Cultural Contexts of Collaboration Interviewers: Paul Verschure (Convergent Science Network)
Julia Lupp (Ernst Strüngmann Forum)

Welcome to the Ernst Strüngmann Forum podcasts—a series of discussions designed to explore how people collaborate under real-life settings. Joining us in the series are high-profile experts from diverse areas in society, whose experiences will lend insight to what collaboration is, what it requires, and why it might break down. This series is produced in collaboration with the Convergent Science Network.

P. Verschure	My name is Paul Verschure and together with my colleague, Julia Lupp, we are speaking today with Heidi Keller, who directs Nevet, the Greenhouse of Context-Informed Research and Training for Children in Need at the Paul Baerwald School of Social Work and Social Welfare at the Hebrew University in Jerusalem. Welcome, Heidi. Could you give a short description of your biographical trajectory that brought you to where you are today?
H. Keller	Well, I am a psychologist by training, but over the years I have become closely associated to evolutionary biology and cultural anthropology. The concepts with which I'm working are informed by these science fields. I have worked for many years on longitudinal projects involving families and children in many different parts of the world. Anthropologists usually live with the population they study for an extended period of time, to learn the language, etc. I wish I could have done that too, but my approach has been different: I collaborated closely with local people in diverse places, in different continents, and different environments, like urban and rural sites in different countries. Together we were able to collect substantial information on families over the years and followed them longitudinally over the first six years of life, studying how culture feeds into the evolutionary preparedness of children to become competent adults in their respective environments.
P. Verschure	So you also are trained as a developmental psychologist?
H. Keller	When I was visiting the university, it was quite different from today. Actually, I never had a class or seminar in developmental psychology. I'm a classic scientific autodidact.
P. Verschure	OK, great. So to begin: What is collaboration and what is it good for?
H. Keller	As with many terms we use in psychology and the social sciences in general, we need to define first the context for which we want to offer definitions. Certainly, collaboration is a universal concept that describes how people interact with each other, in particular, on task-oriented behaviors. From a Western middle-class perspective to which we all belong, collaboration is certainly completely different from what rural villages in African, or Asian, or South American countries would understand as collaboration. These are actually very interesting differences, with very far-reaching implications for the whole socialization and developmental processes. We understand that collaboration and cooperation is meant to describe a process where two individuals jointly contribute in setting the goals. So it's a perspective that is informed by two individual agents. This dyadic emphasis is very special for the Western middle-class context. Whereas in rural environments and also, to some extent in urban environments in non-Western countries, collaboration is a process of jointly contributing to goals that exist, that are defined by the community and not by the individual agents, but that does not mean that anything is imposed. It's a mutual understanding that this is an important process for the benefit of the community, which is the top priority.
P. Verschure	So the distinction would be between individuals interacting to define the goal versus individuals adhering to a collectively set goal.
H. Keller	Yes.

P. Verschure	For you, is it about setting the goal in the dyad, or can the dyad just pursue the common goal? Is the definition of the goal by the dyad, by the agents involved relevant for the process of collaboration?
H. Keller	In the Western middle-class context, individuals in the dyad are crucial for setting the goal. In rural areas—I mainly have studied farmers, which may differ with hunter-gatherers or other communities, although there are also a lot of commonalities—the goal is set by the community. In the Western world, we believe in an egalitarian system where everybody has the right to contribute equally. In many traditional farming villages, hierarchical social structures exist with clear-cut boundaries in terms of social responsibilities; the elders or title holders in traditional societies define the goals, and there is not so much intergenerational change, as one would find in Western societies where every generation lives in a completely new environment. Even over the lifespan, Western environments change tremendously, whereas there is a lot more environmental continuity in the rural villages that I'm thinking of.
P. Verschure	In the Western urban context, there might be people who collaborate within larger industrial processes; they have a job. And given that job, they collaborate in a larger process without necessarily setting the goal of the company in which they would work. How is that different from the collaboration that you're now defining, where common goal setting is a defining feature?
H. Keller	I'm not so familiar with the functioning of companies and so on. What I understand, though, is that it's important for such teams to develop a common understanding of corporate identity or whatever; this allows them to pursue a common goal. There are special arrangements that each individual needs to agree to before collaboration is possible. In other communities, common understanding is something shared by the whole community and roles are defined for each individual. That does not mean that individuals are not able to work independently. We differentiate, for instance, the concept of autonomy, which is important everywhere in the world, into what we call psychological autonomy: that our intentions can be pursued, and that we have at least the illusion of the free will and can decide what we are doing and what we are not doing, including how we want to live our relationships. By contrast, in a rural farming context, we talk about action economy because it's important to act independently. Independence is not describing the differences or inputs are acting individually and self-responsible in all the different environments. But there is a difference with respect to the proportion of the mental activity that is going individually into that process.
J. Lupp	Heidi, could we take a minute and think about a concrete example, say in the Nassau farming communities of, say, Cameroon? I'm thinking specifically of how a collaborative project would be engineered by say a group of young children. Could you provide a backdrop into how a family or group of children interacts? Is it similar to a Western setting where you have one mother taking care of one child, or a grandmother engaging in the care? How are the children interacting? If they have to accomplish a particular goal for the family, who sets the goal? How do they divide up that work? Can you provide a concrete example for us?
H. Keller	Sure. The whole living arrangement is completely different in the villages of northwestern Cameroon, where we were working, as well as in many other rural traditional villages on different continents. The unit of the household is different to the individual, biologically defined family in the West. The household is composed of multiple generations; it's not a static unit; there is a constant coming and going of people. This often complicated our work, for instance, because when we were trying to track children, we couldn't find them because they had switched to a different household. By the way, children can decide themselves from as early as two years of age whether they want to change households or not. They can also be referred without prior announcement to change the household, etc. There is a fluid organization. Life is

out in the open: there are no rules, no closed doors. Everybody sees what everybody else is doing. Daily life occupies a shared space, and children participate in this daily life of this whole household. Observation and imitation are major channels of learning. They see what others are doing and they want to do the same and they are allowed to do so. Two-year-old children take all by themselves big machetes and operate them without any adult interfering. They see what the others are doing and they take on the responsibility for themselves to contribute to the family by participating in what everybody else is doing. There are interesting descriptions, for instance, also from Maya communities in Mexico, where adults never instruct children, or tell them, or evaluate what they are doing, or even praise them, etc. Adults make certain that the children can observe what they are doing by arranging their sitting position. They make sure that the child can see what they are doing and how they are doing it and the children imitate their actions. There is a great deal also of independence and, as we say, autonomy in that the children decide for themselves what they are doing and how much they are doing, but they are eager to contribute. There are these wonderful studies by the former Tomasello group which show how two-year-old toddlers are eager to help adults who obviously need help to complete some chores, or do something, pick up something, or whatever. Western socialization aims at making these tendencies disappear. According to Endler, mothers and fathers try to convince children to do this or that, and the children just don't want to; the "no" of the child is also accepted to some degree. In other communities, children are eager to participate: they take brooms and operate the artifact that adults use. Replicas are not made for children, as toys or such things. Through this, the child acquires a sense of self, satisfaction, and identity through being able to participate in the household chores. There is no praise, obviously. That's not necessary to keep them going. They just want to participate and are allowed to do so. It's interesting because in Western families, there is a psychological sameness in the sense that everybody has the same rights. Also, children have the same right to discuss things, or to say no, or to participate, or not participate. And the living space is separated: children have their own rooms, their own artifacts. They do not share the lives of their parents and of adult family members. In these farming villages, by contrast, everybody shares the same space but there are the social limits that are transmitted not by instruction but through observation and the sense of belonging. And since you mentioned the peer groups, let me add that peer groups play a very important role in many cultural environments. Children spend a large part of the day with other children; they socialize with and learn from each other. In the kindergarten setting here in Germany, I have often observed how children really follow with their eyes and their head movements what other children are doing. But they do not get in touch with each other in the sense that they do something independent of an adult teacher monitoring the activity or anything. Although we claim to have an egalitarian structure, it is in fact very hierarchical.

P. Verschure   So Heidi, we have covered a lot of territory now and there are many elements popping up. We looked at collaboration, then we talked about, let's say social units, or basic organizational units of a household. We talked about self and agency, as well observational learning. If you go to a Cameroonian village, there are a lot of social behaviors going on and not all of these are expressions of collaboration. What are then the different patterns of social behaviors we should distinguish?

H. Keller   I think that the different dimensions that you extracted from what we discussed belong in a way together, and we can say they build, in the end, a sense of self. They have to define a particular cultural identity and therefore collaboration in the Cameroonian village is a major dimension of social life. It also this relates to experiencing oneself as part of the social unit. For instance, infants are carried on the body of other people almost all the time, so they experience a sense of community through movement, through rhythmical stimulation, etc. That is the opposite of what happens here; that is

in the Western middle-class environment, where we want children as early as possible to develop an independent self. We do everything so that children can perceive themselves as separate from others. We have particular interactions and mechanisms that we can describe, like contingent reactiveness to visual information, to visual cues in the face-to-face context, etc., where the child is able to perceive him- or herself as the cause of others' behavior. But it's separated. Take, for instance, a German middle-class mother or a Los Angeles middle-class mother: when they talk to their children, they pick up on the sounds and facial stimuli that the children are expressing, but they wait until the child has finished the signal and then respond within a very short time window so that the baby can perceive the two separate events as belonging to each other. This helps the child develop a sense of causality: I can cause others to behave in certain ways. We have conducted these types of studies in many parts of the world (e.g., Cameroon, in Mayan cultures, in Indian communities) where vocalizations, for instance, overlap: one actor does not wait until the other has finished but starts acting while the other is finishing. One could say that the boundaries to ego are blurred. Here the emphasis is not to develop ego boundaries and separate oneself as early as possible, but to perceive oneself as a part of a joint action, of a communal system.

P. Verschure   Are you now inviting me to interrupt you whenever I please?

H. Keller   Please do! Anytime.

P. Verschure   What I think you're describing is to say that in these non-Western environments there is a much more intrinsic sense of community, comparted to a Western environment. As a result, we should think differently about this notion of collaboration because context is important. Collaboration is an intrinsic, continuous part of the fabric of life. You can never step out of it. In the Western world, we have to structure collaboration because now we have all these egos together in the same space. Is that a fair interpretation of what you're saying?

H. Keller   Yes, definitely.

P. Verschure   So this is very relevant. But now let's turn to your earlier emphasis on observational learning. In the observational learning phase in these non-Western environments, are there also aspects of observational learning that fuel this intrinsic form, implicit form of collaboration? For instance, being carried around continuously as part of a collective makes you part of that collective. Are there other, more explicit forms of observational learning that's built an architecture or behavioral patterns that allow the collaboration to continue in that form?

H. Keller   There have been interesting studies with Mayan children and with children from other non-Western environments which show that during processes of problem solving, children observe each other and that there is a lot of nonverbal regulation. Barbara Rogoff talks about fluid assemblies. If you ask three or four children in a non-Western environment to jointly solve a problem, they will do so by regulating their behavior in a way that does not involve much verbal instruction—you do this or I do this, and then we do this—through nonverbal mutual observation and regulation. By contrast, in studies involving German middle-class children, when three children are asked to collaborate in solving a problem like copying a tangram, each child took a particular set of pieces, and not one single child was able to do it by him- or herself. So they had to collaborate. They had to find a strategy together and they weren't able to do so. They didn't know what to do as a group of three, because our social life is structured around being at the center, the child being the center of the adult attention. Even if we are in bigger groups, we always communicate in dyads. If we stop talking to one person, we may address a different person who is a bystander in this situation. But in other cultural environments, there is a lot of communication going on, both verbally and nonverbally,

at the same time, and children participate and observe in these communicative processes. That puts problem-solving in a completely different light.

P. Verschure   Have done the tangram study also in Cameroon?

H. Keller   No, that did not work because the children were not used to this material. A Palestinian master's student of mine in Jerusalem did it with East Jerusalem, Palestinian children. And he observed the same pattern as in the Mayan children. The children were fluidly regulating, never, never addressing the adult experimenter; the German children always addressed the adult and then said, I can do it on my own, or they did something silly and said, I'm finished. The German children had no idea how to collaborate in a group of three. As two children, they may be able to get along, but as a group of three, no chance.

J. Lupp   Heidi, the fluid synchrony in collaboration or the fluid collaboration that Barbara Rogoff speaks about, can we look at a different example? In the Nso, for example, you've described how children engage in their daily activities. Is it correct to assume that this autonomous, community-related identity enables fluid synchrony in collaboration, regardless of whether it's under a test situation or in everyday life? Have you looked at that, specifically in the Nso?

H. Keller   We did a couple of studies with older children, 3- to 6-year-old children, and I think one of the differences is that by this age the children have learned to be unique. So, they get mirrored (i.e., receive feedback) even with their silliest contribution: that what they have done is extraordinary, is fantastic, and they are the best.

Several years ago, we did a comparative study with mother-infant dyads (age of children: three months) from Chinese (Beijing), German (Berlin), and U.S. (Los Angeles) middle-class families. The German mothers would say to the child, "You are the biggest." Los Angeles mothers would say, "Look at these strong legs," or "You are the most wonderful boy in the world." The Chinese mothers would say, "Look at these tiny little feet," but they were talking to other people about the child and did not place the child in center stage all the time. I think that makes the difference; that is, being made to feel unique as opposed to being treated as a part of a whole. The title of one of our papers on language behavior captures this difference: "Fitting In or Sticking Out."

In German kindergartens that we observed, I had the impression that children love to do the same thing as other children but are often not allowed to do so. Instead, they are encouraged to do their own thing and develop individual interests. Yet children love singing the same song together or drumming the same beat together on drums, things like that. Children love this, but in Western environments, they are not given the opportunity to pursue such activities, which in turn would lead to different types of experiences and a sense of togetherness. As humans and as cultures, we need both behaviors. Social belonging is very important everywhere.

P. Verschure   If you look at the Maya case or the Cameroonian case, are there control processes or gatekeepers of the collaboration that define boundaries? Is there any constraint on the process? What you describe is very much bottom-up, self-organizing, no constraints, no external coercion on anything. Is that really the case? Are there no gatekeepers, no constraints on the process?

H. Keller   It's more a matter of monitoring, as in whether the child has the possibility to do the activities in question. For instance, children are allowed to contribute even if they make a mess, as in cleaning the house. Children are allowed to clean even if they are not able to do the task, with mothers, older siblings, or whoever picking up the slack in the end. But by participating, the child develops a sense or experiences that s/he can contribute, whereas in Western environments, we give instructions.

P. Verschure	So then in these environments, children are never punished for anything; whenever possible.
H. Keller	I would not say never. But usually not. No.
J. Lupp	And this contribution, this mode of contribution and identity; certainly you've looked at these communities on a longitudinal basis. Is the stability of the community dependent or reliant on this culture of contribution that is cultivated early in life?
H. Keller	Ja, certainly. Culture is a reflection of contextual decisions. We have analyzed, e.g., cultural milieus in terms of degree of formal schooling, mother's age at first birth, number of children in the household, household composition, etc. And in these milieus, different social styles emerge. If these dimensions change (e.g., if formal schooling increases, as we have observed in Germany), interaction styles change over time. In the case of Germany, interaction styles are becoming more distant, less corporal, less proximal, as we say, less touching, less body contact, and more face-to-face contact, and more verbalization. What's important to me is to emphasize that we shouldn't understand a context that has less formal schooling as having a deficit that we need to "fix" or supplement things there. It's just a different cultural context. And from a Western perspective, poverty is often equated with poor parenting; that's a completely unethical conclusion, as some colleagues and I argue. That's not the case. Of course, it makes a difference if the family or household needs to cooperate to secure the economic base of the household, or whether there is an affluent environment where adults can afford to spend a whole year (or three years) tending to children.
P. Verschure	In some sense, it sounds like the non-Western examples you describe are more humane, as they force us less into certain modes of operation. But that might not imply that it has no limitations, because this very open way of building collaborative systems may have limitations in the scaling? Could your Cameroonian collaborative system or the Maya example, e.g., give rise to an Apollo project?
H. Keller	No, but they also wouldn't want to do this. They have other ideas about eternity, or space.
P. Verschure	But you see the challenge: What you're describing, I think, is a collaborative system where the individual participants are almost exchangeable. There's less specialization and a greater collective. But the collective in terms of its functional impact—I'm trying to test this idea on you—might be more restricted in what the collective can achieve?
H. Keller	That's a very delicate issue. One thing I wouldn't say is that it's more humane, because that sounds like one is romanticizing these natural living conditions, and I'm strictly opposed to romanticizing. There are lots of problems in every context. On the other hand, all these cultural practices are important to adapt to, and to live, and become competent in particular contexts. And of course, in our kind of Western middle-class context, there is a kind of intelligence that has been developed that is highly analytical and that wants to extend the boundaries of knowledge and to find out more about the environment and ourselves and everything. In other cultures, environments, thinking is more holistically oriented. It's not so much focused on the future or the past; the here and now is more important, and applicable to that kind of living. And there are also systems of thought that are not rational from our perspective.
P. Verschure	I feel that you're stepping over the challenge now and trying to explain the difference without agreeing on what a difference could be. My first challenge was wouldn't these non-Western collaborative systems be more restricted in their functional application, irrespective of the ontology behind it. If we would take a collective of this Cameroonian village and confront them with a very deep challenge, let's say ecological collapse, would they come up with a better solution than a Western collaborative team? It's about the functional scalability of that collaborative system.

H. Keller	Yes, I see. But let me say one thing first. I don't think that it is more restricted because children actually learn more than one communicative script. They learn a script to apply within children's groups and they learn a different script to apply interacting with adults, whereas our children only learn one script, so they are more restricted in the range of everyday behavior. I'm certain this is observable in people who come as refugees or migrants; despite all the difficulties that Western states impose on them, these people are able to adapt and acquire the new culture here and function in it and become quite successful. Whereas there are accounts, e.g., from the anthropologist Nigel Barley (a British anthropologist who tried to survive in Cameroon and almost died) where Westerners couldn't do this. As far as on the scale of the individual, our system is not the most flexible one. I don't know whether a better water irrigation system would be developed by Cameroonian farmers or by German entrepreneurs.
P. Verschure	This is my question.
H. Keller	Yes, I know, but I can't answer this. Perhaps the entrepreneur would be more successful on the short term because they would not have the long-term destiny of the landscape in mind. We are spoiling our environment to a large extent…
P. Verschure	Looking at this difference in collaboration styles, also from an evolutionary psychology perspective, do you see invariance in the non-Western examples that you also see in other primates? Are there parallels? Observational learning, right? Capuchin monkeys, e.g., do great in observational learning. Bonobos are great in collaboration. Have you identified common principles there, or are there any?
H. Keller	Yes. We have a wonderful [new paper coming out](#) with Kim Bard as the leading author. In this research, we compared a group of non-human primates and children from a hunter-gatherer group, a farming community, and British middle-class families with respect to joint attention. There is this big discussion about whether joint attention is a unique human capacity, etc., and in this SRCD monograph, we clearly demonstrate that if you adapt the definition of joint attention away from the Western middle-class perspective, then you find all forms of joint attention. So, and this is, I think, from my point of view, that will be…
P. Verschure	Now, before reading your paper, how did you redefine joint attention then, in this case?
H. Keller	We did not say that there must be an object included, for instance, but that the attentional target needs to be directed toward something out of that particular dyad. We included different behaviors; we had an inclusive definition of joint attentional processes without having the triadic object person, person design in mind. Also this design may be as an experimental artifact, but we were observing children in natural situations and not in particular experimental setups. There is also a classical form of showing the tension, in the British children was less than 10%. So it's not a very popular behavior anyway.
P. Verschure	So the British hunter-gatherers didn't do that?
H. Keller	Right.
P. Verschure	This is now creating an interesting scenario because now I could suggest that the Western cultures have invented something, some cultural add-on to these collaborative processes that pulled them away from this more, let's say, biologically grounded set of collaborative principles. What would that be? What pulled them away from this more intrinsic prior, a collaborative principle?
H. Keller	It's about collaborative principles, after all, in every case. I think that what is added— that's a phenomenon related to the experience of formal schooling—is that the reflective mode is increasing so that the mentalizing becomes prominent, ideational

probing, with all kinds of negative effects, making people very insecure about the decisions they have taken. We have the opportunity cost where we can spend days and hours reflecting…

P. Verschure | I made a prediction and as usual, my predictions are wrong, because I thought you were going to say it is the ego, it's the autonomy of the self, because that's what you mentioned earlier. Is that an invention that Western culture has added to this?

H. Keller | It's a particular kind of autonomy. As I said, it's a psychological autonomy and that is related to this mentalizing. In a way you can define it as added to this. But if you want to see it in a developmental course as ending something, then we also have to take into account the side effects. And it has a lot of side effects that we usually ignore. We have a lot of ethical problems in comparing or in taking this kind of definition as the norm that everybody has to get to and devaluating all the other.

P. Verschure | Now do you have an idea where in our cultural evolution this transition happened? Is it like an enlightenment invention or…

H. Keller | I am not so firm with historical epochs, but I think Bob Levine and Sarah Levine in their 2016 books have analyzed these things. They cite a turning point connected to food accumulation, when food accumulation started. Another turning point was when life became more urban, in urban centers, with the consequence of more anonymous encounters of people and not these face-to-face societies. I think if you are a better historian than I am, then you may be able to identify those turning points quite well.

P. Verschure | But you would agree that there is a cultural invention that makes the difference between the middle-class Western forms of collaboration and what you have observed in these Mayan and Cameroonian villages.

H. Keller | Yes, there is a culture invention, but I would not evaluate it as better or…

P. Verschure | No, no, I wasn't suggesting that.

H. Keller | I just want to stress this again, because it's important, I think.

P. Verschure | You convinced me that you don't believe this is necessarily better.

J. Lupp | Is it also contingent on the size of the community? For example, the size of the farming community in Cameroon versus somewhere in Guatemala versus Philadelphia?

H. Keller | I think the size plays a role because the size is defining to some extent whom we know personally or at least have seen or not seen. Are the limits? I think yes. Size plays a role and there are all these consequences described for the life in the big urban centers. But in many urban centers, there are also village-like structures; not only in New York City, but also in other parts of big cities where people try to kind of reinvent some rural structures within larger communities and, by the way, also risk appropriation of space. For instance, in many cities in Germany, probably in other countries as well, people kind of invent little gardens in front of the sidewalks – common space that people can share, or urban gardening initiatives, etc. This might also change over the lifespan as at times we may prefer a more anonymous lifestyle of big cities while at other we would seek out the face-to-face community of a village. Also, the landscape versus the architectural environment. But this is mere speculation now on my side.

P. Verschure | If we look at these forms of collaboration in, e.g., the Cameroonian example, what would be the disruptors there? Under what conditions would it break down?

H. Keller | This may sound paradoxical, but formal schooling often interrupts these processes. To be clear, I'm not against formal schooling, but only if it does not change the life reality of the people. Formal schooling can, in fact, disrupt the life of children, and there are studies that show that these children are in the end worse off than unschooled children in the villages.

J. Lupp	What you mean by worse off?
H. Keller	But this I mean breakdowns in family relationships. Consider this example from a Cameroonian colleague, who told me that a child who received some formal education built a wall within the house, to make clear that he is now something special. It can interrupt generational relationships: the older generation is usually perceived as the wiser one, whereas now the younger ones are elevated above this. It's not that easy, as I'm now describing it. This also occurs in migrant families, as children acquire the ability to speak the language and serve as culture brokers for the family. Of course, everything is very complex and in every kind of phenotype has a lot of variability included. But it can certainly disrupt the well-being and family cohesion.
P. Verschure	If I am hearing you correctly, in some sense you're saying that humans and other primates come into the world with an intrinsic drive to collaborate, actually equipped to collaborate.
H. Keller	In the beginning, yes.
P. Verschure	And then culture can mess it up in some sense, or shape it, right? I really appreciate that point. But if you look at the field at large, you said it earlier, it might appear that you have these binary distinctions when acually there is a lot of complexity in between. What do you see as the most fundamental question the field must answer? Your field's most fundamental question. Only one.
H. Keller	The ethical question, actually. And if I may add a sentence: Because all the big stakeholders (e.g., UNICEF, the World Health Organization, all the NGOs, foundations) take the Western, middle-class, 5% portion of the world population and use their psychology as the norm—without proving it—and intervene in cultural systems all over the world. Count the number of heads and number of countries they have reached and want to impose our Western framework, the play and the nurturing framework. An enormous amount of money gets thrown out of the window because this framework is not applicable; this also signals a deep disrespect toward other cultures and other human beings. This ethical question poses the major task that some colleagues and I take very seriously.
P. Verschure	What's the shape of the answer that you envision to that question?
H. Keller	This has implications for how we deal with migrants, what we're doing to migrant families and children in the Western culture. So much misery can be caused even by good intentions. Respecting other cultures as having the same right to exist, just as we think of our own cultural system, is of paramount importance. And to find out the strengths and the weaknesses of every cultural system without comparing across cultures the good things to the bad things and to kind of allow for flexibility and variability. Human beings would not have survived if there had not been genetic variability as well as psychological variability. This is crucial to survival. We need to understand that this is the only way humankind can exist so that every individual finds at least circumstances that allow a sense of well-being.
P. Verschure	Do you think the pandemic has taught us anything about human collaboration?
H. Keller	Some studies have compared how different countries have coped with COVID (e.g., Germany, the Netherlands, Denmark). Denmark did much better at some point, but with new developments, the situation is constantly changing. If I look at the discussion in Germany, I can't see much has been learned. But the experience of the pandemic offers tremendous opportunities for learning What you see right now in Germany are the enemies of vaccination who only focus on their individual rights. They never think of other people, or of the community, or the collective. This is very disappointing.

P. Verschure	This also represents a breakdown of collaboration. So now we've come to my final questions. In the light of this last remark, if you now project to the future, do you believe that humanity on a global scale will ever be able to truly build sustainable collaboration?
H. Keller	Honestly, no. This is a very difficult question to answer, as you know, and I certainly can only offer an intuitive answer. Ultimately, I think that economic interests are the reigning principles for human societies, and economic interest rarely takes the well-being of people into consideration. Think of the villages I mentioned; they are not even representative of their respective states or countries. In addition, there is a lot of corruption everywhere, people are working against each other. So, although I am an optimistic person, I view this question rather pessimistically.
P. Verschure	One last question: If you could change one thing in humans that would enable them to collaborate better, what one feature would you change?
H. Keller	Well, there are two related features: (a) do not view yourself as the center of the world and (b) develop an interest in others. Be really interested in another's life: why they are believing what they believe, and how do they see what we are doing. In my experience interviewing migrant families here in Germany, very often the people are so surprised that somebody has taken an interest in them: how they raise their children why they are doing what they are doing, etc. They often report that they have lived in Germany for 30 years and nobody has ever asked them such questions, etc. So I think we need to increase our awareness, our interest in our fellow human beings.
P. Verschure / J. Lupp	Heidi Keller, thank you very much for this collaborative effort.
H. Keller	Thank you.