



VOLUME ONE

MUSIC IN
THE
SOCIAL &
BEHAVIORAL
SCIENCES
AN ENCYCLOPEDIA

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MUSIC
IN THE
Social and Behavioral Sciences
An Encyclopedia

Volume 1

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and combined with decay functions like those of classical (STM) models. In this way “higher-order” phenomena like tonal relationships are explained without the need for schemata stored in long-term memory. Other researchers have made use of neural network models, such as J. J. Bharucha’s MUSACT (1987), which, although operating on symbolic inputs of musical pitches rather than audio signals, is typical of subsymbolic models in its modeling of higher-level cognition, in this case tonal function, as an emergent property of dynamic processes. Other music researchers have drawn upon J. J. Gibson’s “ecological” approach, seeing music listening as deeply connected with the physical, physiological, and cultural situatedness of the listener, rather than abstracted away from these complexities.

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See Also: Complexity; Computer Models of Music; Statistical Learning; Tonality.

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Inspiration

The notion that all artists, but especially poets and musicians, depend on inspiration for their work is an ancient one. Related ideas have been that creative productivity suffers without inspiration and that artists should therefore always be actively seeking it (although there is some disagreement about the usefulness of this strategy). In the Christian era, the stereotypical image has been one of

the artist privately attending to the whispered messages from angels, which sometimes take the form of religious prophecies. The musicologist Louise Duchesneau has proposed, on the basis of musicians' diaries and letters, a typology of musical inspiration in which three general sources of composers' inspiration are mentioned: the claim of an ethereal communication that has a quasi-divine (metaphysical or religious) origin; a source of inspiration that is located within the composer and characterized by psychological or physiological factors; and, finally, a real-world sociological or cultural source. In the following, the origins of music composers' inspiration are explored; inspiration is placed in the preparatory phase of the creative process and differentiated from the concept of insight.

The Creative Process

The creative process should be distinguished from creativity, with the latter generally referring to an art-music composer's inherent ability or long-term personality disposition. For the present purpose, the term *creative process* is used to refer to various phases of art-music composers' development of a score. Unlike creativity, which can be measured by a variety of general and special-purpose tests, the creative process is not within scholars' direct reach. There is the veil of mystery and the hyperbole in description. Often the composers themselves, for various reasons, obfuscate the process beyond the requirements of their obvious and, in some cases, extreme need for privacy. Among the reasons are the objective difficulties and inadequacies of the process of introspection, as well as the sometimes self-serving, romanticizing notions.

With living top-echelon art-music composers, the researcher's presence at the act of composition is unthinkable even for a single session, let alone in the case of works that take months or years to complete. The means that are available to researchers are therefore indirect and they are all to some extent unreliable. These include composers' sketchbooks (Ludwig van Beethoven has been famous for them), letters, diaries, and memoirs; contemporaries' notes and reminiscences; and, in the case of living composers, their interviews and various commentaries. All of these documents can be submitted to musicological,

historiometric, and music-psychological investigations, but even in these inquiries inspiration—its source, phenomenology, and effects—is the least tractable and the most elusive private event to describe and analyze.

There are two major phases of the creative process: the preparatory and the executive, which are temporally loosely separated from each other by the decision to begin work on a particular piece. The preparatory phase consists of a close familiarization with the stylistic, structural, and technological novelties in the work of other composers, a critical review of one's own past work, and the features of a commission a composer may have received. Above all, there is an active, multi-pronged search for musical ideas varying in complexity and magnitude. It is a period of sometimes feverish anticipation of the beginning of sustained work. It is during the preparatory phase, often during a lull in activity, that inspiration may arise and be a prompt for the initiation of the executive phase. However, especially in the case of very short pieces, inspiration (for example, melodic) may lead to concrete work without a preparatory phase—which by no means excludes the necessity of an extensive musical background. Inspiration can also concern large-scale musical structure and a novel organization of musical material.

Inspiration and Insight

There are numerous anecdotal accounts by musicians and poets of the occurrence of inspiration and its temporal sequence. Many of these, including a notable description by the writer and poet Vladimir Nabokov, mention a barely intelligible early "glow" that increases and subsides in terms of accessible detail, followed by a period of "incubation." Eventually the central idea reemerges—somehow anticipated, rather than catching the composer by surprise. It is clear that instances of documented inspiration differ with regard to detail, scale, suddenness of onset, and musical purpose, so that the amount and type of work needed to put inspiration to proper use in the executive phase vary a great deal from one case to another.

The subjective experience of inspiration tends to be concerned with ideas that initiate new work, or new directions in ongoing work, rather than solve the existing, well-defined problems.

Solutions to such problems are instead often obtained by insight, which is by some referred to as the moment of “illumination.” In music, the implementation of inspiration often leaves many musical problems open, the solutions to which profit from insight. This concept has a long past in psychology as “aha!” and much longer in philosophy as “eureka!” Insight is thought to require a “transformative act.” It occurs suddenly, without conscious incremental steps toward the solution, although here, too, there is apparently a subconscious preamble. When the solution is reached, there is an overwhelming certainty that it is the correct one—be the problem musical, mathematical, scientific, or in chess.

It is of interest to note that insight is often reached after a period of relaxation or “de-focus.” This was anecdotally described at the beginning of the 20th century by the mathematician Henri Poincaré (who recommended taking a walk when reaching an impasse), and confirmed in the past decade by several groups of neuroscientists who have intensively studied the neural activity that is correlated with events immediately preceding the moment of insight. Even though the neuroscientific work on insight understandably has not addressed problems in music composition, the findings are of great interest. In the case of verbal problems that have been studied (remote associates, anagrams), initial activity in the prefrontal cortex (responsible for incremental work) is soon augmented by that in parts of the right hemisphere (the insight route).

In case of an impasse, relaxation is useful, perhaps because this allows the recruitment of more remote right-hemisphere associations. Already eight seconds before the occurrence of insight, it can be predicted by the degree of steadiness, in comparison to the controls, of alpha waves that are detected electroencephalographically. Activity of the anterior superior temporal gyrus in the right hemisphere is observed in the second prior to insight. Finally, 300 milliseconds before the solution is verbalized, there is a spike of gamma waves.

In the course of the executive phase of work on an extensive piece, a composer may experience both additional moments of creative inspiration, which propel the work forward, and of insight that addresses specific problems. However, because the variability in the frequency and

details of both types of event is likely to be high, it is doubtful that generalizations can be drawn even from meticulous investigations of the available records by musicologists and music historians.

Inspiration in Times of Loss and Stress

One of the sources of inspiration in Duchesneau’s tripartite typology mentioned above is a composer’s psychological state, an example of which may be grief following the loss of a loved person. Another of the three sources is “sociological” in nature, which can reasonably be construed as referring to a composer’s stressful and adverse life circumstances, such as living in poverty or in time of war. In the popular imagination, as well as in numerous works of art (novels, poems, operas) that have been concerned with this topic, especially in the 19th century, artists should suffer and be poor in order to deserve inspiration and be creative. A corollary of this view is the contempt held by many to this day for wealthy artists, especially those perceived as darlings of the establishment.

There is, however, very little conclusive evidence for the view that inspiration is more likely to take place when a composer is grieving or in existential need—either when one compares composers who lived in very different, but stable, circumstances throughout their lives or when one compares periods within the lives of composers whose circumstances sharply fluctuated. Anecdotal evidence for the Muses bringing inspiration to struggling or suffering musicians (with Franz Schubert as one of the prototypes) is countered by examples of well-off creative composers for whom there is solid evidence of numerous moments of inspiration (with Georg Friedrich Handel as one of the prototypes). Moreover, there are many examples of those not blessed by inspiration while poor. There are also composers who experienced a loss or a joyful event but were nevertheless inspired to compose music contrary in emotional tone to a state of grieving or happiness, such as Pyotr Tchaikovsky and Gustav Mahler, respectively.

The absence of reliable information regarding inspiration in composers’ different life circumstances should be viewed in conjunction with the inconclusiveness of the data obtained by Dean Simonton with regard to the effect of various adverse events in the lives of many major

composers (including the loss of a spouse and poverty) on several measures of creative output and originality. Although it is probable that high output is positively correlated with the frequency of inspiration, the strength of that association remains unknown.

Inspiration in Jazz and Rock

Needless to say, moments of inspiration and insight are also experienced by jazz and rock composers-performers. Even though many in the top echelon are living, the documentation regarding inspiration and its effects is even less reliable than in the case of art music. Careful historiometric studies are lacking, including those that would concentrate on the effects of adverse psychological-state and sociological factors (such as the influence of drug use on inspiration or its source in antiwar sentiments). Key issues are mired in self-serving hype and marketing efforts. Inspiration by individual artists is difficult to pinpoint, given their frequently hazy memory and the absence of scores and sketches.

Moreover, inspired ideas are often immediately fleshed out together with other group members or are changed beyond recognition in the course of improvisation. Because in rock music the work is so often a song, there is the question of primacy in inspiration between words (“lyrics”) and music. This aspect of rock—the possible differential development of a song given that the original inspiration occurred in one or another medium—is, or should be, of considerable scholarly interest and related to the existing body of writing about song, songs, and singing in the philosophy of music.

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See Also: Composition; Creativity, Theories of Musical; Emotion; Emotions, Aesthetic; Hymns; Imagery; Music Research, Causal Effects in; Religion; Spirituality; Spirituals.

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Instruments

What defines something as an instrument is largely based on culturally contextual systems of classification. Because almost anything can be used as an instrument, a look at some of the ways different human cultures have come to classify or recognize something as an instrument can demonstrate the myriad ways in which perception and categorization inform and are informed by musical practices. Taxonomies can vary so widely that one system may list something as an instrument while another may not. Elements such as the materials, structure, method of sound excitation, performance practice, and even cultural associations may influence the way a given culture classifies its instruments. The most widely utilized scholarly system of instrument classification in the 20th century was first proposed in 1914 by Erich M. von Hornbostel and Curt Sachs.

Most other systems developed by Western scholars in the 20th century have been attempts