

Experimental research into musical generative ability

MÁRIA SÁGI and IVÁN VITÁNYI

One of the projects carried on for about 15 years in the Institute for Culture of Hungary has been concerned with analysing human creative faculties; in particular, artistic creativity. We have been concerned to discover the place, role, and modes of creativity in Hungarian culture, and we have attempted to relate different levels of creativity to economic, social, and educational factors. Our empirical studies have been extended to different arts, including music, fine arts, fiction, and poetry.

This chapter describes part of our research into musical creativity. Music is a particularly suitable idiom for our purposes. Its abstract character makes it easy to react to on many different levels. Also, music has deeply penetrated many different social groups, thus 'pre-conditioning' a wide range of subjects for giving relevant responses. In addition, the wide use in Hungarian education of the Kodály-method has placed great importance on the practical development of musical creativity.

The music-psychological research to be described below was provoked by the view widespread in the literature both of the psychology and the sociology of art that two kinds of artistic experiences can be distinguished: that of the creator and that of the receiver. This is a view we do not share. Proponents of this view tend to argue that only a narrow group in contemporary society takes a creative part in music (for example from Hungary's population of 10 million, taking into account all the composers of popular songs and rock music, only about 2 to 3000; that is 0.02 to 0.03 per cent).

A contrasting view is provided by Weber's (1921) and Blaukopf's (1972) ideas on the role of sound systems. According to them, the systems of musical structures adopted by a composer form a language, a semiotic system to which the most ingenious composer can merely add something and which he is unable to create himself.

Of course, there are different levels of composing ability. In particular, we can distinguish between *constructive* and *generative* forms of composing ability. We do not wish to dwell at

length on the general theoretical issues of creativity because our aim is to describe our empirical investigation. Let us simply note that we agree with authors like Taylor (1959) who distinguish levels of creativity. We consider creativity as consisting of two main types: constructive creativity (which is—in the stricter sense of the term—artistic creativity) and generative creativity.

We speak about constructive creative ability in music where the composer gives a final form to an original opus by means of conscious work, employing and (partly) reshaping the elements and rules known to him. By generative composing we mean a largely unconscious or intuitive variational application of the elements and rules which does not result in a final opus of unchangeable form but merely in a new variant. We have adapted this term from Chomsky's (1965) 'generative linguistic ability'. Generative linguistic ability means that with the knowledge of a definite number of elements and of a definite number of generative rules all the speakers of a language can produce an indefinite number of sentences. That is exactly how generative musical ability acts: with a definite number of elements (stock of sounds) 'and a definite number of generative rules' an indefinite number of melodies can be constructed.

Historical evidence of generative musical ability is readily available. We see this in the way that folk-songs take shape, are transformed, and are sung time and again by folk-singers. We may legitimately ask, however, if, through the destruction of traditional popular art, the generative musical ability of mankind may not have been destroyed as well. Has the pervasive music-supplying apparatus of radio, television, cinema, music-halls, and restaurants killed the ability of man to compose music for himself? This was the question to which the following investigation sought a reply.

Procedure

Exploration

Prior to undertaking the musical tasks subjects were engaged in a personal discussion to put them at ease. The subjects gladly discussed their lives, past and present, their general views on life, their relations to the world and the arts, and their general and artistic tastes.

Examination of generative musical ability

Subjects were asked to make immediate sung improvisations to poems.

One was Sándor Petőfi's (mid-19th century) '*Falu végén kurta kocsmá*' ('Little inn outside the village') in the style of a folk-song.

*Falu végén kurta kocsmá,
Oda rug ki a Szamosra,
Meg is látná magát benne,
Ha az éj nem közeledne.*

At village end a small saloon,
That is where Szamosra hangs out,
He would even be able to see himself in it,
If night was not approaching.

*Az éjszaka közeledik,
A világ lecsendesedik,
Pihen a komp, kikötötték,
Benne hallgat a sötétség.*

Night is coming,
The world grows quiet,
The ferryboat rests, they have tied it out,
In it the darkness remains silent.

(translation by Dr Thomas Kabdebo)

Two other poems were chosen to represent the Hungarian poetry of the twentieth century: Endre Ady's poem '*A Kirsztusok mártirja*' ('The Martyr of the Christ').

*Vad, nagyszerű rajongást oltott
Az Érnek partja én belém
Csupa pogányság volt a lelkem,
Gondtalan vágy és vak remény
Forgott körültem zagyva módon
Lármával, vadul a világ
És én kerestem egyre-egyre
Valami nagy Harmóniát.*

Literal translation

The brooklet's bank has infused in me
A worship wild and passionate,
Of paganism my soul was brimful
Carefree desire and blind of hope.
Turning confusedly around me
The world was clamorous and wild.
I was searching unflinchingly
In it some major Harmony.

and eight lines of Attila József's '*Óda*' ('Ode').

*Óh, hát miféle anyag vagyok én,
hogy pillantásod metsz és alakít?
Miféle lélek és miféle fény
s ámulatra méltó tünemény,*

O what kind of matter am I
that your glance cuts and shapes me?
What kind of soul and what kind of light
and what kind of amazing phenomenon
am I

hogy bejárhatom a semmiség ködén

that in the mist of emptiness I can walk
around

*termékeny tested lankás tájait?
S mint megnyílt értelembe az ige,*

the gentle slopes of your fertile body?
And like the word entering into an
enlightened mind

alászálhatok rejtelméidbe.

I can enter into its mysteries . . .

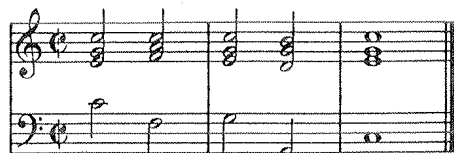
(translation by Dr Thomas Kabdebo)

The fourth poem was the lyric of a hit song.

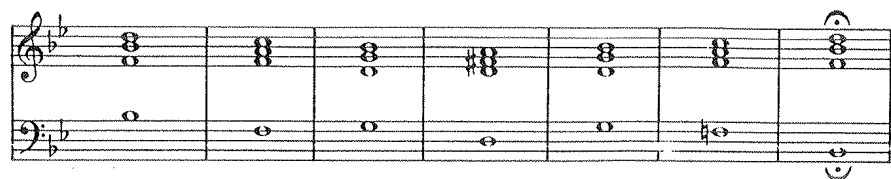
Subjects were also asked to make improvisations to simple harmonic progressions; first to the familiar I-IV-V-I, then to the more sophisticated progressions, including some typical of Bartók (see Examples 8. 1-7).

The sense of tonality of the subjects was examined by asking them to improvise completions to three melodies (see Examples 8. 8-10). Each was

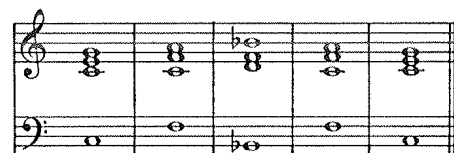
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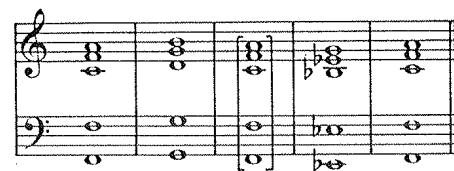
Example 8.1



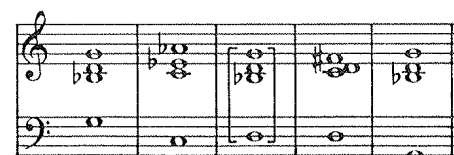
Example 8.2



Example 8.3



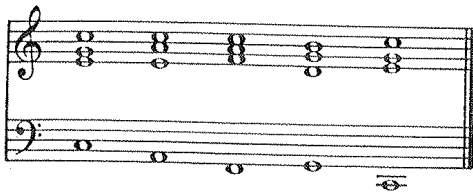
Example 8.4



Example 8.5



Example 8.6



Example 8.7

in a different mode: pentatonic, major, and acoustic (or overtone). The latter, often used by Bartók, produces scales such as C-D-E-F#-G-A-B flat-C.

pentatonic



Example 8.8. Bartók.

major



Example 8.9. Mozart.

acoustic



Example 8.10. Bartók.

Tests of tonal awareness

Some additional receptive tests of tonal awareness were administered, but the results of these tests are not considered here.

The subjects

The experiment was conceived on a large scale, with 220 subjects in 11 samples, after a pilot study with 20 peasants from a Hungarian village, Aradványpuszta.

Our hypothesis is that any person, whether musician or not is capable of composing music such as a song verse, using the musical patterns and structures provided by his/her daily musical environment (radio, TV, singing, etc.). Some musicologists have challenged our view. This is why our sample included untrained subjects from different age groups and social strata. A few control groups were selected from those studying or having studied music.

The impact of European musical culture arose as a separate issue which was studied by examining control groups consisting of students in Budapest of non-European (Asian, African, Latin American) origin.

The 11 samples are shown in Table 8.1.

Table 8.1 Subject samples used in the experiment.

Group No.	Age	Laymen	Age	Those having studied music
1/2	13	pupils	13	music pupils
3	17	middle school pupils	-	-
4	17	apprentices	-	-
5	20-25	industrial workers	-	-
6/7	20-25	university students	20-25	conservatory students
8	about 40	industrial workers	-	-
9/10	about 60	industrial workers	about 60	industrial workers singing in choirs
11	20-25			non-European students

Although the experiment involved a great deal of work (each person was tested for two to three hours), we succeeded in examining 20 persons in each of the 11 samples.

Before the beginning of the experiments a dispute over principles arose: many musicologists said we were embarking upon an impossible enterprise, that it was inconceivable that laymen might be able to perform the task. However, the *result of the* investigation has corroborated the correctness of our assumption.

Three thousand four hundred and twenty tunes, the length of folk-songs were recorded. If all subjects had succeeded in completing all the musical tasks, 3740 tunes could have been recorded. However, in several cases the subjects could not complete some of the tasks; for

instance, they could not improvise tunes to the poems of Ady and József. This also happened when the chords proved too difficult to inspire a tune. The subjects were never forced to produce melodies since a negative result was also considered an important indicator in the experiment.

The tape-recorded music was transcribed into musical notation by 10 professional musicians whose transcriptions (both notes and bar lines) were checked by two independent judges; first by a colleague, then by a specialist, a former collaborator of Bartók. This was followed by a qualitative analysis of the tunes based on Bartók's method of folk-song classification. The analyses thus obtained were collated with the musical tastes obtained from the questionnaires and with the tests of tonal awareness. The entire work lasted eight years, from 1972 to 1980, including the analysis of the material in some 1300 pages and the writing of a 600- page book. (The book is now in press and will be published by the Hungarian Academy of Sciences.)

The scope of this chapter does not allow us to give a full description of the experiment but we can present our conclusions concerning the existence of a concrete level of generative musical creativity by means of the improvisational tests.

Results

In our experiment we endeavoured to study the phenomenon of musical creative ability by using new methods. Our work displayed all the positive and negative aspects of a pilot study and this was why keen attention had to be paid to methodology. In such situations the first tasks to be performed include the testing of the method applied and, if possible, its validation. If we have been able to prove, to a reasonable extent, that it is possible and worthwhile to follow this path, our work would have achieved its main purpose.

We feel that certain achievements can already be seen. In the following we shall summarize these results and inferences, and in certain cases we would like to add a few reflections which are not strictly entailed by the results, but which we are encouraged to propound in view of the relatively large amount of accumulated material.

Generative abilities in the universe of music

First of all, we have to note that the persons questioned willingly undertook the improvisation tasks and completed them with very few exceptions (although, naturally, at different levels of accomplishment). They were much less inclined to reproduce ready-made melodies: they

apparently regarded this as a rather school-like task. Thus we can affirm in good conscience that generative musical ability is alive in the different strata of Hungarian society, even if most of the individuals investigated have not been able to practise it beforehand.

The discovery of the existence and survival of musical generative ability has considerable implications for views of the relations between music and man and between music and society (that is, for the psychology and sociology of music).

As a result, we have attained a new and different understanding of the individual's everyday musical activity and musical reception in the stricter sense of the term. With regard to the former, we must take into consideration what we call '*inner musical activity*'. In a part of our experiment not included in this study we dealt in greater detail with inner musical activity; we found that most people produce music by themselves for one or two hours a day, mainly by varying what they know or by , combining the *known* tunes according to their tastes. In addition, if we also take into account music we just hear each day as background, it becomes evident music is practically a permanent part of most people's everyday mental activity.

This issue is seen in a new light if we know that this musical activity, is creative in character if only on a low level, or has at least a creative aspect: the mind freely uses ready-made elements— sometimes complete *tunes or* entire works of music, sometimes mere fragments of musical works.

At this point we come to the problem of how this activity is related to musical reception. In the traditional view, reception is a one-way process: one recognizes, assimilates, and learns a given piece of music and then, during one's inner musical activity, one simply repeats the perceived material or loses it. We do not want to reject this possibility, because we started from the premise that the two levels of creative activity operate on two different levels (the generative and the constructive). Musical creative art is constructive, inner musical activity is generative, in character. However, we wish to claim that one is capable of assimilating only music whose elements one has learned and which one can use in a creative manner. We could not create Petőfi's poems, but we do understand not only his words and the rules of for interrelating them, but also his specific system of signs. On this basis we could, indeed, reproduce most of the details. However, we react to a poem written in an unknown language in an entirely different way; here only the musical cadence of the text can ' have an effect on us, but, since we inevitably compare it to our own idioms, we might misunderstand even that.

The concrete level of generative musicality

It was not our purpose merely to prove musical generative ability, but also to measure its concrete form and level. The collected data may serve as a basis for drawing certain general conclusions. We shall endeavour to describe the most general features valid for almost all the groups and which, therefore, best characterize the musical disposition of the subjects of our experiment.

Morphological features

We shall draw some general conclusions about the structure of the tunes improvised for the poems. The majority of the responses are characterized by strophic musical thinking on a level extending to the production and understanding of four-line musical forms. As soon as this limit has to be exceeded, they become uncertain.

Most subjects sang a strophic tune to the excerpt from the Petőfi poem. Forty-three subjects closely followed the strophic structure in the second verse (that is, they repeated the tune of the first verse with very little alteration); 47 endeavoured to achieve this but did not quite succeed; 54 sang two different verses of four lines each; another 30 considered the whole of the excerpt (eight lines) as a four-line tune and sang one musical line for each two lines of the poem. Thus, 174 of the 198 subjects were found to be capable of creating a more or less adequate form. The tendency to use the strophic structure is well illustrated by the fact that subjects tended to repeat the same musical line at different points in their song. Thirty per cent of the subjects used just four musical lines, 52 per cent used three, four or five lines for construction. The proportion of subjects using six, seven, or eight lines, or just one line, was 18 per cent.

The excerpt from the poem by Ady was more difficult. The test passage, of eight lines, was interpreted as such by only 44 of the 132 subjects; 63 subjects formed two four-line verses, while 20 created four two-line verses. Therefore, it seems that an eight-line strophe is more difficult to grasp, and even more difficult to structure, than a four-line verse. Many of the seemingly eight-line structures were quite loose in form and were not regular strophes.

Finally, the excerpt from the poem by Attila József was interpreted as an eight-line structure by most (70 of 117) subjects, for whom it was too difficult to establish a suitable system of interrelations between the lines. Thirty-two people created two four-line verses, while 15 created four two-line verses.

This may be due to two interrelated reasons. One is that most subjects could not really

grasp the content and the message of the poems by Ady and József, their reasoning, their lyric world; this lack of understanding was indicated by frequent misreadings. The other is that, simultaneously with this, they could not grasp the structure of the poem and create an adequate form.

Thus, it may be said that the ideal form for most experimental subjects is the four-line song form; this is what they can best grasp, learn, and create. Those who know it better, repeat the first verse. The less accomplished cannot do this, but they endeavour to do so. And when they are faced with more difficult contents and poetic forms, they attempt to approach them from the angle of this ideal form; therefore they solve the task in an inadequate manner.

Melodic features

Very much like for the structure, a clear picture was gained also for melodies: 60-70 per cent of the improvisations made for the Petőfi, Ady, and József poems were in the minor or major scales, minor character always having priority, as shown in Table 8.2.

Table 8.2 Use of major and minor modes

	Poem		
	Petőfi	Ady	József
Total responses	198	132	117
Major	38	18	17
Minor	64	45	32
Major and minor mixed	24	41	26
Total major and minor	126	104	75
as % of all responses	63	74	63

If we deduct the control groups (the musicians and foreign students) from the full sample, that is, if we only consider the improvisations of the Hungarian non-musicians, the proportion of the minor and major tunes is even higher (Petőfi songs 65 per cent, Ady songs 81 per cent, Attila József songs 66 per cent). Whereas non-professionals tend to stay in the same mode, young professionals tend to switch between different modes.

In the case of the Petőfi song, many subjects produced improvisations which had a folk-song character. The number of strictly pentatonic tunes (see Appendix, p. 286, Example 8.11) (10) was the highest here, which, together with the tunes having a mainly pentatonic character (25) accounted for 17 per cent of all the tunes. Modal tunes were similarly high in number, primarily those in the Dorian and Aeolian modes (that is, those nearest to minor), and so were those in the Phrygian and Mixolydian modes, which mainly occurred in turns and cadences. In

the case of young workers we also met Lydian-acoustic turns (with raised fourth). All these modes are characteristic of folk-songs.

We obtain a similar picture when considering the stylistic characteristics of the tunes. The total of folk-song-based improvisations reached 32 per cent (see Appendix, p. 287; Examples 8.12 and 8.13). But by including those conceived in the style of the popular Hungarian art (see Appendix, p. 288, Example 8.14), the ratio reached 51 per cent. One may hesitate about how to categorize intonations typical of Hungarian popular songs; if these are attached to the two former types it may be said that 72 per cent of the subjects related their improvisations to a style that in some way originates from current Hungarian national music culture. About half of the remaining 28 per cent endeavoured to use non-Hungarian (that is, non- Oriental) intonations (see Appendix, p. 288, Example 8.15) which are related to European art music; while the other half—not being able to tackle the problem—produced a few melodic fragments based on seconds.

A different picture is obtained from improvisations to the Ady poem. Here the highest rate is represented by tunes in minor-like and major-like scales (78.7 per cent), presumably because this poem did not make a folksong-like impression. Therefore, the number of pentatonic tunes and phrases, as well as of modal tunes and phrases, decreased considerably. However, the rate of compositions with a mixture of minor and major increased, from 18 per cent in Petőfi songs to 39 per cent in Ady songs. In the majority of the cases this reflected uncertainty which led to the dissolution of the classical major-minor polarity. The result of this seems to be a tendency to turn towards tunes that reflected a 12-note scale, not only in the case of the musicians, but also in that of the musically untrained middle school students and the apprentices.

Similar differences are found with regard to styles. Only nine of the tunes were folk-music-like in character (7 per cent) and only seven had the character of composed folk-songs (5 per cent). The impact of Hungarian popular song and operetta increased (26 per cent), as well as that of school songs, marches, pop, and religious songs (see Appendix, p. 289, Example 8.16). None of these styles is particularly appropriate from the Ady poem; they may all derive from the endeavour to present the contents of the poem in music different from that used for the Petőfi poem and for this purpose an intonation subjects happened to remember was applied. Only 24 tunes (18 per cent) show the composer actually tried to find a modern tonality.

The tunes created for the Attila József poem yield again different pictures. The rate of minor-like and major-like tunes again decreased, to approximately the level of those improvised to Petőfi songs, but presumably for other reasons. We may be justified in presuming

that the József poem had an even more remote content for the majority of the experimental subjects. They understood all the words but they could not grasp the sentences. However, there were some who obtained a feeling of the ballad, more so than in the case of the Ady poem, and this might be the reason for the repeated increase *in the number of* pentatonic and modal tunes and phrases, and for the unexpected appearance of other archaic structures (possibly from musical sub-consciousness). This is how Lydian modes, Phrygian cadences, and whole-tone and acoustic scale fragments appeared; one experimental subject produced a pentatonic structure based on the 3/2/3/2 intervals (A-F sharp-E-C sharp-B descending structure with fourth structuring). The rate of tunes nearing dodecaphony had increased even compared to the Ady songs. The other reason for the decrease in the number of melodies using major-minor tonality was the increasing number of improvisations close to speech, almost pre-modal owing to uncertainty, based on seconds and varying one or two tones.

An even more complex picture is shown by the analysis of the styles. The rate of styles that are in no way suitable for formulating the musical material of this poem increased considerably. The rate of second-by-second tune fragments is 27 per cent, the same structure somewhat more fancifully conceived is 3.3 per cent, march tunes make up 5.6 per cent, pop 10 per cent, and all these combined constitute nearly half of the improvisations (47 per cent). This is followed by tunes of the Hungarian art song and operetta type (23 per cent) and by the composed folk-song (8 per cent) which cannot be considered fit for the 'Ode' either. The rest is inspired by folk-songs, including songs reaching back to ancient tunes (8 per cent), and some initiatives resembling modern composed music (14 per cent). (See Appendix, p. 289, Example 8.17.)

On tune completion (Examples 8.8-10 above) we found that the same number of people (58 per cent) could complete both the major tune (Mozart) and the pentatonic melody (Bartók). In the case of the acoustic tune, not one single subject managed to complete the music without deviating from the tonality.

Tonal-functional thinking on an elementary level

A general characteristic of improvisation related to minor-major tonality is a stereotyped level of tonal-functional thinking. Sixty-two per cent of the Petőfi songs, 57 per cent of the Ady songs, and 40 per cent of the Attila - József songs fit a simple functional structure, either the simplest T-S-D-T cadence (I-IV-V-I), or the T-D or T-S variants of functions.

We obtained similar results from improvisations to sequences of chords (or harmonic sequences, in other terms). As shown in our following analysis, the subjects could improvise

on different levels to the seven sequences of chords (Examples 8.1-7 above). The improvisations were rated according to the degree to which they corresponded to the accompanying chords, according to traditional rules of harmony.

Based on the level of solution the seven sequences of chords could be separated into the following groups:

(1) An outstanding place is due to the harmonic sequence shown in Example 8.1, the classical I-IV-V-I cadence. Here, not only is the proportion of good solutions high (45 per cent), but the number of tunes harmonically unrelated to the chords is low (38 per cent). Also the number of variants that may be considered real improvisations is the largest; such tunes do not simply follow one or the other part, but create elaborations by arpeggiating the chord (18 per cent) and by flourishes. (See Appendix, p. 290, Example 8.18.)

(2) The second group includes harmonic sequences examples 8.2, 8.5, and 8.7. Example 8.2 comes into this group presumably because all the parts create suitable and understandable descending-ascending motifs. Example 8.7 is in this group because the addition of VI (in I-IV-V-I) extends harmonic sequence Example 8.1 in a manner that is familiar from hit songs; and Example 8.5 because the minor-character given by the Naples chord renders it accessible due to its romantic connotation. The number of good solutions in these three harmonic sequences is high. Example 8.2 inspired 41 per cent successful improvisations, 8.5 44 per cent, and 8.7 39 per cent. Despite this, we must distinguish these harmonic sequences from Example 8.1, because in these cases the proportion of unrelated and bad solutions is larger (38, 44, and 36 per cent) and even the acceptable responses include a larger number of tunes that merely follow the top part (that is, in unison) rather than being real improvisations.

(3) The third group includes harmonic sequences Examples 8.3, 8.4, and 8.6, which proved to be the most difficult ones. The rate of acceptable answers was 35 per cent for Example 8.6, 33 per cent for 8.3, and 31 per cent for 8.4. Sixty-four, 67, and 69 per cent of the experimental subjects could only sing notes completely unrelated to the chords. In the case of sequence 8.3, the problem was presumably caused by the flattened seventh degree; in Example 8.6 the source of problems (although popular in romantic music) was chromatics. A special place is occupied by sequence 8.4 which suggests Lydian-acoustic modality and therefore remains uninterpretable for most of the experimental subjects. In these three sequences of chords even the good solutions follow the parts, with only a few exceptions.

Rhythm

The analysis of the rhythmic structure of the improvisations requires a preliminary note. All

three poems or excerpts involve parlando-like rhythmic structures. None of our examples would adequately fit a giusto (strict) rhythmic tune. Thus, we could achieve only a partial evaluation of sensitivity to rhythm, but this was enough to draw some conclusions.

The highest rate of parlando rhythm was created for the Petőfi excerpt: a total of 103 (51 per cent). The vast majority of these had good prosody interpreting the ‘ancient eight’ in a 6+2 division. This provided for several intonations, between the explicitly old-style folk song and the style of the Hungarian popular song. Seventy songs (27 per cent) were prepared in a strict rhythm: however, the majority did not suit the poem, but were done with wrong prosody. The three-fourths rhythm was often used, though it can only forcibly be applied to the poem. The same can be said of marchlike and hit song rhythms, as well as of repeated crotchets or quavers. It is, however, noteworthy that bound rhythms were primarily used by young people, and among them mainly by those attending special music elementary school and by the students of the vocational school. Finally, only 13 per cent belonged to the mixed category, who changed from free to - bound rhythms and back.

In the Ady excerpt the proportion of improvisations in strict rhythm was the same (34 per cent). These were used mainly by the young, but now from all the categories. The proportion of free rhythms was 27 per cent, and most improvisations conformed to *the prosodic and rhythmic* requirements of the poem. The rate of mixed rhythms increased (39 per cent). Half of these (19 per cent) were still characterized by suitable prosody; these were basically parlando songs with bound scanning sections. The other half (nearly 20 per cent) endeavoured to impose some known style of Hungarian popular song (or of opera arias) on the poem, but the music turned out to be incompatible with the text due to the complexity of the latter.

Finally, in the performance of the ‘Ode’, the rates were again different. Here the rate of strict rhythms increased to 43 per cent, that of mixed rhythms remained unchanged (37 per cent), and that of the free-parlando rhythms decreased (25 per cent). Despite all this, the best rhythmic solutions were those in the free category and this was chosen most often by the music students. Others (peasants from Aradványpuszta, members of the workers’ choirs) formulated parlando-recitativo hymn-like songs, or opera excerpts, selected ways with which they could best approach the poem according to their own knowledge. In this case, the mixed rhythms meant mainly infeasible tasks and a resort to scanning (the tune mostly moved in seconds here). The strict rhythm was again the ‘solution’ of the young in hit-like, march-like isorhythmic, or triplet-like style.

All this indicates that the subjects have a strong inclination for parlando- strict polarity which corresponds not only to the traditions of Hungarian folk-song but also has its equivalents

in Hungarian popular song as well as in the style of hit music. This duality, naturally, also applies to art music but here there are far many more transitions and sepithese in genre than in current music. However, for the experimental subjects this wealth is unattainable; thus, when they are faced with a task that cannot be solved either with a folk-song-like *parlando* or a march, they become uncertain. It is especially important to note that *parlando* is so closely linked to folksongs (and to Hungarian popular songs) that it can hardly be applied to the *Ady* and *József* poems. The young (even pupils of music elementary school) are less acquainted with folk-song than older people, and that is why their improvisation is dominated by a march-like and a hit-like character.

Conclusions

Altogether, these data demonstrate a certain parallel with Bernstein's (1970) sociolinguistic investigations and might lay the foundation of a kind of sociomusicological attitude. Bernstein makes a distinction between a tied-to-context and an elaborated method of use of the language. The situation in music is similar—the difference being that music as a language is less generalized or is generalized in a different way.

Our observations concerning the state or generative musical ability relate to our investigations regarding the development of popular music. In our opinion, generative ability determines also the spectrum of receptive experience. We listen in a distinct way to music that does not exceed the limits of our own generative musical ability. And so we can distinguish three degrees of musical receptive capacity:

(1) In the first degree, nearly the whole of the music listened to is interpreted in terms of structures that can be handled by the generative musical ability of the receivers themselves. This will be realized, for instance, in popular and beat music. Here the receiver can become identified with music. He feels as if he were able to make it himself.

(2) In the second degree, receptive generative musical ability does not comprise the whole of the composition received, only some of its elements. That is how for instance a listener with little formal musical education listens to, say, Beethoven's *Symphony No. 5*. The listener, being able to translate only a few elements—for example, the melody—to his own language, will understand the symphony only partially. The practice of everyday musical life proves, however, that he can enjoy it even in this case.

(3) Finally, in the third degree, the 'vocabulary' of the listener's generative musical ability and the composition listened to have nothing in common: in such cases no receptive

experience comes about. These are the impressions of a listener brought up on Classical and Romantic music when hearing the works of, say, Webern or Bartók (not to speak of Boulez, Stockhausen, or Ligeti). He does not meet a single familiar structure: he feels as though he were in a barren desert.

Our research not only revealed the attraction of the younger generation to pop music but also proved that this new type of investigation was a much more negotiable and applicable method in music psychology than the usual investigation of musical tastes. We can say that almost all the 11 groups had a specific musical characteristic or aspect which accorded with their different social backgrounds, and these musical attitudes definitely tally with the actual musical tastes and practices of the social strata in question.

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