Society as The Human Ecology: Meeting and Navigating Challenges of the New World

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The idea of society as a human ecology was developed back in the 1920s by the Chicago School of Sociologists, which included Park, Burgess, Thomas, and Wirth. Traditionally, the concepts are grounded on four constructs: Population, Technology, Organization and Environment. In the current era, however, the distinctions between each construct are no longer as defined, given trends and rates of development of the current society. The paper expresses support for the notion that the current human society needs to function as a singularity to meet and navigate the everchanging environment, rather than individual distinctive constructs, drawing evidence from the Covid-19 saga that put the world on hold and true recovery from it is indeterminable. The paper will discuss and summarize some of the factors, from past to present, that made the world ‘smaller’ through their development. Perspectives, primarily human, cultural and political priorities, are discussed broadly, rather than in-depth, from structural standpoint due to the multitude of existing paradigms. Both the repercussions and advancements will be discussed critically in their relation to current developing issues. Suggestions will be made in consideration of a critical lens when examining issues in the current world, where boundaries are no longer as defined either in the cultural or political sense. The paper also suggests further research into the implications of the 'Digital Divide' and ‘Social Media’ with justification due to their development-leading predisposition.

Key words: Human ecology, sustainability, access, world economy, environment

Introduction

Early socialist thinkers had the advantage of living in a time when the complexity of society was significantly lower in the sense that their observations were grounded in very distinct social spheres which eventually emerged as theories or concepts that led future thinkers (Foster 2017; Burnes 2020; Deflem 2013). It is, however, imperative to note that no one explanation can address all issues and that even explanations must evolve with the development of issues to stay relevant (Chitty 2000; Bendix 2020; Cadenasso & Pickett 2012). Structural thinkers, such as Marx, Durkheim, Simmel and many others, understood early in their time the complex links of the different fabrics of the society they experienced and studied (Bendix 2020). With the ever-increasing knowledge through research, different schools of thought appeared with social sciences, as with formal and natural sciences (Porpora 1989). The progression of their work led to other understanding of structures in wider forms represented by the works of Lewin, Bronfenbrenner and the adaptation of Sociology as a discipline by the Chicago University.

Ecological concepts started with the study of plants and animals as an extended study with the underpinnings that 'human' is a more advanced category of animal (Rubenstein & Wrangham 2014). The understanding of the environment as a limiter was understood for more primal life-forms that do not have the capability to overcome or change, one of the main arguments that socio-perspective separates humans from primal lifeforms (Oishi & Graham 2010; Newman 2018; Costanza 2013). Human capabilities exponentially grew between the 1900s to 1980s, it was the capability to adapt and grow that eventually led human development to the line of reasoning where the environment became evident as a limiter (Vries 2013). The development of human society has reached a point where the constraints of the past, defined by population, technology, organization and environment, were no longer as distinct or restrictive. Sustainability, thus, highlights the need for decisions to be made with the future understood as the result of the decision made now (Braun 2015). When considering sustainability, there is a need to redraw the perimeters of considerations in an ecological sense to better contextualize the current situation for informed decision-making.

The paper traces the development of structural perspectives and factors that led to the development of ecological perspectives. The discussion follows with focus on proximal processes as highlighted by Bronfenbrenner before making suggestions for future research.

Early views and developments

One of the earliest contributors to a systemic view of society was Karl Marx. The contemporary view of society from his perspective positions the development of society around the primacy of production (Kimmel & Mahler 2007). His economical concept gave rise to the notion of the commodity being the central driving force, where materialism and capitalism lead the development of society (Foster 2017). From a structural viewpoint, the social structure is a construct by the forces of production which generates the visible effects and actions of which the society is constructed, with each element in the society embodying a part of the network which centres around the development of capitalism (Kimmel & Mahler 2007). Society, therefore, in a sense, exists as complex chains of relations between values and exchange values, subjective to the commodity that is in primacy (Law 2015). Each social class has its objective place in the structure of social positions which is naturally formed based on means, relations, modes and force of production (Bendix 2020; Husami 1980). There is an understanding of voluntary relation of exchange regardless of social classes simply to sustain the conditions of existence (Diamanti et al. 2021; Chitty 2000). Capital, according to Marx, is understood to be an automatic subject which is self-valorised failing, so that the capital will be redefined by another commodity deemed of value (Chitty 2000). Marx presents a contemporary structural concept of a society which has been greatly expanded by theorists and philosophers.

Durkheim's greatest contribution to a structural view of a society lies in his concept of the division of labour (Kimmel & Mahler 2007). He stressed the necessity of conformity and non-conformity for social order to exist (Bellah 2017). The conformity itself presents a paradox in the sense that the more individuated one becomes, the more dependent one is on society. The function of the society is highly important as it effectively holds the society together through its advantage of efficacy (Kimmel & Mahler 2007; Peacock 1981). Durkheim's view of society is of totality, that the society exists above and over the individual of whom it exercises immense power. The social structure is thus an assembly of mechanical and organic solidarity, which is supported by social integration and system integration respectively (Kimmel & Mahle 2007).

Another great contributor to the structuralist view was German sociologist George Simmel. Simmel's view of society was a constant dialectic interaction that creates a social form, which organizes people's lives (Kimmel & Mahler 2007; Arthur & Hall 2004). Simmel,

similar to Durkheim, views society as a totality through the concept of money as a structuring agent. Money became an agent which all exchange is valuated upon in the development of society, giving value to the otherwise hard to determine the value of labour (Bendix 2020). This economic exchange reconciled all pre-existing exchange systems into a single quantifiable metric of monetary cost (Arthur & Hall 2004). A similar understanding is drawn from Marx and Durkheim in the sense that the higher the dependency, the less important an individuality becomes (Kimmel & Mahler 2007; Law 2015; Bendix 2020). Simmel used the analogy of geometry to describe the sociology of relations where abstract social forms acquire their unity (Kimmel & Mahler 2007; Bendix 2020). Social relation, or dyad, forms a role structure within the social group which represents the objective culture of the group (Kimmel & Mahler 2007; Arthur & Hall 2004).

Ecological concepts in the study of developing society

There was a distinct shift in the understanding of society from the beginning of the 19th to the 20th century (Porpora 1989) with the influence of German formalism and American pragmatism. The University of Chicago established a department of sociology in the 1920s, the first of its discipline in the United States (Arthur & Hall 2004; Cadenasso & Pickett 2012). The significance of the establishment of the department was a testament to the acceptance of the body of knowledge, as well as the recognition of it as a credible field of scientific study and development. The application of ecological concepts to the social sciences was spurred by the need to understand the dynamics of this rapidly expanding and changing city going through the influx of immigrants. Park and Burgess recognized the importance of social and cultural influences, but with influence from Simmel's sociology of relations, also argued that non-social processes were also evident. Three ecological concepts of (1) competition, (2) niche partitioning, and (3) succession, which were mainly used in the study of ecology then, were applied to understand the drivers of the spatial differentiation of people in cities (Cadenasso & Pickett 2012).

Kurt Lewin created field theory in the 1930s – 1940s which he used as the explanation of regularities in individual action by recourse to position vis-à-vis others (Burnes 2020; Wheeler 2008). Explanations for events/developments are based on the position in the field which indicates the potential for a force exerted on an individual. What it presents is a formation of a social structure in the form of influences around an individual (Martin 2003). Lewinian Field Theory stressed that behaviour is a function of the person and

the environment. Sociometry was another concept that aided the understanding of social structure in the same period of the 1930s – 1940s (Gurvitch 1949). Moreno used the description of a social atom to describe the social configuration within a social community that encompasses social institutions, such as family and government, as well as the distribution of material resources and their organization (Smith & Fetner 2009). Moreno noted that *'Roles do not emerge from the self, but the self may emerge from the rol*e', that Roles express collective ideas and experiences, highlighting the need to study '*Human group as a totality*' (Gurvitch 1949, pg. 15).

Within the understanding of structural sociology where macro and micro distinctions are drawn, sociometry classifies in the micro-sociology sphere (Smith & Fetner 2009; Gurvitch 1949). Macro and micro boundaries were explored throughout different theories and perspectives but were not distinctively studied in specifics pre-1960s (Smith & Fetner 2009; Crozier 1972; Boatcă 2008). The 1950s to 1960s were noted to be at an impasse for sociology due to the lack of novel discoveries or notions. The resurgence of sociology from the 1960s onwards can be attributed to two main contrasting perspectives - socio and biological views of social development (Oishi & Graham 2010; Smith & Fetner 2009; Boatcă 2008; Newman 2018). An indispensable component of each is the consideration for the environmental aspect of development, albeit 'environment' is used with various degrees of coverage and definition (Rubenstein & Wrangham 2014; Vélez-Agosto et al. 2017; Tudge et al. 2009, 2016). The most distinctive ecological perspective to date was the one introduced by Urie Bronfenbrenner in the 1970s, which depicts nesting circles that place the individual in the centre surrounded by various systems (Kilanowski 2017). While not strictly demarcated within the socio-sphere at the beginning, many socio-perspectives draw from his concept of ecology. At the mature stage of the development in the late 1990s, however, Bronfenbrenner's theoretical perspective was more strictly defined as a bio-ecological model (Vélez-Agosto et al. 2017; Tudge et al. 2009, 2016).

Nexus of Human Ecology

At the turn of the 20th century, some human developments gained universal properties that must be taken into account akin to environmental effects. These special developments transcended geographic and political boundaries, leading to an unprecedented convergent development of the human society that is reorganized into *Access* and *Economy* for articulacy.

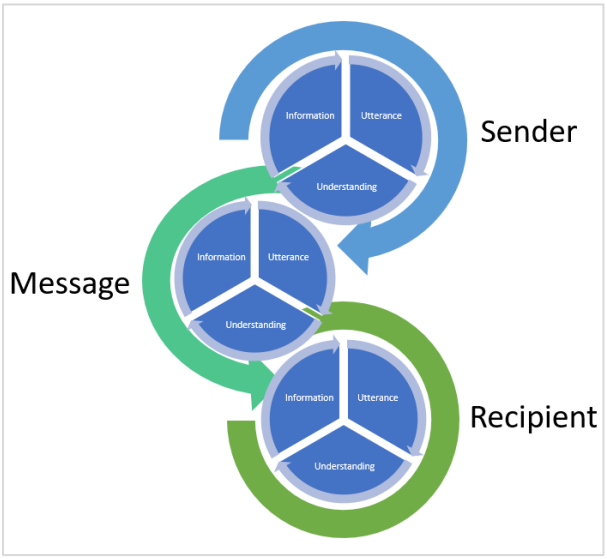
Access

'*Access*' refers to 'the method or possibility of getting near' or 'opportunity or ability to use it' (Cambridge 2022). Developments in the two specific areas of the internet and transport allowed human society to surpass the traditional boundaries that were in past eras unsurmountable.

The Internet

The Internet is a congregation containing all sorts of materials from the public to the very intimate (Newhagen & Rafaeli 2006). The congregation extends to the gathering of people as traffic and consumers of the available materials online. A study in 2006 revealed that nine in ten American teenagers were wired, and 89% of them used the Internet to send or read an email, with 75% sending or receiving instant messages (Newhagen & Rafaeli 2006). Studies conducted by Livingston et al in 2013 revealed that 59% of European (9 – 16) youths have a social media profile, while Spain and Commends Ipsofacto noted in 2014 that 70% of youths (14 – 17) were members of a social network (Ibáñez-Cubillas et al. 2017). Studies conducted in the U.S in 2016 revealed that nearly 69 % of U.S. adults use social media with Facebook being the most popular (Lin et al. 2017). If society is understood as a sum of relationships which are formed with the aid of communication, then, to communicate is to be human (Lee et al. 2010; Smith & Fetner 2009; Oishi & Graham 2010).

The new millennium brings about novel transformation in human communication due to the convergent development of digital technology (Wilkins & Mody 2001). The concept of communication lies in three distinct components of information, utterance, and understanding, which exist as a closed system that must not be interpreted as functions, acts, or horizons of validity claims (Luhmann 1992). No building blocks of communication can exist independently, it needs to be assembled by someone, creating another triad of elements represented by the sender, the message, and the recipient (Luhmann 1992).



The development of the *Internet* changed the dynamics of how the closed system works. The changing pattern of networks not only led to conjectures about the diminished relevance of distance for maintaining interpersonal ties, but it also changed the topology of communication (Mok & Wellman 2007; Newhagen & Rafaeli 2006). The traditional typology of communication represented by the sender, message, and recipient, no longer holds as distinct as in the past (Newhagen & Rafaeli 2006). In the current era, the recipient as the reader-audience holds more responsibility in controlling the information. Trends in communication research highlight that the importance of communication design of knowledge and information, embodies almost greater importance than the actual knowledge and information (Wilkins & Mody 2001; Newhagen & Rafaeli 2006; Triggs 2015). The bloom of social media created a communication environment where the *sender* does not need a specific *recipient* in mind when crafting messages, not necessarily that the *message* does not have specific designs for targeted *recipients,* but that it can be unspecified regardless of message and recipient (Stornaiuolo 2017; Ibáñez-Cubillas et al. 2017; Ragelienė & Grønhøj 2021; Lee et al. 2010). These messages take on the form of self-expression/persona/ego, which are presented on the openness of the Internet and need not follow traditional communication topology (Newhagen & Rafaeli 2006; Lee et al. 2010; Stornaiuolo 2017).

The Internet also creates another precedent in the storage, acquisition and dispersion of knowledge. Whether in Marx or Durkheim's ideas on the value and close-ness of knowledge (Foster 2017; Law 2015; Bendix 2020; Bellah 2017), or Mannheim and Stark's sociology of knowledge (Smith & Fetner 2009; Stark & McCarthy 2020), the association of knowledge to social and economic development is fundamental. The digitalization of

knowledge through the internet re-arranged the otherwise monopolised knowledge flow of the past by acting as the medium to store and disperse (Vuori et al. 2018; Capurro 2016; Knudsen 2020). What it created was an open environment for knowledge. The open access to knowledge changed the way society functions in the context of economic, educational, justice, and freedom, breaking the cycle of power relations highlighted by Marx and Durkheim (Stark & McCarthy 2020).

Transport

Another form of access that was transformed drastically was physical mobility. If the Internet can be understood as an intellectual network, transport would be the physical access network. From the 1500s, when the advancement of mobile transport began, to the early industrial revolution in the early 1800s, how transport networks went through a growth spur changed the way humans connect and function (Vries 2013, chapter 3). In 1914, it would take around 30 – 40 days to travel from the United Kingdom to Singapore when the only available transport was a ship (Dailymail.com 2015). The current travel time now averages around 13 hours from London to Singapore by air travel (Skyscanner 2022). In 2000, European LCCs transported 20.7 million passengers, by 2004 Ryanair and EasyJet alone transported 26.4 and 24.3 million passengers respectively (Dobruszkes 2017). What the access of travel created was a new dynamic of human cohesion that negates distance on a physical level as a tangible obstacle (UK Government 2019; United Nations Economic Commission for Europe 2022). Research carried out by Lee et al highlighted that face-to-face communication has higher predictability of quality of life than Internet connection (Lee et al. 2010). The availability of mobility increases people's opportunities in terms of living apart without severely impacting social cohesion and influenced how people live their lives, resulting in improved health and well-being despite being physically apart (Vries 2013).

What it meant was not just the social function of connection but also the access to otherwise inaccessible physical resources (UK Government 2019; United Nations Economic Commission for Europe 2022). Transport not only ensures the mobility of people but is also crucial to the production and distribution of goods. The strong link between air services and economic growth is well-documented (Fageda et al. 2018; Bannò & Redondi 2014). When understood as an agent of development, it allowed for the expansion of human settlement to otherwise unviable regions. Human settlement patterns shifted from the otherwise convergent human congregation in major cities to the expansion and even establishment of new cities

(Vries 2013). It generated new economic avenues as well as changed the ways businesses can function. Raj (2011) highlighted that technological development changed not only the informatics but also the transport of tangible goods, reducing its cost to make international transport viable, which led to business changes and restructuring of the global economy (Aggarwal 2011). The close entanglement of digital technology with socio-economic and societal aspects can no longer be separated into analogue or digital (Capurro 2016; Ayhan 2017).

Economy

The World System Theory by Immanuel Wallerstein, describe how the globalization of capitalism led to changing relations between countries due to the deep connections (Bergesen 1990; Avcioglu 2014). Studies in economics highlighted the shift in economic studies post 20th century where the concept of the New Economy becomes a focus of academics and economic bodies alike (Giddings et al. 2002; Gudeman 2012; Archibugi et al. 1999; Castells 2020; Darmstadter et al. 1971). An array of research highlighted that the main drivers of such convergence are the aspect of technology and energy. Technology development changed business functions and created new business opportunities that were unprecedented in the pre-20th century (Bauer et al. 2015; Archibugi et al. 1999). Energy consumption led to a convergence that redefined geographic regions and political relations in 1925 (Darmstadter et al. 1971). After WW2, significant tandem development was noted between energy usage to industrial life and economic activities, leading to statistical movements in the consumption, production, and trade of energy commodities by countries, regions, and the world as a whole (Darmstadter et al. 1971).

From a macro-sociological perspective, the World-system theory explains the dynamics of the world as one connected by a complex network of economic exchange relationships (Bergesen 1990; Avcioglu 2014). Wallerstein drew concepts from dependency theory and made stresses, through the analysis of geo-ecological regions, connections that are characterized by mechanisms that bring about a redistribution of resources (Avcioglu 2014).

From a social science perspective, economics presents itself as being anomaly simple because of the unstable agents that it functions on ,which are impossible to assert control over - monies or currency (Froot & Thaler 1990; Katusiime et al. 2015). Lorna et al (2015) revealed findings, from a developing country perspective, that a weak foreign exchange market directly affects market efficiency and trading; consistent with claims by

Kemal et al (1981) that it plays an absolute constrain on a country's growth (Dervis et al. 1981; Katusiime et al. 2015). The function of currency as a factor of measurement and development is often used because of its function as a fuel in the economy. The existence of a currency exchange function in the economic system allows businesses to cross international boundaries to effectively trade and navigate finance systems. International banking systems are often used for political leverage because of the dependency on valuation as a variable. The implication highlights the ever-increasingly connected world in which even a country's prosperity cannot be guaranteed without attribution to external factors. These functions broadened the connections of the economy to the extent of which discussion of a common currency internationally becomes a plausible reality (Jadresić 2002; Currency Markets 2002).

The increasing relevance of the ecology concept

Haeckel (1866) defined ecology as '*conditions of existence*' (Friederichs 1958, pg. 154), while Walter (1936) described it as *'the science of relations of organisms to their environment*' (Taylor 1936, pg. 334). The concepts of ecology revolve around 'organism', 'relations', and 'environment'. Although used initially in the study of animals (including humans) and plants, the use of its understanding broadened to include many different disciplines, creating its branch of scientific jargon and understanding.

Four Constructs

The Chicago School as one of the earliest predecessors, acknowledging 'Sociology' as a formal discipline, drew upon ecology concepts as its core assumptions for much of the research they conducted then. Four distinct constructs of population, technology, organization and environment were noted as ecological constructs which in the current era develop idiosyncratically, rather than separately. Physical access in forms of transport enables humans to overcome the distance that was the limiting factor in the past base on geography. Population demography shows signs of migration and diffusion of racial differences. Although there are signs of an increasing economic divide, beyond it, one would see a parallel in the development of the general population including life expectancy and general development indexes which demonstrated signs of convergence since the 1980s (Roser et al. 2013).

Technology reduces the amount of human effort or involvement with the core assumption that there is infinite substitutability— its ability to enhance or replace ecosystem

services that are otherwise dependent on natural systems (Cabezas et al. 2005). Often noted to be one of the prime drivers of economic, human and social developments, it also creates a circular chain to sustain itself in terms of resource and energy consumption, leading to many calls for sustainability considerations in the midst of its advancement (Cabezas et al. 2005). What it provides for in social context are employment (paradoxical in the sense that it may replace physical employment, yet create employment opportunities in the industry that it creates), education, transport and information processing to name a few.

The UNEP, established in 1972 (Dalmer 2022) by the United Nations as a collaborative effort to look into sustainable development as a goal from the aftermath of World War Two (Ordonez-Ponce & Khare 2020; Sharkey et al. 2020; Elvira 2014) highlighted the economic and military sphere of developments as the primary contributors to the tipping scale of environmental sustainability of which the technical, political, and institutional constructs are enmeshed (Giddings et al. 2002; Dalmer 2022). Traditionally, the separation of environment, society and economy as distinct developmental conditions and considerations led to a narrow techno-scientific approach that is increasingly irrelevant in the increasingly connected world represented by the environment that human existence and society are dependent upon (Giddings et al. 2002). Outlook of Mobius emphasized the biotic community that is a '*sum of species and individuals, being mutually selected and limited….by means of transmission, continues in possession of a certain definite territory*' (Taylor 1936, pg. 335). The ideation of a 'natural' environment is a debatable notion in the context of the present-day world where the built environment can be understood as a complex social-ecological system, where multiple-related metabolisms interact at different scales (Moffatt & Kohler 2008). Such is the level of impact that industries and organizations can determine the economics of a country (See China, United States, India) and consequently, its environmental policies.

Converging Perspectives

Early developments are not wrong but are bounded by presenting facts that are observable at their time, rather than trends that are unforeseen at their timeframe (Braun 2015). The current stage of development in terms of human societies brings about development to a convergence in terms of what is needed for development, rather than what is development. Bronfenbrenner's conception of the ecology of human development understands human development as a set of nested structures that is an evolving theoretical

system for the scientific study of human development over time (Rosa & Tudge 2013). His bioecological view reflects Lewin's influence which sees the individual at the centre of human development with proximal processes and the environment as the two primary driving forces. The emphasis on proximal processes and their mechanics indicates the importance of understanding relational patterns between external mechanisms that will lead to the development of the individual.

In Latour's work of *An Inquiry into Modes of Existence,* he claims that *'Time does not flow from the present to the future…..but as if time flows from what is coming'* (Braun 2015; Foster 2014), which introduces a different perspective, albeit rhetorical in understanding, that the future dictates the actions required now. *Futures: Imagining Socioecological Transformation* highlighted that the separation of nature and humans is no longer tenable in the retrospect that human processes affect earthly processes to a large degree (Braun 2015). Such is increasingly evident from events that led to ripples on a global scale, such as the Covid-19 pandemic.

What did we learn from Covid-19?

The Covid-19 pandemic is a testament to how connected the world is on a scale that exceeds political, geographic, technological and economic divides. Marked impacts across all fabrics of society are felt from economics, environment, and education to general globalization effects (Mofijur et al. 2021; Pokhrel & Chhetri 2021; Siche 2020; Asanidze 2020; He & Harris, 2020; Bloom et al. 2021). Covid-19 demonstrated the level of connectedness of the human population by the speed at which it spread across the globe within the span of two months; unprecedented to diseases of the past such as the Black Death (the 1300s) or SARS (2002 - 2003). The pandemic put the entire world at a stand-still with most encountering negative growth for the first time since the great depression in the 1930s with one exception - the environment (Mofijur et al. 2021). From an inductive perspective, it demonstrated how interwoven the world has become; how a medical pandemic affected the entire world's economy; and how the natural environment recovered remarkably during the timeframe that the global lockdown was in place across the globe (Muhammad et al. 2020; Berman & Ebisu 2020; Yashvardhini et al. 2021).

Discussion - Future and Sustainability

From *Futures: Imagining Socioecological Transformation* we gained a perspective of an ever-connected world that will simply increase in connectivity as time progresses. Knowledge gained without purpose is in itself a collapsing notion, the only proponent of knowledge-seeking is that decisions can be made from an informed position. The evidence that leads to the considerations of society as a collective construct, rather than individual constructs, cannot be disregarded. The dogma of 'Citizens of the World' appeared as early as 2000 as an initiation of such an impetus, highlighting the acknowledgement and increasing awareness that humans are all connected in one way or another.

Considerations for future and sustainability

Developments in social and economic aspects transcended the boundary of the individuality of nationality as an identity. When faced with the sustainability question then, would it not make sense to consider the human society as a single ecology given how interlinked the society functions? Evidence put forth by the issues faced currently highlights the ever-swelling need for us to consider humanity as a totality in consideration of sustainability, given how neither can be effective and sustainably develop without consideration of the other. Bronfenbrenner's proximal processes are an important consideration as "Engines of Development" in making informed-decision of research on sustainability (Rosa & Tudge 2013). Informed decisions must be made at a scale that involves all entities, rather than as individual silos on the world stage.

In today's increasingly connected world, the emerging markets are more volatile with greater demands on flexibility in resource deployment, organizational architecture also evolves in ways to reflect and cope with those demands (Bauer et al. 2015). Mitchell (2008) highlighted the need for an economist to rethink the economy through what defines the economy and the relationship between economics. He noted that the 20th century brings about, for the first time, new ways of administering otherwise separated dimensions of economies that resulted in an initiation of a free-standing economy (Gudeman 2012). Such was the connection between different economies that there can no longer be claims that any economy can function independently. Businesses evolved and scaled incredibly to the level of influence and function greater than even some smaller nations. Walmart (CompaniesMarketCap 2022) alone employs a greater number of employees than the population of Latvia (Woods et al. 2020). The net worth of Amazon alone is more than 10 times the GDP of New Zealand in 2021 (PopulationU 2022). The scale of businesses and

their interconnectivity created entities that are similar to pseudo nations that are often involved in political conflicts or legal considerations. Policies of environmental laws must take into account economic scales rather than country-specific productions. While the movement toward ESG on the economic front brings about a positive response, more needs to be done within-industry clusters to involve cross-country commitments.

Ecology highlights the need to define the notion of space as the limiting perimeter to identify the context. Both Bronfenbrenner's approach and Latour's understanding highlighted the need to take into account the environment, both natural and man-made, as contextual. From the population point of view, the mobility of the populous across the globe no longer divides human society in such a defined manner as in the past. A citizen of the UK can vote for the country even if he/she is on the other half of the globe through the capability of technology. The importance of a sustainable environment as a focus of research and development becomes imperative, now more than ever, with the advance technological juncture of current society. Developments in technology is prompted by the purpose of which to overcome or reduce that was unachievable (Foster 2014; Stark and McCarthy 2020), as such is propelled by constraints encountered upon reaching environmental or organizational limits. Organizational growth and development are in turn limited by the populous in form of governance and economics. The environment, in simple form of hierarchy, presents in itself a construct that no other factor can transcend as Earth itself would not be able to sustain life; a meagre rise in sea levels by 1 metre would change the map of the world in more ways than one (Hauer et al. 2016). Any development that seeks to operate outside of the consideration of environmental factors simply amounts to naive irrationality, which may led to repercussions on an irreparable scale.

Suggestions for Future Research

The paper would like to note several points in conclusion that requires further research to provide informed decision-making on sustainability.

Digital Divide

The digital divide is a complex global social phenomenon that creates a divide in perceptions of global issues such as climate change and the digital economy. While often noted as a political tool, subjective understandings between the western and eastern perspectives, however, create a divide of knowledge that contextually has no place in real-

world distinction. Such a divide creates more conflicts compared to solving them, thus presenting a barrier to the development of sustainability. Knowledge accumulation and dispersion should be objective and secular without any political agenda. In recent years, the digital divide also became relevant for high-level discussions at the global level due to its involvement in education (Rioux & Pinto 2010; UNICEF 2012). More research needs to be conducted to fully understand its implications, and if its existence may possibly lead to harmful developments.

Social Media

Social media platform developments create an entirely different concept of communication that beckons more research. When communication is understood as the basis which society's functionality revolves around, the development of social media as new media and its effect in redefining communication is significant for consideration of social and cultural movements. The providence of social media created a landscape of human relations that outstripped the physical boundary determined by politics (countries or regions). The capability, pervasiveness and scale of such embodiment of the human conscious beckons more research.

References

Aggarwal R (2011) Developing a global mindset: Integrating demographics, sustainability, technology, and Globalization. Journal of Teaching in International Business 22(1): 51–69.

Archibugi D, Howells J and Michie J (1999) Innovation Systems and policy in a global economy. Innovation Policy in a Global Economy: 1–16.

Arthur MB and Hall DT (2004) Handbook of career theory. Cambridge: Cambridge Univ. Press.

ASANIDZE NIKA (2020) The negative impact of COVID-19 on economics (on the example of Georgia). Globalization and Business: 210–217.

AVCIOĞLU Ş (2014) Immanuel Wallerstein'in Dünya SİSTEMİ, Jeopolitik ve Jeokültür Kurami / Immanuel Wallerstein's world-system, geopolitics and geocultural theory. Selçuk Üniversitesi Edebiyat Fakültesi Dergisi (31): 97.

Ayhan Bünyamin (2017) Digitalization and Society. Frankfurt am Main: PL, Academic Research.

Bannò M and Redondi R (2014) Air Connectivity and Foreign Direct Investments: Economic effects of the introduction of New Routes. European Transport Research Review 6(4): 355–363.

Bauer W, Hämmerle M, Schlund S, et al. (2015) Transforming to a hyper-connected society and economy – towards an "industry 4.0." Procedia Manufacturing 3: 417–424.

Bellah RN (2017) Durkheim and history. Emile Durkheim: 3–26.

Bendix R (2020) Inequality and social structure: A comparison of Marx and weber. Embattled Reason: 143–163.

Bergesen A (1990) Turning world-system theory on its head. Theory, Culture & Society 7(2-3): 67–81.

Berman JD and Ebisu K (2020) Changes in U.S. air pollution during the COVID-19 pandemic. Science of The Total Environment 739: 139864.

Bloom N, Bunn P, Mizen P, et al. (2021) The impact of covid-19 on productivity. Cambridge, MA: National Bureau of Economic Research.

Boatcă M (2008) Macrosociology. The Blackwell Encyclopedia of Sociology.

Braun B (2015) Futures: Imagining socioecological transformation—an introduction. Annals of the Association of American Geographers 105(2): 239–243.

Burnes B (2020) Lewin, Kurt (1890–1947): The practical theorist. The Palgrave Handbook of Organizational Change Thinkers: 1–15.

Cabezas H, Pawlowski CW, Mayer AL, et al. (2005) Simulated experiments with complex sustainable systems: Ecology and technology. Resources, Conservation and Recycling 44(3): 279–291.

Cadenasso ML and Pickett ST (2012) Three tides: The development and state of the art of urban ecological science. Future City: 29–46.

Cambridge (2022) Access. Cambridge Dictionary. Available from: https://dictionary.cambridge.org/dictionary/english/access (accessed 14 April 2022).

Capurro R (2016) Digitization as an ethical challenge. AI & SOCIETY 32(2): 277–283.

Castells M (2020) The information city, the New Economy, and the Network Society. The Information Society Reader: 150–164.

Chitty A (2000) Recognition and social relations of production. The Hegel-Marx Connection: 167–197.

CompaniesMarketCap (2022) Companies ranked by number of employees. CompaniesMarketCap.com - companies ranked by market capitalization. Available from: https://companiesmarketcap.com/largest-companies-by-number-of-employees/ (accessed 28 April 2022).

Costanza R (2013) A theory of socio-ecological system change. Journal of Bioeconomics 16(1): 39–44.

Crozier M (1972) The relationship between micro and macrosociology. Human Relations 25(3): 239–251.

Currency Markets (2002) Global Money and Currency Markets. The World Economy.

Dailymail.com CMF (2015) Map shows how many days it took to travel abroad in the 1900s. Daily Mail Online, Associated Newspapers. Available from: https://www.dailymail.co.uk/sciencetech/article-3339902/What-travel-looked-like-100-years-ago-Map-shows-DAYS-took-travel-abroad-1900s.html (accessed 28 April 2022).

Dalmer N (2022) UNEP and the evolution of environmental concerns: An open system perspective. Building Environmental Peace: 129–167.

DARMSTADTER J, POLACH JG and TEITELBAUM PD (1971) Energy in the world economy. BALTIMORE: THE JOHNS HOPKINS PRESS.

Deflem M (2013) The structural transformation of sociology. Society 50(2): 156–166.

Dervis K, de Melo J and Robinson S (1981) A general equilibrium analysis of foreign exchange shortages in a developing economy. The Economic Journal 91(364): 891.

Diamanti J, Pendakis A and Szeman I (2021) The bloomsbury companion to Marx. London: Bloomsbury Academic.

Dobruszkes F (2017) An analysis of European low-cost airlines and their networks *. Low Cost Carriers: 225–240.

Elvira P (2014) United Nations Environment Programme (UNEP). Max Planck Encyclopedia of Public International Law.

Fageda X, Suárez-Alemán A, Serebrisky T, et al. (2018) Air Connectivity in remote regions: A comprehensive review of existing transport policies worldwide. Journal of Air Transport Management 66: 65–75.

Foster J (2014) An inquiry into modes of existence: An anthropology of the Moderns. Science & Technology Studies 27(1): 109–112.

Foster JB (2017) Marx's ecology in historical perspective. Karl Marx: 609–621.

Friederichs K (1958) A definition of ecology and some thoughts about basic concepts. Ecology 39(1): 154.

Froot KA and Thaler RH (1990) Anomalies: Foreign exchange. Journal of Economic Perspectives 4(3): 179–192.

Giddings B, Hopwood B and O'Brien G (2002) Environment, economy and Society: Fitting Them together into sustainable development. Sustainable Development 10(4): 187–196.

Gudeman SF (2012) Rethinking economy. Anthropology and Economy: 168–192.

Gurvitch G (1949) Microsociology and sociometry. Sociometry 12(1/3): 1.

Hauer ME, Evans JM and Mishra DR (2016) Millions projected to be at risk from sea-level rise in the continental United states. Nature Climate Change 6(7): 691–695.

He H and Harris L (2020) The impact of covid-19 pandemic on Corporate Social Responsibility and marketing philosophy. Journal of Business Research 116: 176–182.

Husami ZI (1980) Marx on distributive justice. Marx, Justice and History: 42–79.

Ibáñez-Cubillas P, Díaz-Martín C and Pérez-Torregrosa AB (2017) Social networks and childhood. New Agents of Socialization. Procedia - Social and Behavioral Sciences 237: 64–69.

Impact of covid-19 on socio-economic environment (2022) COVID-19 in the Environment: 151–152.

Jadresić Esteban (2002) Chapter 1. In: On a common currency for the GCC countries, essay, Washington, DC: Internat. Monetary Fund, pp. 6–8.

Katusiime L, Shamsuddin A and Agbola FW (2015) Foreign exchange market efficiency and profitability of trading rules: Evidence from a developing country. International Review of Economics & Finance 35: 315–332.

Kilanowski JF (2017) Breadth of the socio-ecological model. Journal of Agromedicine.

Kimmel MS and Mahler M (2007) Classical social theory. Oxford University Press.

Knudsen D-R (2020) Elusive boundaries, power relations, and knowledge production: A systematic review of the literature on digitalization in accounting. International Journal of Accounting Information Systems 36: 100441.

Law A (2015) Social theory for today: Making sense of social worlds. London: SAGE.

Lee PS, Leung L, Lo V, et al. (2010) Internet communication versus face-to-face interaction in quality of life. Social Indicators Research 100(3): 375–389.

Lin J-S, Lee Y-I, Jin Y, et al. (2017) Personality traits, motivations, and emotional consequences of social media usage. Cyberpsychology, Behavior, and Social Networking 20(10): 615–623.

Luhmann N (1992) What is communication? Communication Theory 2(3): 251–259.

Martin JL (2003) What is field theory? American Journal of Sociology 109(1): 1–49.

Moffatt S and Kohler N (2008) Conceptualizing the built environment as a social–ecological system. Building Research & Information 36(3): 248–268.

Mok D and Wellman B (2007) Did distance matter before the internet? Social Networks 29(3): 430–461.

Muhammad S, Long X and Salman M (2020) Covid-19 pandemic and environmental pollution: A blessing in disguise? Science of The Total Environment 728: 138820.

Newhagen JE and Rafaeli S (2006) Why communication researchers should study the internet: A dialogue. Journal of Computer-Mediated Communication 1(4).

Newman S (2018) Vygotsky, Wittgenstein, and sociocultural theory. Journal for the Theory of Social Behaviour 48(3): 350–368.

Oishi S and Graham J (2010) Social Ecology. Perspectives on Psychological Science 5(4): 356–377.

Ordonez-Ponce E and Khare A (2020) GRI 300 as a measurement tool for the United Nations Sustainable Development Goals: Assessing the impact of car makers on Sustainability. Journal of Environmental Planning and Management 64(1): 47–75.

Peacock JL (1981) Durkheim and the Social Anthropology of Culture. Social Forces 59(4): 996.

Pokhrel S and Chhetri R (2021) A literature review on impact of COVID-19 pandemic on teaching and learning. Higher Education for the Future 8(1): 133–141.

PopulationU (2022) Countries by GDP. World Population. Available from: https://www.populationu.com/gen/countries-by-gdp#rank (accessed 28 April 2022).

Porpora DV (1989) Four concepts of Social Structure Douglas V. Porpora. Journal for the Theory of Social Behaviour 19(2): 195–211.

Ragelienė T and Grønhøj A (2021) The role of peers, siblings and social media for children's healthy eating socialization: A mixed methods study. Food Quality and Preference 93: 104255.

Rioux MH and Pinto PC (2010) A time for the universal right to education: Back to basics. British Journal of Sociology of Education 31(5): 621–642.

Rosa EM and Tudge J (2013) Urie Bronfenbrenner's theory of human development: Its evolution from ecology to bioecology. Journal of Family Theory & Review 5(4): 243–258.

Roser M, Ortiz-Ospina E and Ritchie H (2013) Life expectancy. Our World in Data. Available from: https://ourworldindata.org/life-expectancy (accessed 28 April 2022).

Rubenstein DI and Wrangham RW (2014) Ecological aspects of social evolution: Birds and mammals. Princeton, NJ: Princeton University Press.

Sharkey M, Harrad S, Abou-Elwafa Abdallah M, et al. (2020) Phasing-out of legacy brominated flame retardants: The UNEP Stockholm Convention and Other Legislative Action Worldwide. Environment International 144: 106041.

Siche R (2020) What is the impact of covid-19 disease on agriculture? Scientia Agropecuaria 11(1): 3–6.

Smith J and Fetner T (2009) Structural approaches in the sociology of Social Movements. Handbooks of Sociology and Social Research: 13–57.

Stark W and McCarthy ED (2020) The sociology of knowledge.

Stornaiuolo A (2017) Contexts of digital socialization: Studying adolescents' interactions on social network sites. Human Development 60(5): 233–238.

Taylor WP (1936) What is ecology and what good is it? Ecology 17(3): 333–346.

Triggs T (2015) Research notes: Communication design. Communication Design 3(2): 103–105.

Tudge JR, Mokrova I, Hatfield BE, et al. (2009) Uses and misuses of Bronfenbrenner's bioecological theory of human development. Journal of Family Theory & Review 1(4): 198–210.

Tudge JR, Payir A, Merçon-Vargas E, et al. (2016) Still misused after all these years? A reevaluation of the uses of Bronfenbrenner's bioecological theory of human development. Journal of Family Theory & Review 8(4): 427–445.

UK Government (2019) UK—the Transport Catapult: A case of government-initiated, company-level innovation. The Accelerating Transport Innovation Revolution: 279–283.

UNICEF (2012) Chapter 3: Implementing Sustainable Development in higher education. Contributions to the UN Decade of Education for Sustainable Development.

United Nations Economic Commission for Europe (2022) Transport Infrastructure Development. UNECE. Available from: https://unece.org/transport-infrastructure-development (accessed 28 April 2022).

Vélez-Agosto NM, Soto-Crespo JG, Vizcarrondo-Oppenheimer M, et al. (2017) Bronfenbrenner's bioecological theory revision: Moving culture from the macro into the Micro. Perspectives on Psychological Science 12(5): 900–910.

Vries JD (2013) European urbanization, 1500-1800. Hoboken: Taylor and Francis.

Vuori V, Helander N and Okkonen J (2018) Digitalization in knowledge work: The dream of enhanced performance. Cognition, Technology & Work 21(2): 237–252.

Wheeler L (2008) Kurt Lewin. Social and Personality Psychology Compass 2(4): 1638–1650.

Wilkins KG and Mody B (2001) Reshaping development communication: Developing communication and communicating development. Communication Theory 11(4): 385–396.

Woods R, Goldman J, Judd H, et al. (2020) The least populated countries in the world, ranked - roughmaps: Where real adventure lives. RoughMaps. Available from: https://www.roughmaps.com/destinations/the-least-populated-countries-in-the-world-ranked/ (accessed 28 April 2022).

Yashvardhini N, Kumar A, Gaurav M, et al. (2021) Positive impact of covid-19 induced lockdown on the environment of India's National Capital, Delhi. Spatial Information Research 30(2): 249–259.