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The following text is an extract from a "trial Encounter" between two members of the Bridging Chasms Steering Committee: Professors Oumelbanine Zhiri (UC San Diego) and Stephen McAdams (McGill University).

They entered into a spontaneous exchange between their focal disciplinary interests of French and Arabic Literature, and Comparative studies in European and Arab cultures (Zhiri) and Cognition & Cognitive Neuroscience in regard to complex auditory messages (McAdams). Their "theme" was the single word "pattern", to which they brought their very distinctive disciplinary perspectives.

SM: Stephen McAdams
NZ: Nina Zhiri

SM: As a psychologist, I think the one thing I know is that the brain is constantly trying to find pattern. Pattern is something we're always seeking. Pattern gives us the objects and gives us events and gives us things that we're looking for. And, we learn to recognize patterns, recognize meanings. If something happens, and something else happens, and you know that that thing has been experienced before, there's the pattern of that thing that then connects.

            Patterns can be very, in my mind, very specific. They can be very abstract. I can recognize a pattern of a certain style of music, and I know that something else is not the same music, but it has similarities to it that make me think that these things are something of the same kind. So, patterns allow us to compare things. I think that's one of the things we're constantly doing. Music is building patterns, presenting them so that people receive them and understand them and store them in their memories. And then, we play around with the way those patterns are dealt with.

            So, there are all kinds of issues in psychology about how is it that patterns are processed? How are they stored in our memories? How do they get recalled through something that happens again, and stimulates that pattern so that it comes out of memory and is recalled or recognized, in that sense, and allows us to compare what's happening now with what has happened before? This is very important in music, in particular, because it's one of the things that allows us to establish connections over time, because you can't scan a whole musical piece all at once, like you can rescan a painting, or something like that. You have to hold things in memory and connect the thing that's happening now to things that have happened before, whether it's within the same piece of music or within other pieces of music you've heard through your whole lifetime. So, the pattern is the thing that we're sort of pulling together. It requires memory and it requires perception. It requires various kinds of processing. If any of these words don't mean anything to you, stop me and we can talk about those.

            Of the acoustic information that's coming in, to sort things out, we're constantly trying to take the sort of very complex acoustic field that's got a bunch of different sound sources in an everyday environment. They're all creating waves. All of those waves just sort of add together, and they all come together and they're rattling your eardrum. Your brain, then, is trying to sort all that out into things that it can recognize and deal with and localize in

space, and then decide what to do with it. And in music, we're playing with those things in various ways.

NZ: I was struck by what you were saying, that it's something that's deployed in time. Pattern is something that has to do with time, actually, which would be, [I guess], for a designer. It would be something that is played in space. So, can you elaborate a little bit on time in your work?

SM: Yes, particularly in the temporal arts. I mean, you have to connect patterns between events. Pattern is relations. You're establishing relations between different things. That's a creative pattern. If you only have one thing, I don't think that's necessarily a pattern, at least in a musical sense. You want to create different notes that create the pattern that we recognize as melody. With different durations, that makes a pattern that we perceive as rhythm.

And you can extend that into other musical dimensions like what we call "timbre," which is the sound color. So, if I have different instruments playing exactly the same pitch and exactly the same duration and exactly the same loudness, it's the difference that [defines] those different instruments. And then, we can follow patterns of changes in instruments as well, particularly in pop music where we use all kinds of electronic devices to play around with those different aspects. So, the point here is that it's something that has to be connected. You have to establish relations over time, which means necessarily that you are dealing with memory of some kind.

Now, there are limits on that, obviously. It's very important to understand that what we conceive of as musical patterns have to be connected across events that fit within a small time window, which we call, the sort of short-term memory window. For example, if I have an event and then three seconds later I have another event, and then six seconds later I have another event, I don't perceive those as being related. There are limits that the brain imposes on this. And so, patterns have to be formed within a certain time window for us to recognize that they actually belong together and to extract the relations between them. So, pattern in time is that. But it depends on temporal limits that we have in memory itself.

NZ: So, commenting a little bit on what you are doing, if I understand you and you will tell me if I don't, your work is to see how the brain functions and what patterns have to do with the functioning of the brain for processing, in particular, sound. So, from my point of view, as somebody who works in literature, and more of a cultural history and mostly not only 15th century, but 16th, 17th century, and a bit later. So, what is called early modern.

For me, what I do basically, mostly, is that I read texts, a series of texts, many texts, as many texts as I can that are in that time period, around one specific theme. For example, right now, the larger theme is the cultural interactions between Europe and North Africa, let's say, during that period of time. And, so the pattern is something that I consciously am, in fact, looking for. What is in this text that will lead me to have an idea that would allow me to comment on this text in a way that gives an explanation that envelops as many of these texts as possible, in a sense. Of course, it's sort of a tension with the type of work that we do in the humanities, because each text is individual and there are disciplines where you study each text individually. You do a close reading. It's about taking one text and understanding how it functions. So, in a sense, you would look at the patterns inside this one text.

But if you begin to be more of a cultural historian, it's also about what are the patterns between different texts written by different people but around the same period of time? And the patterns, to me, if I can begin to have a sense of what that is, of what patterns I can extract from the series of texts, that would be what would define what we call a culture. What does it mean to belong to a cultural period, where when we read something and we say, "Oh, this is so 80s," or, "This is so 30s," what does it mean? What do we recognize that is specific to a period? I wonder if what we recognize as patterns is how, in a specific period of time, we organize patterns in a specific way.

So, it could be in literature where historians of literature would talk -- or art in general -- would talk about the Baroque period. What does it mean when we say, "This work is a Baroque work?" What kind of rhetoric is employed by the writers? What kind of themes the writers are going to develop? But even if you go beyond aesthetic realms such as art, literature, poetry, those types of things, I'm getting more and more interested in texts of technology.

You can see that there are patterns, if you will, in technology texts, how they are written, and how they circulate, which is what interests me -- how these patterns can circulate across different cultural and civilizational eras. So, you will have, for example, one of the earliest texts of technology -- the earliest corpora of technology context that have existed in that early modern period, are texts of artillery, on gunnery, on cannons, guns, all that stuff. And it's played an extraordinarily important role in the development of the modern science. Galileo was a specialist in ballistics. That was his first thing, ballistics. He did a study of the trajectory of the projectile. That's one of the important things about artillery and the first master gunners that were working with the guns, etc.