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Ask an Acoustician: Brigitte Schulte-Fortkamp



Meet Brigitte Schulte-Fortkamp

Dr. Brigitte Schulte-Fortkamp is a professor of psychoacoustics and noise effects at the Institute of Fluid Mechanics and Engineering Acoustics, Technische Universität Berlin, Germany. She was previously a visiting professor at the Massachusetts Institute of Technology, Cambridge; Osaka University, Japan; and the Université Pierre et Marie Curie in Paris. She has been a member of the Acoustical Society of America (ASA) for years, serving as vice president from 2011 to 2012. She has also been a Fellow of the Society since 2002 and has served as an associate edi-

tor on *The Journal of the Acoustical Society of America*. She began co-organizing one of the ASA's most popular events, the "ASA School," with Dr. Judy Dubno in 2012. She is currently serving as vice president of the European Acoustics Association and is also a member of the board of the German Acoustical Society.

Brigitte recently answered a series of questions designed to help us get to know more about her and her field. Her participation in this special issue of *Acoustics Today* featuring accomplished women is no accident. Brigitte is an impressive scholar and educator, and we can all learn from her story.

A Conversation with Brigitte Schulte-Fortkamp, in Her Words

Tell us about your work.

I like soundscapes. Soundscape got its introduction into the field of noise research and noise abatement about 20 years ago as a paradigm shift, defining an acoustic environment "as perceived or experienced and/or understood by people, in context" (International Organization for Standardization [ISO], 2014). This clearly means to first consider human perception and then turn to physical measurement when an acoustical environment is evaluated. More precisely, I enjoy getting people involved in noise issues in order to address their own interests in noise management, like people did in the Berlin project "Nauener Platz" when they asked for bird and water sounds to be protected against road traffic noise (Schulte-Fortkamp and Kang, 2013). I have been involved in many projects with regard to noise management, but the best projects were those that gave people the chance to access topics that concerned them about noise. For decades, noise was considered a burden for people, but it was always very challenging to directly involve people in solutions to deal with this noise. Although the 2002 Environmental Noise Directive (acousticstoday.org/directive-en) focused on the future of noise in Europe, for the first time it provided the chance for soundscape measurements to be discussed and proposed for standardization on an international platform (Schulte-Fortkamp and Dubois, 2006). I was then nominated as one of the German representatives to a working group seeking to develop the ISO standard on soundscapes. We began

work in 2008, with the first part considering the framework published in 2014 (ISO, 2014). The second part on technical specifications for data collection came out in 2018, and the final part on analysis is to appear later in 2020. My participation in this group is best summarized by the book that I coedited with Jian Kang (Kang and Schulte-Fortkamp, 2016) that brought together researchers from all over the world to work together on soundscape as well as my involvement in the European project on Soundscape of European Cities and Landscapes (Lercher and Schulte-Fortkamp, 2013).

Describe your career path (how you got your start, what made you choose your field).

My first focus in science was in the social sciences. Because of interdisciplinary initiatives at the University of Oldenburg, Germany, at the time and because I did my doctorate in sociology on the development of interdisciplinary research methods in noise evaluation and its sociological analysis, I got the chance to participate in acoustics projects and I never turned back. I considered acoustics not only as a physical discipline but also as a human-related science that can unite people and knowledge across disciplines and countries all over the world. Based on my sociological background, it was possible to develop research methods that would use people's expertise with noise from their daily lives. I am not a blind believer in statistics but rather in methods that will open the black box regarding perception and evaluation. The opportunity to be in contact with researchers from different disciplines enabled interdisciplinary connections to be made in all of my respective projects. Later on, the European Cooperation in Science and Technology (COST) action on the soundscape of European cities (Lercher and Schulte-Fortkamp, 2013) developed into a very rewarding manifestation of such early collaborative ambitions because the intensive collaboration helped to facilitate meaningful progress to enhance the quality of life regarding acoustic environments.

What is a typical day for you?

This is not an easy question to answer; each day is different. But my most common tasks include writing emails, university-related issues like giving lectures, working on projects with colleagues and students, having faculty meetings, and family-related activities. If I look back to the time when my sons were young, the arrangements were slightly different and particularly challenging with my regular attendance at conferences and meetings all over the world. There were always difficult logistics to balance.

How do you feel when experiments do not work out the way you expected them to?

I feel responsible and need to rethink and discuss the procedures that were employed. Sometimes the unexpected outcomes of projects are a great experience! But it is always very difficult if deadlines cannot be met.

Do you feel like you have solved the work-life balance problem? Was it always this way?

Work-life balance can be difficult if you do not have a clear separation of duties between work and private life; there are always expectations from both sides. My career has not really afforded such a clear separation of duties. To be honest, I work every day, even on vacation. It is sometimes very hard to keep a balance, but, interestingly, it gives you a kind of permanent power as well.

What makes you a good acoustician?

Being aware that expertise in acoustics is not only knowing how to measure but also understanding that people living in an acoustic environment are the real experts when it comes to concepts of measurement. My approach in acoustics is interdisciplinary. I seek to identify the chances and the limitations in acoustic measurements. As an acoustician focusing on psychoacoustics and noise as well as sound quality and soundscapes, it is most important to look for collaborations between different disciplines to apply acoustics as a tool to enhance the quality of life. This carries implications for developing architectures of good and supportive environments as well as for developing educational strategies to understand the needs of preservation and future changes. A further need is communication within the scientific area as well as with the public. It is most important to find platforms and languages for this kind of communication, which I feel I can facilitate with my particular background and expertise. To enhance people's quality of life in acoustic environments, one will find many solutions based on noise regulations, but groups of experts need to improve these regulations to provide the best good solutions for the people concerned.

How do you handle rejection?

Primarily, I take rejection as an opportunity to understand another perspective and find opportunities for better communication about the particular situation. I do not necessarily accept the rejection immediately but push back to understand the situation more fully.

What are you proudest of in your career?

Career does not mean to me only “business career.” Career to me is a global term for organizing my life with regard to family and business. I am proudest of my sons but also of my decision to keep a balance between family and business. It makes me most proud that my sons are brilliant in their respective business careers and achieved the balance of business and family that I also strove for.

What is the biggest mistake you’ve ever made?

Sometimes I think that I should have also put an emphasis on studying medical sciences.

What advice do you have for budding acousticians?

My advice is to try to find your own understanding of acoustics. Network with people from acoustics and other disciplines. Try to understand that there are always human beings concerned, no matter what decision is made from a scientific perspective.

Have you ever experienced imposter syndrome? How did you deal with that if so?

To me this is a most difficult question. I am not sure whether I should answer with yes or no because I feel it might be a question only addressing women who are successful or maybe women who are in business and raising children too. It is true for me that I very often feel I have to prove that I am aware of all new developments in my scientific field, but otherwise I strongly feel that I am doing the right things and also following my goal to impart to the students the ability to work in a problem- and project-oriented way to always improve science and its outcomes with regard to the needs of society.

What do you want to accomplish within the next 10 years or before retirement?

I would like to support, as much as I can, the application of the soundscape approach in different acoustics fields that deal with noise. But I would also like to support its application in communities to support public institutions like

schools and hospitals. To establish the soundscape concept and the soundscape approach, it is necessary to advise the respective stakeholders in communities, parks, and wilderness. Future generations as well as sociocultural, aesthetic, and economic effects should be considered as resources in this work as well and should be directly involved. The current approach within the standardization of soundscapes and the available standards in psychoacoustics and noise management have provided a big step toward enhancing the quality of life for people. As we know, soundscape is different from “acoustic environment,” which is defined as “sound from all sound sources as modified by the environment.” Soundscape, on the other hand, is defined as a construct of human perception, which is influenced by one’s sociocultural background as well as by the acoustic environment in context (ISO, 2014). Every situation is different and the contribution of sound sources will vary. Using the soundscape approach goes beyond sound sources to consider other sensory systems, visual aesthetics, and geography as well as social, psychological, and cultural aspects. Taking this variety into consideration should be integral to the goals and guidelines of acoustical development of spaces and will contribute to a supportive and improved acoustic environment for all.

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