THE INTERACTION OF AUDIATION AND PERCEPTION
AS A PRIMARY FUNCTION OF LEARNING THEORY IN MUSIC

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The study of the psychology of music took root in the United
States at the turn of the century. Carl E. Seashore, the
first person known to work in that discipline in this country,
is probably responsible for the term psychology of music.
Throughout the last eighty years or so researchers have ex-
panded the scope of the psychology of music to include aes-
thetic response, affective response, auditory perception and
psychoacoustics, instrumental and vocal methodology, and
music industry; but in the main, music psychologists have
directly or indirectly concerned themselves with measurement
in music, and the development of both aptitude and achieve-
ment tests.

Unfortunately, learning theory in music was given only tan-
gential consideration. Principles of learning borrowed from
the general psychologists, and haphazardly applied to the
study of music, were introduced into the literature, but
musicians, among others, did not seem to take the laws or
the general psychologists seriously. After all, it appeared
obvious that the general psychologists were only theorizing.
In most, if not all, cases, the general psychologists made
it quite clear that they were not musicians and that their
concerns were primarily with language development. Neither
the general psychologists nor the music psychologists were
much interested in applying learning theory to curriculum
development.

It is not productive to blame psychologists, or the music
educators they might have influenced over the years, for the
haphazard and deleterious way in which music has been and is
being taught from preschool through the university. To do
so would be imprudent. Rather, I would like to offer a long-
overdue analysis of the music learning process, and then draw
some conclusions which may contribute to solving what I con-
sider to be serious problems in music education. To do this,
I would like to discuss popular music that is heard today.
It is true that there have always been popular music and
serious music, that much serious music at one time functioned
as popular music, and that some popular music has more worth
than some serious music. My intent is not to establish the
intellectual superiority of serious music.

In general, popular music, unlike most serious music, com-
bines aural perception and visual perception. Unless popular
music has been seen as well as heard as it was performed in

learning, with the most elementary level listed at the top.
In hierarcyical order are aural/oral; verbal association;
partial synthesis; symbolic association, reading and writing;
and composite synthesis, reading and writing. Inference
learning includes three sequential levels of learning:
generalization, aural/oral, verbal, and symbolic; creativity/
improvisation, aural/oral and symbolic; and theoretical un-
derstanding, aural/oral, verbal, and symbolic. When apply-
ing these sequential levels of learning to curriculum devel-
opment in music, objectives on which they are based may
advance by step, or temporary skips may be made within re-
strictions.

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          REFERENCE CHART


          DISCRIMINATION

           AURAL/ORAL
        VERBAL ASSOCIATION
         PARTIAL SYNTHESIS
        SYMBOLIC ASSOCIATION
          Reading - Writing
         COMPOSITE SYNTHESIS
          Reading - Writing

           INFERENCE

          GENERALIZATION
    Aural/Oral - Verbal - Symbolic
      CREATIVITY/IMPROVISATION
        Aural/Oral - Symbolic
      THEORETICAL UNDERSTANDING
    Aural/Oral - Verbal - Symbolic
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Aural/Oral - Hearing and Performing Music

Although aural/oral is the most elementary level of learning,
it is probably the most influential in developing more com-
plex levels of learning. The process by which one develops
language skills is quite similar to the process one follows
at the aural/oral level in developing music skills. To
learn a language appropriately and efficiently, one must
listen to the language and speak the language, each act

I have coined the verb to audiate. I will describe the
audiation process in detail and distinguish it from aural
perception. To listen to music intelligently, one must hear
syntax in music. Syntax in music is the orderly arrangement
of sounds; it is not grammar. When a musician listens to,
performs, creates, improvises, reads, and writes music, he
must remember music he has heard before in order to under-
stand what he is currently hearing. As a musician hears
music that is being performed, by others or himself, he is
concurrently audiating music that he is hearing and music
that he has heard before. Moreover, a musician hears what
actually is being performed not at the exact time it is
being performed, but somewhat later; he is always "catching
up" with what he has just heard. As a phenomenologist might
say, the present, in reality, does not exist.

When a musician is listening to music, he is doing more than
aurally perceiving patterns in the music; he is engaging in
four types of audiation of patterns as he aurally perceives
them in the music to which he is listening. The interaction
of the aural perception and the audiation of patterns is pro-
found. As a musician listens to music which is physically
present, concurrently he aurally perceives and audiates
groups of patterns as he compares the patterns being audiated
to one another. 1) He is audiating patterns in his long-term
memory that he has heard at previous times in other music,
2) he is audiating patterns in his short-term memory which
preceded those in the music which he aurally perceived just a
few seconds before, 3) he is audiating patterns in terms of
immediate impressions which he aurally perceived just a few
seconds before in the music, and 4) he is audiating patterns
derived from his short-term and long-term memories which he
expects to perceive aurally in the music. A musician audi-
ates patterns in terms of comparisons, because the audiation
of one group of patterns without the concurrent comparative
audiation of other groups of patterns makes no contribution
to the establishment of syntax, the orderly arrangement of
sounds.

When a musician is listening in recall to music which is not
physically present or is performing familiar music from re-
call without the aid of notation, a fifth type of audiation
becomes part of the interactive interpretive process. The
fifth type of audiation replaces aural perception. One might
think that the fifth type of audiation is the same as the
audiation of immediate impressions of patterns. The audia-
tion of immediate impressions of patterns aurally perceived

types of audiation which take place particularly in the
second and third types of audiation, the establishment of
musical syntax would be an impossibility. If the listener
cannot bring syntax to the music, the music becomes simply
sounds at best and noises at worst. Because many listeners
do not have vocabularies of patterns for multitonal music or
multimetric music, they cannot bring meaning to contemporary
music. As a result, they ironically refer to such music as
atonal and arhythmic. Those listeners, many of them pro-
fessional critics as well as music theorists, find fault
with contemporary music rather than with their own lack of
ability to audiate syntax in the music; in vain do they en-
deavor to try to take meaning from contemporary music by
diagramming its notation. Form and style, of course, in
addition to harmonic progression, are also audiated at the
partial synthesis level. At the symbolic association level,
the processes for reading and writing notation are different.
When one is writing patterns from dictation, the process
described holds, but when one is reading patterns, instead
of aurally perceiving them, one visually perceives them.
Thus in reading there are still four types of audiation but
without any aural perception. In both reading and writing
music, the overall process is referred to as notational
audiation. The composite synthesis level is to the symbolic
association level what the partial synthesis level is to the
aural/oral level. In reading and writing notation at the
composite synthesis level, tonality and meter are established
as the music is being read or written, because all four types
of audiation are taking place and patterns are audiated col-
lectively. In reading and writing notation at the symbolic
association level, only the first three types of audiation
are taking place and patterns are audiated individually.

I will ask you now to refer again to the reference chart.
At the most elementary level of inference learning, generali-
zation, patterns are aurally perceived and audiated in the
same way as they are at corresponding levels of discrimina-
tion learning. Generalization aural/oral is comparable to
aural/oral in discrimination learning; generalization verbal is
comparable to verbal association and partial synthesis in
discrimination learning, and generalization symbolic is com-
parable to smybolic association reading and writing and com-
posite synthesis reading and writing in discrimination learn-
ing. The primary difference is that in inference learning, a
musician deals with both familiar and unfamiliar patterns in
unfamiliar orders in terms of the second, third, and fourth
types of audiation. The creativity/improvisation level

seem likely that he will learn by himself to bring meaning to unfamiliar music. If one cannot bring meaning to unfamiliar music, it will always remain unfamiliar to him. Composers and performers of popular music purposely make melody, rhythm, and harmony repetitive, and thus musical form simplistic, to help a listener take whatever meaning he can from the music. Of course, repetition without sequence of melody, rhythm, and harmony does not allow much latitude for form or even style to exist in music. Given this simplicity, all a listener without audiation skills is expected to do is aurally to perceive evanescent sound. The confusion which results breeds frustration and boredom on the part of the listener. Thus the need for a supplement to popular music is understandable; it not only alleviates frustration and boredom, but at the same time, it offers a substitute syntax in the form of visual perception and imagery. The text serves a similar function. Indeed the loudness of the beat is an indication that the listener cannot audiate the beat, so it is continuously provided in hopes that the listener may aurally perceive it. Visual props and loudness are attempts by the composer and performers to do for the listener through aural and visual perception and imagery what the listener cannot do for himself in audiation.

I have thus far directed my remarks toward those for whom music is an avocation. Of course audiation is also necessary for persons who take music as a vocation, both performers and teachers.

> The typical music teacher teaches music backward in terms of learning theory. That is, the teacher teaches the definitions of symbols before teaching the sounds that the symbols represent.

Aside from the use of a few songs young children might sing and react to, teachers try to teach students to read notation before they have had an opportunity to learn how to audiate tonal patterns and rhythm patterns. Such a reverse approach is like asking a young child to read before he can speak in order to learn how to speak. Moreover, the typical teacher teaches students to read and write individual notes, not patterns of notes. Such a procedure is like teaching a young child to read alphabetic characters rather than words. There

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