

**Occupational Therapy Students Rating the Social Profile of their Educational Group:
Do they Agree?**

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Abstract

Background: During the curriculum, occupational therapy students learn to administer a range of assessment procedures. Interrater agreement between occupational therapy students' ratings of group functioning has not yet been examined.

Aims: To examine the interrater agreement within groups of students' ratings using the Social Profile.

Methods and Materials: The Social Profile (1) assesses the social interaction behaviors in activity groups, and thirty-five students completed the measure. Two methods of obtaining an overall Social Profile score were explored. Intraclass correlation coefficients (ICC) were calculated to assess the level of agreement within groups of raters.

Results: Social interaction in the study groups occurred more frequently within the basic cooperative level. There was substantial agreement within groups of raters on this level, whereas there was low to moderate agreement on the other four levels. The weighted method of obtaining an overall Social Profile score showed higher ICC than the simpler method.

Conclusion and significance: It appears to be easier to reach high interrater agreement when considering frequently occurring behaviors in a group. The weighted method of obtaining an overall Social Profile score showed the best ICC results and should preferably be used in future studies where an overall measure is sought.

Keywords: assessment, group work, interrater reliability, intraclass correlation coefficient, social participation, Social Profile, students

Introduction

The importance of using groups to work together throughout the professional life of occupational therapists has been discussed by Davis and Rosee (2) with regard to organizational socialization. In addition, Cole and Donohue (3) addressed professional socialization achieved through the social capital of class groups. According to the Practice Framework (4), social performance skills and group interventions need to be developed by students if they wish to be successful in role modeling these behaviors for future clients and children. Pitts and Gray (5) emphasize the importance of collaborative work with teams and policymakers in health systems.

Students are in the process of learning to measure behavior in accordance with the educational standards of their country. Sources applicable for students and new therapists includes the understanding of group development and the therapeutic use of self in group work as explained by Froehlich (6). Another basic source has been provided by Mahaffey and Holmquist (7) in a succinct summary of assessments most often used currently in mental health practice. Asher (8), in her encyclopedic 4th edition, organized a whole chapter on social participation assessments, while Hemphill-Pearson (9) published an entire book devoted to assessments in occupational therapy mental health. To assist clinicians in organizing their group leadership work, Donohue (10) delineated how social behavioral goals can be designed for reimbursable activity group strategies. However, the occupational therapy literature to date is sparse when it comes to assessments of group level participation and functioning in activity groups. To our knowledge, the Social Profile (1) is the only listed assessment in Asher's comprehensive overview (8) that includes the possibility of a group level assessment. Given the widespread use of groups in occupational therapy practice (11), more research on the properties of assessments focused on participation in groups is needed.

The Social Profile may be used to assess either the social participation of individuals in groups, or the social participation of a group as a whole (1). Participants respond to each statement by indicating the frequency of the described behavior on a 6-point Likert type scale (see Table 1). Building on Mosey's original conceptualization of activity groups (12), the items are proposed to reflect social participation at five different levels; namely parallel, associative, basic cooperative, supportive cooperative, and mature levels. These are levels with increasing complexity and with an increasing demand for social skills, but are not viewed as exclusive: rather, a person or a group may interact at different levels of participation depending on the setting or the purpose of the group. Table 1 provides an overview and example items of the five levels of social participation that are all assessed within three domains: activity participation, social interaction, and group membership and roles.

Table 1 about here

Agreeing on the purpose of the group generally is paramount to achieving a unified result (3, 11, 13). Students may perceive the purpose of the study group to be joint study review or emotional support around the circumstances of the course being studied, or they may perceive both purposes to be relevant. The purpose of the group would often align with the level of participation among its members. As examples, the objective of pure study review as a concrete goal would place the group at a basic cooperative level of interaction, while considering the study group as an emotional, support group would place the group at a supportive cooperative level of interaction (14).

Previous studies using the Social Profile have provided evidence of its psychometric properties and potential usefulness for clinical practice. It has been found to be of feasible

length (15), to have good item consistency (16), acceptable to moderate interrater reliability (17), content and construct validity (16, 18), and sensitivity to detect change across a relatively brief intervention period (19). Recently, a mixed-methods study of four occupational therapy students examined how the students rated the development of their study group with the Social Profile across four time points, and aligned their scores with the way they described their group's development during subsequent interviews (20). The study showed various degrees of connectedness between interview statements and Social Profile scores at the item level, whereas descriptions of the groups' stability or change across time corresponded very well with the trajectories as indicated by their Social Profile scores.

In terms of variable measurement, interrater agreement and consistency between independent raters is essential (21). However, there will always be some disagreement between different observers to the same event or process. When a group of persons observe the same event or process, they would be inclined to share their views related to some its aspects, while they would be inclined to disagree on others. For example, in a study of the group climate in psychotherapy groups Bonsaksen and coworkers (22) found moderate agreement within groups concerning engagement and avoidance. Related to conflict, however, the level of within-group agreement was considerable, and particularly so for members of groups receiving the interpersonally oriented therapy. The results indicate that the level of within-group agreement may vary with group structure and the focus of the group that is being observed (22). Thus, the level of agreement may vary with different perceptions of reality, but it may also vary with the raters' understanding of the concepts used to describe that reality. Raters meet these concepts in each of the instrument's specific items. Therefore, and in particular for new and/or translated instruments, there is reason to ensure that raters have a sufficient understanding of the concepts being measured with the instrument.

The assessment manual indicates the possibility of averaging the average scores for all five levels as a route to an overall Social Profile score, depending on the purpose of the clinician, teacher, group leader or researcher (1). However, this procedure may result in individuals and groups with very different social functioning actually being given the same or very similar Social Profile scores. Applying this method of obtaining an overall score to examples from the Social Profile manual (1), an adult movement to music group could achieve a weighted score of 60. However, compared with two psychiatric patient groups, an inpatient adolescent classroom group received a weighted score of 57, while an inpatient goal setting group received a weighted score of 58. Yet the movement group was participating in a parallel type activity, while the two inpatient groups were functioning at a cognitive, basic cooperative level of performance. This apparent discrepancy can exist within the Social Profile because it is both an ordinal scale in the five levels of social development, and an interval scale in using the Likert ratings regarding its behavioral items. In view of the problems with interpreting an overall Social Profile measure, we wanted to explore two alternative methods by which to obtain such an overall measure, and explore how interrater agreement might be affected by using these two methods.

Aim of the study

In the current study the context is transferred from clinical practice to group work in an educational context. The first aim of this study was to assess the level of agreement between occupational therapy students' Social Profile ratings when rating their study group with regard to its level of social participation. We explored the agreement between students' ratings related to the five levels of social participation, in addition to the ratings related to the groups' overall level of social participation. The second aim of the study was to explore two different ways of deriving an overall Social Profile measure, and to assess the level of agreement on these measures between the raters.

Methods

Sample

A total of 58 students entered the second year of the education program in the autumn of 2015, and 53 of these participated in the Social Profile seminar. A total of 35 students (response rate 66.0 %) agreed to participate in the study. Of these, six were men (17.1 %) and 29 were women (82.9 %), and the mean age of the sample participants was 24.7 years ($SD = 4.7$ years). The average number of hours spent working in groups during the last week was 4.8 hours ($SD = 2.7$ hours).

Education context, training and procedure

The study was conducted at the occupational therapy education program at Oslo and Akershus University College in Oslo, Norway. Approximately 250 students are enrolled in the program, with approximately 70 students graduating each year (23). The education program is an undergraduate program with a duration of three years (24).

A ten weeks study module on mental health and social participation was placed at the beginning of the second year of the program. During this module, the students were assigned to groups within which parts of the course program was delivered. To an extent, the groups were also expected to work together in a self-organized way. The groups were composed by the responsible course teacher. Given that the study took place while the students were in their second year of the education program, they had known each other – at least to an extent – for about a year. Within the groups, some had worked together in groups during the first year of the program, whereas others had not.

The students were introduced to the Social Profile (1) in a half-day seminar. The organization and content of the seminar is outlined in Table 2. The seminar instructors have in part been taught by the author of the original assessment (1), and have partly gained expertise

in using the assessment in clinical practice and in research (20). The first author has also been responsible for translating a preliminary version of the instrument into Norwegian (25). The students had no previous knowledge of the assessment before being introduced to it during the seminar.

Table 2 about here

Measures

Data concerning age, sex, and study group was provided. The main instrument used in this study, the Social Profile (1), is a 39-item assessment of social participation in activity-based groups. The instrument comes in two versions, one for children and one for adults and adolescents, and the adults/adolescents version was used in this study. The items are formulated as statements that may be treated as reflecting behaviors of individuals in groups (individual assessment), or as reflecting the behaviors of the group as a whole (group assessment). A preliminary Norwegian translation of the Social Profile was used in the study (25). The participants completed the Social Profile after having read the following instructions: “Please consider how the interaction in your study group has been during the last week. Based on your observations of the interaction in your group, circle the number that best describes how frequently this behavior occurs”.

Average scores for each level of participation were obtained within each of the five Social Profile levels by summing the relevant item scores and dividing it with the number of items in that level. Due to a pattern of positive correlations between the three averaged topic scores relating to the same level of participation, we decided in the next step to simplify the analysis by combining these three scores into one. Thus, the averaged scores within each of the three domains were collapsed into one averaged score for each level of social

participation, providing us with 5 summary scores per person, with one score for each of the 5 levels of social participation. For an example of this process for a single student's ratings, see samples of domain sheets and summary sheets in the Social Profile manual (1) (case examples and appendices.) Two different methods for obtaining an overall Social Profile measure were explored, and the methods are outlined in the following paragraphs.

Method 1

We calculated one mean score (based on the three topics scores) within each of the five levels of participation, resulting in five mean scores. Then we determined the overall Social Profile score by simply ranking these five mean scores, representing each level of social participation. If the parallel level had the highest mean score of the five, then 1 was given as the overall Social Profile score. Similarly, the scores 2-5 represented the associative, basic cooperative, supportive cooperative, and mature levels, respectively. In cases of equal mean scores for two or more levels, the overall Social Profile score would reflect the average of these levels. In this way we arrived at a mode score of 1-5 on the ordinal scale of the Social Profile's levels.

Method 2

A second method by which to determine an overall Social Profile score has been provided on the Social Profile website (26), and in this study we developed this method one step further. Mean scores for each level are weighted by coefficients that increase with higher levels of social participation. Thus, the mean score for the parallel level was multiplied by 1 (and therefore unchanged), whereas the mean scores for the associative, basic cooperative, supportive cooperative, and mature levels were multiplied by 2, 3, 4, and 5, respectively. However, to keep the resulting overall score within the range of the established 1-5 scale (representing the ordinal levels, from parallel to mature), we divided the weighted score with

the sum of the five mean scores of all five levels (27, 28). Therefore, the formula for obtaining an overall Social Profile score based on Method 2 became:

$$\text{Social Profile score} = \frac{\text{mean P} + (\text{mean A}) \times 2 + (\text{mean BC}) \times 3 + (\text{mean SC}) \times 4 + (\text{mean M}) \times 5}{\text{mean P} + \text{mean A} + \text{mean BC} + \text{mean SC} + \text{mean M}}$$

In the formula, P indicates the parallel level, A the associative level, BC the basic cooperative level, SC the supportive cooperative level, and M the mature level. An overall Social Profile score close to 1 therefore indicates a level of social participation that is, in general, closest to the parallel level. Similarly, scores close to 2, 3, 4, and 5 indicate levels of social participation that are, in general, closest to the associative, basic cooperative, supportive cooperative, and mature levels, respectively.

Data analysis

The participants came from 11 different study groups – one of the study groups was represented with as much as six persons in the sample, whereas two groups had no more than two students participating. The study's main statistical procedures required an equal number of participants in each group. Thus, in order to be able to use as much of the data as possible, we decided to examine the level of agreement within groups of three student raters. The number of groups of raters differed between the different levels of social participation, as a result of occasional missing responses. In the analysis of interrater agreement concerning the parallel, associative, and basic cooperative levels, eight groups of three students had valid scores at these three levels ($n = 24$). For the analysis of agreement concerning the supportive cooperative and mature levels, 10 groups of three students had valid scores at these two levels ($n = 30$). The analysis of agreement on the overall Social Profile scores, based on two methods, utilized seven groups of three students with valid scores at all of the 5 levels ($n = 21$).

Intraclass correlation coefficients (ICC) were produced to estimate the level of agreement within the groups of student raters (29, 30). This method of estimating interrater agreement is not dependent on the sample and is able to account for several different sources of error simultaneously (31). The ICC method of estimating agreement between raters has become commonly used in the field of occupational therapy (e.g., 17, 32). We used a mixed-effect model, treating raters as random factors and Social Profile scale scores (scores on each of the five levels of social participation, as well as the overall score) as fixed factors. We were interested in the raters' consistency in agreement, not their absolute agreement; thus, we used the average consistency type of ICC. The ICC is interpreted similar to well-known measures of reliability, like Cronbach's α . The level of statistical significance was set at $p < 0.05$. All statistical calculations were carried out using IBM SPSS for Windows (33).

Ethics

All of the students were informed about the study by one of the researchers (first author) and volunteered to participate. As the first author also had the role of seminar instructor, it was emphasized that study participation was voluntary and there would be no negative consequences for persons who opted not to participate. Conversely, participation in the study had no benefit for those who chose to take part. Approval from the Norwegian Data Protection Official for Research was granted.

Results

Table 3 shows the mean scores and the intraclass coefficients for each of the scales, including the two differently produced overall Social Profile scores. With a view to the levels of social participation, the students' mean scores indicated that they (as one whole group) considered the participation in the study groups to be spread across all five levels of participation, but more frequently within the basic cooperative level. This level of social

participation was also the one where the groups' behaviors, as stated in the Social Profile, were easiest to agree on within each group of raters. There was substantial and statistically significant agreement within groups of raters on this level ($ICC = 0.68, p = 0.03$). The raters' level of agreement on the other four levels of social participation were moderate to low.

Table 3 about here

The level of agreement among the students' ratings on the two overall Social Profile scores was substantial, and with Method 2 it was statistically significant. There was more consistency in agreement on the overall scale when using the complex, weighted method 2 ($ICC_{\text{Method 2}} = 0.79; p = 0.01$) for obtaining the score, compared to the level of agreement when using the simpler Method 1 ($ICC_{\text{Method 1}} = 0.63; p = 0.07$).

Discussion

This study examined the Social Profile scores of occupational therapy students rating the social participation in the study group they were a part of. The participants reported that their groups functioned at all five levels of social participation. In Table 3, the three levels with $n = 8$ merely indicates how many groups of raters had valid scores for the statistical analysis. All groups did function at all levels. This reveals that groups in the college age range can function at all levels of participation. Within the groups of student raters, there was low to moderate agreement on most levels of social participation, whereas agreement was high when relating to the basic cooperative level of social participation. High agreement within the groups of three students on the mid-level of participation (basic cooperative level) is not surprising as the purpose of their interaction was cognitive, procedural and executive in function, reviewing the contents of their curriculum courses. This level of interaction would

potentially reflect behaviors like discussion about what should take priority, and how they wanted to study together. Because the focus of the interaction was at a cognitive, task-focused level, it makes sense that there were lower mean scores – and lower ICC measures – for the four other levels of social participation. Thus, and in view of Bonsaksen and coworkers' study of therapy groups (22), we may suggest that it is easier to agree on behaviors that are focused and relatively frequent in a group, than it is to agree on behaviors that are less focused and less frequently occurring. This assessment process was also seen in the lengthy study of individuals within occupational therapy groups examining the sensitivity of the Social Profile over a three year time period (19). For the educator concerned with teaching group assessment and group leadership skills, these results may have several implications. First, starting the course with looking at group functioning at the basic cooperative level may be beneficial, as this level may be easier for students to relate to than the others. Second, it may be beneficial to put substantial effort into linking group descriptors at the item level to the students' own experience as directly as possible, preferably to the students' here-and-now experience. This would assist students in relating the real-life processes in groups to a somewhat more abstract language for describing them. Considering what appears to be lower ICC measures for levels of interaction mirroring relatively infrequent behaviors, the linking process relating to these levels should receive extra attention once the basic cooperative level is well understood.

As can be seen from Table 3, the participants also rated their groups as functioning at the supportive cooperative level. This indicates that some expression of emotions about their study process, their professors, and their curriculum may have taken place as well. In addition there were some mature ratings, so students may also have been generously assisting each other in their studies. At these two upper levels where emotions are expressed there is camaraderie developing, perhaps some humor, and growth toward being less competitive. However, the low ICC measures for the supportive cooperative and mature levels suggest that

their associated behaviors were quite differently perceived within the groups of raters.

Examples have been provided in the Social Profile manual (1).

While there was also substantial agreement according to the ICC measure obtained by Method 1 for the overall Social Profile measure, the ICC measure which emerged in Method 2 was at a very good level of self-assessment agreement, and it occurred at a high level of probability (see Table 3). In addition, Method 2 appears to be preferable to Method 1 because it gives a more precise estimate of the group's overall functioning. While Method 1 simply determines the group's level of functioning by selecting it to be the level with the highest mean score, Method 2 takes all of the available data into account (28). Clinicians, educators, and group leaders may nonetheless appreciate seeing the range of ratings spread out for their group provided by Method 1 in the ordinal scale (3).

It needs to be highlighted at this point that while college students are adults, who have probably achieved interaction skills at all five levels of social participation, they can adapt their mode of social interplay to the task at hand. For example, adults can exhibit parallel behaviors in a movement to music group, or brief associate level behaviors at the office xerox machine. In general, the basic cooperative level of social interaction is appropriate for a college study group, but depending on the group's task and the group's ways of organizing their work, other levels of social interaction may also be displayed. This principle of adaptation of behaviors to the purpose of the group is part of social development theory, as seen by the concentration of group scores in this study in the basic cooperative level of interaction, appropriate for a student study group (3, 10).

Study limitations and implications for future research

One limitation of this study is the effect of rating one's own group which could lead to lack of objectivity. Good observation skills and emotional distance would be required to be objective, especially if a student perceived that their grade might be affected. Missing data on

some of the study variables is a general problem, and more specifically, it may have had the effect of reducing the probability of the resulting levels of agreement (ICC measures). Future studies may benefit from using other data collection procedures. For example, it would be important to assess interrater reliability of raters who themselves are not part of the groups being assessed. In addition, future studies should continue to use the Social Profile to rate individuals and/or groups in therapeutic settings.

Another limitation inherent in the structure of the Social Profile tool is the small number of items found in some topics or domains of social interaction. A further limitation in the structure of this study resides in the fact that this is the first time a weighted scoring method (Method 2) has been used with the Social Profile, so that we do not have a point of comparison with which to judge our results. We can only compare our two methods between themselves. More studies from diverse fields of practice are needed before we will be able to assess whether or not Method 2, as suggested from this study, really is a sound procedure to use for obtaining a total Social Profile measure.

A third limitation is that we used a preliminary, not yet validated, translation of the Social Profile. The translation of instruments gives rise to a number of threats to the validity of the new version (34). Importantly, the translated concepts and phrases need to mirror the meaning content of the original ones. At the same time, it should be ensured that both individual items, as well as the instrument as a whole, will function in the new cultural context for which it has been translated. For this study, two individual forward translations were performed, and the two initial versions were harmonized into one in collaboration with the first author. However, no back-translation or pilot study procedures have been performed to date, and this represents another line of future study related to the Norwegian version of the Social Profile.

A fourth limitation relates to the level of cognitive effort placed on rating the Social Profile among the participants. In spite of their knowing that the ratings would be used for research purposes, it is possible that they thought of it more as an academic task, and they may not have put much thought into it. This may be why the ICC measures were low in some of the levels – students may have just picked out what was obvious in their group work (e.g., the cognitive skills that lend themselves to the basic cooperative level) to quickly rate the group, without reflecting much about what else occurred in the groups that was not as obvious.

Conclusion

This study may benefit the field of occupational therapy because of its preliminary look at a new group assessment, the Social Profile, that was designed to be used with activity-based groups. The study showed that 1) groups of occupational therapy students displayed behaviors across all five levels of social participation, 2) overall, the students perceived their group to be at, or slightly above, the basic cooperative level during their study group activities, and 3) there was a high level of agreement within each group of raters regarding the groups' scores on the basic cooperative level, but regarding the four other levels the interrater agreement was low to moderate. Finally, 4) the formula for calculating an overall Social Profile measure, as provided by Method 2 in this study, was shown to be more precise and showed a higher level of interrater agreement than the score obtained by Method 1. We suggest the formula in Method 2 to be used in future studies using an overall Social Profile measure, whereas Method 1 may be more advantageous for the clinician, teacher, or group leader observing group participation behaviors.

So, there are several ways the Social Profile may be used, which may or may not include the calculation of an overall measure. Thinking about occupational therapy activity groups, classroom activity groups, community recreation groups, and civic board meetings

using the dimensions of the Social Profile with a variety of scoring methods can serve people who want a result of an ordinal scale of five levels showing a range of interaction levels, or people who want the exactitude of a percentage or decimal score of an interval scale from a formula in a statistical package (1).

To establish demonstrated results of our interventions in occupational therapy, we need to use rating scales showing the progress made through work we carry out in our activity groups. As Zafran and Tallant (35) explained in their article, “It would be a shame to lose them...our projective assessments in occupational therapy (p. 187).” Our assessment tools are not only helpful to children, parents, clients and fellow professionals, but they confirm our standing as professionals who have shown that our practice is evidence based.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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Table 1

The Social Profile: Example Items Relating to the Domains and Levels of Social Participation

LEVELS	DOMAINS		
	Activity Participation	Social Interaction	Group Membership and Roles
Mature	The activities provide balance between emotional and performance needs of members	Members can assume a variety of member and leader roles without prompting	Members discuss serious topics (e.g., ethics, politics, health)
Supportive Cooperative	The activities focus on attempts to satisfy others' emotional needs by words or actions	Members have been observed to encourage self-expression of feelings in others	Members enjoy equality and compatibility between members
Basic Cooperative	The activities focus on longer, more complex activities	Members interact by beginning to express ideas and meet needs of others	Members can identify and meet group goals with socially acceptable actions
Associative	The activities include engagement in short-term activities	Members have been observed seeking activity assistance from others	Members emphasize performance of activities over relationships
Parallel	The activities provide only little sharing of activity with group members	Members interact very little with other people	Members are comfortable participating in activities in the presence of others
All items are scored 0-5, where 0 = never, 1 = rarely, 2 = sometimes, 3 = frequently, 4 = almost always, 5 = always.			

Note. Item examples are extracted selectively from the Social Profile (1).

Table 2

Content and organization of the Social Profile seminar

DURATION	CONTENT
45 min	<p><i>Introduction</i></p> <p>The Social Profile's theoretical foundations and principles, assessment procedure, and scoring instructions</p>
45 min	<p><i>Using the Social Profile to assess study groups</i></p> <p>The students were asked to use the Social Profile to assess the level of social participation in the students' own study groups.</p>
45 min	<p><i>Clinical experiences and data collection</i></p> <p>The seminar instructors provided examples of group work in mental health clinical practice and from using the Social Profile in this context. At the conclusion of the seminar, the students were invited to participate in the study by giving their consent to let the completed assessment forms be used for research purposes.</p>

Table 3

Mean scores and intraclass coefficients indicating level of agreement within groups of raters

Scale	<i>n</i>	<i>M (SD)</i>	ICC	<i>P</i>
Parallel level	8	1.97 (0.71)	0.32	0.26
Associative level	8	2.93 (0.63)	0.23	0.32
Basic cooperative level	8	3.67 (0.77)	0.68	0.03
Supportive cooperative level	10	3.12 (0.80)	0.21	0.32
Mature level	10	3.07 (1.11)	0.09	0.41
Social Profile score (Method 1)	7	3.58 (0.89)	0.63	0.07
Social Profile score (Method 2)	7	3.18 (0.17)	0.79	0.01

Note. *n* indicates the number of groups included in the ICC analysis, each group consisting of three student raters. Two different methods were used to derive an overall Social Profile score (outlined in the measures section).