The call to examine the impact of activities in order to guide occupational therapy practice reaches back to early therapists’ directives (Tracy, 1910) as well as to criticism from outside the profession (Tucker, 1953). The careful documentation of the effects that activities have on therapeutic goals has had wavering degrees of popularity throughout the history of the profession (Bissell & Mailloux, 1981; Fox & Jirgal, 1967).

Nelson, Thompson, and Moore (1982) demonstrated that four different activities elicited different affective meanings on three dimensions. Subsequent research found a significant difference in affective meaning between three activities when conducted with a psychiatric population (Kremer, Nelson, & Duncombe, 1984). Carter, Nelson, and Duncombe (1983) found that people of differing psychological types felt somewhat differently about two different collage activities.

With a better understanding that different activities differentially influence affective meaning, occupational therapists began to investigate adaptations of activities. Carter et al. (1983) discussed the implications of eliciting hostility, powerlessness, and low activity evaluations by requiring imitation as opposed to creativity during an activity. Henry, Nelson, and Duncombe (1984) found that a lack of choice in determining the activity’s process and end product detracted from a person’s sense of power within a group. Another study (Rocker & Nelson, 1986) found that individuals restricted from keeping the completed activity project felt more hostile than those who kept the project. Adelstein and Nelson (1985) did not find any conclusive evidence relating affective meanings to an activity adapted to encourage the sharing of materials or end products.

The properties of tasks and activities, especially those used in groups, have also been examined by researchers in the fields of education, psychology, organizational behavior, sociology, gerontology, and psychiatry. Hackman, Brosseau, and Weiss (1976) found that task design is an important influence on a group’s level of effort in performing the task. In a gerontological study, success with relatively simple tasks was shown to increase interest in pursuing other activities (Stafford & Bringle, 1980). A social psychology study (Morris, 1966) indicated that task type, more than task difficulty, affected the nature of verbal content in groups. Various studies of people with disabilities have linked task variations with an increase in verbal interactions (Anderson, Grossman, & Finch, 1983; Beat, Duckro, Elias, & Hecht, 1977; Mithaug & Wolfe, 1976).

The six studies cited repeatedly acknowledged the important role task components play in both individual and group settings with a wide variety of popu-
lations (Hackman et al., 1976; Stafford & Bringle, 1980; Morris, 1966; Anderson et al., 1983; Beal et al., 1977; Mithaug & Wolfe, 1976). They also noted an overall lack of knowledge concerning the characteristics of tasks and their implications for human behavior.

The present study was designed to add to the profession's body of knowledge concerning activity effects and components. It addresses the effects of activities within a group context. A recent survey established that the majority of occupational therapists use groups and that these groups are primarily activity focused (Duncombe & Howe, 1985). This survey found that occupational therapy groups are used in a wide variety of facilities with a wide variety of clients, and the same group activity often addresses more than one treatment goal at a time.

The activity component examined in the present study is the level of supplies available to group activity participants. This component is frequently varied according to treatment goals (Fox & Jirgal, 1967; Cynkin, 1979) or availability constraints (Adelstein & Nelson, 1985) within the group context. A review of the literature reveals that occupational therapists often modify the level of supply of materials in an attempt to increase verbal interactions among clients (Mosey, 1970; Bobis, Harrison, & Traub, 1955; Cynkin, 1979; Moriarity, 1976). The difficulty faced by therapists is that variations made in supply levels are based on subjective determinations. Only one study (Adelstein & Nelson, 1985) has isolated and investigated the effects of modifying supply levels within an activity (collage). No study has yet investigated the effects of tool scarcity; nor has any study compared more than two levels of scarcity. Furthermore, there is a need to investigate not only affect but also aspects of a group process such as group climate.

In the present study, three levels of supply were studied. High scarcity was defined as the severe and designated limitation of essential tools. This level represents the minimum supply of essential tools needed to complete the activity. Moderate scarcity was defined as an intermediate limitation in the tools required to complete the activity within a group context. This limitation was thought to require a moderate level of sharing. No scarcity was defined as the complete and adequate level of supply of all essential tools for each member. An essential tool was defined as any indispensable implement used in performing an activity's primary procedures.

The three levels of supply were studied in terms of seven dependent variables—three were the semantic differential factors of evaluation, power, and action(s); one was the measure of time needed to complete the activity; and three were the interactional dimensions of engagement, avoidance, and conflict.

from the Group Climate Questionnaire—Short Form (GCQ–S) (MacKenzie, 1983).

Do three different levels of supply result in differences in terms of evaluation, power, and action; time; and engagement, avoidance, and conflict? It was hypothesized that a group with moderate scarcity would have a higher group engagement than the other two types of groups and that the high-scarcity group would evaluate the activity the lowest. These hypotheses are consistent with previous small group studies and theories (Shaw, 1976; Hare, 1962).

Method

Subjects. A sample of 36 female graduate (n = 11) and undergraduate (n = 25) students enrolled in occupational therapy courses at Western Michigan University was obtained by requesting volunteers. Their ages ranged from 18 to 38 years. Seventy-two percent of the subjects had no previous stenciling experience. Though aware that they were to engage in a stenciling activity, the subjects had no prior knowledge of the nature of the variables under study.

Instruments. The Group Climate Questionnaire—Short Form (GCQ–S) was developed by MacKenzie (1983). The GCQ–S is based on several other group dimension scales and the factor analysis and refactoring of items (MacKenzie, 1983, 1984). It has 12 items on 7-point Likert scales, each ranging from not at all to extremely. The revised recommended scoring procedures for this instrument involve the calculation of T scores for each of the 12 items. Next, the mean of the T scores for each factor (engagement, avoidance, and conflict) is calculated (MacKenzie, 1984). MacKenzie reports that GCQ–S's advantages include non-technical language and sensitivity in distinguishing between the group phases he has identified: engagement, differentiation, and individuation.

The engagement factor reflects the importance of the group setting for members and is related to cohesion. It reflects the working environment of the group and is especially important to early or initial group sessions. The engagement factor is made up of five items. The avoidance factor refers to the avoidance of problems or the avoidance of encounters with other group members. Three items make up the avoidance factor. Conflict, which is made up of four items, is the mechanism for exploring difficult issues or interpersonal conflicts. The conflict score reflects anger, rejection, tension, and interpersonal distance.

Time needed to complete the stenciling activity was measured in whole minutes. The total time taken by each group for all three members to finish stenciling was recorded. Subjects were not aware of the timing procedure.

Affective meanings assigned to the activity on three factors—power, evaluation, and action—were
assessed by Osgood's short-form semantic differential (Osgood, 1952). This procedure requires each subject to place an "X" on a 7-step scale for 12 paired-opposite adjectives. This instrument has been used in previous occupational therapy studies to show differences among activities (Nelson et al., 1982; Kremer et al., 1984; Carter et al., 1983; Henry et al., 1984; Rocker & Nelson, in press; Adelstein & Nelson, 1985). It is based on well-established reliability and validity data (Snider & Osgood, 1969).

Procedure. The volunteer subjects signed up for the 36 available spaces within 12 groups scheduled over a 3-week period. They assigned themselves to a particular date and time based on their availability. Groups were then randomly assigned to different group conditions. Each subject completed a card requesting demographic information. The groups varied only according to the level of supply of essential tools; all other materials and procedures for the activity were held constant among the different groups.

Each subject produced six pieces of stationery using one of four border designs. The border designs consisted of two straight-edged, repeating, geometric designs and two curved-line, symmetrical designs. The stenciling activity consisted of two major steps: cutting out the selected design and applying red, green, and blue paint through the stencil onto heavy stationery paper measuring 6 by 9 inches. An essential tool was related to each step. The craft knife was the essential tool in the preparation of the stencil, and the stenciling brush was the essential tool during the painting step.

High scarcity was operationally defined by providing three group members with one stencil brush and one craft knife as the essential tools for completing the activity. Moderate scarcity was operationally defined as two brushes and two craft knives for three members. No scarcity was operationally defined as having a complete supply of tools (three stencil brushes and three craft knives).

The subjects were seated around a table in order of arrival. Each group was read the same set of instructions regarding the stenciling procedure and was informed that the experimenter would not be present during the activity. At the end of the stenciling activity, the subjects were given the semantic differential and the GCQ-S to complete.

Results

Planned orthogonal contrasts revealed that the subjects experiencing the moderate scarcity showed significantly higher levels of engagement than the subjects in the high-scarcity and no-scarcity groups, t (33) = 2.2, p < .05 (see Table 1).

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>HS (n = 12)</th>
<th>MS (n = 12)</th>
<th>NS (n = 12)</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AFFECTIVE MEANING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>19.25</td>
<td>20.17</td>
<td>18.92</td>
<td>7.0</td>
</tr>
<tr>
<td>Power</td>
<td>12.50</td>
<td>11.75</td>
<td>11.83</td>
<td>18</td>
</tr>
<tr>
<td>Action</td>
<td>14.42</td>
<td>14.00</td>
<td>13.42</td>
<td>1.87</td>
</tr>
<tr>
<td><strong>GROUP CLIMATE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engagement</td>
<td>44.4</td>
<td>50.9*</td>
<td>47.3</td>
<td>3.1</td>
</tr>
<tr>
<td>Avoidance</td>
<td>53.8</td>
<td>50.5</td>
<td>49.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Conflict</td>
<td>42.3</td>
<td>38.2</td>
<td>41.8</td>
<td>6</td>
</tr>
<tr>
<td><strong>DURATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minutes to complete</td>
<td>35.50</td>
<td>51.25</td>
<td>50.25</td>
<td></td>
</tr>
</tbody>
</table>

Note. The possible range of scores for Evaluation, Power, or Action is 0-24. The possible range of scores for Engagement is 23-68; for Avoidance, 34-75; and for Conflict, 37-82. HS = high scarcity. MS = moderate scarcity. NS = no scarcity. *MS had a significantly higher engagement score than HS and NS as determined by planned orthogonal contrasts, t (33) = 2.2, p < .05. Since data were not normally distributed, a nonparametric Kruskal-Wallis analysis was done. $x^2$ (corrected for ties) = 6.5, p < .05.

GCQ-S could not be appropriately analyzed through parametric statistics because of very low scores and a lack of variance. The Kruskal-Wallis nonparametric one-way analysis of variance revealed significant differences among the three groups, $x^2$ (corrected for ties) = 6.5, p < .05. Conflict was lowest in the moderate-scarcity group, but conflict was quite low in all groups.

No significant differences were found between the three supply levels on the ratings of affective meaning. All subjects rated the stenciling activity quite positively (a score of 24 being the highest evaluation score possible). Also presented on Table 1 are the mean duration scores for the groups. Unexpectedly, the high-scarcity groups appeared to finish the tasks faster than the other two groups.

Discussion

The data supported the hypothesis that engagement among group members would be greatest in the moderate-supply condition. It was also found that conflict was lowest in the moderate-supply condition, although it should be noted that conflict was relatively low in all three conditions. These findings are important since many occupational therapists attempt to foster engagement between patients through group activities. For example, Bradlee (1984) has discussed the importance of group interaction in short-term psychiatric settings. Of course, patient groups may respond differently from the subjects in this study. The significance of this study is in alerting occupational therapists to the behavior of normal groups. Clinical decision making often depends on data reflecting normal behavior as well as theoretical considerations.
Mosey (1970) advised therapists to use task-related sharing in project groups. The difference between a project group and the type of group studied here is that group members in a project group share many aspects of the task, not only tools. The groups in this study that did not share tools are typical of parallel groups, as defined by Mosey (1970). The moderate-scarcity groups might be thought of as developmentally intermediate between parallel and project groups. Future research as well as developmental taxonomies based on theoretical considerations might explore the various subtypes of developmental groups, depending on the nature of the sharing structure to take place. The use of the GCQ-S, together with other instruments, should further research in this area, particularly in terms of the engagement factor.

In contrast to the moderate-supply finding, the data from the high-scarcity groups seem to indicate that engagement may be inhibited when there is a severe shortage of tools. The mean score for the high-scarcity situation (44.4) falls in the neutral/slightly negative range of this factor, which varies from 23 to 68. The inhibition of engagement is usually not desirable in the initial or early stages of group development (MacKenzie, 1983).

According to MacKenzie (1983), the examination of the position of the engagement factor in relation to the other group climate factors is important for groups that are meeting for the first time. The pattern of relatively low engagement scores with relatively high avoidance scores is shown in the high-scarcity condition. If this pattern occurs in groups that have met just one time, it indicates that they were functioning atypically. Groups that do not initially become engaged often do not continue to develop (MacKenzie, 1983).

The finding that the high-scarcity level of essential tools resulted in a faster completion time was anticipated. The expectation had been that the high-scarcity groups would take the longest time to complete the stenciling activity. What caused the high-scarcity groups to finish sooner?

One possibility is that the high-scarcity groups redefined their goals. They may have decided that their goal was to work out a shortage situation whereas the no-scarcity and moderate-scarcity groups may have simply accepted the experimentally defined goal to produce six pieces of stationery per person. This explanation of goal redefinition is supported by two separate incidents. One of the groups supplied with only one tool (high scarcity) sought out the experimenter in the hallway and asked for additional knives. Also, one member from a high-scarcity group described the use of an assembly line painting procedure to the experimenter after the rating scales had been completed. The problem of knowing whether or not the goal defined by the researcher was adopted by the group is common to group research (Shaw, 1976). Shaw stated that there is no way to identify group goals prior to the group’s attainment of the goals. Specific after-the-fact inquiry as to the group’s goals was not made in the present study. However, because the high-scarcity groups completed the stenciling activity in almost half the time of the no-scarcity or moderate scarcity groups, the high-scarcity groups seem to have focused on a time-related goal.

Another possible explanation is that the faster completion time seen in the high-scarcity groups may have been an overcompensation to perceived stress in performing the activity. Adelstein and Nelson (1985) theorized that varying levels of sharing may elicit stress that produces negative effects. The present study showed a slight, but not significant, dropping off in mean scores of positive evaluation in the high-scarcity situation. This may indicate the beginning of a stress effect in an activity. There is a theoretical proposition that describes a group response pattern to stress as beginning with a lag in response, moving to an overcompensatory performance, and then showing a collapse in effective performance (Hare, 1962). Perceived or real time limits have been identified as a common form of stress for a group (Hare, 1962). Although not informed of the timing in this study, the high-scarcity group may have felt time conflicts. Mosey (1970) has warned against specifying time to produce an end product at the project level since it interferes with group skill development. The findings of the present study suggest that perceptions about time limits by the participants in an activity should also be taken into account.

The stenciling activity was rated as a very positive activity across all three supply levels. For each of the affective meaning scores, a score of 12 indicates a neutral rating and a score of 24 indicates the highest score possible. Reports of previous group studies (Barker, Wahlers, Cegala, & Kibler, 1983) have described attractiveness and the value of the task as being related to group cohesiveness. The use of the stenciled stationery appears to meet the criterion of high value that can enhance group cohesion. It should be noted that this high evaluation of the stenciling activity is limited to female college students at the present time.

Several directions for future studies involving activities in a group context were suggested by the findings of the present study. Further studies are needed to establish whether supply level changes can influence group functioning over several group sessions. The present study examined the sharing of tools in an activity, not the sharing of materials. The impact of different levels of shared materials on group climate dimensions is not yet known. The use of supply levels and group climate dimensions could also be applied...
to other activities besides stenciling. Expanding the number of levels beyond three may provide further information about different group development patterns and stress responses.

Conclusion

A moderate limitation in the level of supply of the essential tools used in a stenciling activity was found to increase the group dimension of engagement and decrease conflict. A further limitation of the supply of essential tools decreased the amount of time it took to complete the activity. Because level of supply is varied within activity-based groups in occupational therapy, the role of engagement in assessing group functioning and facilitating group development was discussed. There is a need for further studies investigating supply level variations with different activities, populations, and group sizes. Research with patient groups is also recommended.

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References


