formulation of the problem focused on in this research is that in the face of future uncertainty regarding disaster risk, innovative and novelty-oriented ways of solving problems are needed and are able to involve the international community actively and participatively, given the increasing international attention to disasters.

The main research question is, "How does Futures Literacy Labs become an international system or strategy as a form of realization of the 17th SDG point towards disaster risk reduction?". While the research objectives are first, to find out Futures Literacy Labs which is an international system or strategy to realize the 17th point of the SDG. Second, to understand whether Futures Literacy Labs is an appropriate international system or strategy for disaster risk reduction.

LITERATURE REVIEW

To explore and understand the meaning of the implementation of futures literacy labs as a form of realization of the 17th SDG point in disaster risk reduction, this research uses constructivism theory. Constructivism is one of the newer theoretical approaches, which became known in the 1990s. It emphasizes the importance of ideas and the ways in which individuals and states socially construct reality and then act on their construction of reality (Kaufman, 2013). Constructivists seek to articulate and explore three core ontological propositions about social life, propositions that they claim can explain more about world politics.

First, to the extent that structure can be said to shape the behaviour of social and political actors, both individuals and states, constructivists argue that normative or ideational structures are as important as material structures. Where neo-realists emphasize the material structure of the military balance of power, and Marxists emphasize the material structure of the capitalist world economy, constructivists argue that systems of ideas, beliefs and shared values also have structural characteristics, and that they have a strong influence on social and political action. There are two reasons why they consider these elements important. First constructivists argue that 'material resources only acquire meaning for human action through the shared knowledge structures in which they are embedded' (Wendt, 1995: 73). Secondly Constructivists also emphasize the importance of normative and ideational structures as these are thought to shape the social identity of political actors. Just as institutionalized norms in academia shape the identity of a professor, norms in the international system condition the social identity of a sovereign state (Burchill et al., 2005: 196).

Second, constructivists argue that understanding how immaterial structures condition actors' identities is important because identities inform actors' interests

and, in turn, their actions. Constructivists argue that understanding how actors develop their interests is crucial to explaining various international political phenomena. To explain interest formation, constructivists focus on the social identity of individuals or states. This is in line with Alexander Wendt's statement, "Identity is the basis of interests" (Wendt, 1992: 398).

Third, constructivists argue that agents and structures shape each other. Normative and ideational structures may condition the identities and interests of actors, but they would not exist if not for the knowledgeable practices of those actors. Institutionalized norms and ideas 'define the meanings and identities of individual actors and the appropriate patterns of economic, political, and cultural activity undertaken by those individuals' (Thomas et al., 1989: 12).

Normative and ideational structures are seen as shaping actors' identities and interests through three mechanisms: imagination, communication and constraints. With regard to the former, constructivists argue that non-material structures influence what actors see as the realm of possibility: how they think they should act, what are the perceived constraints on their actions, and what strategies they can imagine, let alone carry out, to achieve their goals. Institutionalized norms and ideas then condition what actors consider necessary and possible, both practically and ethically. Second, normative and ideational structures also exert their influence through communication. When an individual or state seeks to justify their behaviour, they will usually refer to norms that have been established as legitimate behaviour. Eventually, although normative and ideational structures do not influence actors' behaviour by framing their imaginations or by providing linguistic or moral courts, constructivists argue that they can place significant constraints on those actors' behaviour. Realists have long argued that ideas serve only as rationalizations, as a way to mask actions that are truly motivated by the will to power. Constructivists, however, point out that institutionalized norms and ideas function as rationalizations only because they already have moral force in a particular social context. Moreover, using established norms and ideas to justify behaviour is a viable strategy only if the behaviour is in some way consistent with proclaimed principles. (Burchill et al., 2005: 198).

In operationalizing the theory, the researcher will use three mechanisms of normative and ideational structures: imagination, communication, and boundaries. These three mechanisms will assess and explain how Futures Literacy Labs realizes the 17th point of the SDGs and the accuracy of Futures Literacy Labs in terms of disaster risk reduction.

Review of previous research in this study is used as a reference for comparison. There are three previous studies that have a relationship with the application of

Futures Literacy Labs. First, Martyn Richards' Futures Studies master's thesis entitled "LEARNING THROUGH THE LOOKING GLASS: Anticipation through the Lens of Social and Transformative Learning at a Futures Literacy Laboratory". This thesis explores the role of transformative learning to understand the social learning taking place at the Futures Literacy Laboratory (FLL) through analysis of FLL participants' experiences and reflections using the Wenger-Trayner value creation framework. The study articulates that learning through anticipation for the future is characterized by complexity, uncertainty, and reflexivity, which requires a range of cognitive and emotional skills to navigate. The results show that there is positive evidence from FLL that it can trigger reconsideration of existing assumptions and can encourage new lines of thought. Situating FLL as a transformative and social learning space, it is possible to identify practical implications and generate learning narratives that contribute to our understanding of the change processes at play in the development of Future Literacy capabilities (Richards, 2020).

The thesis equation with this research is that both discuss Futures Literacy Labs, use the same research approach, namely a qualitative research approach, and both of these studies recognize the formation of understanding or meaning in a phenomenon collectively and constructively. While the difference between the thesis and this research is the focus of the research. The thesis focuses more on creating value in a phenomenon through sense making in a social learning space, the process of making collective meaning in a phenomenon, and the process of applying seemingly abstract Futures Literacy concepts and instruments in everyday work life. Whereas this research focuses more on explaining how Futures Literacy Labs realizes the 17th SDG point in terms of disaster risk reduction.

Second, a scientific journal by Jeanette Kæseler Mortensen, Nicklas Larsen, and Martin Kruse entitled "Barriers to developing futures literacy in organizations". The scientific journal explores the concept of futures literacy and identifies several barriers to developing futures literacy in organizations. The aim of the paper was to contribute to the advancement of FLL and provide an understanding of overcoming barriers to its implementation. The hypothesis is that futures literacy may face several barriers when developed in organizations, such as organizational culture, lack of experience, mental models, accuracy and clarity in application (Mortensen et al., 2021).

The similarity between the scientific journal and this research is that both discuss the application of futures literacy in a group framework. However, the difference between the journal and this study lies in the way futures literacy is viewed. According to the scientific journal, futures literacy still has some obstacles when

applied and developed within the organizational framework because the type of change offered by futures literacy is different from the type of change that occurs in reality according to the current megatrend. According to this research, the application of futures literacy in a group framework is able to increase global partnerships and the effectiveness of cooperation between governments, the private sector and global civil society because disaster risk reduction is a collective concern on a global scale so that it can encourage the realization of the 17th point of the SDG.

Third, Stefan Bergheim's scientific journal entitled "On the Evaluation of Futures Literacy Laboratories". The research results from the scientific journal show that skill acquisition, relationships among participants, awareness of novelty, and application of insights are recurring goals of Futures Literacy Labs activities. It also summarized a set of feasible evaluation practices for Futures Literacy Labs and highlighted the similarities between its design principles (Futures Literacy Laboratories) and evaluation principles in complex adaptive systems (Bergheim, 2022).

The similarity between the scientific journal and this research is that both discuss the application of Futures Literacy Labs in responding to possible phenomena that will occur in the future with an anticipatory approach through a group framework. However, the scientific journal highlights the importance of evaluating Futures Literacy Labs because wider use of this FLL method can create more opportunities and ideally more resources for evaluation. And favorable evaluation results could lead to even more widespread and customized use of the method by convincing potential users of the intervention's value. Evaluation in the Futures Literacy Labs could be through collecting and developing appropriate questions for surveys that can reveal emotions as well as procuring investigations into how surveys could be used as an integral part of the intervention. If surveys are used more widely, it may be possible to create a collection of survey questions before, during and after the FLL activities. Survey questions could include the context in which FLL was implemented, the purpose behind it and the value generated from the activity.

Since the theory of constructivism is connected to the implementation of futures literacy labs as a form of realization of the 17th point of the SDGs in disaster risk reduction, then what acts as an independent dimension or variable is "Futures Literacy Labs," which is found in the aspect of "Futures Literacy (Efforts to Realize the 17th Point of SDGs)." Meanwhile, the dependent dimension or variable is "Strategi Pengurangan Risiko Bencana," which is found in the aspect of "Pengurangan Risiko Bencana" The relationship between the variables can be seen in the conceptual framework below.
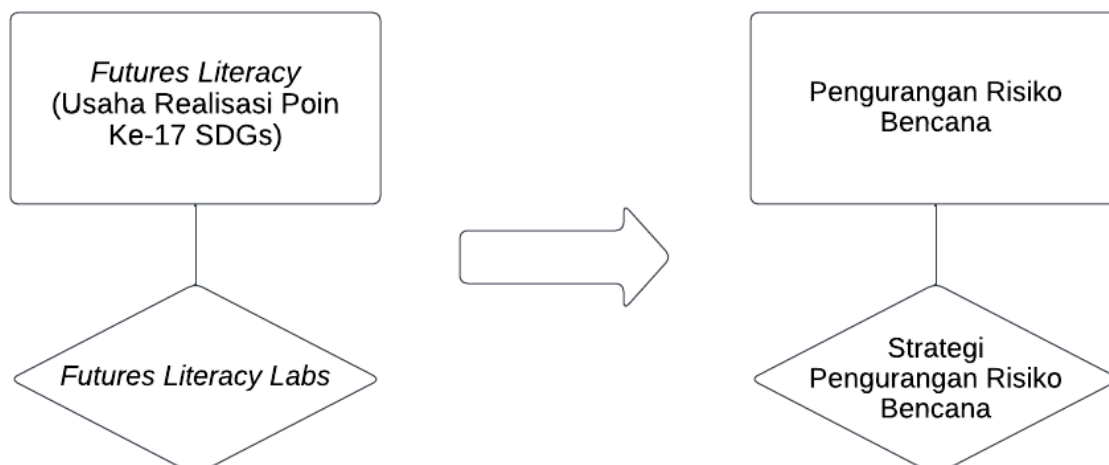
The parameters used to measure the independent variable "Futures Literacy Labs" as an effort to realize the 17th SDG point include "Actors (Key Participants and Partners)," "Outputs," and "Activities." Furthermore, to measure the dependent variable "Disaster Risk Reduction Strategy," the parameters used are "Futures of Disaster Governance," "Futures of Disaster Risk Knowledge," and "Futures of Human Behavior and Hazards." For more details, the aspects, dimensions, and parameters used are listed in the following table.

Aspect	Dimension	Parameter
Futures Literacy (Realisasi Poin Ke-17 SDG)	*Futures Literacy Labs*	- Actor (Participant and Main Partner) - Output - Activity
Pengurangan Risiko Bencana	*Strategi Pengurangan Risiko Bencana*	- Futures of Disaster Governance - Futures of Disaster Risk Knowledge - Futures of Human Behavior and Hazards

METHOD

This research uses a qualitative approach. A qualitative approach in research is an approach that is used to explore and understand the meaning of social or

humanitarian problems (Creswell, 2021: 4). The meaning that will be explored and understood in this research is the meaning of the implementation of futures literacy labs as a form of realization of the 17th SDG point in disaster risk reduction. The research method that matches this research is descriptive research method. Descriptive research method is a procedure for solving the problem being investigated by explaining the state of the subject or object of research based on empirical facts that appear as they are. In addition to explaining, descriptive research methods can also be used to interpret the empirical facts under study (Soekarni et al., 2017: 46-47).

In operationalizing this qualitative research approach and descriptive research method, the meaning of the implementation of futures literacy labs as a form of realization of the 17th point of SDG in disaster risk reduction will be explored and understood by explaining and interpreting how Futures Literacy Labs realizes the 17th point of SDG and the accuracy of Futures Literacy Labs in terms of disaster risk reduction.

RESULT AND DISCUSSION

Actors in Futures Literacy Labs

International relations can exist because of the important actors or agents that shape it. This also applies to futures literacy labs. The futures literacy labs international system or strategy will not run without the role of key actors and agents. The actors or agents referred to in the international system or strategy are the main participants and partners. Participants include youth and young professionals (YYPs). Youth and young professionals are the leaders of tomorrow, they will have the responsibility to make choices and decisions that will shape the future. They have a key survival advantage: a weaker commitment to the burdens of the past that inhibit their ability to harness the future more freely. As they become more future-savvy, their capacity to be more agile and resilient also increases.

The main goal of the initiative is to provide a space for youth and young professionals to build their future literacy skills, challenge their assumptions around disaster risk reduction and build collective intelligence. Specifically, however, the objectives include:

- Introducing the latest advances in anticipatory systems thinking and collective intelligence processes.
- Develop competencies among young people and young professionals in future thinking and design thinking, with a focus on Disaster Risk Reduction and Resilience.
- Build the capacity of youth and young professionals to 'harness the future'

by becoming more future literate, to promote sustainability, and to open up new ideas in framing disaster risk reduction and resilience at regional and national levels.

The main partners involved in the futures literacy labs include UNESCO (supported by the Disaster Risk Reduction (DRR) unit of the Science Sector and Futures Literacy of the Social Sciences and Humanitarian Sector), UNDRR Asia Pacific Regional Office, UNDP Accelerator Laboratory, and U- INSPIRE Alliance who are the implementers of a series of activities on 'Future Thinking on Disaster Risk Reduction and Resilience in 2045'. The series was coordinated by the Disaster Risk Reduction and Tsunami Information Unit of the UNESCO Jakarta Office as part of the activities of the Regional Science Bureau for Asia and the Pacific. The choice of year for the event was based on the calculation that in 2045, 24 years from now, young people and young professionals will be between 41-64 years old, the most common age range to access leadership positions by today's standards.

Expected Output of Futures Literacy Labs

The expected outcome of Futures Literacy Labs in disaster risk reduction is the empowerment of youth and young professionals with future literacy skills, namely:

● An understanding of futures literacy that is developed and tested through a 'learning by doing' approach. They are better able to use futures in relation to *PRB* and resilience, and for different purposes.

● Enhancing the ability of youth and young professionals to create and implement change, and build innovation to achieve disaster risk reduction and resilience in the future.

● New questions, meanings, concepts, models and frameworks developed for disaster risk reduction and resilience and initial ideas outlined for new interventions to drive DRR transformation that can be shared regionally and globally.

Activities in Futures Literacy Labs

Towards the end of 2020, the Disaster Risk Reduction and Tsunami Information Unit (DRRTIU) of the UNESCO Science Bureau for Asia and the Pacific in Jakarta was tasked to continue its engagement and programs with Youth and Young Professionals of Asia and the Pacific.

Following the successful implementation of the "Let's talk DRR" webinar series and ongoing engagement with Youth and Young Professionals in DRR, the unit decided to empower Youth and Young Professionals through the Future Thinking in DRR initiative. In collaboration with UNDRR, UNDP Acc Lab, and U-INSPIRE Alliance and taking into account UNESCO's program on Future

Literacy, this initiative led to the realization of Future Literacy Laboratories on DRR (FLL-DRR). The proposed agenda is shaped according to COVID-19 restrictions and includes 1 open webinar, 4 FLL-DRRs (including simulations) and 3 Let's Talk DRR (LTDs) after each FLL.

The formation of the core team is the foundation of the Futures Literacy initiative. Made up of local leaders and future literacy experts, the core team members worked together to code and coordinate the implementation of the Futures Literacy Laboratories (FLL). Through the process, local leaders were trained to design and facilitate, and became familiar with the questions and tools that can be used in FLLs. Various entry points from the core team shaped the exploration of topics and participants' choices for the FLL. It is important that core team members are committed to the process, it is a learning journey where each stage builds on the next.

The themes for each Future Literacy Laboratory were chosen in consultation with the core team. Starting with a Simulation exercise on Futures of Homes, the co-design team then selected Futures of Disaster Risk Governance, Futures of Disaster Risk Knowledge, and Futures of Human Behavior and Hazard as the FLL-DRR themes. Each FLL complemented each other, with the futures, assumptions and questions raised in one FLL providing the co-designers with new ideas to steer the action research initiative. The process of determining the theme was therefore an emergent one.

The 'Future Thinking on Disaster Risk Reduction and Resilience in 2045' activities consist of Webinars, Future Literacy Laboratory on Disaster Risk Reduction (FLL-DRR), and "Let's Talk DRR" events organized throughout 2021 and 2022. The goal of the Future Thinking on DRR and Resilience program is to advance the collective intelligence and future thinking of youth and young professionals in Asia and the Pacific so that they can rise to the challenge, create and negotiate concepts and frameworks for disaster risk reduction and resilience by 2045.

Futures Literacy Laboratories is a learning process based on the four phases:

Phase 1 Tacit to Explicit

Explore, imagine, Possibilities & a Better Future. Participants' anticipatory assumptions are revealed.

Phase 2 Reframing

Allow participants from anticipatory assumptions by inviting them to describe a future life that is not based on what they think is likely to happen or their current preferences or desires for the future.

Phase 3 New questions

Return to the present. Engage participants in a comparison exercise that compares the images they generated in Phases 1 & 2. The ability to detect, locate and give significance to previously unseen aspects of the present.

Phase 4 Next steps

The design of this phase will depend on the objectives of the local actors. Consolidate lessons learned, consider next steps at the individual and/or organizational level.

The Futures Literacy Labs started with a 'coffee chat', a conversational space for participants to reflect on what they knew and what they wanted to learn about the theme of the lab and futures literacy. This showed the different starting points and goals of the participants. It also helped the facilitators set the tone for their collective engagement in futures activities. By revisiting the coffee chat at the end of the FLL, participants were able to self-assess the impact of the process on their learning journey.

The next activity was the polak game, where participants were asked to think about where they stood on 2 axes consisting of 1) whether they believed the future would be better or worse, and 2) whether they felt able to influence the future. The game offers an accessible starting point for participants to begin thinking about the future, and for facilitators to understand what influences can support participants' positioning.

Participants were then asked to complete the Futures Triangle. The purpose of the Futures Triangle is to explore the different tensions between the past, present, and future in defining a potential picture of the future. Things to consider include what 'pulls' the picture into the future, the 'baggage' of the past that shapes it, and how current events and trends 'push' us towards a different future.

In the next session, participants had to create a Causal Layered Analysis. The purpose of the causal layered analysis is to uncover the depth of participants' picture of the future and build a narrative among a group of participants. By considering the headlines, actors, systems and myths/metaphors at play in different futures, participants can reveal more details about what they imagine and, in turn, influence the anticipatory assumptions they hold.

There is then an exercise for participants to think about. This exercise arises from the codesign process, a dimension created specifically for Phase 4: Next Steps. The exercise encourages participants to focus on the implications of future literacy for policymaking. They translated their picture of the future into an orientation for the desired policymaking process and highlighted key

insights that policymakers should understand and next steps to take in relation to FLL.

Groups were also encouraged to explore creative ways to capture and share their narratives in the plenary sessions; this could be done through a variety of media such as: stories, drawings, poetry, music, drama and role plays using physical and/or digital tools.

Futures of Disaster Governance Results

In the first FLL-DRR, participants' images of possible futures were shaped by the 'social injustice' of the past, the 'alienation' experienced by 'disaster survivors' in the present, and the 'technology' of the future that means we will be more 'informed' about disaster risk in 2045. Anticipatory assumptions held by participants, therefore, included the idea that social injustices will be reproduced or exacerbated, that community and isolation are mutually exclusive, and technology will advance and empower our capacities.

The future desired by participants was 'immunity to coronavirus', 'access to AI technologies', and centralization of 'local knowledge'. The images of the future, however, revealed both the hopes and fears of the participants. Indeed, in these images participants could see fears of vulnerability to disease, unequal access to technology, and the dominance of colonial epistemologies. Such anxieties and injustices shaped ideas about solutions and a better, transformative future.

Some of these assumptions about accessibility and community shaped the creation of the framework for this FLL, namely 'change-intensive communities'. In this world, modes of governance are dynamic and non-hierarchical, mirroring the movements of a flock of birds. A cause and effect layered analysis exercise encourages participants to reflect on how disasters change the 'culture of governance' and what this means for the sense of care and efforts to support the well-being of 'climate refugees'.

Entering Stage 3, participants compared their images of different futures and asked new questions such as 'is leadership still relevant?" and 'can we live without national borders?

When it came to next steps and lessons learned by DRR policymakers, the focus was on 'accountability' and exploring the 'role of youth' in creating a better future.

Major Findings from Futures of Disaster Risk

Governance <u>Probable Futures:</u>

- We will be in an energy crisis

- Automation guides nature's positive response

- Focusing on disaster relief, not mitigation

- Preferable Futures:
    - Artificial intelligence based on local community knowledge
    - Seamless communication in emergencies
    - Free health care

Reframe:
- Disasters change the culture of governance
- Data is the power
- Maintenance obligations

New Questions:
- Is leadership still relevant?
- Can we live without national borders?
- Will corruption always be a reality?

Next Steps:
- Accountability and governance as decentralized systems
- How can we use AI technology?
- Defining the role of youth

Result of *Futures of Disaster Risk Knowledge*

On the second FLL, the picture of the future that might happen includes 'early warning systems' and 'community resilience'. The red thread that unites the future is the power of 'big data prediction', computing with 'excessive growth' happening in the present, and struggling with the 'inefficient bureaucracy' burden of the past.

In the exploration of the desired future, there is a longing for 'equal participation', a society in which 'wealth does not determine political power' and 'regular situation training in schools' that builds preparedness and resilience in times of disaster.

These assumptions surrounding inclusion, power and role of education lead to the design of a scenario built on the metaphor, 'knowledge is water'. The participants were asked, how can they relate to three forms of knowledge in a society that is often disaster-affected: static (density), fluid (liquidity), and moss (gas)? Who controls access to these forms of knowledge? Pictures of

participants reflected actors, such as 'water cleaners' and 'environmental terrorists targeting polluters', as well as 'knowledge thieves'. The focus on control, regulation, access, and the power of knowledge made participants explore binary and utility categories such as pollutants and cleansers. An expression that attracts public attention is "listen to your grandmother when she says there's going to be a hurricane wind", it shows the importance of inheriting collective knowledge and memory, which marks the power embodied in the stories of life experiences.

One of the new questions that emerged was 'how can we put emotions at the centre of risk reduction? This idea forms the code of the third FLL, which indicates that future literacy triggers a permanent learning process. For the next step, participants called for increased *PRB* budgets, more effective and efficient sharing of knowledge across public bureaucracy, as well as improved public communication on scientific knowledge.

Tree findings from the Futures of Disaster Risk Knowledge Probable Futures:

- The community is working closely together.
- Fake news about disaster risk
- Personal interests block structural change

Preferable Futures:

- Situational exercises on *PRB* routine in schools
- Wealth doesn't determine political power.
- Strong infrastructure

Reframe:

- The government sues disaster knowledge producers.
- Activists become environmental terrorists, targeting polluters and infrastructure
- You listen to your grandmother when she says there will be a hurricane coming.

New Questions:

- Can a Disaster Bank be developed?
- How can we put emotions at the center of risk reduction?

- How can we find a balance between local knowledge and technological development?

Next Steps:

- Convince local governments to allocate more of the national budget for DRR
- Improve science communication in the community
- Effective balance between central and local systems

Future Outcomes of Human Behaviour and Hazards

The FLL begins with participants expressing their curiosity about the causal relationship between human behavior and danger. If human behavior causes danger, can human behavior also be the solution? The early ideas that emerged were the role of artificial intelligence and the impact of technology in the future. Like previous labs, the rooted assumption that digital technology will continue to exist and will take up more space and power in society is common in the initial involvement of participants. From this base, the participants plunge into the imagination of a possible future.

The possible future is related to deforestation, pollution, food shortages, proxy wars, and energy scarcity. Although the picture of the climate crisis and its negative impact on humans emerged as a popular idea among participants, there were also arguments that the possibility could be positive. It can be training *Pengurangan Risiko Bencana* In schools, more awareness and green spaces, and technology that guarantees clean water. It raises the question of whether PRB policy-making can provide all the solutions and benefits. However, there are concerns about whether AI will be technology that helps or controls, uncertainty embracing technology that is potentially uncontrollable. What drew participants to the future was a sense of population density, social fragmentation, and mental health crises caused by AI and digital technology. Factors driving the momentum today include the socio-economic strength of the upper middle class in society, the COVID-19 pandemic, and active community involvement. Hindering factors in the past included human greed, excessive waste, and technological constraints. Therefore, what we see is that class systems and capitalism are assumed by most participants to survive and shape the future in an unwanted direction. The desired future, however, speaks of 'living side by side peacefully in global villages', the fair distribution of resources, dealing with extractive behavior, medical and educational advances, and the protection of endangered species. Then there are striking differences

with possible reflections, participants' views of the desired future calling for systemic change.

The recalibration scenario focuses on instincts and dependencies, with the parameter that one can only save those who are within the physical distance of you at the time of a disaster; it is only the geographical distance that determines the hierarchy of choice, not individual preferences or varying levels of empathy. It makes the participants reflect on the ideas of an active, engaged, and powerful community. The idea of a Ministry of Mutual Human Love emerged, an idea that was a symbol of a society believed by the participants to appreciate resource sharing, equality of rights, and citizenship education.

After exploring these different futures, participants shared new questions. These questions include: Can knowledge become more democratic? Will the dangers of mankind become the norm of life?

Exploring the next step in the policy space, participants wondered what 'policy of the future' meant - what action should be taken based on their future picture? The proposals put forward include global citizenship education, building robust telecommunications infrastructure, and hazard training modules for communities.

Major findings from Futures of Human Behavior and Hazards

Probable Futures:

- Deforestation and exploitation of natural resources

- Technology for clean water

- AI tools integrated into community-based approaches

Preferable Futures:

- Animals are not extinct

- Peaceful coexistence in the global village

- Fair distribution of resources

Reframe:

- Community engagement and empowerment: Ministry of Love for Humanity

- Importance of mental health

- Questioning self-interest - crisis brings out humanity

New Questions:

- Can technology shape human and animal interactions?
- Will man-made hazards become the norm of life?
- How do we provide socio-environmental security?

Next Steps:
- Publishing ethics and global citizenship values education textbooks
- Resilient telecommunications infrastructure
- Training modules for people working in hazard response units

Analysis

Analysis of research results using constructivist theory shows a strong approach to understanding the implementation of Futures Literacy Labs as a form of realization of the 17th Sustainable Development Goals (SDGs) in *Pengurangan Risiko Bencana*. Here is an analysis of some of the main aspects of the above research results from the perspective of the theory of constructivism.
Imagination, Communication, and Limitations as Mechanisms of Constructivism
Imagination: Participants at the Futures Literacy Labs are empowered to explore and imagine future possibilities. By involving imagination mechanisms, they can identify anticipative assumptions and understand how norms and ideas can shape their view of future possibility.
Communication: The aspect of communication is becoming important in the theory of constructivism. Participants are expected to communicate about their vision of the future, and the norms applied through communication can affect the way they understand and act in relation to Pengurangan Risiko Bencana.
Limitations: Constructivism emphasizes that normative and ideological structures can limit actors' behavior. In the context of Futures Literacy Labs, these limitations may include norms and ideas that may limit or shape strategies and actions taken to Pengurangan Risiko Bencana goals.
The theory of constructivism highlights the role of actors and agents in shaping social reality. In this study, key actors such as young people and young professionals are identified as key players in tackling *Pengurangan Risiko Bencana*. International relations, in this context, are formed through the involvement of international agencies such as UNESCO, UNDRR, UNDP, and the U-INSPIRE Alliance. They become key partners contributing to the understanding and implementation of future *Pengurangan Risiko Bencana* strategies.
Meanwhile, expected outputs, such as empowering young people and young

professionals with future literacy skills, reflect efforts to change understanding and behaviour related to *Pengurangan Risiko Bencana*.

Objective points, such as introducing the latest advances in anticipative thinking, developing competence in future thinking, and building capacity to 'use the future,' reflect efforts to construct a better reality through new norms and ideas.

Operational steps, such as Tacit to Explicit, Reframing, New Questions, and Next Steps, reflect the implementation of constructivist theory. Participants are invited to respond, reconstruct, and construct their knowledge of the future. It involves various activities such as coffee chat, game polak, Futures Triangle, Causal Layered Analysis, and others, giving participants the opportunity to engage actively in the knowledge-building process.

The results of the study Futures of Disaster Governance, Risk Knowledge, and Human Behavior show that through the process of constructivism, participants are able to shape a picture of the future that is likely, preferable, and refine their views. New questions and subsequent steps that emerge reflect the participant's constructive ability to identify challenges, design solutions, and construct the desired future views.

Overall, the theory of constructivism provides a robust framework for analyzing how Futures Literacy Labs can be an effective tool in changing perceptions, behaviours, and implementation of Pengurangan Risiko Bencana strategies, Especially in the context of the 17th SDGs. This approach places emphasis on the role of ideas, communication, and limitations in shaping social realities, which correspond to efforts to shape a better future.

This study is different when compared to Martyn Richards' study entitled "LEARNING THROUGH THE LOOKING GLASS: Anticipation through the Lens of Social and Transformative Learning at a Futures Literacy Laboratory", although it highlights the future literacy labs. In his research, Richards used a method of qualitative content analysis to identify participants' learning from the transcripts of the 2019 Turku FLL Net-Zero Emissions Maritime Hubs, led by researchers from the Finland Futures Research Centre (FFRC) at the University of Turku. (UTU).

The advantages of Richards' research lie in his three contributions to Futures Literacy. First, his research is able to present the most comprehensive and structured analysis of transformative learning that occurs in FLL. Second, his study shows how Wenger-Trayner's value creation through a social learning framework, applied to the collective intelligence knowledge creation process that is applied at FLL, and third, his work also performs a structured and transparent evaluation, as well as documenting research materials and processes so as to contribute to an ever-growing literature that evaluates the validity of the Future Literacy process. (Richards, 2020: 93).

The disadvantage of this study is that the data capture process uses audio recordings of poor quality so that there are some data that can not be captured properly anyway (there are data that are missing). Therefore, video recording for the data collection process is more suitable to be applied in this study. (Richards, 2020: 94-95). The technical is not a trivial matter, given that the findings from the data can influence the results of the analysis, so the process also needs to be observed carefully.

As for the similarity of this research with Richards's research, both discuss FLL (Futures Literacy Labs) using the same research approach, namely qualitative research, and both of these studies acknowledge the formation of an understanding or meaning of a phenomenon collectively and constructively, so the theoretical approach used to analyze Futures Literacy Labs tends to be the same constructivist approach, even though Richards's research leads more to a social constructivism vision of the future. (social constructivist foresight).

The difference between this research and Richards research is that Richards' research is more inclined to the creation of value for a phenomenon through sense-making in a social learning space, the process of collective meaning-making for the phenomenon, as well as the application of seemingly abstract Futures Literacy concepts and instruments in everyday work life. While this study is more focused on explaining how Futures Literacy Labs is realizing the 17th SDG point in terms of Pengurangan Risiko Bencana.

CONCLUSION

In the context of constructivist theory, the three main mechanisms that are the focus of the analysis, namely imagination, communication, and limitations, provide a deep understanding of how the implementation of Futures Literacy Labs happens and how it relates to SDG item 17. The concept of imagination in constructivism suggests that the views of individuals and groups about the future can influence their actions. Futures Literacy Labs, through the 'learning by doing' approach, provides space for participants, especially young people and young professionals, to develop their future literacy skills. This includes their understanding of Pengurangan Risiko Bencana and resilience. *Futures Literacy Labs* creates new norms and ideas related to future thinking, Pengurangan Risiko Bencana, and resilience. Moreover, involving participants in creating new questions and developing new concepts is a way to generate innovative ideas that can shape future views and actions.

In constructivism too, individual and group behavior is often explained and justified through norms and ideas that are established. Futures Literacy Labs uses communication as a means to justify behaviour, referring to the norms

associated with collective intelligence and future thinking. Partnerships with organizations such as UNESCO, UNDRR, and UNDP show how normative and ideological structures can influence the implementation of Futures Literacy Labs. This collaboration forms a common understanding of the interests and goals of the desired future.

Furthermore, constructivism emphasizes that normative and ideological structures can place limits on actors' behavior. In the context of Futures Literacy Labs, these restrictions may include normative limitations on the way of viewing disaster risk, communicative limits in formulating new questions, and imaginative limitation related to innovation in Pengurangan Risiko Bencana. The constraints can also be seen in behavioral rationalization strategies. Futures Literacy Labs, through the establishment of new norms, provides rationalisation strategies different from traditional views related to sustainability, disaster risk, and resilience

By linking these concepts to the results of research, it can be seen that Futures Literacy Labs creates space for responding and shaping a collective understanding of the future, by leveraging imagination, communication, and overcoming the limitations that may exist in views and actions related to disaster risk.

It is important to note that constructivism not only presents the view that social reality is built, but also pays attention to changes in the construction of such reality. In this context, Futures Literacy Labs can be seen as an initiative that not only reflects existing views and ideas but also creates a new framework for understanding and acting related to the future, Pengurangan Risiko Bencana , and Resilience.

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