

>> From the Library of Congress in Washington, D.C.

>> Hi, I'm Steve Menteur [Assumed Spelling], with the Library of Congress, and this is another one of our podcasts about Music and the Brain. And today in advance of his talk at the Library, I've got Steven Brown here. He's Director of the NeuroArts Lab at McMaster University. Tell me what the NeuroArts Lab does -- I can barely say it -- and what kind of work goes on there?

>> Steven Brown: Well, I work in the Department of Psychology at McMaster University, so I just gave a name to my own Lab, it's not anything more than my own little Lab with a few people. So I know it sounds pretty grandiose, but the work we do is about the arts and the brain, so I just called my Lab NeuroArts Lab, nothing more than that.

>> Okay, but let's dig a little deeper? I mean some of the people who we've talked to already have come at Music and the Brain from a medical model, other people have come to it from the idea of evolution, what's the background of the folks who work with you at the NeuroArts Lab?

>> Steven Brown: Well, I guess the lab is a bit more than music, that's why I use the term arts and not NeuroMusic Lab. So I think about music in the context of the arts more generally. So I think I've learned quite a bit about music from studying dance and language and things that relate to music, and so for me music is just one piece of the puzzle as far as human expressive behavior or the arts more generally. And so, yes, I use brain imaging and cognitive psychology to look at aspects of music, but also the connection between music and language, music and dance, and music in ceremony more generally. So it's not just about music, but about the arts and music is one piece of the umbrella that we think of as the arts.

>> One of the talks we had with someone a couple of weeks ago, their proposition was that music and dance, in fact, were in many ways the same, and that in some languages and some cultures there's no separation, there is no music without dance. Do you follow some of that?

>> Steven Brown: Yes, definitely, I mean that's definitely very concordant with my own ideas. As far as the music, dance connection, for me it's about rhythm and about the generation of rhythm. And so for me what we call percussion music and dance are often the same things. And I cite the fact that in many cultures people attach things to their bodies that make noise, and so every time they take a step or they take a movement they make a sound. And so they become essentially percussion musicians or percussionists while they're dancing. And so we think of a drummer as being a musician, but then people have these things attached to their bodies, they're making kind of the same sounds, the same rhythms as a quote musician. So at least at the level of percussion and percussion music, for me, there's not a big distinction between dance and music.

>> I'm thinking about a lot of things as you're talking. I'm thinking of David Vantigem [Assumed Spelling], whose music, whose percussion music makes me think of this, and I'm thinking of native dances.

>> Steven Brown: Absolutely.

>> Of the Americas.

>> Steven Brown: Absolutely.

>> Canada and the Americas, people stamp, and there's a bell attached to them and all of a sudden it's percussion music that they're making with their dancing and with their stepping.

>> Steven Brown: In fact, I think if you look cross-culturally you see that in many cultures people attach things to their regalia as they're dancing. In addition, they hold drums, and they hold shakers and rattles, things that make sounds as they're moving. And so their whole body becomes part of a percussion phenomenon. And, yes, like you said, people also clap and stomp and use their own bodies, but it's very common to attach things to regalia as part of dance rituals that make sounds as people are moving, and so you become a percussionist, and so there's not really a big separation between a musician you call a percussionist and then a dancer who also makes the same kinds of sounds, the same rhythms as, say, a drummer who is part of the same ceremony.

>> Sure, and when you say regalia essentially you're meaning costumes?

>> Steven Brown: Costumes, yes, exactly, the costumes that people wear.

>> Tell me, just for a second let me digress and ask you a little bit about yourself? Are you a musician, do you play?

>> Steven Brown: Absolutely.

>> What do you play?

>> Steven Brown: Piano, classical piano, that was definitely my first career aspiration was to be a classical pianist. I started college as a music major, only for one semester, and I kind of, I saw the light that I wasn't going to be the next Horowitz. And so then I went towards psychology, and then eventually biology, got my Ph.D. sort of in genetics and more biological aspects. So, yes, no, I came from the music side, but I decided to do something a bit sure as far as a career, which was science as opposed to being a professional musician, which is, you know, tricky in this world.

>> Yes, absolutely, and that's a story that I've heard more than once as I've talked to people about Music and the Brain. It's fabulous. Can you tell me just, again, a kind of cliché question, but I've got to ask it, what's on your iPod or whatever you carry around?

>> Steven Brown: I don't have one.

>> Ah, do you listen in the airport, do you listen in the car while you're driving, or what?

>> Steven Brown: I don't have a cell phone either.

>> Good for you.

>> Steven Brown: No, I listen to music in the car, I play it. For me, because of my schedule, I don't have so much listening time, so I tend to listen to music during my commute and so that's still CDs. I don't own an iPod, so.

>> And what kind of music is it?

>> Steven Brown: It's a bit of everything because I teach music psychology, and in that course I cover the whole world. I have a world overview of musical styles, so actually my collection consists of all world cultures. No, I listen to everything. I mean some western, classical, but also I do research on world music so I just came back from Taiwan a few weeks ago, and so I'm listening now to quite a bit of the Taiwanese Aboriginal music, sort of for research purposes more than just for pleasure.

>> Sure, that's fabulous, that's really great. Now I was looking up some of your work on the web. One of the things I came across was an essay that starts out by asking a question that I wouldn't necessarily have known to ask, which is how does music work? I should have prepared you for this, I see you're looking at me?

>> Steven Brown: Looking.

>> But in that sense that's not an obvious question to ask, and that's obviously part of what you get into in the essay, how does music work? I mean does music work, does it do something specific as you pose the question in that way?

>> Steven Brown: It's funny because I'm going to give a talk tonight at the Library, take home points is going to be that music is a prostitute, if you don't mind me saying that on radio? The music does what people want it to do, and so music sort of has its own intrinsic expressive properties. It can express sort of happiness or sadness, but it gets kind of tagged on to just about everything in society to kind of enhance those messages. And so music is kind of an enhancer of lots of other messages that are not intrinsically musical. We see it with advertising, you know, all over the place, we see music there. And so it's often used in many ways, but to enhance other kinds of messages. And so music has its own little devices for expressing sort of happiness and sadness and arousal, and that gets tagged on to lots of other things for the purpose of selling things or making certain environments seem more appealing to people. And so a lot about how music works is sort of enhancing nonmusical things and making them seem more appealing, more attractive to people, from religion on to consumers. And so it's pretty widespread.

>> If music is tacked onto messages, first of all, I start to worry a little bit that I'm being, say, sold something, whether it's a message of some kind, and music is doing something that I may not want it to do.

>> Steven Brown: I mean I'm Editor of a book called Music and Manipulation, and it's not so much necessarily the pessimistic view of manipulation, but that music is used to persuade people to do certain things, whether it's follow a certain religious group or buy things you don't want to buy. Yes, so I think that's kind of the essence of what music is about is acting as a device for persuasion and, or manipulation, to get people to behave in certain ways, and it starts at the level of ritual and religion and moves on to, like I said, consumers and buying goods and downloading and all these things.

>> Okay, but I'll take you up on your challenge because if you say music is essentially sort of manipulation, but you're not considering manipulation to be something necessarily negative. I mean Beethoven is writing the 9th Symphony, he's trying to get people to feel joy or he's trying to enforce or promote some sort of political message, he's not simply these aren't notes that he's got that he's got to get out because he's Beethoven, he's a composer and he's hearing them in his head. I mean are the two things mutually exclusive?

>> Steven Brown: I mean you're mentioning now classical music, and so in many ways classical music is perhaps the most divorced from social functions, kind of music for its own sake. And we know in terms of the history of culture that this is kind of the most recent use of music, music for its own purpose, just going to a concert hall and doing nothing but listen to music for its own sake. That's an exception in the scheme of world uses of music. And so in most cultures music is much more connected with other kinds of functions, whether it's the hunt or political, economical things. And so you mentioned Beethoven, but it's probably the most exceptional case about just a guy who wants to write music for its own sake, and we go to the concert hall and listen to it just as music, separate from any other kind of ritual or ceremony or social function. And so, for me, it's not sort of the exemplary model of use of music. I think more things like the music in restaurants and the music in TV commercials and music videos is closer to more ancestral, more manipulative persuasive, let's say, uses of music. Music makes people do other things than just listen to music.

>> But let me then go something the opposite of Beethoven or something really different, the angst ridden kid who's got, who just wants to scream and instead of just screaming he's got a guitar and he whacks the guitar and then he's got four friends and they get together in their garage and they scream and whack at the guitar, maybe actually they're going to sell a million copies of this thing because it's a song that speaks to other kids, how does that fit into your scheme?

>> Steven Brown: I like you example. To me, they're too oriented towards the individual, and I think music is much more about the group and much more about society, and not just about individual self-expression. I mean that's our view, but that's a more popular view of the arts is that it's about self-expression. But I think a more general, say, anthropological view is that it's about the group, it's about society, about cultures, and not just about me and my feelings and me and my angst and all that stuff. Yes, I mean we know a lot of examples of people who want to express themselves, but if you think about the arts more evolutionarily,

anthropologically it's much more about group behaviors. And so I think about maybe church music as being a better example of sort of the roots of music than the kid in the garage who is beating out some guitar tune.

>> Good, perfect, thanks, I mean that helps me a lot. So let's then start a conversation, say, right now in America or Canada 2009, give me some examples of music that you're looking at, that you're studying, that's being written now that's having some of these sort of social uses or maybe things you're going to talk about today?

>> Steven Brown: If you look at TV commercials, close to 100% of TV commercials have music. That wasn't the case 50 years ago, but I think nowadays you cannot sell things without having some kind of music. And so music is there to sell things in abundance. Pretty much very restaurant you go to has some kind of music track that's supposed to be appropriate for the kind of clientele they want to attract to the restaurant. And I mentioned religious musics, and so that's very general and an ancestral use of music to get people to do things in the name of their group, and in this case a religious group or to be obedient to Gods and deities and all that. So I think it's all around us, but I think the example of going to a concert hall, like people coming to hear the quartet tonight, is sort of the exception and not the rule, if you look cross-culturally at the uses of music.

>> So as you're talking to me about this, it makes me think of Starbucks, who has gone out of their way to try to create in their coffee shops an aesthetic. They say this is a third place, this is not your work, it's not your home, it's Starbucks, where you're going to spend a lot of money on coffee. And they bought a music label and they produce music artists that they pump into these Starbucks in order to make you think that you are actually living in this other place, it's not your home, it's not your office, it's Starbucks, where James Taylor and the music of your youth and people who can come in and spend \$3 and \$4 and \$5 for coffee, all of it is wrapped up in one package.

>> Steven Brown: It's good that I met you because I don't have a cell phone or an iPod and I don't drink coffee, so I wouldn't have known about this had I not met you tonight. So it's good to know that Starbucks is kind of doing what I'm thinking, but I've never been to a Starbucks, so, and I don't drink coffee. So I don't know about this, but I'm happy to hear they are doing pretty much what I ...

>> Oh, absolutely, I mean and have gone to the trouble to actually buy ...

>> Steven Brown: To have a label or something.

>> Yes, yes.

>> Steven Brown: Okay.

>> And produce this music that creates this societal pull.

>> Steven Brown: Is it new music or it's just re-releases of ...

>> It's both, but even the new music uses artists, like a James Taylor, he releases new music he might release it on the Starbucks label, and that might help them create this thing. So I understand exactly where you're coming from on this.

>> Steven Brown: Okay.

>> One of the kind of nuggets that I read about you and your discussion of music and your study of music is that music elicits certain emotions from us. And it made me think of just only the rudiments of this, I know when I was growing up and studying music, well, we all frown and say, well, minor scales are sad and major scales are less sad, but obviously there's a whole world of understanding that we would need to really get underneath this. So you can you ...

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>> Steven Brown: Actually that's going to be the topic of my discussion tonight at the Library, and the major, minor thing is kind of simple, but it's kind of the example I want to give of how very, very small changes in acoustic properties can lead to very, very large changes in emotional interpretation. So if you look at the difference between major and minor in terms of just sound waves, it's really trivial, it's a very, very small change in frequencies, but it gives rise to this kind of very global change in the emotional interpretation of the music. And so maybe it is a bit simple minded, but it works, it works fairly well, so if you do these transpositions from major to minor people do think that the emotional quality is very different. It does go from kind of happy to sad or vice-versa, depending on how you make the change. Not every culture has this kind of major, minor stuff, but they do have different kinds of scales and they use different kinds of scales to signify different things. The best example is in Indian classical music, where they have literally hundreds of scales that they call ragas, and they're very specific for certain emotions and certain scales are only used during certain times of day, so you have ragas for the morning, ragas for the afternoon. During seasons you have ragas for the wet season, ragas for the dry season kind of thing. And so they do have the sense that different scales have different emotional connotations, different emotional meanings, completely analogous to major, minor that we have in the West. They don't use major, minor, they have different systems, but I think that many cultures, many musical systems have these contrastive scale types, where one scale means one thing, another scale means something else, and it's used connotatively that way to express different kinds of feelings, and so ...

>> How do you get underneath this, though, to find out sort of why? I mean I'd like to know why if I go dah, dah, dah, that's sort of sad, and if I go dah, dah, dah, that's sort of happy? I wouldn't know where to start to study that.

>> Steven Brown: Yes, me neither. Now drawing really good theories, I mean the closest thing is that people think that the minor third is a bit

more dissonant than the major third, and so maybe the major third is a bit clearer, less dissonant, the minor third maybe conveys something about roughness. And that's an acoustic theory, I don't know how that stands these days, but that's about the closest I've gotten to getting an understanding of the difference between major and minor. So it's not well understood in our logic at all, but we know that it works that way, we know that people do interpret musical pieces quite differently if they're in a major versus minor mode.

>> So as a scientist you are studying this by looking at sort of the results or you would play these things for people, you would give them a questionnaire, or how would you study this sort of thing?

>> Steven Brown: I use brain imaging, so there are a few studies looking at which brain areas are activated by major or minor pieces. There's not really a good take-home story that's come from that literature yet, and so maybe one day I'll do a follow-up study to some of these, but I haven't investigated that myself with imaging.

>> Interesting. Now, just a couple of things before we go. One of them has to do with music and language because I know that's an interest of yours. What do we get from looking at music in relation to language? In other words, I sort of was picturing a Venn diagram as I was thinking about that there's music over here, language over there, and then there's something that they both share and things that they don't share. How does that help us, let's stay with the music side for a minute how does that help us study or learn things about music and then also language?

>> Steven Brown: I mean, for me, there's music and language kind of as abstract conceptual systems for generating meaning. And then we have speech and song, which are their vocal routes for externalization. And for someone like me, and I've done a lot of sort of brain imaging work, music and language are distinct in the brain, but speech and song are pretty much the same system. And so you have these two sort of conceptual systems, but they feed in, at least for me, into a common vocal output system. And so, for me, speech and song are just variations on themes of generating these different sounds in time. The input to them comes from these different meaning systems, you have sentences and linguistic ideas versus melodies and harmonies, but in terms of their externalization vocally, to me, that's the same system both rhetorically but also in the brain it's kind of a common vocal system. A lot of my colleagues don't agree with that, but at least that's my take on things is that speech and song are pretty much the same thing. They're driven by different kinds of meaning systems that we call music and language, but at the external metoric [Assumed Spelling] level, to me, they're the same thing.

>> As you're saying that I'm thinking of the Chinese, the language ...

>> Steven Brown: Tone language.

>> ... tone languages, where speech and song, in fact, the pitches of the words totally determine their meaning.

>> Steven Brown: Yes, lexical tone, exactly. So it's not just that. If you look at the way we're speaking now you'll see that it's quite melodic and has a lot of rhythmic properties, as well. We're not aware of them, we don't think about it as being a melody, like music, and we don't think about it rhythmically the way we do musical rhythm, but it's there in its own way. So speech has its own kind of rhythm and melody. If you look at Chinese or Cantonese it has a sort of a different take on that because you have lexical tones, but, yes, it's all about ultimately varying rhythm, varying pitch, and so we have melody and rhythm in both music and speech. And so, yes, like I said for me they're really just variations on a common theme of generating these sequences with our voice.

>> Great. Now, all right, now in about an hour you're going to be talking to the crowd out there in the Library, what's the one thing that you think you're going to tell them that's going to be most surprising to them today?

>> Steven Brown: Well, I kind of gave my take-home thing about music as a prostitute.

>> No, I think you're going to come out and say that later.

>> Steven Brown: It's going to be -- no, I'm going to say that in my talk. I'm not sure it's politically correct in the U.S. to use that term, but I think it's about the truest thing I can say about music, is that music is kind of this free-for-all. It can be used for whatever purpose people have in mind, and so really there's not good and bad music, there are good and bad uses morally speaking of music, and so I think I'll talk tonight about how I purchased some neo-Nazi music as part of some research that I was doing. At the time I bought it it was illegal for me to do it, and so it was a big risk, but when I listened to the music, musically it was exactly the same chord sequences that you would find in the quartet music we're going to hear tonight in the concert. So there are sort of good and bad chord sequences, but there are good and bad messages to get tagged on with those chord sequences that make them either socially positive or socially negative. So music is kind of neutral in that sense and it is kind of a prostitute. It gets -- it can be used for whatever people want it to be used for, and it does get used in that way. And so that's kind of my take on the social function, the uses of music, is that it's used for everything and people associate it in whatever way they think it's going to be best used for.

>> Thanks a lot. I've been talking to Steven Brown, the Director of the NeuroArts Lab at McMaster University. And I'm Steve Menteur for the Library of Congress. Thanks for joining on these Music and the Brain podcasts.

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