This paper discusses the effectiveness of small group interaction as opposed to teacher centered instruction. The following procedures are suggested in using this type of class instruction: (1) students are told that the class is not lecture, but one in which they will participate actively; (2) personal data is collected from each student; (3) groups of six to eight persons are set up; (4) the task of the learner should be outlined by the teacher in the beginning; (5) outside reading is essential; (6) group participation is essential, mild pressure can be exerted to insure this; (7) skill is needed in setting the atmosphere in the classroom to encourage participation and active involvement; (8) each student is responsible for a report to be presented to the class; (9) each group is responsible for a group report; (10) external evaluation by the teacher should be played down and the locus of evaluation shifted to the student himself; and (11) the atmosphere in a learner-centered class should be one of freedom and openness where divergent ideas are welcomed and rewarded. (KJ)
The Effectiveness of Small Group Interaction as opposed to Teacher Centered Instruction.

John C. Adams, Jr.
Associate Professor, Augusta College

The 70's are upon us. The changing of a decade - a time for looking back and for looking forward. I had many thoughts and feelings about the past and the future and the changing role of formal education as I struggled with this paper during the Christmas and New Year Holidays.

The special issues of Life and Look were packed with photographs and words which hit home as I thumbed through and looked and read and put off beginning this paper. Many random impressions raced through my mind. The Beatles and music - Flag draped coffins of leaders and followers, presidents and soldiers - Repeated tragedy of assassination - Bonnie and Clyde and brutality - Fashions and nudity - Drugs and fantasy - Ghetto riots and flame - Marches, non-violence against violence, flower against bayonet - Crises, Cuba and the Mid-East - The revolt of the under thirties - The impossible footprint on the moon - A methodical almost routine war in Southeast Asia.

I was doing just fine until I opened the page which showed John Kennedy racing along the beach with his dog in full pursuit. The picture had caught him suspended in the air with his feet touching only the splash from the water. Suddenly I began to weep as the picture triggered a flood of thought and emotion.

In the next few moments I spent some very private time with my creator as I asked for strength to cope with the burden and challenge of the future. Somehow against the backdrop of the 60's, the classroom seemed archaic and many times irrelevant. I hoped that being over thirty would not disqualify me from listening and responding to the voices of the young as they think, sing, write, demonstrate, and occupy in the name of relevance and honesty.
As I put the magazines back on the table the thick, blood red ink of the Christmas ribbon in the Coca-Cola ad stuck to my fingers.

I had a beginning for my paper. The message of the 60's for education seemed blazingly clear. Something has to give. The "Now Generation" does not accept procrastination. If we do not listen, education will continue to be upstaged by industry, science, TV, student planned "free schools" and any thing else on the move.

I felt some what reassured as I looked over references which showed that something widespread is beginning to happen in both theory and practice of education.

Carl Rogers says "Facilitation Learning" and "intensive group experience" can help save education from its current plight as the "most rigid, outdated, bureaucratic, incompetent institution in our culture". Rogers says education can be shaken out of the doldrums from its mossback stance if students know that they are actually being listened to and if innovations are as much student planned as faculty planned. The 'facilitator' asks students these questions: 'What do you want to learn?' 'What things puzzle you?' 'What problems do you wish you could solve?' Then he goes about helping the students by providing the psychological climate in which the student feels free to be curious, to make mistakes and learn from them, to learn from his environment and fellow students as well as from the teacher.

Moffett, the author of a handbook on student-centered curriculum proposes "pupil-to-pupil talk in the small group setting as opposed to the lecture method. The pupils learn to pose questions as well as to answer them and are able to learn and grow in the safety of the group."
The late Kimball Wiles who was Dean of the College of Education at the University of Florida suggested "Small analysis groups" of perhaps eleven students and one leader or teacher in order that schools could consider the human factors and recognize the value of the individual.

McGregor Smith, Jr. is coordinating an innovative program for the University of Miami and Miami Dade Jr. College. In this program, the students have much choice as to the content and activities of the classroom and do much of their work in small groups of from 8 to 12. Diverse subject areas such as biology, humanities, social sciences, psychology and English are represented in this program.

Many other references could be cited to show success when the learning situation has been restructured. All of these successes are credited to major overhaul and not merely to slight modifications.

In many of these efforts the small group has been used as opposed to the larger class assembly. If we recall the Phenomenology of Combs we begin to see why the small group setting seems to offer so much promise. The Phenomenologist prefers to feel that the learner has the ultimate control over what he learns and is not as easily manipulated as the S-R theorists would lead us to believe. Authoritative education relies on coercion, and force - many times threat and fear of failure and rejection are involved.

To the contrary, learner centered approaches such as the small group arrangement offer the open atmosphere where the student and the teacher become learners sharing together in the educational enterprise. Phenomenology holds that in situations which offer absence of threat the self can begin to rearrange its perceptions which in reality is what learning is all about. Following these rearranged perceptions we have a student who is becoming self actualized and is improving his subsequent problem solving behavior.
For the next few minutes, I will describe my experiences with educational psychology classes I have been teaching for the past two years in a fashion which has all but abandoned the lecture method in favor of small group interaction.

I have structured my classes around a learner-centered model patterned after the best available information and have modified and refined the approach many times as a result of trial and error, or suggestions by students.

In the following narrative, I will attempt to explain in detail how the classes were set up in order that others desiring to implement similar approaches can profit from the ideas I found successful and perhaps avoid or attempt to solve problem areas.

At the earliest possible moment, usually during the first class period, the students are oriented to the fact that the class will not be the typical lecture type but rather one in which they will be allowed and encouraged to participate actively every class session. They are told that formal lectures will comprise only a very small proportion of the total class time. Rather, they will be involved in small group discussion centered around suggested topics related to the course or growing out of problems of mutual interest which in a very real sense are relevant rather than obscure or detached from any meaning to the student involved.

The following procedures are practical in a normal size classroom simply by rearranging the desks or chairs into several small circles.

I have experimented with various sizes of groups in the classroom and discovered that groups of six to eight students seem to operate quite well. Groups that are larger tend to cut down on interaction by all students and many times private conversations develop in the larger groups.
Groups that are very small tend to lack variety of personalities and interests and more frequently get bogged down in trivia when discussion lags.

In setting up the groups, personal information is collected from each student in the classroom on index cards. Such information as age, educational level, educational goals, size of family, places visited in travels, hobbies or outside interests, and whether the student feels he an introvert or extrovert, is used to assign students to heterogeneous groups. This is accomplished in the very beginning of each course, prior to any formal lectures to assure that students are not allowed to assume in error that the classes will be taught in the traditional manner. This is very important since once a pattern is set in a classroom whether it be traditional or not it is very difficult to change.

It should probably be mentioned at this point that the teacher must be consistent in his behavior from the very beginning if he expects the students to have any confidence that he really means what he says in stressing the importance of the learner over the teacher.

In regard to formal lectures, it seems to make no appreciable difference in subject matter covered during the course or in knowledge retained whether almost no lectures are given or as many as one formal lecture a week is presented. When lectures are not used the students are given suggested topics for reading and discussion as needed. This serves as a pacing mechanism if the teacher feels an urgency that certain topics must be covered during a course. The tone of the formal lectures must avoid dogmatism if the students are to feel free to question and seek new answers to educational and other problems.

The task of the learner in the student-centered class should be outlined by the teacher in the very beginning.
If the approach is truly a learner-centered one, the students are made aware that the teacher will avoid most of the external pressure on the learner and that the responsibility for how much is learned or accomplished rests ultimately with each student.

Outside reading related to the course seems essential. Rather than requiring a specific set of readings picked by the teacher, it appears to be more appropriate to allow the students to read selections of their choice as long as relevance is apparent. It is usually helpful to require written reports of a prescribed number of readings. The reports should include the student's personal reaction to the article, chapter, or book rather than just an outline of the contents of the selection. Students can profit from the readings of the other students if the reading reports are passed from student to student prior to handing in.

Group participation is essential if the group-centered approach to the learner-centered classroom is to function. Mild pressure is applied in that the students are made aware that the teacher is keeping track of their efforts as a group member. It is made clear that being an effective group member does not mean monopolizing the time by talking too much but rather means contributing actively by providing information and opinions as well as feelings and by drawing others into the dialogue. If the class is large, there will be several groups which means that the teacher must divide his time between the groups, sitting in one and then the other. The teacher must be very careful to spend about the same amount of time in each group since it was discovered that students are sensitive about this and tend to feel ignored if they think any partiality is being shown. Classes larger than thirty five or forty students are not suggested for the group-centered approach, as five groups of six, seven, or eight students each seem to be all one teacher can manage.
It should be noted that even the most withdrawn student begins to participate as he gains security in the small group setting. This security of group members is by no means automatic and depends upon the skill of the teacher in setting up the proper atmosphere both in the classroom as a whole and in the smaller confines of the groups. It is in the small groups that the students feel freedom to explore personal feelings and meanings. If indeed education has dealt too much with the factual and sterile, as has been suggested by the advocates for reform, then the group-centered approach offers one alternative where students can explore what they feel to be relevant. It is in the small group setting that the teacher has the greatest opportunity to show that he does not feel he has all of the answers and in fact is a co-participant in the learning process.

Reports which are presented by each student to the total class allow for an individual and separate endeavor if each student is required to report to the class on a topic of his choosing. Even though topics are not assigned or picked from a suggested list, it is found that duplication is almost non-existent and even when topics are related there is no recognizable similarity between reports.

Group reports present the challenge of cooperation among members of a group rather than competition if each group is assigned the task of originating its own presentation which is delivered at the close of the course to the entire class. The choice of topics must be one of consensus and presents a particular challenge if diverse personalities exist within a group. The particular talents and abilities of each student should become evident as the project unfolds and much is learned in regard to appreciating the point of view of others even though compromise is sometimes a necessity.
Research papers are a useful assignment either as a requirement or as extra credit. In either case, it is suggested that most emphasis be placed on creativity or depth of thought evidenced by the student.

In all instances, external evaluation by the teacher should be played down and the locus of evaluation shifted to the student himself. Even though a school does require that a teacher turn in a grade for each student at the close of a course, it is feasible for the student and teacher to arrive at that grade after mutual consideration of the students' performance. All grades during the course should be tentative so that the student does not feel bound to one or two measures of his performance. It is many times helpful to use a rating scale or some other measure of performance which does not rigidly adhere to the traditional. It seems only fair to allow the student credit for his strong points without undue penalty for his shortcomings. We have long been aware that great differences exist between individuals, but have behaved as teachers as if we had no knowledge of this fact. Since even the most sophisticated of test makers readily admit that their measures are grossly inaccurate in many cases, why should we continue to pretend that we can accurately assess a student's performance. It seems very preferable to evaluate only in terms of a range rather than a precise grade.

The atmosphere is a learner-centered class should be one of freedom and openness where divergent ideas are welcomed and rewarded. Too often we penalize students for their creative efforts and are not open to change and improvement. If as has been suggested in recent years creativity is to be fostered rather than stifled, then it is the responsibility of the teacher to make it very evident that divergent thinking will be rewarded along with convergent thinking.
From the very beginning, it should be made clear that memorization is not expected and that the emphasis will be on concept learning rather than mere retention of facts.

The use of small groups in the classroom is suggested at all levels from elementary through graduate school.

My students have experimented with this method in their elementary and secondary classrooms and are encouraged by the results.

I am currently teaching a graduate course in tests and measurements and have found that even with such a technical course the small group experience produces outstanding results.

Let me urge you to experiment with small groups if you have a classroom.

In lieu of a statistical type evaluation of the success of the group-centered approach, I offer for your consideration the comments of the students at the conclusion of their experience and after grades had been turned in to the college.
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Associate Professor, Augusta College

At the conclusion of a course, students were asked to use a rating scale to place themselves from low to high on several variables. The results are as follows:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest</td>
<td>2%</td>
<td>17%</td>
<td>81%</td>
</tr>
<tr>
<td>Motivation</td>
<td>2%</td>
<td>39%</td>
<td>59%</td>
</tr>
<tr>
<td>Creativity</td>
<td>15%</td>
<td>52%</td>
<td>33%</td>
</tr>
<tr>
<td>Intellectual Growth</td>
<td>2%</td>
<td>46%</td>
<td>52%</td>
</tr>
<tr>
<td>Emotional Growth</td>
<td>6%</td>
<td>42%</td>
<td>52%</td>
</tr>
</tbody>
</table>

Percentages indicate the proportion of students placing themselves at each level.

Many comments of significance were made by students as to the meaning of the experience in the learner-centered class. The following selected statements are included due to their clarity and are fairly representative of the comments made by the students in general. The wording of the statements has not been changed.

I guess that my greatest personal gain was being a member of a group. I have always been quite shy as far as my peers go. I would never say what I thought because of fear of being rejected or laughed at. I was more at ease with people of my mothers and fathers age. This comes partly from being an only child, I'm sure, but by being a member of a group - where I know my opinion was worth something I've gained the self-confidence I was lacking.

One significant factor is that I am able to participate more in my other classes. Before I took this course I never said a word, not even to ask a question. I find it easier to do this now. I have also discovered learning is increased when you participate by expressing your thoughts and reactions. I only wish I had learned this sooner. That is why I feel that a creative teacher is one of the most rewarding experiences a student can have.
My greatest personal gain this quarter has been the acceptance of people who are extremely different from me. Joe, a Negro; Wayne, an intellectual; Susan, married and settled; Ginny, who is extremely quiet, but very intelligent; Steve who is "set in his ways" - and would hardly ever listen.

I have grown this quarter. Relief of pressure has been wonderful! Being relaxed I have been open and thus able to learn quicker.

My greatest personal gain has been to think and learn as an individual and not how the professor or the other group members wanted me to think. I've also learned to use other sources for information and not because I was made to.

As far back as I can remember I have always been subjected to the lecture system of teaching and I am afraid that I had become an ostrich. With my head in the ground I could truthfully say that lecture method was the best and only way of teaching. Now I must admit that I was wrong. The group-centered discussions that we had proved to be very worthwhile.

Facts and thoughts seemed to be remembered better when they are discussed in a group and not just simply read and memorized.

My greatest personal gain this quarter was being a part of the new type class. It was an experience that I had never known as a student. Now I realize that there is a need for change in the average or "old-type" classroom.

The release from tension! It is a delight to push yourself instead of "being pushed." I have enjoyed the informalness and the friendliness of the class (and especially our group).

This quarter has been one of the few times I have been able to pursue what I felt I needed in the subject. The freedom in thought and expression was exhilarating and partially quenched my thirst for knowledge.

I believe I will retain and profit by this method, better than I would if it had been lecture type. I would have probably memorized definitions, terms, etc., but after a final exam I would forget them. In discussion or hashing things out, one remembers longer better.

I found myself thinking about things my group had discussed later when I was home and often I discussed them with my family.

I think often students are more interested in what each other has to say than what a professor has to say.

I don't think you could have put a more ideal group together if you'd done it with a computer. They were always open-minded - the kind of people I felt free to say whatever I wanted to because I know they didn't condemn a person for being different.
This class has overcome the fear of speaking to a group. It has helped me to say what I feel, instead of holding back because you're afraid you'll say something wrong.

I feel that I've learned more in this course than in any course so far, chiefly because I wanted to remember those things, not because I was forced to.

I learned to tolerate others' ideas and to understand others' feelings and attitudes.

My greatest personal gain is how I benefited from the free atmosphere of the class. I don't fear taking tests in other classes because my fear was somehow alleviated against tests in this subject.

No amount of reading in a book can replace the learning that comes with living with people.

The lack of pressure to "get the work finished" made me realize that I would have to budget my time and get it done at my own pace.

I felt much freer to react spontaneously in my other classes as well as I did in this course.

I didn't feel we were machines writing down everything you said. Right now I am considering teaching mentally retarded children, but I'm not sure. I got the idea from this class, otherwise I would never have thought about it.