This study investigated differences in productivity and student preference between cooperative groups formed in the classroom based on either learning objectives or students' personal and social interests. Participants were kindergarten students (10 African American, 5 Caucasian--6 girls, 11 boys) in an inner city class. The students' personal opinions about friendships and school work were gathered using brief interviews before and after their first groupings and after their second groupings. Students were asked their preferences in friends and workmates, then divided into groups, with each student having at least one friend in the group. These groups were given an academic task to complete together (drawing a picture), then asked to describe their own efforts in the task. Three weeks later, the students were divided into groups organized by the teacher to generate the most productive entities and prevent pre-selected friends from being together. Students were again told to create a picture together, then explain their role in the group. Students discussed which group they preferred to work in and why. Results indicated that students fared better, though not significantly, when grouped by the teacher based on learning objectives. Pictures drawn by students in the learning objective groups displayed more work and effort than those drawn in the social groups. However, most students preferred working in social groups with friends. Three appendixes describe the groupings. (Contains 11 references.) (SM)
Group Membership: Teacher or Student as Selector

John N. Lanahan

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Abstract

The differences in productivity and student preference between groups formed in the classroom based on the learning objectives of the lesson versus the social aspects of the students were investigated. The results indicated that allowing the students to form groups with their friends did not significantly alter their overall productivity during the activity. This, coupled with the fact that the students preferred to work in the groups based upon social reasons over learning objectives, demonstrated a potential source for innovation to enter into classroom instruction. These findings support the idea that empowering the students in the classroom will lead to higher productivity in the classroom.
Group Membership: Teacher or Student

as Selector

Chapter 1: The Problem

Need

In today's schools, knowledge of effective teaching techniques has become very important for all teachers to know and utilize. The reason for this demand on teachers stems from the fact that as America's schools continue to change, teachers are also expected to evolve. This evolution results from the simple fact that society's key component for a competitive future lies in an intelligent and effective teacher corps of the present. The student population will become diverse and the "normal" child will cease to exist. Thus, teachers need to respond and develop efficient and effective techniques to deal with present and future situations that may arise in the classroom.

The particular technique addressed in this study was the formation of cooperative groupings in the classroom. The basic focus of this study was to determine whether the prevailing conventional wisdom on the method of grouping students is actually verified when applied to a kindergarten class. The conventional wisdom argument relies on the assumption that when grouped with one's friends, one will become distracted and not be able to complete as much work as opposed to when one is grouped by the teacher. But the fact of the matter is grouping by the teacher is not the only way to group students effectively in the classroom. This study provided an impetus for educators to test assumptions and standard classroom practices. The results of this study could inform teachers and perhaps encourage their evaluation of other previously assumed untouchable practices they may be using.
Purpose

The purpose of this study was to determine whether groups formed by the teacher based upon the learning objectives of the lesson or based upon the personal and social interests of the students will yield a higher amount of productivity and student satisfaction. An expanded purpose for the study was whether educators will allow the routines and perceived standards to continue to go untested and unquestioned. Thus, to state it simply, this study evaluated whether the reasons responsible for group formation make any difference in the final product of the group members.

Hypotheses

The first hypothesis for this study was that the students will be more productive in the groups formed by the teacher for learning reasons than those formed for social reasons. The second hypothesis was that the productions of the groups formed for learning purposes will display more productivity than those of the groups based on social purposes. The third hypothesis was that the students will enjoy working in groups based upon social preferences more than the groups based upon learning objectives.

Overview

In the following chapters, the literature review will be examined with an emphasis on the benefits of cooperative grouping, the drawbacks of traditional practices in the classroom, and the ramifications of groups formed upon social reasons on the classroom. The design of the study will be explained to identify how the sample was chosen, the steps taken to carry out the study,
and the steps needed to evaluate the results of the study. The results will be revealed by an evaluation of the students' work and the usage of a T-test. These results will be analyzed to determine whether or not the basis for formation of groups in the classroom has effects on the productivity and satisfaction levels of the students.

Chapter 2: Literature Review

The grouping of students for learning has been discussed and researched by many educators interested in improving classroom instruction. There are two types of grouping which are prevalent in today's classrooms. There have been the traditional ability groups, in which students are divided homogeneously, and the cooperative learning groups, in which students are divided heterogeneously.

In traditional groups, the students are divided into groups of high-ability, middle-ability, and low-ability. In elementary schools that employ such a practice, the research shows that students placed in homogeneous low-ability groups fare quite poorly (Wilkinson, 1986). This poor achievement in the low-ability groups is a result of the low expectations and/or the poor quality of teaching that these students receive (Wilkinson). Thus, for many students, the process of being divided into academic groups based on ability actually serves to stifle the growth of these students.

Unfortunately, these negative effects also become imbedded with these students because more often than not the low-ability placement in the primary grades becomes a permanent placement for these students. This, coupled with the fact that most children's self-esteem is closely associated with their placement in the classroom hierarchy, creates a recipe for hardship.
Group Membership

and struggle for many students (Worthington, 1991). In research attempting to resolve this unfortunate occurrence, the low-ability students have benefited in terms of achievement by being placed in small heterogeneous ability groups (Wilkinson, 1986). Thus, the practice of placing students in homogeneous ability groups is a decision that not only affects the students current productivity, but also the future achievement potential of the students.

In a cooperative learning activity, the students would work together in heterogeneous groups to help one another master skills, solve problems, and create a single product (Voorhies, 1989). This provides the students an opportunity to directly affect their learning process.

There are many reasons why cooperative learning activities have been considered a beneficial part of the classroom setting. First, cooperative learning places responsibility for the learning of the material upon the students (James, 1989). This is done because the students are afforded the opportunity to dictate the pace and path their instruction will eventually take. In cooperative learning activities, the teacher is expected to play a secondary role, while the students assume many of the previous teacher-dictated decisions.

Second, cooperative learning not only shifts the responsibility from the teacher to the student, but also allows for greater academic achievement to be attained by the students (Jongsma, 1990). This is because the students are allowed to take a greater role in the classroom and in conjunction with working with their peers, the students are able to learn the material from more than one source. Also, those students who work primarily from dittos and textbooks often do not have as much desire for learning and are not adept at critical thinking skills (James, 1989).

Third, cooperative learning frees the students from teacher domination of the learning material and provides incentive for all students to participate actively in the learning process.
For when the students feel that they have some control over what they learn and how they are learning it, they are simply more willing to work than when they are in a completely teacher-dominated classroom.

In research comparing cooperative learning activities to traditional approaches of instruction, the cooperative education activities yielded higher student motivation to learn, increased student self-esteem, and a greater acceptance of the difference in others (Jongsma, 1990). All of this evidence leads to the basic conclusion that cooperative learning increases student achievement and improves the students' attitudes toward school, learning and their classmates (James, 1989).

Cooperative learning groups and traditional ability groups on the surface may appear to contain many of the same characteristics and foundations for academic success. For example, some teachers use ability groups to be able to manage the classroom more efficiently, but this can also be done when working with cooperative learning activities (Worthington, 1991). A true distinction becomes evident, though, when the academic output of cooperative groups is compared to the academic output of traditional ability groups. In research comparing the two techniques of instruction, cooperative learning groups consistently achieved more academically than did ability grouped students (Worthington). It is also crucial to note that placing students in homogeneous ability groups can prove to be detrimental to the learning of those students, especially if they are assigned to the low-ability groups (Wilkinson, 1986). This contrast between cooperative and ability groupings holds true provided that the cooperative groups are formed to be heterogeneous in terms of gender, race, ability and social skills (Voorhies, 1989). Thus, the heterogeneous nature of cooperative learning groups allows for the needed student
diversity to provide a spectrum large enough to allow for academic and social growth for all students involved.

In a perfect application of cooperative learning activities, groups would stay together long enough to develop trust and to practice their cooperative skills. It would also be imperative for each student to have the opportunity to work with most, or all, of his or her classmates (Voorhies, 1989). Also, to allow for the optimum usage of cooperative learning groups in the classroom, the teacher must not be reluctant to reassign students to different groups (Wilkinson, 1986). This can't be over emphasized. If it is obvious that traditional ability groups could pose a danger to student academic success, allowing cooperative groups to possibly become stagnant might also pose a severe threat, as well. Thus, it becomes imperative to avoid the possibilities that might stifle the development of the students and undermine the basic purpose of introducing cooperative learning techniques into the classroom.

Within these groups, the relationship of students to one another is a crucial factor for the success of the activity. Students who do work cooperatively in small learning groups tend to develop wider friendship circles and display an increased interracial interaction (Miller et al., 1985). Heterogeneous grouping for the purpose of cooperative team learning will increase intersocial group acceptance (Miller et al.). Hence, the process of allowing student interaction within these cooperative groups, which previously was a frowned upon classroom activity, has the potential to develop and enforce the social aims of the classroom.

In allowing the students to select the membership of the groups, the sole danger appears to exist in the formation of a homogeneous low-ability group being formed by the students. The key factor in determining group membership appeared to be the pre-existing friendships of the
students (Cummings, 1984). In this study allowing students to self-select their groups, there were very few HI and Lo groups formed by the students (Cummings). This verifies the common assumption found in another study that the students will generally pick group members they already know because of basic human nature (Latting & Raffoul, 1991). Consequently, one can expect students to select groups in which they are working with their friends, with the only danger being that a homogeneous group is formed.

Unfortunately, conflicts and troubles may arise from allowing the students to select their own group membership. As stated earlier, one danger lies in the student selected groups not being as heterogeneous as possible. But self-selection also contains other basic problems. The less outgoing students in the class may feel tremendous resentment at being left out of the early "draft picks" (Beaman & Stoltz, 1990). This situation would lead to animosity and tension among the students. The student self-selection process may also result in one weak group of students whose members were discluded from the other student groups (Beaman & Stoltz). This would diminish the activity and create a need for the teacher to adjust the groups in order to achieve the maximum academic potential of an activity.

Unfortunately, the technique of adding an "outsider", a student not initially selected by his or her peers, to a self-formed group of students can create internal group conflict which is more than normally anticipated. It has also been proven that self-selection of groups is likely to lead to fewer positive group experiences (Latting & Raffoul, 1991). Although the least amount of group conflict was usually experienced by the students in the entirely self-selected groups, the possibility of "unattached" leftovers diminishes the value of allowing self-selection to be the dominant mode of operation in the classroom (Latting & Raffoul).
In groups composed solely by the teacher, the teacher is likely to be blamed by the students for any personality conflicts which may arise (Beaman & Stoltz, 1990). The key lies in the fact that personalities and behavior styles of the students can affect satisfaction with self and the group and the task (Keyton, 1988). This provides the impetus for the teacher to create groups with these qualities in mind, as well as the students' ability, race, and gender.

Thus, to summarize, cooperative learning groups are better than traditional ability groups, but these cooperative groups must be heterogeneous. Also, if students are provided the opportunity to select the groups, there are dangers that may arise. Yet, the teacher can form cooperative learning groups that are heterogeneous and also take into account the students' personal preferences.

Chapter 3: Design of the Study

Sample

The sample was composed entirely of a kindergarten class from an elementary school. The students ranged in age from 5 years old to 6 years old. There were 10 children who were African-American, and 5 were Caucasian. There were 6 girls and 11 boys in the class. These student's academic abilities were limited due to their age, but most were able to recognize at least half of the alphabet. The school was located in a medium size city. The school was an inner-city school with many students qualifying to receive free school lunches.
Measures

In this particular study, the tools available for measurement of the students' productivity and attitudes were limited. The students' personal opinions were gathered through brief one-on-one interviews at three different times: before their first groupings; after their first groupings; and after their second groupings. These were brief interviews in which the children were asked only to respond to simple questions attempting to gain a list of their friends and a description of their work. Another tool available was observation of the works in progress. During their groups, there were numerous times in which the students could be observed. The final measurement technique to be used was an analysis of the group pictures. Based on previous knowledge of the children and the defined criteria, an evaluation of the pictures was able to be accomplished.

Design

The first step of this study was to ask each student individually his or her preferences for whom they would like to work with in groups, their friends. This was done by asking each student to, "Name three other children in the class who you would like to work with." This information was then written down, with the names listed exactly as the students' said them. Based upon these preferences, the students were divided into 5 groups: three groups of three members each and two groups of four members each. These groups were formed to place students in groups where each student was joined with at least one of his or her friends, as seen in Appendix A.

This first group formation was done outside of the classroom. The student's names were placed in groups with the goal being to form groups with at least one peer they deemed to be a
friend. The initial hope of the study was to form 6 groups with two or three members in each, but several students were not selected by any of their peers. These outliers resulted in the groups expanding in size and decreasing in count. Also, as these groups were formed, it was noted that several students were listed by a number of other students in the class. Thus, a teacher can quickly find out the friendship circles of this class when engaging in such a process.

The next step in the study was to go back into the classroom and have the friend groups, the groups based on the student preferences, work on an academic task. The students were divided into their groups. The students were then given materials suitable enough to draw a picture of what they thought a forest would look like. In order to ensure student understanding of the expected procedure, a brief overview of what a forest is and what was anticipated from the students took place. This was a bit more instruction than initially anticipated, but given the age of the sample, this was necessary in order for the students to produce entities suitable for analysis.

After the students had drawn their pictures, each one was asked individually to describe his or her efforts, as seen in Appendix B. This description was then written down for future use. This allowed the students to explain exactly what they were attempting to incorporate into the picture. This insight was also invaluable in measuring the effects of the study. The information collected provided a greater accuracy in measuring the students' productivity.

Twenty-one days later, the students were divided into groups in which placing the students with their friends was not the goal. Instead, the groups were organized in an attempt to generate the most productive entities and to prevent pre-selected friends from being in the same group with each other.
The students were told to draw pictures of what they thought a zoo would look like using the same materials as before. This also required a bit of modeling by the teacher, but fortunately the students remembered from the last visit what was to be required, making an extensive overview a pointless endeavor.

Again, the students were given the opportunity to explain their pictures and what they had attempted to create while in their groups, as seen in Appendix C. This was done in the same way by asking each student individually to describe what he or she had drawn in their group picture. This once more provided a great insight into the minds of the students during the activity.

These group pictures were then collected and the students were asked which group they preferred to work in and why. This was done by asking each student which group of students did they prefer to work with during the two activities. In order to eliminate some bias, this step was done by listing all the group members they had worked with and what they drew in each group. After all this was noted and collected, the final step of the study was to analyze the pictures and efforts of the students.

**Analysis**

Each child's effort on the two pictures was measured on a scale of 1 to 5. A score of 1 translated into very little effort and work done by the student. A score of 5 indicated the child gave his or her best effort during the activity.

Then, the pictures as whole entities were measured to evaluate the change in group performance between the two grouping approaches. This analysis was a comparison of all the pictures with the end goal being to determine which group picture displayed the highest level of
effort and work. In this analysis, the pictures were judged based on how full the pictures were, how much action was present in the picture, and the amount of color and interaction present in the picture.

The final step of analysis was to look at these scores and evaluate them using a T-test to see if any statistically significant result was obtained. These results would indicate whether or not there is a statistical significance in the measurements obtained from using the above scale in measuring the students' productivity.

Summary

Using these scores and the T-test, each hypothesis was examined to determine whether it was correct. These hypotheses were based on the conventional wisdom of most educators, while these results were generated from a single sample from an elementary school. Thus, these students were evaluated and examined to determine whether or not they follow the norm or whether they prove to deviate from it.

Chapter 4: Analysis of Results

The first hypothesis stated that the students will fare better when the groups were formed without attention to personal preferences. The data, as seen in Table 1, indicate that the students did indeed fare better when they were grouped by the teacher based upon learning objectives. The average score for the social groups was a 3.33, while the average score for the learning objective groups was a 3.53. Four students fared no better/no worse in the two groupings. Although four students fared worse in the learning objectives groups, seven students performed
better. Thus, 46.6% of the class produced better work in the learning objective groups, while 26.7% produced better work in the social groups. Thus, nearly half the class produced better work in the learning objective groups as opposed to the social groups.

Although the students did show an increase in their scores, this increase was not a statistically significant one. Grouping based upon learning objectives resulted in an increase (M= .2, SD = .862) in the scores for productivity in the work of the students. However, this increase was not statistically significant, t (14)= .897, p < .05, two-tailed. The increase was not statistically significant at levels p =< .10 and p =< .20 either. Thus, although the students did show an increase in their scores, this increase was not a statistically significant one.

The second hypothesis was that the pictures drawn by the students in the learning objective groups would display more work and effort than the ones drawn in the social groups. This was also correct because the learning objective group pictures displayed more colors, more action and less empty space, as seen in Table 2.

The third hypothesis was that the students' attitudes about the grouping process would indicate a favoring of being in social groups over the learning objective groups. The students were asked which method of selection they preferred. In their responses, 9 of the 12 students, 75%, responded that they enjoyed working with their friend groups more than working in the teacher's groups without their friends. The students, by a wide majority, favored and enjoyed working with their friends.

All three of the hypotheses were proven to be true by the data collected from the students.
Chapter 5: Summary and Conclusions

This study was grounded in the simple realization that what has worked in the past may not continue to qualify for continued application in the future. In this study, an accepted belief was tested: the conventional wisdom that placing students in groups with their friends is a proverbial recipe for disaster. In this standard way of thinking, the students have been portrayed as children who must be supervised and monitored constantly in order to avoid an unruly classroom behavior. The teacher was seen as the focal point of the classroom, and all activities within the classroom are to be serious academic endeavors on the part of the students. This basically equates to the notion that the students are in school to learn and develop skills. School, in this mindset, is seen as a place that is all work and no play.

Based on this common educational assumption, the first hypothesis stated that the students would fare better in groups the teacher formed based on learning objectives than the groups formed for social reasons. This hypothesis was proven to be correct by the data collected, but not significantly significant when this data was examined using a T-test. Thus, although the students fared better in the learning objectives groups, this increase was not statistically significant and not enough to banish groups based on social reasons from the classroom.

The average child spends 35 hours in school per week. These 35 hours should be looked upon with exuberance and joy, not with scorn and hatred. Students should be given the opportunity to work together because this process can add life and diversity to the instruction. Also, it is quite possible that after a few more social groupings, the students may improve their performance and become more adept when working with their friends.

In evaluation of the entire group pictures, the learning objective groups demonstrated
greater skill at filling in the pictures and adding color and action. The students also worked more efficiently and effectively. Although this grouping method may provide the opportunity to work with other peers instead of individually, as the attitudes of the students indicated, they would much rather work with their friends. These students, being kindergartners, were not expected to live up to mature expectations nor would anyone have wanted them to. To these students, the joy of the day came when they were placed with their pre-selected friends. This approach to their instruction also allowed the students the opportunity to interact in a new manner. Thus, the pictures suffered due to the new experience.

This leads directly to the limitations and setbacks of the study. The students normally worked individually in the classroom. Hence, this study provided a new experience to the students. The first pictures may have been tainted by this because the students were unfamiliar with the process of working with others. So, if the first time was completely unfamiliar, the second pictures might have benefitted from the first experience and process. Another limitation could have been the age of the students. One can never really determine the exact thinking in the mind of a five year old. Consequently, these possible limitations might have played a role in the productivity of the students in their two groupings.

I believe that occasionally grouping students with their friends is not an entirely bad idea. Many students did perform quite capably when grouped with their friends, and several of the social groups' pictures displayed effort and hard work. This also follows directly from the fact that there was no statistically significant difference between the results of the two studies. Even though the learning objective groups performed better, this difference does not equate to dismissing the possibility of allowing social groups to be present in future classroom activities.
Although this study requires more research before becoming a bright-line rule for all education, it is an indication that teachers need to become adept at changing instruction to fit the needs of the students and allowing for trial and error to enter into the process. I would conclude that change in the classroom is not always harmful, the opinions of the students should play a factor in the instruction, and, finally, allowing students to work with their friends can be a beneficial classroom activity.
References


## Appendix A

### Students' Friends

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<th>Group Membership</th>
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<th>K.C.--Christopher</th>
<th>Darryus--Elliott</th>
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<td>Demonte</td>
<td>Sean</td>
</tr>
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<td></td>
<td>Stephanie</td>
</tr>
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<td></td>
<td></td>
<td>Martell</td>
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<th>Martell--Kadeem</th>
<th>Tavio--Toni</th>
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<td>Demonte</td>
<td>Sean</td>
</tr>
<tr>
<td>Elliott</td>
<td>Tavio</td>
<td>Elliott</td>
<td>Joseph</td>
</tr>
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<th>Christopher--Joseph</th>
<th>Toni--Crystal</th>
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<td>Darryus</td>
<td>Tavio</td>
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<td>Kadeem</td>
<td>Sean</td>
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<th>Demonte--Kadeem</th>
<th>Crystal--Tavio</th>
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<td>Joseph</td>
<td>Stephanie</td>
</tr>
<tr>
<td>Darryus</td>
<td>Tavio</td>
<td>Tavio</td>
<td>Toni</td>
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<table>
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</thead>
<tbody>
<tr>
<td></td>
<td>Stephanie</td>
<td></td>
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</tr>
</tbody>
</table>
Appendix B

Social Groupings of Students for First Pictures and Descriptions of Their Work

Groups
A) Toni
   Crystal
   Stephanie
   Deante

B) Joseph
   Tavio
   Sean

C) Megan
   Trevious
   Danielle

D) Martell
   Christopher
   Demonte
   Kadeem

E) Elliott
   Darryus
   K.C.

Students' Descriptions of Their Work

A) Crystal--tree, dog, ground, sun and rain
   Stephanie--tree and ground
   Deante--"cookie monster", tree, grass, A. Lincoln
   Toni--Tree, pizzaman, A. Lincoln

B) Sean--"person playing outside trying to climb a tree."
   Tavio--"squirrel going into hole, spider, tree, giant spider, deer
   Joseph--sun, tree, ground.

C) Trevious--teepee
   Danielle--tree and snake
   Megan--wolf, snake, wind, tree

D) Martell--octopus, tree, jumprope, sun
   Christopher--riverflow, rainbow, boat, coconut tree
   Kadeem--tiger, ground, bat attacking tiger and blood
   Demonte--animal, helped with Jumprope

E) Elliott--motorcycles, bumpy slide
   Darryus--ground, spiders
   K.C.--tiger and tree
Appendix C

Academic Grouping of Students for Second Picture and Descriptions of Their Work

Groups
A) Toni
   Elliott
   Sean

B) Stephanie
   Tavio
   Martell

C) Crystal
   Megan
   Christopher

D) Deante
   Danielle
   Kadeem
   K.C.

E) Joseph
   Trevious
   Darryus

Students' Descriptions of Their Work

A) Sean--stars, bat cage, nighttime, sharks, whale, "zoo sign", steps
   Elliott--pool, cage, electrical fence
   Toni--lion, elephant, stars and moon

B) Martell--Sick
   Tavio--elephant, bars, lion tamer, lion, lock 'n gate, cave
   Stephanie--house, sun

C) Christopher--2 killer whales, 2 lions
   Crystal--seal, giraffe, tree and leaves
   Megan--shell, giraffe, tree and grass

D) Deante--forest, sheep
   K.C.--alligator, monkey, lion, giraffe
   Kadeem--monkey and tiger
   Danielle--sun, green patch

E) Joseph--swimming pool, walrus, elephant in cage, bird
   Darryus--sun, with background, tree and pool
   Trevious--roads, trees
Table 1--The Students' Scores from the Two Groupings

<table>
<thead>
<tr>
<th>Name</th>
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<th>Score for Academic Grouping Picture</th>
<th>Change</th>
<th>Group Preferences</th>
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<td>Not with friends</td>
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<td>3</td>
<td>-1</td>
<td>With Friends</td>
</tr>
<tr>
<td>Stephanie</td>
<td>3</td>
<td>4</td>
<td>+1</td>
<td>With Friends</td>
</tr>
<tr>
<td>Deante</td>
<td>4</td>
<td>3</td>
<td>-1</td>
<td>Not with friends</td>
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<tr>
<td>Joseph</td>
<td>3</td>
<td>4</td>
<td>+1</td>
<td>With Friends</td>
</tr>
<tr>
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<td>5</td>
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<tr>
<td>Sean</td>
<td>4</td>
<td>5</td>
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<td>3</td>
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<td>3</td>
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<td>4</td>
<td>+1</td>
<td>With Friends</td>
</tr>
<tr>
<td>Darryus</td>
<td>3</td>
<td>3</td>
<td>No Change</td>
<td>Not with friends</td>
</tr>
<tr>
<td>K.C.</td>
<td>2</td>
<td>3</td>
<td>+1</td>
<td>With Friends</td>
</tr>
</tbody>
</table>

Criteria for Grading Students' Work

<table>
<thead>
<tr>
<th>Score</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>very little work and effort put forth by the student</td>
</tr>
<tr>
<td>2</td>
<td>minimal work and effort put forth by the student</td>
</tr>
<tr>
<td>3</td>
<td>average work and effort put forth by the student</td>
</tr>
<tr>
<td>4</td>
<td>above average work and effort put forth by the student</td>
</tr>
<tr>
<td>5</td>
<td>an extreme amount of work and effort put forth by the student</td>
</tr>
</tbody>
</table>
Table 2- Evaluation of Whole Pictures

<table>
<thead>
<tr>
<th>Group</th>
<th>Social Grouping Pictures</th>
<th></th>
<th>Group</th>
<th>Academic Grouping Pictures</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>some space, coloring, interaction between members</td>
<td></td>
<td>A</td>
<td>full, interaction, lots of different elements present</td>
</tr>
<tr>
<td>B</td>
<td>definite picture, lots of white space</td>
<td></td>
<td>B</td>
<td>some space, 3/4 full, not much interaction</td>
</tr>
<tr>
<td>C</td>
<td>lots of space, little interaction, few colors</td>
<td></td>
<td>C</td>
<td>some colors and interaction, some space</td>
</tr>
<tr>
<td>D</td>
<td>half-full, lots of scribbling</td>
<td></td>
<td>D</td>
<td>interaction between students, full but some scribbling</td>
</tr>
<tr>
<td>E</td>
<td>lots of white space, no direction</td>
<td></td>
<td>E</td>
<td>very full of life and color, action, and animals</td>
</tr>
</tbody>
</table>

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</tr>
</thead>
<tbody>
<tr>
<td>Author(s):</td>
<td>JOHN N. LANAHAN</td>
</tr>
<tr>
<td>Corporate Source:</td>
<td>UNIVERSITY OF VIRGINIA</td>
</tr>
<tr>
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<td>MAY 1997</td>
</tr>
</tbody>
</table>

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