WELL-BEING, CHILDREN'S VOCAL PLAY, AND MUSIC DEVELOPMENT

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CULTURE AND NATURAL EXPERIENCES

For two reasons, children's musical activities represent a prototypical area for cultural developmental psychology (Valsiner, 2000). First, music is a sub-part of culture. As semiotic systems it serves as a tool for regulating both the inter-personal and intra-personal psychological functions. Second, from the very beginning, the older generations transfer music culture to their offspring, by lullabies, by melodic dialogues as part of intuitive parenting etc. In this setting, developmental psychology looks at the emergence of novelty. In the infant, experiencing 'music' is given by 'nature', by both, the physical conditions, i.e. the auditory capacity (even before birth), the voice, motor movements, and the interaction with persons and the environment. This immediate and natural experiencing of 'music' develops into experiences mediated through the construction of symbols related to sounds. That is, the primitive or natural sound expe-riences are categorized to build a relative stable meaning sys-tems. These semiotic constructions serve as personal and cultural means to symbolize the continuous flux, and to make possible intra- and interpersonal communication.

Of the natural music experiences, vocalizations are of special interest because of three reasons: i) The human voice is the most important means to express and create sounds necessary for speaking and singing, or, at another time scale, for the evo-lution of languages and musics. ii) From early on, vocalizations contain all relevant musical parameters, i.e. loudness, timbre, the timing of pitch, including vowels and consonants. iii) From early on, the child organizes her or his vocal expression. There-fore, novelty in the vocal organization is easily detectable by comparing past with present events. Vocalizations, thus, are a rich source of information on how a child gradually adapts to the surrounding cultural sound systems, i.e., language and music.

METHODOLOGY

In order to investigate vocal development towards language and music, a new methodology was necessary. Previous studies on children's singing hardly ever investigated development in terms of change but compared age groups with respect to single features. Or, vocalizations were analyzed by mere listening and by using conventional music notation. Yet, even music experts' hearing is culturally biased, and in addition, conventional music notation is inadequate to describe pre- or unconventional singing. In order to tackle these problems and to gain reliable analyses and descriptions of singing, the transformation of its organization, and of the context, we devised a new methodo-logy. Detailed descriptions of what happened while a child was acquiring or inventing new songs, guided us to develop a systematic micro-genetic method consisting of a detailed con-ceptual framework including computer aided acoustic analysis of singing events (Stadler Elmer & Elmer, 2000; Stadler Elmer, 2002). The result is detailed analyses and descriptions of pro-cesses how children organize and reorganize their activities with respect to music and language. These results show that previous conceptions on music development failed to account for the phenomena revealed by the new methodology. Children do not add interval after interval as they develop towards the occidental music culture, nor do they use their voice at the basis of a sequence of 'contour-schemas', in which the boundary of a melody increases in size with age. However, detailed de-scriptions about children's learning and inventing processes do not provide explanations of music development. Instead, these have to be gained by re-constructing general principles together with a synthesis with the empirical evidences. Questions such as the following ones guide this endeavor: How are primitive action organizations transformed into new, more complex, or culturally adapted forms? How can the emergent processes be described? What are the rationales of the transformation pro-cesses? How can the changing qualities be understood at macro-levels in accordance with the micro-levels?

In music development, extensive efforts had been made to apply Piaget's theory to this domain (beginning with Pflederer, 1964). Apart from new inspirations, in general this endeavor failed because the theory was misunderstood as an age-related stage theory that would easily be transferable from the logico-mathematical thinking to the musical domain. Instead, the specific nature of 'music' as a semiotic system, the open-systemic nature of psychological functions, and the core concepts of the theory are promising directions.

DOMAIN SPECIFITY OF 'MUSIC'

An important theoretical step consists in clarifying what is meant by 'music' (Zulauf, 2002). Is it a physical object 'out there', with ever lasting, objective rules or even laws, inde-pendent of the human psychological system? Or is it a system existing only in human minds and bodies, over and over again constructed and re-constructed at the basis of a psychological system that strives for some kind of stability?

From a developmental and genetic epistemological point of view on psychological phenomena, the latter is favored. In ad-dition, some further specifications of the nature of music are to be found in philosophy: 1) Music is play, as any cultural form can be derived from playing (Huizinga, 1938). 2) Music has no single identity, but exists as plural, as musics, which are mani-fested by actions that bring the phenomena into existence (Saner, 2000). 3) Humans tend to symbolize their experiences, and by that move from 'nature' to 'culture'. The playful organi-zation of sounds is beyond rationality but is symbolic (Cassirer, 1944). In sum, 'music' is seen as a semiotic system, constructed by humans to make sense of sounds by playful organization, to enhance and communicate enjoyment by sharing these expe-riences, and to create the illusion of repeating events and re-peating (life) time.

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These attempts to capture the nature of 'music' are not at all exhausting. Language as a specific semiotic system is too limited to represent the very nature of another one. Each systems ap-peals to psychological needs on its own in specific ways that cannot be substituted. Yet, the aforementioned conceptualiza-tions of 'music' are useful for structuring a developmental approach.

EMPIRICAL EXAMPLES: PLAY, EMOTIONS, AND RULES

The empirical research methodology follows criteria set up towards describing emergent processes. We focus vocalizations, and thereby the social contexts and the organization of the parameters relevant to music and language. Micro-genetic ana-lysis aims at gaining access to unknown phenomena by esta-blishing a conceptual framework to identify and describe pat-terns or events. With respect to song singing, it is important to consider consecutive events sung by one person in order to study genuine processes, i.e. the changes from one state to the next, be it inventing or acquiring new songs. For an illustration, a single event is taken out of such a process. Figure 1 represents the analysis of a song invented by a 4-years-old girl. The gra-phic is based on acoustic analyses of time and pitch. Both para-meters are represented as a continuum on the *x*- and *y*-axis, respectively. The pitch scale corresponds to the occidental tonal system and the timing represent physical time (secs.). These scales serves as an orientation, but both continua could be scaled according to other cultural conventions. The symbols stand for the quality of the sounds produced: a dot represents a stable pitch phase, and a line represents a glissandi or an un-stable pitch pattern. The figures shows that the lyrics are syn-chronously timed with the pitches. As an excerpt, this single singing event may give an impression of micro-genetic access to the analyses of singing processes that include information about contextual conditions.

From a theoretical point of view, children's singing meets all relevant criteria of *play.* Here, two of them, *emotions* and *rules*, are discussed with respect to music development, and illustrated empirically. Children's spontaneous singing involves emotional qualities such as well-being, ease, gaiety etc. Are such positive emotions prerequisites or concomitant circumstances for all kinds of singing? How are emotional states related to singing conceptualized? As well, the rules of vocal play need to be specified, both, theoretically within a developmental framework, and empirically with examples on how rules are identified as applied by a child while singing.

The empirical examples are selected from a large body of data on children's singing development from infancy to puberty. It includes semi-standardized data on processes on learning and inventing new songs as well as on spontaneous singing. Micro-analyses of consecutive singing events reveal some of the child's elaboration processes and the varies ways a coherent piece of vocal product consisting simultaneously of lyrics and melody is constructed. The examples per se are not representa-tive nor generalizable, but the story selected to tell is general since a theory on music development should cover a huge va-riety of phenomena.

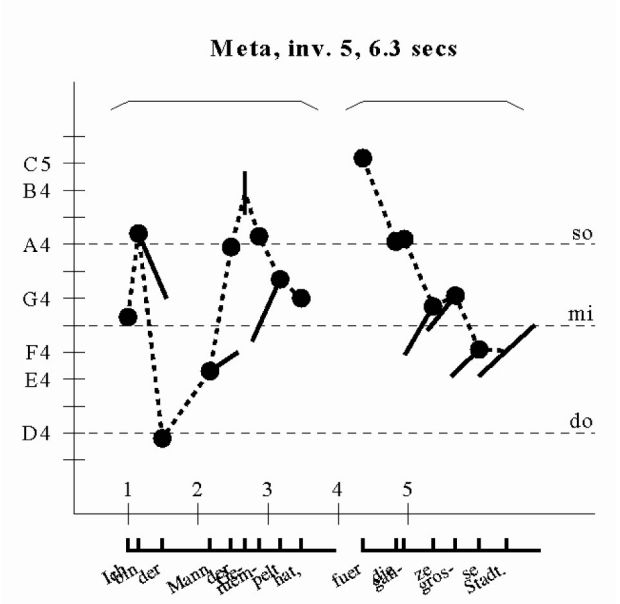

Figure 1: Example of a micro-analysis of a song invented by a 4-year-old girl.

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