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RESEARCH ARTICLE

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The emergence of innovations through the encounter of knowledges in "the local". How *fresh action* emerges in networks

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Abstract

In the contribution, first the concept of development and its interrelations with education is critically discussed. This leads to reflexions on the dysfunctionality of these educational concepts in certain so called non-western contexts in the majority world (also called global south). Instead of following the concept of development, the conditions, under which *creativity* and *innovations* can emerge in local contexts, are discussed from a network theory or relational perspective. As a basis, the emergence of knowledge in general is explained shortly, including also in line with the interest of the special issue in locality thoughts on indigenous knowledge. This approach is bringing together thoughts on localities, networks, and the emergence of knowledge with perspectives on conditions of possibilities for the emergence of innovations and creativity. I am using tools from the network theory to describe and analyse these relations and processes in detail. For the analysis, I will use an example from a Nigerian classroom.

INTRODUCTION

With my approach, I would like to contribute to a substantial perspective on the impact of regions on local networks and, accordingly, local knowledge productions. I therefore use an

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approach that focuses on the production of knowledge in the making and concentrate on encounters of diverse knowledges, as such encounters are seen as highly promising for innovations and creative processes. Knowledge-based theories of regional economies assume that important local knowledge emerges through daily practices, e.g., when specialized languages, frameworks, conventions and codes of communication are developed. This perspective emphasizes the role of locality in the emergence of regional economies. The special issue queries the impact of skills and training on local development. But for many good reasons, the idea of development has been under pressure for several years. The term elicits many critical questions: Who is so called developed, and who is not? Who can measure this and with what kind of measurement? What does development mean—the greatest possible exploitation of all natural resources without any regard to pollution and with the only goal to get as much money as possible out of a business? Or a gross domestic product of human beings' happiness as in Bhutan?[1] One of the many problems with the concept of development is that the classical concept[2] allows for only one desirable future to which every country in the world should aspire and only one possibility of development. This future is more or less a copy of the Euro-North-American economy and lifestyle worldwide. For educational science, this idea or ideology had tremendous consequences, as this "idea of a *singular future* for all is based on assumptions of wealth through economic growth and the belief in white-collar employments of a specific way. Coupled with these expectations is a specific concept of education that should serve these goals" (Clemens & Biswas, 2019, p. 242). The logic is quite simple: if there is only one future that everyone should strive for based on a certain economic model that requires certain (educational) graduates, then everyone worldwide should strive for that education.

But in different contexts with diverse economic conditions and life circumstances (to avoid the term culture here), there are not as many of these specific white-collar jobs available as the education system produces graduates. The dysfunctionality of this production of educational degrees as copies of the North-American-European context becomes visible, e.g., through the phenomenon of waiting or waithood. If a graduate cannot fulfil his or her desire for such employment, he or she decides to wait for an opportunity to come along and does not reorients or looks for alternative paths (e.g., for India: Jeffery, 2010, or Bhutan: Roder, 2017), often with the result that he or she becomes older but still cannot earn a living. Waithood indicates this state in between, after finishing education but still no employment, maybe never. For this reason, some speak of a *cruel optimism* with regard to global education and the inflation of formal educational degrees (Berlant, 2011). People believe that they can achieve a safe future for themselves or their children through education and invest in it as much as possible. However, after finishing education they learn that the degree will not help them to get a good job, especially if they have a socioeconomic weak background. The "education-economic-growth black-box" (Resnik, 2006), the mere notion that masses of formal educational degrees increase economic growth for the good of all does not work. Most of the world of work in contexts such as India (Pilz, 2016) for example, with its informal, rural, subsistence-economy driven sector, is invisible from this perspective of development and the role education should play therein (for a detailed discussion see Clemens & Biswas, 2019). This perspective devaluates practices and knowledge resources of the majority world population (Dasen & Akkari, 2008).[3] For these reasons, I want to discuss the conditions, under which *creativity* and *innovations* can emerge in local contexts from a network theory or relational perspective, rather than speaking or thinking in terms of development.

CREATIVITY AND INNOVATIONS AND THE IMPACT OF REGIONS ON THE EMERGENCE OF KNOWLEDGE

With this point of view, I would like to contribute to a substantial perspective on the impact of regions on local networks and, accordingly, local knowledge productions. I therefore use an approach that focuses on the production of knowledge in the making and concentrate on encounters of diverse knowledges, as such encounters are seen as highly promising for innovations and creative processes. So, I am interested in the conditions of probability for the emergence of innovations. I see this as a promising, more open description of changes than the problematic label of development. For a heuristic, but of course the necessarily highly simplistic definition of knowledge, I take it to mean aggregate meaning or forms of meaning (including incorporated meaning) that emerged and were always structurally coupled with a certain social context, and which survived the selection process of social evolution within that specific context (Luhmann, 1998). These thoughts are based on the assumption of systems theory that only those forms of meaning survive the process of social evolution, which sooner or later show connectivity within the context, in which they emerge newly. A huge variety of meaning or ideas can always emerge, but only some show connectivity to the given social context. Showing connectivity here means, that these forms of meaning or ideas somehow make sense for those who communicate them (that includes showing, e.g., by practicing) so that they will use them again.[4] Meaning, ideas, concepts or knowledges are culturally and historically contingent, and structurally coupled with the social structures in which they emerge (Luhmann, 1998). This, of course, applies to scientific knowledge as well; also scientific knowledge is in a sense "indigenous knowledge" since it originates in and relates to a specific context (see detailed Clemens, 2009). I define knowledge as meaning patterns that are systematically collected and assembled in a certain context to a more aggregated form to explain, explore, observe, and treat (also in practices) the world. This characterization of knowledge does not include a postulation of truth, rationality, or logic (Clemens, 2021). Also, Luhmann (1998) states that what makes meaning successful in social evolution is connectivity to the social structures, not truth or logic. Additionally, I stress in accordance with the relational approach that building knowledge is a generic procedure and a social, and interactive process (Lawson & Lorenz, 1999). As Glückler et al. (2017) state, a theoretical perspective on knowledge has to focus on *relationality in social action*. Accordingly to this emphasis on relationality, I will use network theory (White, 2008) or, more broaden, the relational approach formulated by Emirbayer (1997) and many others to explore and analyse the process of the emergence of new knowledge and *new action* (White, 2008) as a possible context for creativity and pre-condition for the emergence of innovations as a possibility for improvements. The relational approach (under which network theory can be subsumed) is extremely promising for such analyses as I will show below.

I want to start from the idea that creativity and innovations are crucial to improving living conditions, handling resources etc., independently if one talks about industrialized, highly technical dependent or agro-pastoral contexts (or so-called developed or developing contexts). Accordingly, my thoughts are not restricted to any specific context, and differentiations, if used, will be explained with regard to specificities and potential characteristics of social networks or relational structures in a certain local context. Creativity and innovations are important fields of investigation in network research, and locality or regional analyses are significant parts of this research. This is the reason for choosing the relational approach. Focusing on local circumstances and processes, network research shows that e.g., the long-term success of regional economies depends on both localized and globalized social learning processes of individuals as much as

organizations, when economic stakeholders learn from each other (Li, 2017). The fact of non-interactive learning in certain regions (Glückler, 2013), for example, highlights the great relevance of locality for understanding knowledge production. Non-interactive learning here means imitating local economic stakeholders without contacts like a cooperation and the related consequences. Imitating here does not always mean simply copying external knowledge but can be a much more complicated learning process. It can also lead to the emergence of new knowledge, as Alchian shows: "While there certainly are those who consciously innovate, there are those who, in their imperfect attempts to imitate others, unconsciously innovate by unwittingly acquiring some unexpected or unsought unique attributes which under the prevailing circumstances prove partly responsible for the success." (Alchian, 1950, p. 218). And as Glückler's examples (2013) stress, one sometimes can only explain such learning processes fully by taking into account the locality of the stakeholders involved, their colocation and the dependent network they form.

In general, knowledge-based theories of such regional economies assume that important local knowledge emerges through daily practices, e.g., when specialized languages, frameworks, conventions and codes of communication are developed. This perspective emphasizes the role of locality for the emergence of regional economies. Interactive learning in social networks in particular is essential for regional knowledge economies. Individually, organizationally and regionally embedded knowledges can be mobilized and cross-fertilized. Bathelt and Glückler (2011) e.g., focusing on organizations, speak of *relational economy* and *geographies of knowing and learning*, and stress the significance of locality for the emergence of specific networks and, accordingly, specific knowledge forms and learning processes. In contiguous, colocated economic networks, for example, conventions and taboos of imitation (Glückler et al., 2017) develop as part of such a local, relational economy. Imitating is an important learning strategy as we have seen above in the example of the collocated companies, but both friendly and unfriendly imitations can be observed. Connectivity among companies facilitates goal-orientated collaboration and may include friendly imitation. However, locality plays a significant role in the configuration of networks and their specific characteristic, because "spatial proximity also enhance the mutual visibility among even disconnected firms and thus increases the incentives for unfriendly forms of rival learning and unilateral imitation" (Glückler et al., 2017, p. 286). Companies can establish organized networks in which variation and imitation can reduce the individual's costs of continuous learning. Following conventions of friendly imitation is essential for such successful, cooperative learning processes. In colocated economic networks with physical proximity, variation and imitation enable spill-over effects through friendly imitation, and relational economies and geographies of knowing/knowledge and learning can occur. Unfriendly imitation, on the other hand, is seen as breaking a taboo. The network observes this break of convention and the information circulates quickly among the members. Consequences and sanctions may follow. This example shows the importance of analysing the relational positions—also the geographical ones sometimes—of the actors involved (whether humans, organizations or else) to understand such local learning processes and the emergence of knowledge in them.

In network research literature, one can find differentiations between social structures in locally diverse contexts which are supposed to influence local learning processes differently. Here as well, the differentiation often follows a rather problematic categorization such as traditional versus industrial or modern, or developed versus developing. With regard to local economic learning processes, the first is said to be dominated by family ties and networks, and the second by friendship ties, says Li (2017). It is argued that in so-called developing contexts, formal institutions such as the legal system tend to function badly, informal norms and social structures like family networks are more important there. This includes the economic sector as well. In some

contexts, family ties are much more important in the economic sector than in others, where formal institutions function good. Second, there is a tradition of describing informal networks such as family ties as contributing to "backwardness" of so-called developing regions (Putnam et al., 1993), and family structures accordingly as handicapping them. In general, family plays an important role in local economic learning processes in majority of world contexts. But contrary to the above, Li (2017) showed that families are extremely helpful to those local technological learning processes that require repeated communication and interaction. "In traditional communities family bridges can enable entrepreneurs to learn business and technical know-how quickly" (Li, 2017, p. 80). On the other hand, some other learning processes are better supported by friendship ties. In other words, it depends on the learning task, whether a specific context is more likely to be supportive. Therefore, family structure is not a handicap as such but can become an advantage for catching up, says Li. Obviously, more parameters have to be taken into consideration to evaluate a network and types of networks as handicap or advantage, and locality is certainly one of them. I mention this example to explain the above said, that from a network research perspective, one can differentiate contexts by focusing on specifications of relations instead of using biased categories such as developed versus developing that have clear colonial connotations.

After explaining the basis of my reflections on the relationship between specific network characteristics, locality, learning, and innovation in the following, I would like to describe an example of the encounter of local and globally circulating knowledge forms from a network theory perspective to explain the creativity and innovation potential of those encounters. But before doing so, I want to shortly add some more general theoretical thoughts on locality and the emergence of knowledge.

LOCALITY AND THE EMERGENCE OF KNOWLEDGE: INDIGENOUS KNOWLEDGES

As I mentioned above, any knowledge forms correspond with specific social structures responsible for their emergence. This is the reason why in contexts of the majority world, the adequacy of scientific knowledge that emerged in the minority world is increasingly questioned in post-colonial perspectives. Its validity for the majority world is doubtful, and the taken-for-granted universality of scientific knowledge (especially in the humanities, but not only there) is under pressure. The critical argumentations and counter-examples were summarized frequently under the term "indigenous theories" or "indigenous knowledge" (Berry & Kim, 1993; Enriquez, 1993; Ho, 1998; Kim, 2000, etc.). Indigenous argumentations emphasize culture-specific evolutions of ideas. Locality plays a significant role in these thoughts, too. The main question is whether knowledge and observations gained from minority contexts can be simply exported to entirely different contexts (Mathur, 2004). Is it reasonable to claim universality of this knowledge, although it takes into account only selective, minority-orientated epistemological and meta-ethical beliefs, based on experiences in that specific social reality (Mukherji, 2004)? The concept of intelligence is a very good example of what is discussed here. Can intelligence be a universal concept involving a universal measure? Is it reasonable to think that something like intelligence and related behaviour is the same everywhere? Like most scientific as well common-sense conceptions, "intelligence is a construct and not a representation of some physical object," as Srivastava et al. (1995) point out. They summarize many very different concepts of intelligence, depending on the context in

which they emerge. Accordingly, some Ugandan villagers associate intelligence with adjectives such as slow, careful and active. Wober (1972) states that some Ugandan teachers and "Westernized groups" associate intelligence within the word speed in contrast. Following Lutz and LeVine (1982), Americans stress technical intelligence, and Super and Harkness (1983) declare that some Kenyan Kipsigis parents interpret intelligence as including responsible participation in family and social life. Gill and Keats (1980) say that the Malay students they studied regard intelligence as involving social and cognitive attributes. The point is, context and locality must be included in such knowledges and their emergence. The discussion of indigenous knowledge, which also means contextualized and localized knowledge, is inspired by decades of experiences with unsatisfactory implementations of the minority world's scientific concepts in other contexts. For many years, psychological, sociological or educational knowledges were simply imported and implemented. In practice, however, the success was very limited. "Only after a lot of failures—be it that the indigenous people continuously failed to reach good results in the rankings of western-styled tests (Carstairs, 1971; Lewis, 1962; Rosenthal, 1957; Spratt, 1966), be it that these results were somehow indistinct (Nandy, 1974; Sinha, 1981), meaningless or inconsistent (Sinha & Tripathi, 1994)—... researcher started to question the import of such concepts at all" (Clemens, 2009). Theories should take the concrete, given social reality and locality seriously and develop scientific knowledge on this ground. The Chinese psychologist Hwang (2005) points out that for most of the people in the world, the reality is affected by Confucianism, Islam or Buddhism (and I would add Hinduism), but not Christianity.[5] Yet, Christianity has deeply influenced scientific models and thinking for centuries. Ho (1998) therefore states that indigenous perspectives want to overcome scientific colonialism and encourage scientific knowledge based on sociocultural meaning systems (for India Agrawal, 1995; Kakar, 1979; Misra et al., 2000; Saraswathi, 2003, etc.).

But such changing foci can be observed not only in the humanities or the fields sometimes labelled "soft sciences". Scientific interest in indigenous knowledge emerged particularly in medicine (Durie, 2004; Hausman, 2002). Raina and Habib (2004) point out cultural preferences in approaches to mathematics, (detailed in Clemens, 2009). Rarely recognized, there are cultural differences in operations used to solve certain given mathematical problems. In *A Treatise on the Problems of Maxima and Minima*, the Indian mathematician Yesudas Ramchandra starts from the consideration that given the long tradition of algebra in the Indian context and thinking, this approach is easier to understand in that context than the imported English analysis. "Ramchandra dedicated the Treatise to reviving the Indian spirit of algebra, so as to resuscitate, the native disposition of these people" (Raina & Habib, 2004, p. 27). Using his approach to mathematics, he wanted to connect to existing thought patterns in the Indian context. What is essential in this example is not whether there is an "Indian" way of thinking (whatever that could be), but "the realization that mathematics is done one way but can as well be done another way" (Raina & Habib, 2004), and that some ways of thinking or problem-solving have more connectivity to a given context than to another. The lesson to be learnt here is that mathematics is not cultural free and independent of context, and locality matters in any kind of knowledge emergence. In the following, I want to bring together these thoughts on localities, networks and the emergence of knowledge with perspectives on the conditions of possibility for the emergence of innovations and creativity. Using tools from network theory, I want to describe and analyse these relations and processes in more detail.

THE CIRCULATION OF STORIES AND GENERATIVE TENSIONS

What are the conditions for the probabilities of something like innovations, new, progressive solutions, and creativity to emerge? Helen Verran's concept of *generative tensions* refers to the potential for creativity and innovations through encounters of knowledges. But how can knowledges encounter each other? In a first step, we need a concept that describes the circulating or trading (Galison, 1997) of aggregated forms of meaning such as knowledge. Network theory offers sufficient tools for such an analysis (detailed Clemens, 2015, 2020, 2021). Accordingly, more stable forms of meaning are cumulated and aggregated in interdependent patterns, which are summarized in *stories*. These stories contain meanings that are organized and combined in transportable relationship patterns and can be transferred or activated in different contexts and situations. They can guide and channel action as they explain what is going on and why to the actors. Characteristically, stories do not capture an actor's specific experiences. As more general narratives, they express more commonalities and can be used in different contexts. That makes them so useful for analysing the process of circulating knowledges, as they are generalized constructs that can be transported across contexts. As they express more commonalities, they function on a higher level of aggregation. But stories always organize meanings for certain *publics*. There is never an independent, unrelated meaning. This implies that they always have to be seen in relation to the specific public. Godart and White (2010) define public as "a space, a horizon of virtual meanings, of allowable expectations that frame and form stories" (Godart & White, 2010, p. 572). Stories interrelate meanings in coherent entities within their specific publics. "A specific public enables the perception and representation of certain events. In other words, the public influences the perception and processing of events. In this specific public, an event emerges as event. Maybe, in another public it would not even be perceived at all. In consequence, also the production of meaning is always related to the given public" (Clemens, 2021, p. 109). Publics sharpen expectations, and joint actions create a shared space where actions adjust to another. Finally, stories rely on their use in concrete social situations as they are activated by those interactions. If no one uses them anymore, they die out.

On the other hand, to thrive and spread, meaning structured in stories must be transpositioned across contexts and become the basis of communication elsewhere, also. Stories must "travel". Stories can be taken from one network to another. The process of transposition, however, always occurs specific to a given context or network, and the applications are always specific to the new context or network. Additionally, these applications lay the ground for further applications, modifications and so forth, so stories do not stay the same through trade. Stories are used to cope with contingencies and uncertainties, but the way they are used can vary from network to network.

In this process of circulation, new vocabulary or forms of meaning are established in a new network. While used in one discourse, new concepts "have the tendency to diffuse into the wider public" (Fuhse, 2015, p. 30). Interestingly for our topic, the conditions of creativity and the emergence of innovations, White (2008) emphasizes the potential of stories that travel into new networks to generate *fresh* action. Fresh action is an interruption of routines, it blocks "more of the same". According to White, only new meaning can generate fresh action. We can see here how travelling stories or knowledges have the potential to stimulate derivations and innovations. In reference to the scientific field e.g., the reader of this story (or another) may be infected and might create fresh action in a new network, where this knowledge encounters other ones. I use the example of a mathematic lesson in Nigeria to show such encounters of circulating knowledges and their potential for local innovations.

As seen above, there are many ways to do mathematics. The Australian researcher, Helen Verran (2001), observed what happened, if different ways of doing mathematics are encountered in a learning process—through circulation, competing stories meet in a network. In her theoretical work, she focusses on encounters of different logics or knowledges and the reasons why such encounters produce "generative tensions" (Verran, 2001, p. 21) or fresh action, as White would put it. Such an encounter can be an incubator for creativity and innovations as a consequence. Verran emphasizes that generative tensions are a sign of creativity typical of collective life. In network theory, the switching of stories from one network to another increases the probability of the emergence of new knowledge. In the last section, I want to illustrate these thoughts by analysing such a process of a travelling story and the emergence of new knowledge and fresh action.

DIVISION IN A NIGERIAN YORUBA MATH CLASS

The setting is as follows: The Australian researcher oversaw a teacher instructing his class in "Division." She knows him from a university in Nigeria, where she spent many years teaching teachers and developed teaching material and strategies with Nigerian teachers. The mathematic lesson takes place in Nigeria, and both the teacher and the students are Yoruba. Verran expected the lesson to follow a specific logic, a kind of serial process, "something like the reverse of multiplication, understood as serial addition" in her words (Verran, 2001, p. 13). She expected the teacher to follow a logic, in which numbers are counted together ($2 + 2 + 2 = 6$) so that the children understand how lower numbers are aggregated to higher numbers. She had a specific script in mind that was also taught in university, and which the teacher shared as well, a story on how to do and teach division that circulate globally. However, what she observed deviated from this expectation. The teacher started by underlining the significance of the *wholeness* of numbers. Soon he switched from English to Yoruba. His starting point was not the parts that put a number together—2 + 2 + 2 "makes" 6—but the unity of a number, e.g., 6. He stated you "will not understand a number unless you understand the many ways it can be divided" (Verran, 2001, p. 13). Obviously, he used a completely different logic, his forms of meaning varied considerably from what was taught in university and the one that the Australian researcher was used to. For him, the most important point was the integrity of the number, not the small parts that put a number together. In Germany, you typically learn the basic plural nouns starting with the numbers, 1, 2, 3, and so on (das kleine Einmaleins in German). In the lesson observed and described by Verran on the other hand, the "beauty" of numbers is taken and the ways of dividing them are explored. The children in the classroom intuitively understood that logic and paid full attention to their teacher. But then, the teacher "mixed" the different logics. For this, we have to understand the different logic of Yoruba numbers, which is quite similar to that of French numbers. The number 75, márùúndínlógórin, for instance, is thought as $(-5 + (20 \times 4))$. If we take the French 85 as Quatre-vingt-cinq $(5 + (4 \times 20)) = 85$), we are close to this logic. Other than the system based on 10, the Yoruban numbers are based on a logic of 20. Therefore, they are in themselves already like a sum of a calculation. The Yoruba teacher used this specific logic of Yoruba numbers to show the many ways of dividing numbers. He took a Yoruba number "and showed it as a multiple of 20 plus or minus various factors of 20, in translating it into a base-ten English-language number" (Verran, 2001, p. 13) and vice versa. Conversely, he took English numbers and converted them into Yoruba numbers while using division by 20 as the main process of defining a number. Whatever number you start with, how often do you find 20 in it?

Two distinct stories encounter each other here, local knowledge of numbers and their wholeness and integrity, and a global circulating knowledge of numbers, number systems and how to teach division. As a result, something completely new emerges. In this encounter, the Yoruba base-twenty logic and the English base-ten thinking were interwoven, and a new form of learning division (or fresh action) emerged. This is in itself an innovation. But to understand the full potential of such emergent processes for training, local learning and possible innovations and improvements, we have to take the lesson a little further. After several exercises in translating numbers in different systems by division, things became fun, as Verran reports (2001, p. 13). Obviously, each translation could be done in several ways. Amazing to observe was, that the students and the teacher—but not the Australian observer—agreed that there were some more or less elegant ways of translating and calculating. A competition was devised for the most elegant translation. The children laughed, shouted, jumped up from their chairs and were eager to show their solutions at the blackboard. A commonly agreed upon best solution was found for all numbers in an atmosphere of fun and excitement. "All thought of serious focus on the process of division vanished in the delight of the game, yet the game was all about division of whole numbers" (2001, p. 13). Anyone involved in professional teaching processes and organizing them knows how desirable, precious but (unfortunately) rare such moments of flow (Csikszentmihalyi, 2010) are. They create autotelic acts, acts done for their own sake, where the motivation comes only from doing what one is doing, and no extrinsic motivations are needed. This is said to be the most effective learning process and one of the main characteristics of creative acting.

The encounter of knowledges of division leads to generative tensions. What can be observed in the following is an exciting and very successful learning process with an "add on", as it also involves aesthetic experiences. As mentioned above, the students and the teacher agreed upon the beauty of numbers and solutions, and exploring the most elegant solution was great fun. Fresh action emerges from the transfer of knowledge to a new network and its encounter with other forms of meaning there. Division is taught in this specific locality in a new way. The process can be understood only in relation to the network of Yoruba children and their teacher while taking into account the locality and the two different knowledges circulating in that network. Locality is significant here, as in another context with other networks and actors, these specific forms of meaning, this innovation and creative teaching situation would not have emerged.

CONSEQUENCES AND OUTLOOK

As indicated by network theory or the relational approach, and underlined through network research with regard to knowledge production, locality is highly relevant to the exploration and explanation of innovations. Considering relational economies or geographies of knowing and learning can be very fruitful for rethinking education or training and its contribution to local improvements. Instead of continuing to focus on one global education for all with the implicit assumptions of a singular "development" into one singular future (whether this is a "modernity" or not), the focus should be on the multiplicity of life worlds and worlds of work. Learning and training can benefit from the encounter between local forms of meaning and globally circulating ones, and can in return lead to creative solutions and innovations in the local. Globally circulating meanings emerge in any new context new too, of course. It goes without saying that there is no stable meaning or knowledge, but that knowledge is always a process. There is no stable form of meaning that can be transferred from one context to another without transformations, and the experience of moving between different matrixes

of practices and representations in diverse networks modify any meaning (Clemens, 2021). From a network theory perspective, one cannot assume meaning independent of a network, something that is transported across contexts without modifications like a parcel. Any network always forms the way of gaining experiences. So, networks modify the way knowledge is constituted, and as we saw with Li (2017), they also promote specific ways of learning, differentiating e.g., contexts characterized more by family ties or by networks of friends. Anyway, concepts, ideas—knowledge—are on their way through networks. And while emerging in a new network, knowledge might encounter already circulating forms of meaning there. What we learn from Verran's generative tensions is that knowledge encounters can be extremely fruitful. Accordingly, one strategy for enhancing (local as well as others) innovations is encouraging such encounters of knowledges. The pre-condition for that is not to suppress local forms of meaning, but to take them seriously, like researchers from the majority world recommend when referring to indigenous knowledge. Promoting such encounters can mean encouraging local creativity in the following, and fresh action can emerge which can support local innovations. And—why not? If they manage to show connectivity, they might be traded to new networks either in the majority or minority world and initiate innovations there as well.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

ENDNOTES

[1] The kingdom of Bhutan measures regularly the happiness of its inhabitants https://catapultfilmfund.org/films/GrossNationalHappiness/ 18.08.2021.

[2] Development, measured by income and extent of the development of the industrial sector, see https://www.worldbank.org/en/home 18.08.2021.

[3] In reference to Dasen and Akkari (2008), I will use the term majority world for this part of the world and the term minority world for the North-American, European and Australian context, Japan and Taiwan often referred to as the Global North, in the following.

[4] I am aware that no culture-free characterization of knowledge exists and therefore normative implications are always involved. This perspective on social evolution and the evolution of ideas is based on the systems theory (Luhmann, 1998).

[5] Hinduism and Islam together have already more followers than Christianity, taking others such as Buddhism not into account. The same can be said with regard to population: North America and Europe together represent only 15 per cent of the world population https://www.bpb.de/politik/hintergrund-aktuell/251903/weltbevoelkerung-05-07-2017 19.08.2021.

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