



HNC Sound Production

History of the Audio Industries (SCQF level 8)

Unit Code: DJ24 35

Lo2 - History of the Audio Industries Report

Research Title: Moog and the origins of the synthesizer

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In the history of the audio industries, there are eras that can be defined by their technologies. The acoustic era 1857-1925, the electric era 1925-1945, the magnetic tape era 1928- and the digital era to the present day

It was in each era that a wide ranging and varied palette of instrumentation would arise from technological innovations. In response to these innovations, musicians adopted them and so a market emerged for more products. The cycle of musical needs, market forces and technology drove an industrial requirement for these new products. Parallel to this, *“the age of modernity was constructed by ordinary individuals as they struggled to make sense of the world around them.”* (Sterne, J, 2012, p.125)

My research has been carried out through secondary sources. I approached it by creating a research method, using the Perth UHI library search function noting keywords related to my subject, such as but not limited to “Bob Moog, synthesizers, Don Buchla, Wendy Carlos”. I noted down titles of books, ebooks and journals containing these phrases, then scanned and correlated each respective title in order of relevance. This allowed me to draw from a wide pool of information from various sources, each source being of a different perspective and writing style, such as analytical, evaluative, critical and journalistic. It is my intention to gather all this information and process it to my needs and that of the brief. In wider research, I also drew from sources connected to art and philosophy, to enable myself to articulate my own critical thinking and academic writing.

Moog's innovations culminated in the creation of the Moog Systems, which became the first modular voltage-controlled synthesizers. These systems were predominantly used in academic settings, including universities, institutional-based electrical studios, and the BBC Radiophonic Workshop, where they sprung forth new and innovative forms of sound production. These systems, as Moog chose to describe them, were not constrained by preceding musicality and style, opened a new avant-garde of sound interpretation, what could this new musicianship be? A sound using filters and envelopes, waveforms and oscillators.

A contemporary of Bob Moog was Donald Buchla. Buchla's synthesizer was an experimental instrument, not designed *to imitate or emulate the sounds of other instruments*. (Pinch and Trocco, 2004, p41). The Moog took its form from traditional piano, which was familiar to musicians and artists, the Buchla broke with that tradition, the design of the synthesizer eschewing the keyboard layout to emphasize playing technique on a metal strip that would measure such variables as pressure, velocity and speed even temperature of the players hands. This was a radical and expressive method of play that encouraged experimentation in the player.

Morton Subotnick was a composer renowned for his pioneering work in electronic music, particularly within the experimental genre. His seminal album *Silver Apples of the Moon* (1967) is notable for its abstraction of musical forms, reflecting the tactile, expressive nature of Don Buchla's synthesizer. Subotnick's compositions were integral to the development of Buchla's instruments, demonstrating a fusion of experimentation with the evolving potential of electronic sound.

In contrast, the Moog synthesizer, developed by Robert Moog, resonated more strongly with classically trained musicians, gaining widespread recognition through artists such as Wendy Carlos and Isao Tomita. These musicians used the Moog synthesizer to bridge the worlds of classical music and electronic sound, making significant contributions to the broader acceptance of electronic instruments in professional music production.

Wendy Carlos, like Moog, was a physics graduate, and her expertise in the field influenced the design of the Moog synthesizer. Her classical training as a composer, combined with her technical knowledge, led to the creation of *Switched-On Bach* (1968), an album featuring Johann Sebastian Bach's compositions performed on the Moog system. This album marked a significant milestone in the integration of classical music with modern electronic technology, exemplifying the reciprocal relationship between technological innovation and musical achievement during this period. *"The role of technical innovation within this industry must be considered an important contextual element in the development and adoption of new musical technologies."* (Théberge, P, 1997, p.18)

The synthesizer would now be out of the institutions and affecting cultural moments, gaining prominence with Wendy Carlos again through scoring of the film *"Clockwork Orange"*. The synthesizer providing the electronic score to the era of modernity.

The systems created by Bob Moog and his contemporaries still resonate today with musicians, sound designers and artists, a true testament to the innovative and exploratory nature of these designs. Based on my research, from varied sources, there lies a wealth of information and perspectives on the topic, technical, musical and personal. For future research and writings, I aim to incorporate more digital mediums such as websites and online video so my work is up to date on current trends.

Bibliography:

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