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# The Effect of Live Music Versus Tape-Recorded Music on Participation Rates of Two Populations

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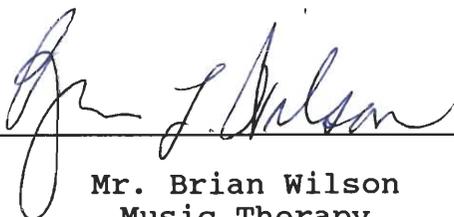


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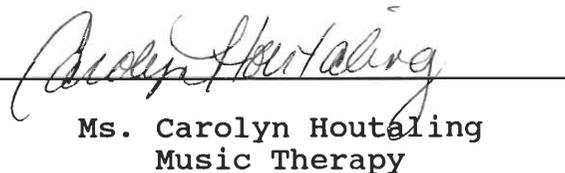
Sara Flink, having been admitted to the Carl and Winifred Lee Honors College in 1986, has satisfactorily completed the senior oral examination for the Honors College on October 19, 1990.

The title of the paper is:

**"The Effect of Live Music Versus Tape Recorded Music  
on Participation Rates of Two Populations."**

  
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The Effect of Live Music

1

The Effect of Live Music Versus Tape-Recorded Music  
on Participation Rates of Two Populations

by Sara F. Flink

Caro Regional Mental Health Center

Running head: THE EFFECT OF LIVE MUSIC

The Effect of Live Music Versus Tape-Recorded Music  
on Participation Rates of Two Populations

For a number of years, differences have existed in the training of music therapists. In some countries, music therapists are trained first and foremost as musicians, and secondly as therapists. Other countries allow music therapy to be practiced by music psychologists, physicians, or educators. Both sides employ varying arguments. Bunt (1988) feels that therapists are either experienced musicians with minimal training in developmental, therapeutic skills, or experienced clinicians lacking in many areas of musical expertise. Bunt further delineates between the two schools of thought by describing how one music therapist may use improvisation to interact with a client and his thoughts, while another music therapist may use pre-composed music, either live or recorded to stimulate discussion.

Music therapists have been trained primarily in the psychodynamic and behavioral approaches. These approaches stress the importance of well-thought out

experimental design with extensive use of control groups and statistical analysis. Bunt (1988) feels that music therapists need to step out of these traditional therapy models and evaluate the use of live music in an interactive setting. For instance, the Rational Emotive Theory/music therapy integration defines music within two contexts; music performance, and music listening (Bryant, 1987). Whereas traditional studies involving music listening would utilize recorded music, Bunt's approach would utilize live music instead.

The use of live versus recorded music is of particular interest in not only the training of music therapists, but the clinical practice as well. The ability to present music live may be based upon the amount of training a therapist has had in music. Limited musical training may result in minimized use of live presentations and maximized use of recorded selections of music. The type of presentation of the music is not of importance unless a significant difference exists between the clients' responses to the two forms of presentation.

There is evidence of varying effects, using both live and recorded presentations of music with a variety of diagnostic populations. Recorded music, for instance, significantly improved geriatric patients' appropriate behavior, personal appearance, and orientation to reality when compared with more traditional approaches (Riegler, 1980). On the other hand, recorded music was observed to increase incidents of sexual acting-out, as well as physical aggression, when adolescent psychiatric patients listened to popular music (Metzger, 1986). Finally, live guitar instruction significantly increased peer acceptance (rank position within a group) and group cohesiveness (subject A choosing subject B and vice versa) among female psychiatric patients when compared with a no-music condition (Cassity, 1976).

Some studies have utilized both live and recorded music concurrently, but have not compared clients' responses to the form of presentation. Listening to individual records was as effective as group improvisation on self-perceived states, affect, and

thought of psychiatric prisoners (Thaut, 1989). Anshel & Kipper (1988) found that singing and listening to music increased trust among a group of men. In that same study, however, group singing increased cooperation significantly as compared to listening to music.

Although many studies have shown that both recorded and live music achieve significant results over no-music conditions, little research has specifically compared the effects of live versus recorded music. Several studies have shown that students who heard live music developed more positive attitudes than those who heard recorded music (Bailey, 1983; Hooper & Powell, 1970; Vaughan, 1983). A performing therapist was able to evoke greater attitude change from psychiatric patients than a non-performing therapist who played recordings (Wheeler, 1985). Finally, singing improved behavior in a group of hospitalized psychiatric patients while just listening to music resulted in no significant change (Darbes & Shrift, 1957, cited in Unkefer, 1968).

A recent study specifically compared the effects of live versus recorded music on the emotional and physical states of hospitalized cancer patients. The results indicated significant differences between the two groups on two factors; tension/anxiety and vigor. The taped music group reported significantly more post-music tension while the live music group reported significantly more post-music vigor (Bailey, 1983).

Four factors of the Bailey study (1983), anger-hostility, fatigue, depression-dejection, and confusion, did not change significantly between recorded and live music. During a post-music rating, however, clients in the live music group reported a decrease across all four factors. Wheeler (1985), also found that college students' moods were not altered significantly by live or recorded presentation of music. Thus, mood seems to be a factor that is not altered by form of presentation.

Research on the presentation of live and recorded music has not been conclusive; additional research is thus warranted. The present study consists of two

experiments. The first is an attempt to investigate the effect of live versus recorded music on the active and passive participation levels of psychiatric subjects, and the willingness of these subjects to make decisions regarding song choice for the entire group. The second experiment will examine the effect of live versus recorded music on the spontaneous and prompted participation rates of subjects diagnosed with developmental disabilities.

#### EXPERIMENT 1

##### Method

Definitions. Live music, for this experiment, was defined as singing, using a guitar as an accompaniment. Recorded music was defined as singing along with a taped recording of commercially produced music.

Active participation, for purposes of this experiment, was defined as a subjects singing or humming with the accompaniment, regardless of timing or content of the vocalizations. Passive participation was defined as any response that appeared to be elicited by the music, such as toe tapping, hand

clapping, or following the song sheet. Passive participation did not involve singing, humming, or vocalizing.

Subjects. Subjects consisted of male and female psychiatric patients residing in a psychiatric unit at Caro Regional Mental Health Center, Caro, Michigan.

The subjects ranged in age from 18 to 76 years of age. The group had received music therapy services in the past. The experimental condition was introduced to pre-existing group sing-alongs.

The number of subjects attending the sessions varied from week to week, but an average of nine subjects was present at each session. The subjects had varying diagnostic backgrounds including personality disorders, neuroses, and organic syndromes. Length of stay in the hospital varied from recent admissions to chronic patients (some were hospitalized since childhood).

Sessions were held for 30 minutes. The location was a dining room or a television room, in one of four different living units located at the treatment

setting. The experimental period was conducted for six weeks. Six sessions were held each week for a total of thirty-six measurement sessions.

Apparatus. In both the live and the tape-recorded sessions, subjects were presented with a song sheet of fifteen songs including, "Take me Out to the Ball Game", "You are My Sunshine", "Kum Bah Yah", "500 Miles", "Down by the Riverside", and "Michael Row the Boat Ashore". To maintain subject interest, two song sheets, each containing fifteen folk songs were used. Folk music was utilized because a) the subjects had been exposed to folk music in the past, b) folk music is well-known regardless of the age of the subjects, and c) the commercially produced tape that was available was a tape of folk music. For the first 3 weeks all groups used the first song sheet. For the second 3 weeks all groups used the second song sheet.

The materials that were utilized in the live sessions of music consisted of a guitar, song sheets containing lyrics to the songs, and a sheet of chords and song lyrics for the therapist to use. The

materials in the tape-recorded sessions of music consisted of a Sharp Cassette Tape Recorder (Model RD 654AV) and fifteen cassette tapes which contained commercially produced recordings of fifteen songs from the first song sheet on one side, and the fifteen songs from the second sheet on the other side. The songs were recorded from "Reader's Digest 150 All-Time Sing-Alongs".

Patient response and participation was collected on a data collection sheet designed by the author (see Appendix A). Two therapists conducted the sessions, with one therapist leading the group and the other collecting data.

Procedure. Four groups participated in the study. Two groups had members who displayed relatively stable psychiatric symptoms (referred to as high functioning). The other two groups had members who displayed more acute symptoms (referred to as low functioning). To prevent order effect, two groups (one high functioning and one low functioning) received live music accompaniment first. The other two groups (one high

functioning and one low functioning) received recorded music first. The low functioning groups received music twice a week, the high functioning groups only once per week.

The form of the musical accompaniment was alternated for all groups. The two groups who received live music for session one, received tape-recorded music for session two, live music for session three, tape-recorded music for session four, etc. The other two groups, receiving taped music for session one, received live music for session two, taped music for session three, etc.

All subjects were given a variation of the following instructions during each session of the experimental condition:

We will be running the group a little differently for awhile. The difference will be that sometimes (therapist's name) will be using the guitar for accompaniment and sometimes will be using a tape-recorded cassette. If you have any opinion or

questions about the type of music, please let us know after the session is over. We will be keeping track of the songs you like, but remember to let us know after the session is complete. Now if you will look at your song sheet we will be asking you to raise your hand if you have a song that you would like to sing.

Subjects were then allowed to choose songs by raising their hands. A count was taken prior to the song to show the number of subjects willing to make decisions regarding the group. The therapist asked a subject, whose hand was raised, for his/her song choice. The group then sang the selected song.

The leading therapist (the therapist providing the accompaniment), consistently sat in the same location and gave positive, verbal reinforcement, regardless of the type of accompaniment being employed. This was to ensure that the therapist was always viewed in a leadership position whether she was playing the guitar or operating the tape recorder.

During the second stanza of every song, the second therapist took a count of the number of subjects who were actively participating, the number of subjects who were passively participating, and the total number of subjects present. Because subjects were free to come and go during music, the total number of subjects present was needed to ensure accurate data collection. Before every song, a handcount was taken of the number of patients who had a song choice. At no point during the experimental condition was the hypothesis discussed with the subjects.

After the music session, subjects were encouraged to state their opinion about the form of the music presented. Comments from the subjects were recorded as possible insight into the preference the subjects had for musical accompaniment.

### Results

Table 1 shows the mean percentages of subjects participating under the three experimental variables.

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Insert Table 1 about here

---

The average percentage of subjects willing to make decisions for the entire group was 1.6 under the live music condition as compared to 1.5 during the tape-recorded music condition. The average percentage of subjects actively participating was 71.1 during the live music condition, compared to 70.4 during the tape-recorded condition. The average percentage of subjects passively participating was 28.8 during the taped music, compared to 26.0 during the live music.

For each group, the mean percentage of participation was computed to determine if consistencies existed between groups. As shown in Figure 1, active participation showed high percentage rates during both live and tape-recorded music. In contrast, passive participation and percentage of subjects choosing songs were much lower (see Figure 1). All groups showed similiar results.

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Insert Figure 1 about here

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In summary, the use of live music indicated a slight trend for higher percentages in two variables; subjects willing to make a decision regarding the group and subjects actively participating. The tape-recorded music indicated a slight trend for a higher percentage in the other variable, passive participation.

#### Discussion

During the live music condition, a slightly higher percentage of subjects were willing to make decisions regarding song choice, and were actively participating. Patient comments indicated a preference for singing to live music. Several patients stated that the tapes were too high for their singing range. Patients also stated it was difficult to sing with the tapes due to fast tempos and complex vocal arrangements. One patient stated, "I like the guitar better. It is more natural and has more prestige. The quality of the music is not as good with the tapes. The tapes are less personal."

Tape recorded music elicited paranoid thoughts from several of the clients. During three sessions

utilizing tape-recorded music, several different patients approached the therapist and commented that he/she would not sing because he/she did not like being recorded. Another patient asked the therapist, "Are you a member of the CIA?"

During the year preceding the experiment, taped music had not been used with the subjects. That variance in routine may have led some subjects to question why recorded music was introduced to sessions. Subject comments, as a result, may have been biased toward live music as the subjects knew both experimenters were musicians. Although this possibility does not seem to have altered the data, introducing the taped music before beginning data collection could help to gain more experimental control.

The tape-recorded music condition slightly increased the percentage of subjects passively participating. The increased movement of patients during the recorded music condition could be attributed to faster tempo of the recorded music, the greater

number of instruments used in the recordings, or the variety of instruments used on the tape (ie. banjo, mandolin, harmonica). A consideration for further research may be to utilize similar instrumentation during the live music session as is found on the tape-recordings.

This study had a large sample population, however subjects were not consistent throughout. Variables such as diagnosis, length of hospital stay, and amount of musical background were not measured. In addition, groups three and four (high functioning) did not receive as many music sessions as did groups one and two (low functioning). Further research should examine, and establish controls which would eliminate these variables.

As musicians, the experimenters found it difficult to locate the starting pitch during some of the songs. In addition, pauses were difficult to time and the pace of the music could not be controlled. Using live music allows a therapist to repeat a song or particular verse with minimal difficulty. During the experiment, live

music seemed more flexible than recorded music. The author was able to slow the pace of the live accompaniment, for example, to accommodate slow readers and to calm an agitated group. With recorded music this flexibility was not possible.

Finally, the use of verbal encouragement may have affected the results. Under both conditions the experimenters encouraged participation for two reasons a) the subjects were accustomed to the mannerisms of the experimenters and an impersonal interaction with the subjects could have affected data, and b) the experimenters were trained to verbally reinforce subjects and would have found it difficult to extinguish reinforcement from the group. The study, as a result, may reflect the use of verbal encouragement in conjuncture with live and recorded music.

## EXPERIMENT 2

### Method

Definitions. Live music, in this experiment, was defined as subjects playing rhythmic and melodic

instruments to a guitar accompaniment with the therapists singing. Recorded music was defined as subjects playing rhythmic and melodic instruments to a tape-recorded accompaniment with recorded singing.

Spontaneous participation, for purposes of this experiment, was defined as any response with an instrument that was not verbally or physically prompted by staff. Prompted participation was defined as physically assisting the client to play an instrument (i.e., raising an arm to shake a maraca), or verbally directing the client to play an instrument (i.e., Name, shake the maraca). For both types of participation, any response that was not musically appropriate was not recorded (i.e., throwing the maracas across the room).

Subjects. Forty-six males and females diagnosed with developmental disabilities served as the subjects. All subjects functioned within the range of severe to profound retardation. The subjects resided at Caro Regional Mental Health Center, Caro, Michigan.

The subjects ranged in age from 26 to 74 years in age. Four groups were chosen for the experiment based

upon observation in music therapy settings prior to the experimental condition. The groups were chosen because participants a) retained group cohesion (recognizing peers, remaining seated throughout the session), b) responded to activities using rhythm instruments, and c) functioned at a level where every group member could play at least one instrument.

All subjects attended a program at the facility known as Adult Activities, from 9 AM to 2 PM Monday through Friday. Subjects participated in music therapy, physical therapy, recreational therapy, occupational therapy, and speech therapy (as needed), in addition to time spent in a classroom setting learning functional skills. The groups were assigned according to living units. Subjects who lived together attended Adult Activities as a group.

Sessions were held in the music therapy room at the Adult Activities Center. Each group received a 30 minute session, twice a week. The experiment was conducted for four weeks.

Apparatus. In both the live and the tape-recorded sessions, subjects used the following rhythmic and melodic instruments; tone bells, tambourine, marimba, drum, and maracas. Two songs were utilized as background for the subjects to accompany with instruments: "Shoo Fly", and "Skip to My Lou". For the first 2 weeks one song was employed. For the second 2 weeks the other song was used.

The materials used in the live sessions of music consisted of a guitar and the instruments for the subjects to play. The materials used in the tape-recorded sessions consisted of a Panasonic Stereo Music System (Model X88), two tapes, and the rhythmic and melodic instruments. The first tape was "Shoo Fly" performed by Burl Ives. The second tape was "Skip to My Lou" performed by Pete Seeger.

• Patient response and participation was collected on a data collection sheet designed by the author (see Appendix B). Two therapists conducted the session, one collecting data and the other leading the group. In addition, two resident care staff were in attendance

for all groups to assist with behavioral difficulties and to help prompt subjects to participate.

Procedure. Four groups participated in the study, two groups of eleven subjects, and two groups of twelve subjects. To prevent order effect, two groups received live music accompaniment first. The other two groups received recorded music first. The form of accompaniment was alternated as in experiment one. Although each session was thirty minutes, data was only collected in the activity using rhythm and melodic instruments.

At the beginning of each session, clients were asked to pick one of the five rhythm or melodic instruments. This was to ensure that instrument preference did not reflect upon the experiment results. The leading therapist played the guitar or tape recorder and started and stopped the group. The second therapist sat within the group's circle collecting data. Data was recorded during the repeat of the chorus, of the number of subjects participating spontaneously, and the number of subjects participating

with prompting. After five stanzas, the leading therapist asked if any subjects would like to switch instruments. The subjects who indicated a desire to change, were allowed to pick a different instrument. Five stanzas were again sung, with a count again taken on the repeat of the chorus. The above procedure was continued for at least three recordings of data.

### Results

Table 2 shows the mean percentage of subjects participating under the three experimental variables.

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Insert Table 2 about here

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The average percentage of subjects spontaneously participating was 57.2 during the live music condition, and 55.4 during the taped music condition. The average percentage of subjects participating with physical prompts was 8.5 during the taped music condition, and 6.5 during the live music condition. The average percentage of subjects participating with verbal prompts was 9.3 during live music, and 8.4 during tape-recorded music.

For each group, the mean percentage of participation was computed to determine if consistencies existed between the groups. As shown in Figure 2, spontaneous participation rates were higher than prompted participation for all groups (see Figure 2). The means were relatively consistent for all variables, during all forms of presentation.

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Insert Figure 2 about here

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In summary, data collected during the live music condition indicated a slight trend to increase two of the three variables. Participation with physical prompts tended to be slightly lower during the live music condition than during the recorded condition.

### Discussion

Several factors may have affected the results of this experiment. As a result of increased community placement, clients were added to and deleted from groups each session. The changes effected the dynamics of the groups. New clients did not understand expectations of the group and were confused by a new schedule.

Other clients were confused as new people were added to a pre-existent group. No group had the same subjects at the close of the experiment as it had at the beginning of the experiment. Further research should be conducted which follows the responses of specific clients, thus eliminating the possibility of subject variance effecting the results.

Another factor which may have influenced data collection was the ability of the therapist to interact with subjects. During the recorded music condition, the experimenter was free to move from client to client and physically help the subjects play their instruments. During the live music condition, the experimenter lost the ability to interact physically, due to the guitar she was holding in her arms. The results may indicate the inability of the therapist to interact during live music, as the percentage of subjects participating with physical prompts was greater during recorded music. More experimental control may be achieved by having an independent musician play the live music, thus freeing the experimenter's hands.

A third factor which may have influenced the data was the response from the staff. At the beginning of the experiment, staff were extremely helpful at prompting the subjects to participate. Staff were excited by the activity and the addition of the author to the group. Near the end of the experiment staff did not prompt the subjects as often as during the experiment's beginning. This change in response could be attributed to familiarity with the activity and the author.

A final factor which may have attributed to the results was the use of verbal encouragement and reinforcement. Both of the experimenters were trained to give verbal reinforcement to members of groups. Although verbal reinforcement was given under both conditions, verbal reinforcement may have been greater during the recorded condition because the experimenter did not have to sing and play the guitar.

#### General Discussion

The two studies are an attempt to provide music therapists and other professionals in the mental health

field with data concerning the effectiveness of live versus recorded music presentations. These findings warrant further research on the effects of the two types of presentation. Although only slight trends were obtained, the results correlate with previous studies comparing live versus recorded music.

When planning music activities, either as a music therapist or for client recreational pursuits, ways to obtain maximum therapeutic benefits for clients should be considered. The form of music presentation may prove to significantly effect a client response, and thus significantly effect the benefits the client receives.

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Table 1

Mean Percentage of Participation for Experiment 1  
(Adult Psychiatric)

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Variable	Live Music	Recorded Music
Willingness to choose song	1.6	1.5
Active Participation	71.1	70.4
Passive Participation	26.0	28.8

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Table 2

Mean Percentages of Participation for Experiment 2  
(Adults with Developmental Disabilities)

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Variable	Live Music	Recorded Music
Spontaneous Participation	57.2	55.4
Participation with Physical Prompts	6.5	8.5
Participation with Verbal Prompts	9.3	8.4

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Figure Caption

Figure 1. Mean percentage of participation as a function of type of participation and specific adult psychiatric groups.

Figure 1

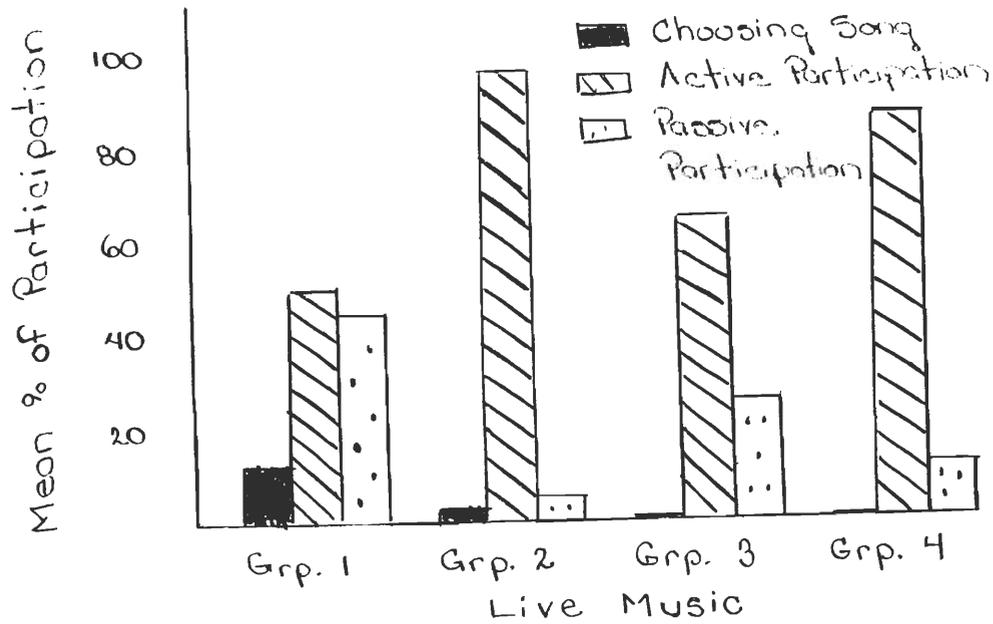
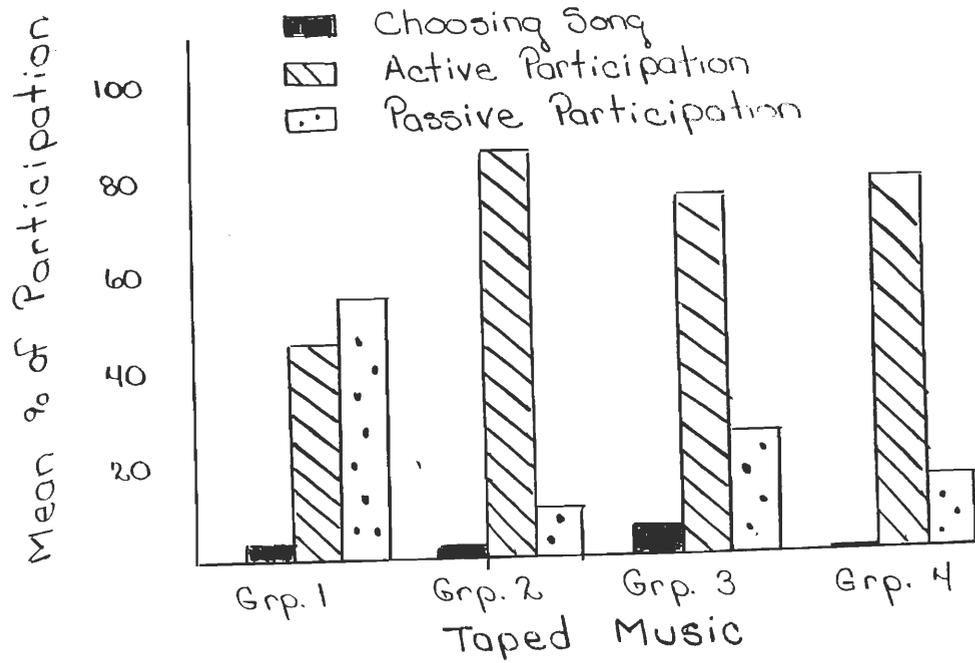
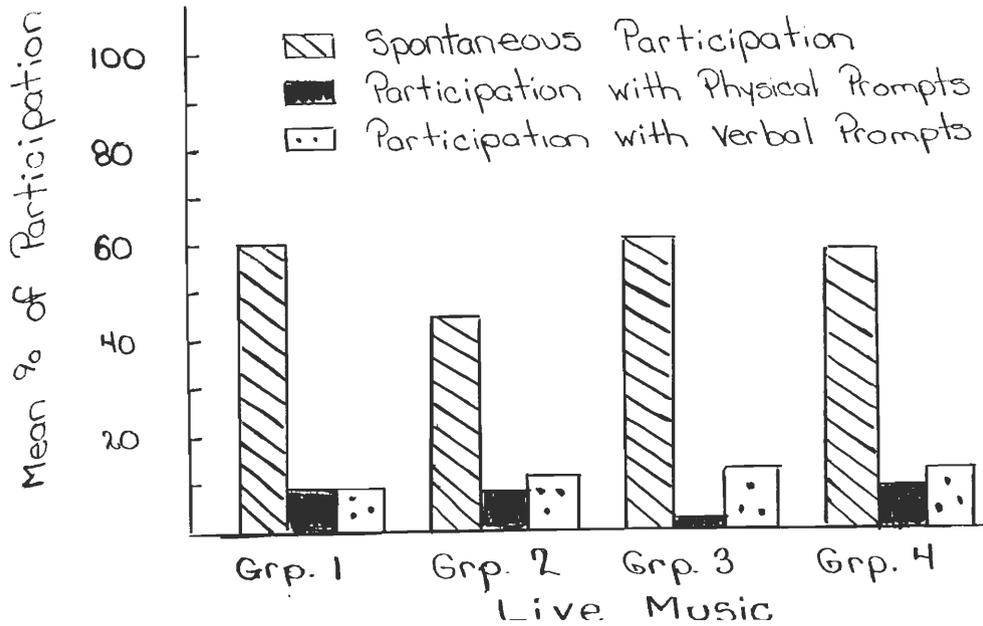
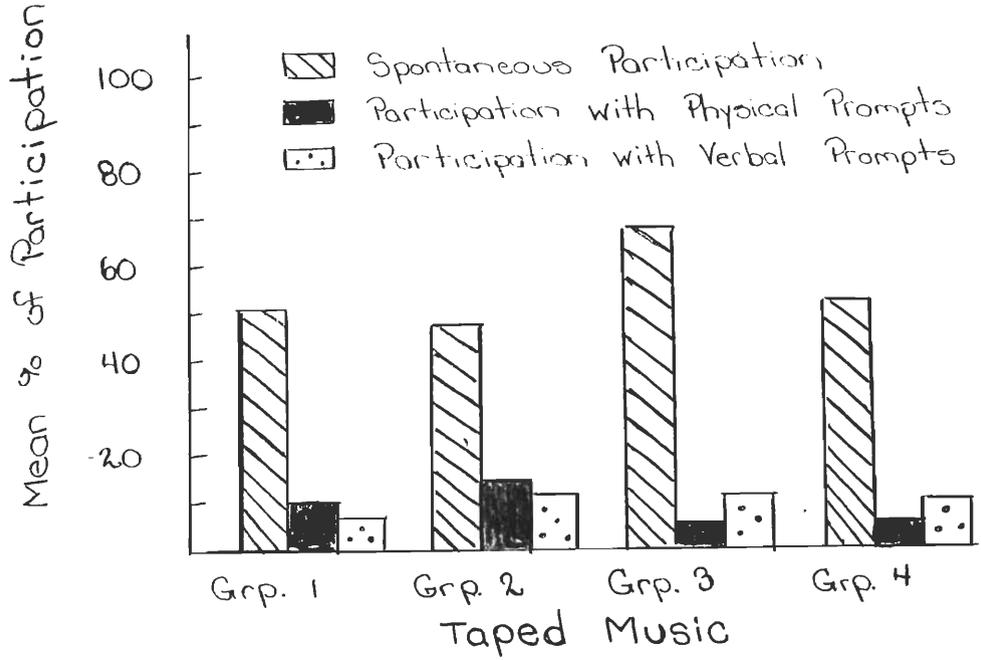


Figure Caption

Figure 2. Mean percentage of participation as a function of type of participation and specific groups of adults with developmental disabilities.

Figure 2



Appendix A

Data Collection Sheet for Experiment 1

(Adult Psychiatric)

Date: \_\_\_\_\_

Music type: \_\_\_\_\_

Cottage: \_\_\_\_\_

Therapist: \_\_\_\_\_

<u>Choosing Song</u>	<u>Song #</u>	<u># Singing</u>	<u># Listening</u>	<u>Total</u>

Observed Responses:

Comments From Patients:

Appendix B

Data Collection Sheet for Experiment 2  
(Adults with Developmental Disabilities)

Date: \_\_\_\_\_

Music Type: \_\_\_\_\_

Group: \_\_\_\_\_

No. of Subjects: \_\_\_\_\_

<u>Spontaneous</u>	<u>Physical Prompts</u>	<u>Verbal Prompts</u>

Observed Responses:

Comments from Staff: