A SYSTEMIC, SOCIO-ECOLOGICAL APPROACH FOR COMMUNITY RESILIENCE: THE CASE STUDY ANALYSIS OF THE WORLD MUSIC SCHOOL

1. **Jian CHEN**, **Ph.D. Candidate**
College of Design and Innovation, Tongji University, Shanghai, China
frank.cj@outlook.com
2. **Susu Nousala**, **Ph.D.**
College of Design and Innovation, Tongji University, Shanghai, China and
Architecture, Building and Planning, University of Melbourne, Melbourne, Australia.
s.nousala@gmail.com
3. **Timothee Landa**, **Master Candidate**
Political Sciences, Sciences Po Saint-Germain-en-Laye, Saint-Germain-en-Laye, France.
timothee.landa.1220@gmail.com
4. **Pedro AIBÉO, Ph.D. Candidate**
Department of Civil Engineering and Department of Architecture,
Alto University, Espoo, Finland.
pedro.aibeo@aalto.fi

ABSTRACT

This paper presents research and a discussion on aspects of community resilience informed by literature and the case studies of the World Music School (WMS) Helsinki community and the Shanghai WMS community of interest. Focus has been informed by issues of human community resilience, impacted through (and with) their immediate environments, both social and environmental. Based on discussion, feedback loops and observation, the question of our proximity to our environment and the links between human beings, seems to suggest an emergent result, being one of disconnection, however, what emergent combinations of these conditions are responsible? In a human centered paradigm, the disconnection of the individual, then of its community greatly reduces their capacity to operate as a resilient system. In an overall perspective of human and non-human, this disconnection or dis-integration, weakens simultaneously the socio-economic system, as well as the social-ecological system it is connected to or belongs to. An understanding of how connectivity organized itself was informed by Community of Practice (Wenger, 1998) and related literatures regarding the effects of resilience with NGOs (Robinson and Berkes, 2011; Berkes and Ross, 2013; Walker and Salt, 2012a; Aldrich and Meyer, 2015).

This research focuses on the critical roles, impacts and evolution for the World Music School as an NGO, teaching music and organizing events around dance and music. As an inclusive and connectivity enhancer, this work aims to investigate what and why of this NGO's involvement in building community structure, including the inclusive of local diaspora leading to any supporting resilient subsystems within the overall social system. This research argues that the WMS communities bare the potentials to make a difference predominantly on individual level, and then on its close environment and subsequently enhancing the community resilience on the overall socio-ecological system level.

Key words: Community; Community resilience; Systemic approach; Systemic design; Socio-ecological System

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INTRODUCTION

An overview of the functioning of the World Music School

This paper focuses on possible acupunctural approaches (both theoretical and practical), instead of the immediate panacea to the social disconnection, by re-discovering the quality of the longer-term connectivity, and re-emphasizing the significance of both tacit and explicit components within community, where resilience being its focal feature.

The WMS Helsinki is a non-profit association based in Helsinki, Finland, and was founded in 2015 by a Portuguese architect (Pedro Aibeo) with the goal to *teach music as a mother language* (https://worldmusic.school/home/, accessed on June 25 2021) within a community ecosystem.

Along with the aspects regarding organization and management in the WMS, there are two major activities on practical level: *Activity 1. Online and Local Music Teaching*: The online and local music teaching are experienced through online courses given by teachers from all over the world in a reciprocal format. The WMS does not influence the teachers' teaching methods, therefore they remain independent regarding the way they teach directly to students, but having content guidelines for the *Activity 2. Monthly Folkdance Event*. In addition to the one-on-one music courses, the WMS organizes monthly folkdance event to teach folkdance to the public by mixing each time two distinct cultures, for example Kurdish and Irish, with the
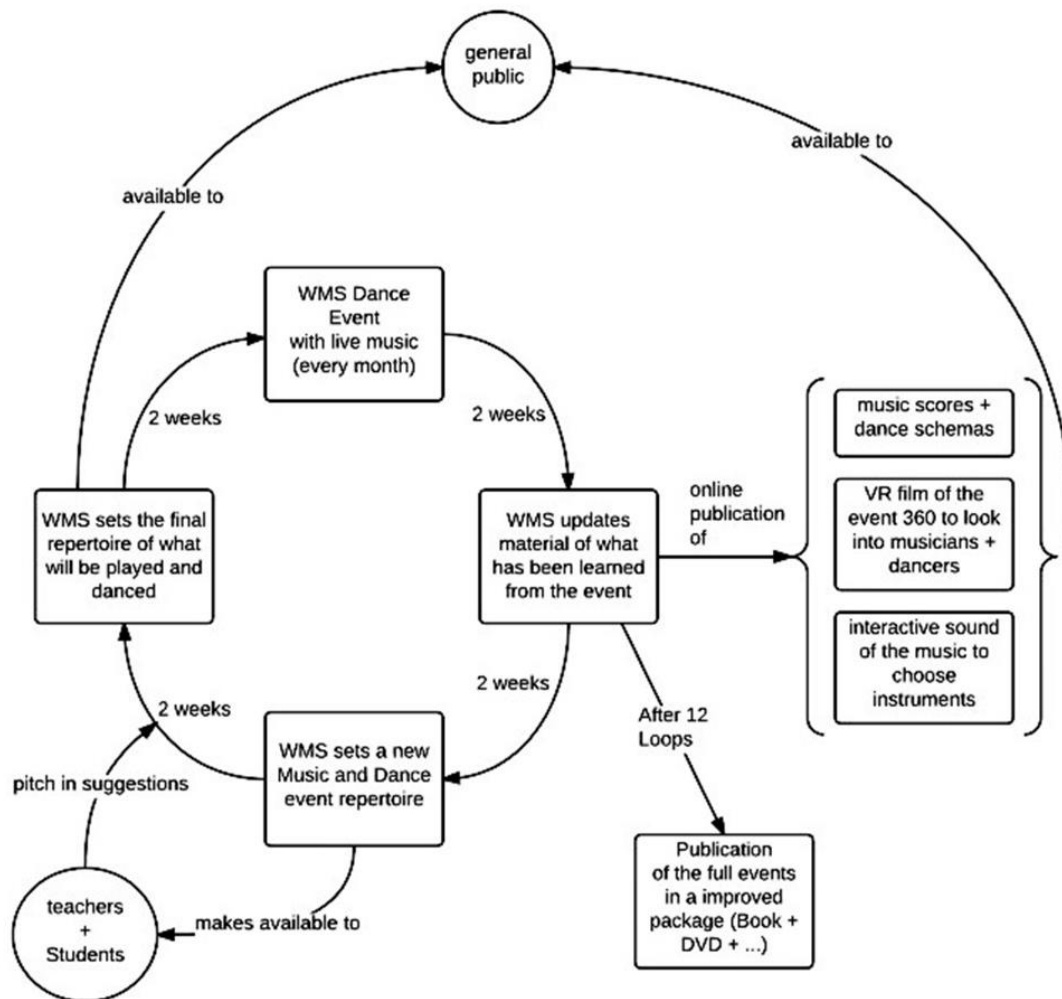

Figure 1. The organigram of the World Music School

local one, such as Finish, therefore each event combines two local diaspora. As a continuity of their learning, the students who take the online music courses (activity 1) are asked to participate in the folkdance events (activity 2), not as simple participants but as the musicians who will accompany the dance teachers and the participants. Students should *play* at the WMS events but teachers can be from anywhere. The WMS also publishes music, dance and cultural contents in interactive platforms to allow constant improvements. Further details regarding this organization can be seen in Figure 1, the organigram of the World Music School (Available at https://worldmusic.school/about-world-music-shool/, accessed on Jun 25 2021).

The WMS fills in the gap between the many high level teaching institutions and the informal music sessions spread out around the country, meaning that its educational methods are not following the traditional ones that can be found in a typical music academy. This type of school is exploring music traditions of other countries and continents, that will not only increase participants knowledge of different cultures but also strengthen the participants' own cultural traditions.

The WMS communities: actions and impact

Since the inception of the WMS, several WMS based communities were subsequently forged. The school's innovative model (informed by related literatures including Community of Practice, Wenger, 1998) was initiated then expanded to three other continents. Since 2017 the expansion has included China and West Africa. There were events occurred during 2018 to 2021 in the Shanghai WMS community of interest, engaging participants with various range of ages and social statues.

The concept and development underpinning the WMS innovative organizational approaches signify an impact, showing that the scales involved generate particular influences for international communities (Hall et al., 2012; Nousala et al., 2009), while local transformational change in a sequential way can lead to feedback effects improving resilience at the level of the whole system (Walker et al., 2009). Given the observed phenomena of disconnected individuals are operated in silos, this brings to the imperative of this research on tackling such issue of disconnection by means of resilience science in the community context, both practically and theoretically. This research argues that systemic change can happen when micro but fundamental changes are longitudinally obtained through bottom-up level approach, and the WMS communities bare the potentials to make a difference predominantly on individual level, and then on its close environment and subsequently enhancing the community resilience on the overall socio-ecological system level.

TARGETED LITERATURES TOWARD COMMUNITY RESILIENCE

Reviewing community disconnections: the gap

The observation of our close environment and the links between human beings and our current environment seems to suggest an emergent result, one of disconnection (Holt-Lunstad, 2015). Despite using digital ecosystems (Vaidhyanathan, 2018) services to sustain themselves, individuals are cognitively severed from the remaining links they could have with their close

biophysical environment (Kesebir and Kesebir, 2017). In addition to this phenomenon, the individual can also be isolated among its peers, sharing increasing superficial connections and relationships with fewer deep interconnections. These interconnections are working at different paces and speeds which may also show intriguing clues to yet deeper effects of interaction. As consequence such a social system shows signs of acute weakness in its resilience towards shocks and disturbances, with emergent sets of characteristics. Its weakest components being the less connected (Walker and Salt, 2012b).

The development of the digital age has for the last decades greatly increased our overall communication capacity but has greatly reduced as well the depth of these exchanges (Twenge, 2013) e.g. the digital divide. Having exchanged quantity for quality our level of interconnection being higher, it is nevertheless weaker. In a global village where worldwide travel is possible, the number of people being diaspora in another country has also extensively increased (United Nations, 2019), reducing as well the level of connection of the system's new components, therefore special attention should be given to diaspora's connectivity in their new place of residency and settlement.

In a human centered paradigm, the disconnection of the individual first of the individual itself, then of its community greatly reduce their capacity to operate as a resilient system. In an overall perspective this disconnection weakens at the same time the socio-economic system, as well as the social-ecological system it is connected to or belongs to. The quality of the longer-term connectivity and components both tacit and explicit are of great importance. This may seem obvious, but a system's component having only dysfunctional connections is not only a hindrance, or at best a neutral element, but is longitudinally detrimental for the entire system as a whole. Social isolation is, in physical terms, increasing the mortality rate, bringing in its wake an entire batch of psycho or somatic related illness and dis-ease that will take a toll on the surrounding society, including the health care system, the lack of quality in the connections of the disconnected individual (Eisenberger, 2012). As consequence the increased disconnection of these individuals are participating in the decreased resilience of the whole system.

Toward the socio-ecological system: a 'biological' perspective

We are all part of some system of humans and nature, saying, the social-ecological systems (Walker and Salt, 2012b, 1). The WMS as a nonprofit organization and with communities that ensue, display nonlinearity and unpredictability during its interaction and performance, due to uncertain knowledge of the behaviors of the organizations' individual members (Nousala and Hall, 2008, 2). Relevant arguments can be found in various system literatures underpinned by the concept "whole is more than the sum of its parts (Norris et al., 2008, 128)".

When a socio-ecological system shows acute weakness such as disconnections during system process, the impact of such undesirable features might be latent or inexplicit because they are longitudinal deterministic. It might also become prominent due to external or internal disturbances that are significantly larger in magnitude, reaching beyond the threshold of a system's adaptability, failing the system from returning to state of equilibrium homeostasis (Norris et al., 2008, 127). Given the nature of socio-ecological system, as Biggs (2015, 9) argues, change is not uniform and continuous, rather, periods of gradual change can be interrupted by rapid, sudden, and often unexpected change (Holling, 2001).

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This is where resilience shows its significance, as one of the three attributes of social-ecological system that determine their future trajectories, with the rest two being adaptability and transformability that governs the system dynamics (Walker et al., 2004). It is argued that a social-ecological system, be it an organization, has its own "personality" (or characteristics) that constituent the system dynamics, therefore a "biological" perspective (Salthe, 1985; Salthe, 1993; McKelvey, 1997; McKelvey, 2003; Nousala and Hall, 2008, 2) becomes critical when viewing such complex system. Hence this paper views the WMS and its relating communities as subsystems with dynamic "characteristics" in the overall socio-ecological system, tackling system dynamics that can nurture community resilience.

Resilient community: a definition

Traditionally, a community can be an entity that has geographic boundaries and shared fate, with built, natural, social, and economic environments as components that influence one another in complex ways (Norris et al., 2008, 128). We are now living in a world where communications and interactions among community agents are no longer necessarily bounded by spatial division, proximity can be achieved virtually thanks to emerging communication technologies that instantly dissolve physical constraints. Recent literatures including Manzini (2019, 2) discussed about the observation of communities that emerged based on choices from designerly and social perspective, describing them as "*a new contemporary form of community… that exists by choice, one that has been consciously or unconsciously designed and built*" with characteristics of "*voluntary, light, and open*". Though criticism has been made on this choice-based community, claiming that "*this way of seeing the political possibilities that design can afford seems so very quickly undercut by the arrival of social media- and tribe-backed leaders like Trump…* (Tonkinwise, 2020, 90)", yet such a critique remains frank and inevitable from designerly point of view, mind that communities feed predominantly on social media or tribalism are the ones in which individuals are seemingly connected but sharing superficial connections hence operated in silos, and consequentially becoming dead-weight to the well-beings of the entire socio-ecological system.

Therefore to put the community here into context, its definition needs further expansion: The geographic boundaries (Norris et al., 2008, 128) as system constraints make the WMS activities available to the local or close residencies, while the virtual boundaries enable virtual communities over the country, with fewer chances of physical engagement but with more attractors that can trigger greater cascades of influence on international level; the "shared fate(Norris et al., 2008, 128) in the WMS communities can be interpretated as mutual happiness based on their initial choices (or free well), trust and compassion (or empathy) to one another, and is gained through rounds of progress (iterations) during the WMS activities; Manzini's underappreciated interpretation (Manzini, 2019, 2) of such choice-driven fluidity aligns to the core of the communities forged by the WMS, such fluidity empowered the WMS communities with novel pervasive characteristics including voluntary, light, hybrid.

Resilience of the WMS communities: a synthesis

This section reflects the definitions of resilience for the context of this paper. Three issues regarding the definition of community resilience are raised regarding "What it means by community resilience", " Why does community resilience matter" and "To what a community is resilient (Carpenter et al., 2001)".

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What it means by community resilience?

The term "resilience" originally rooted in the domains of physics and mathematics, whereas the concept of community resilience is complicated by variation in the meaning of community (Norris et al., 2008, 128). Among various definitions of community resilience in SES context elaborated by literatures, a dynamic input—process linkage that characterizes such resilience becomes prominent, to name a few:

- *change—remain within critical thresholds* (Berkes and Ross, 2013)
- *disturbance—retain basic function and structure* (Walker et al., 2004)
- *uncertainty, unpredictability and surprise—thrive in an environment* (Magis, 2010)
- *adversity—recovery of the individual* (Buikstra et al., 2010)

Informed by systemic thinking (Maturana and Varela, 1974; Holland, 1996; Meadows, 2008; Mitchell, 2009), the *input* is the disturbances (external or internal forces) to a system, the *process* follows the imperative of a system. To better scope it, Berkes and Ross (2013, 6) argued that two strands of targeted literatures regarding community resilience were evident, focusing respectively on the socio-ecological system scale and individual scale. To seek for opportunities of mutual enrichment given the overlaps and complementarities between these two scales, an integrated approach was subsequently proposed. The analysis of this research modifies then adopts such model of integration, addressing the significance on two critical aspects, saying agency and self-organizing (Berkes and Ross, 2013, 11), which are critical for generating community level resilience.

Why does community resilience matter?

Resilience deals with the tension between persistence (capacity to absorb shocks and maintain function) and change (maintain the capacity for renewal, reorganization and development at a variety of scales) (Folke, 2006). In community context, developing resilience increases the community's ability to develop in dynamic environments that are characterized by unpredictability and surprises (Adger et al., 2005; Walker et al., 2004). Robinson and Berkes (2011) pointed out the role of NGOs as bridging organizations, with adaptive capacity especially in putting together knowledge from different sources to make a new synthesis, co-producing knowledge (Armitage et al., 2011, 9) at regional, national and international levels, community resilience is hereby considered as a particular capacity of a social system that comes together to work toward a communal objective (Berkes and Ross, 2013, 6). Through networks, deliberation, and inclusivity, NGOs can facilitate multilevel interactions, which in turn, leads to social learning and resilience building (Robinson and Berkes, 2011). The resilience fostered by the WMS communities will subsequently catalyze adaptability (Walker et al., 2004), which is further deterministic to the trajectories of the overall social system.

To what a community is resilient to?

To scope resilience regarding the question of "resilient to what (Carpenter et al., 2001)" is to know "what a resilient community can cope with", or more specifically, "what the system has to deal with in terms of disturbances" first and foremost. Given the dynamic nature of the socio-ecological system, disturbances are their inherent features. Walker and Salt (2006a, 48) summarized three categories of disturbances by their longitude and magnitude scales: characteristic disturbances, large infrequent disturbances, and unknown shocks. The unknown shocks here raised the discussions between specified resilience and general resilience.

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Specified resilience, which asks the question of "resilient to what" (Carpenter et al., 2001), may have better performance in particular situations. Walker and Salt (2006b, 121) argued that, to increase efficiency (by optimization) for one form of resilience is to bare the risks of becoming too focused, limiting the system capacity to respond to unforeseen shocks and disturbances, and can lead to reduction in other forms of resilience, or loss of resilience in other ways (Folke et al., 2010; Cifdaloz, et al., 2010). This suggests that resilience thinking needs to go beyond managing for specific variables and specific disturbances to absorb unforeseen disturbances (Walker and Salt, 2006b, 121).

Such discussions shift the attentions from specified resilience to general resilience, which deals with all kinds of shocks and stresses (Folke et al., 2010). The fundamental argument behind is that disturbances can also be treated as ongoing opportunities for renewal and improvement (Biggs et al., 2015) by buffering shocks but also through adapting and reorganizing in response to change (Walker et al., 2004; Folke et al., 2010). Therefore general resilience is critical in opening up opportunities for reorganization. Walker and Salt (2006b, 121) identified three factors that are critical in maintaining general resilience: diversity, modularity, the tightness of feedbacks. These factors aligned with eight commandments for environmental management proposed by Levin (1999) (Walker and Salt, 2006b, 121).

Similar dichotomy exists in the system adaptability regarding different domains. For example, the engineering resilience versus ecological resilience (Norris et al., 2008, 130). The former addresses the ability to return to one pre-designed state after disturbances, while the latter embraces multitude of desired possibilities that match the environment (Gunderson, 2000, 31). Resilience nurtured by the WMS communities are the emerging results of socio-ecological system dynamics, which are intrinsically socio-ecologically structured rather than mechanistically, therefore state of the system such as "pre-designed", "pre-defined" or "optimized" does not fit into the notion of systemic (non-humancentric) perspective. Hence an integrated approach regarding general resilience is probably the relevant one for human communities, organizations, and societies (Norris et al., 2008, 130), as in this case, for the WMS communities.

THE IMPACT ANALYSIS OF COMMUNITY RESILIENCE

Characteristics of resilience nurtured by the WMS communities

Based on feedback loops and observation, there are three key iterations occurred among the overall interactions of the WMS communities, as shown in Figure 2 (modified based on Figure 1., labelled as A, B and C). Due to these iterations, a series of critical characteristics regarding the WMS communities emerged, which lead to the emerging of community resilience.

A.   The WMS internal interactions (as referred to the WMS Activity 1)
B.   The WMS interaction with diaspora (as referred to the WMS Activity 2)

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C.   The WMS external interactions with the public (as referred to its social impact)

Given the integrated approach (Berkes and Ross, 2013, 14) previously discussed in the literature review (focuses on both socio-ecological and individual scales, a synthesized model was modified then adopted for the the analysis of these emerging characteristics nurtured by the WMS communities. As presented below, these characteristics hereby address the significance of agency and self-organizing (Berkes and Ross, 2013, 11), in community level resilience. For a better narrative on such level of system complexity, three categories are given regarding their clusters of dynamics and longitudinal occurrence, they are respectively *Initiatives, Emerging Qualities and Longitudinal Impact*. (Note that neither the categories nor the order presented here suggests any linear casual-relation of these emerging characteristics).

Category 1: Initiatives

- values and beliefs;
- knowledge, skills and learning;
- a positive outlook;

Category 2: Emerging Qualities:

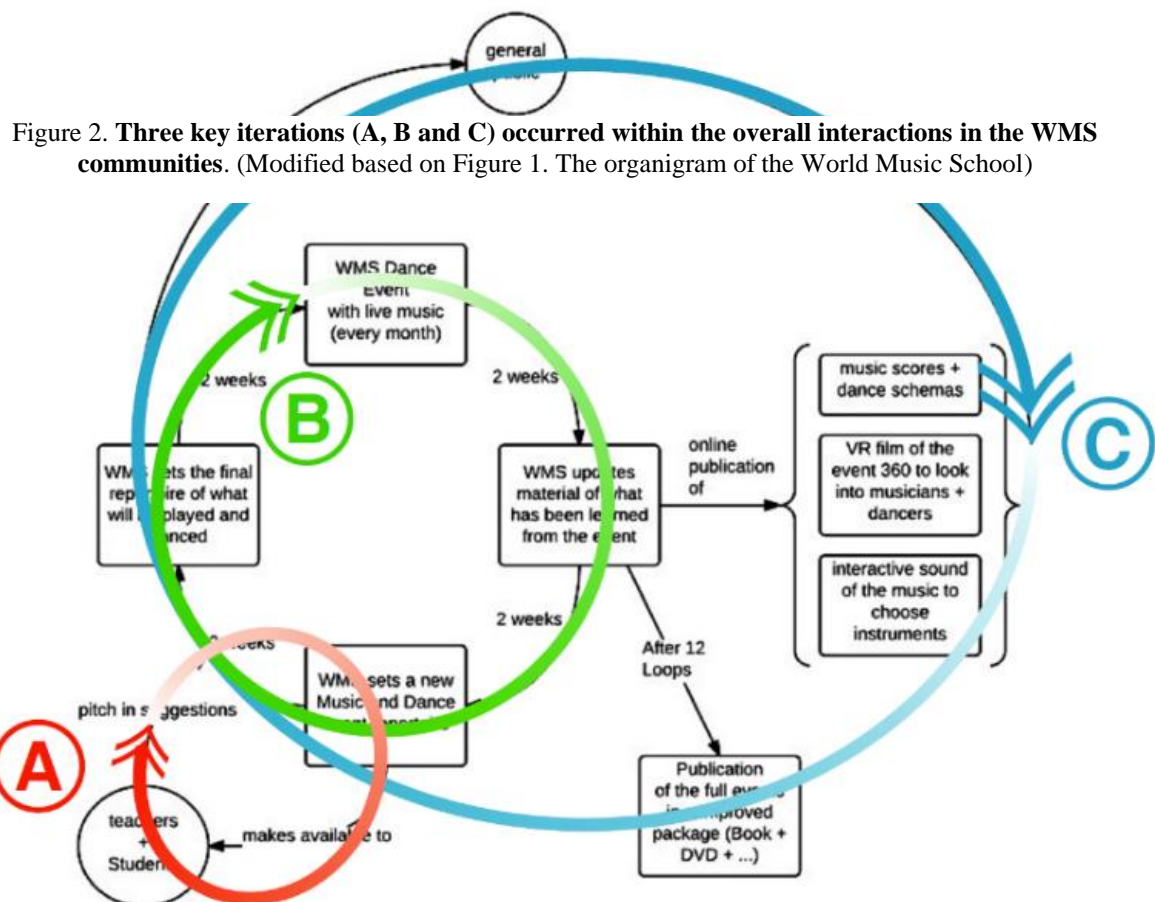- people–place connections;
- social networks;

Figure 2. **Three key iterations (A, B and C) occurred within the overall interactions in the WMS communities**. (Modified based on Figure 1. The organigram of the World Music School)

- empowerment;

Category 3: Longitudinal Impact:

- polycentric governance;
- a diverse and innovative economy;
- community infrastructure.

Initiatives: social engagement and connectivity

Values and beliefs; The choices of free will:

The WMS bares the purpose to *teach music as a mother language*, values and beliefs here represent individual absolute free will to choose: to participate because of something in the WMS he or she values, and to hold on to a commitment that one believes in, say, music for example. This aligns with the notion of fluidity driven by choice discussed previously. Such values and beliefs are considered as mutual happiness, trust and compassion to one another within the communities, echoing with the notion of the shared fate (Norris et al., 2008, 128) these cohesive forces explain why there is a community at all.

What sounds appealing to the participants here, is that their values and beliefs can be further enhanced not by any individual, but the sensation rendered by togetherness, which requires mutual and collective actions during interactions that work on both micro and marco scale. What is shared here is the time and space made possible by synchronicity, whether physical or virtual on all scales. The power of the individual artistic process enhances any community when their processes are shared. Communications and meaningful encounters (Manzini, 2019) are emerged then matured, a new community is then born.

Learning: from resilience to adaptability

To be a school is to teach, to share knowledge, and to produce new knowledge, suggesting that communities fostered by the WMS are preliminarily learning communities. Knowledge is initially preserved in tacit ways, different from that of codified (or explicit) knowledge, which exists independently of living things (Popper 1978, Nousala and Hall, 2008). Similarly, knowledge of music is not only explicitly stored, e.g. in musicology theories or music sheets, but more significantly in historical, cultural even emotional aspects embedded in a piece or a genre of music during its invention and performance. Such performance is the point of music and the WMS. This is the tacit end of music knowledge spectrum, which deserves special attention.

The WMS communities function as platforms that enable knowledge to interplay, whether tacit or explicit and regardless of its domain. Through the feedback loops which constantly happen during the iterations (as shown in Figure 2), the knowledge sharing and producing generate recursive cycling of knowledge claims between tacit personal knowledge in W2 (as referred to tacit knowledge.) into W3 (as referred to the explicit knowledge) for sharing and criticism and back into W2 for further testing via action and testing (Nousala and Hall, 2008, 2). Knowledge producing and sharing in the WMS communities are constantly happening.

Following the feedback loops, the knowledge are incrementally reinforced by bouncing back and forth among the agents (teachers and students as musicians), giving feedback that further amplify the resonance on one dynamic web of multidiscipline. (Notice that the knowledge exist in the WMS communities are not confined to music, as the school's name is literally understood. System level of interconnectedness leaves room for diverse elements that

unnecessarily has to fit to system imperatives. Introducing the knowledge of music here is for analytical purpose.)

Such dynamic ways of learning are important to community resilience regarding the notion of a system's adaptive capacity, that is, the capacity of actors in a system to influence resilience (Walker et al., 2004, 3) which often works through social networks and learning communities (Berkes and Ross, 2013, 15). As Armitage et al., (2011, 9) argued that community adaptive capacity to deal with change relies also on the ability to put together knowledge from different source to make a new synthesis, co-producing knowledge, therefore the WMS communities bare the potentials to not just "…combine different kinds of knowledge (Magis, 2010, 408), but can also go beyond resilience, reaching system level adaptability.

A positive outlook

The key for the WMS communities to stay in a healthy and positive outlook, is being diverse regarding the individual level and learning process. Such level of diversity fosters various hybrid learning communities.

The WMS as a fluid entity attracts participants from local, diaspora or peripheral levels, fostering dynamic communities in which participants are not fixed, thus keeping the WMS communities from gradually turning into closures, as in the form of tribalism, whose xenophobic structure means less flexibility, less resilience to endure disturbances. Similarly, as Walker and Salt argued that (2006b, 121) general resilience pays attention to diversity, referring to the variety in the number of species, people, and institutions that exist in a social-ecological system on both functional and responsive levels, the more variations available to respond to a shock, the greater the ability to absorb the shock. A lack of diversity limits options and reduces your capacity to respond to disturbances. Increasing efficiency (optimization) inevitably leads to a reduction in diversity

Moreover, folkdance is chosen for the dance event due to various concerns. With special attention on diaspora connectivity in their new place of residency and settlement, folkdance music is chosen for its frequent use of body language and decreasing the need for a common native language. As for the non-professionals, folkdance music is filled with easy-to-pick-up tunes through their repetitiveness and simple arrangements, and also both experts and beginners are mixed during practice (https://worldmusic.school/home/, accessed on June 25 2021). Regarding cultural aspects, two local community diaspora are merged during each dance event in order to diversify the cultural contents. With the focus on the social gathering instead of on the musicians, the dance events ease the tension from the leaning process. Therefore all participants are free from colloquial terms and can be fully engaged with the WMS activities.

Emerging qualities

People-place connections

The correspondence between people and place plays critical role for social network to emerge. Berkes and Ross (2013, 6) argued that "a resource-dependent or an indigenous community that affiliates culturally with a local environment that relies heavily on local resources can be treated as a socio-ecological system (Lu, 2010)". Lyon (2014) showed that the connections to a place have an increasing beneficial impact on the resilience of the individual, suggesting an obvious interdependence between the health of the people and the health of the land (Berkes

and Ross, 2013, 13). In a broader context, resilience is about ecosystems and people together as integrated social–ecological systems in which social systems and ecosystems are recognized as coupled, interdependent, and coevolving (Berkes and Folke 2000; Folke, 2006). Therefore the people-place relationship bound people with their close environment as a socio-ecological subsystem, generating resilience during systemic process.

Thanks to to the physicality, locality and fluidity of the WMS communities, participants from local, diaspora and even peripheral aeras, gathering and bringing their own knowledge, making connections to their close environment, nurturing resilience that intrinsically feed on such connections. As Berkes and Ross (2013, 13) argued that community resilience concepts can apply best to place-based communities (Maida, 2007). Note that the emerging communication technologies such as the virtual teaching applied during online WMS activities, brings to the need of semantic expansion regarding the term "place" including both physical and virtual aspects.

The awakening of people-place connections in the WMS communities also aligns with the core value of deep ecology, which considers all living beings as members of ecological communities, are bound together in networks of interdependencies (Capra and Luisi, 2014, 14). Grounded in ecocentric rather than anthropocentric (or mechanistic) values, deep ecology holds the epistemology based on spiritual experience that nature and the self are one (Capra and Luisi, 2014, 14), may sound particularly metaphysical, but it gains its full meaning when viewing even just the close environment around one community as a whole. In this way the socio-ecological system, where the WMS communities are based in, can be considered as subsystems of the overall unified one, otherwise these social entities might be only mechanically juxtaposed or even detached, deviating them from being systemic entities.

Social network

A collection of resilient individuals does not guarantee a resilient (Norris et al., 2008, 128). Therefore the integration of social and ecological system are critical when bring community resilience to a social network. Such networks have been evident based on observation of the WMS practices. Through initial engagement activated by the WMS activity 1 and 2, the subject of teaching gains its full importance as the creation of a higher level of connectivity, the term "*teach music as a mother* language (https://worldmusic.school/home/, accessed on June 25 2021)" starts to expose its implicit meaning. The teaching of music and dance split into two parts, one for the music students that perform with senior musicians for the dance events consolidating links while working together, and on the other side for the participants who are learning dance with the dance teachers discover new community members, creating links through mimesis and synchronicity. The experience shared, through sensory means enable a connection beyond simple words, that goes through physical contact, sharing the same space and going for the same rhythm as a level (Nousala et al., 2018). As Wenger (1997) express it, the events of the WMS communities fit to the notion of a joint enterprise. Since the dance is a shared activity, the connectivity is further improved (Hall et al., 2012; Nousala and Hall, 2008; Nousala et al., 2009), social networks are then emerged out of the WMS communities.

Though the participants are limited to an average number during each WMS activity, a socio-ecological system shall keep its function as long as certain threshold is reached in terms of size, this is because that the behavior of a social network depends not necessarily on size, but fundamentally on its elements and the way they are connected. Yet this does not downplay the power of scope and size regarding system that could nurture systemic diversity, one of the critical attributes of general resilience (as argued in section 3.2.3). Limited resources that act

as equilibria organically embedded in the WMS communities, can be further approached as representative models, or an eclectic mindset for small scale social networks that seek for systemic performances with limited (or more often, insufficient) resources.

Empowerment

The data collected shows that the underlying connectivity amongst these social networks have spread in different directions. Firstly, the students enrolled as musicians are themselves attracting their own friends and family that comes to see them performing; Secondly, people from the general public have been participating; Thirdly, depending on the different country selected for the events, diaspora members of the country selected are also attracted; Finally, the WMS's own connections and teams are also attracting more participants. Based on this observation, such spreading pattern can be approached as a system seeking for modularity, the manner in which the components that make up a system are linked, since highly connected systems means shocks tend to travel rapidly through the whole system Walker and Salt (2006b, 121). Modularity stems from the three pervasive attributes of general resilience, with the rest two being diversity and tightness of feedbacks. In this research, the better the networks are connected, the better its modularity is obtained, therefore the more resilient the WMS communities are going to be.

The trajectories of the WMS community attractors empowerment through longevity, this is also the social purpose of music. Informed by deep ecology (Capra and Luisi, 2014) such social purpose has always deeply rooted in the mindset of the WMS. In the context of social networks (as previously discussed), individuals and communities are empowered by being connected to the networks (Capra and Luisi, 2014). Music in this sense can empower people and facilitate connectedness. It has become evident that "…centers of power are those network hubs with the richest connections…are therefore sought out as authorities in various fields", such authority, as explained by Capra and Luisi (2014, 14), "allows these centers to empower people by connecting more of the network to itself." Since leadership emphasizes hierarchy, while empowerment addresses interconnected network, this is the reason why the analytical model (Berkes and Ross, 2013, 14) adopted in this research is modified: using the term "empowerment" instead of "leadership" as one of the defining characteristics of community resilience. The WMS communities empower the individuals predominantly through bottom-up approaches, which is different from the traditional music schools such as conservatories. By attracting more participants, these communities become more diverse and more resilient, and more likely they will enable system change.

Longitudinal impact on governance, economy and infrastructure

As consequence of these emerging qualities discussed in previous section, the WMS activities themselves become a series of connectivity enhancing event. Inter-connectivity has been responsible for strengthening participants' community networks over years. The impact of the WMS is in the form of a connectivity platform that fits the notion of Community Resilience underpinned by emergent phenomena at community level. It is indeed a motor for resilience since two third of the participants were diaspora, the remaining one third local. The end result being the creation of a "glocal" community of practice sharing their interest for dance. From a system's perspective the entity developed by the WMS is a highly resilient social adaptive system with various subsystems that increase the connectivity, anchoring its components within its close environment, then with impact reach to the overall socio-ecological system.

Through bottom-up approach, system change can happen when micro but fundamental changes are longitudinally obtained, by saying longitudinally means the accumulation of changes over time that pass system threshold. When the focal point shifts from the WMS communities as subsystems level to the overall socio-ecological systems level, there are emergences regarding aspects of economy, governance and community infrastructure due to longitudinal impacts of higher level system dynamics, where community resilience has a fundamental role to play. Further research can expand on these three aspects in more specific topics including polycentric governance, a diverse and innovative economy and community infrastructure.

CONCLUSION

This research identifies a synthesized model based on literatures (Berkes and Ross, 2013, 14), for the the analysis of various characteristics nurtured by the WMS communities that indicate resilience. These characteristics address the significance of agency and self-organizing (Berkes and Ross, 2013, 11), that activate community level resilience. To summarize, there are three key categories that have emerged from the research, they can be described as initiatives, emerging qualities, and longitudinal impact.

The first category, initiatives, including *values, knowledge and outlook* aspects, are predominantly shaped thanks to the social engagement and connectivity activated by the WMS communities. These initiatives laid the very foundation of the WMS communities as community of practice, defining the WMS communities as what they are. The second category, emerging qualities, including *connections, networks and empowerment*, enhances community resilience on strategic level to tackle the issue of disconnection. These qualities emerged out of rounds of iterations that occurred in the WMS communities, including the three key iterations introduced in Figure 1. Such emerging qualities influence the immediate socio-ecological environment around the WMS communities. The final category, being the *longitudinal impact*, including *governance, economy* and *community infrastructure*. It identifies influence on both WMS communities through socio-ecological subsystem within its overall system. Such impact is significantly empowered by the system dynamics within the WMS communities (including the emerging qualities previously discussed including values, knowledge, outlook, connections, networks and empowerment).

Community resilience acupunctural remedies for the acute weakness in community resilience towards shocks and disturbances, this is where the WMS communities reached its matured stage, function as incubators that nurture community resilience to its fullest being, thus triggering adaptability for system to remain in the threshold, or transformability that leads to system change.

In the context of recent extensive emigration across the world, and while facing the COVID-19 crisis, the topic of human connectivity is more than ever, a subject of importance. Restriction on movement, involuntary or otherwise has produced a range of outcomes that maybe significantly impact human well being for some time to come. Our study has aimed at exposing various elements of connectivity within systems and sub-systems that can be redeveloped and created under specific conditions. The development of connectivity enhancing structures such as the WMS Helsinki are interesting phenomena to pursue as a set of characteristics to increase the resilience of its close environment and subsequently society. Given the constraints on time scale, further observable phenomena over a longer period would yield more understanding of key point behaviors.

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