
ALUMNI
EDUCATIONAL SOLUTIONS
GUIDING US THROUGH THE 21ST CENTURY CLASSROOM SOLUTIONS
y5 FLOW- PENTE- IDEA

The Foundation

Collaborative learning encourages active participation in the classroom. Working in smaller groups leads to discussion that develops a greater understanding of the subject matter among all participants.

The foundation for the implementation of a productive 21st Century learning environment begins with the ability to position students in the most effective collaborative groupings.

Correct furniture configurations are imperative to a successful launch. Studies show that the most effective group sizing is **FIVE.** In a group of five, eye contact through cross directional positioning plays a major role in how all participants will interact with each other.

Just as important are the participants in the group. Each group requires a teacher, selected mix of over achievers, middle achievers and under achievers. These diverse groupings will ensure that there is engagement and participation in the conversation that leads to a greater understanding of the subject matter. With the suitable environment in place, the teacher becomes the "conductor of the orchestra" if you will. The teacher will continually steer the comprehension of the subject matter onto its correct course. Without a collaborative environment, it is important to remember that a 50-minute class with 30 students would only allow for just over one minute to be spent with each student, and that does not take into consideration any of the time spent teaching the lesson.

The Goal:
Greater understanding = Higher achievement = Significantly better results.

So y5 ?

Research studies have proven that the most effective collaboration grouping size for a K-12 classroom setting is **FIVE.** The following research references show supportive proof for the correct grouping size of **FIVE**.

"Group size is one of the most important factors to consider before placing students into groups. When faced with complex tasks the ideal group size of 5-7 students. Research shows that when groups are larger than 7, social loafing increases. This is because there is a sense that the group is large enough that the task can be accomplished by other members of the team. In short, some students feel they can hide in larger groups. Research also suggests that groups of 5 are the smallest groups students should work in. Groups smaller than 5 may not have the intellectual capital & labor necessary to complete complex tasks."

– Dr. Coral Wayland, Best Practices for Collaboration Learning: Forming Groups, 2013.
University of North Carolina

"When a small group is used it cannot function well beyond eight members. An effective group size in collaborative learning is mostly argued to be 5 or 6. The arguments for this size are: not so many students per tutor, a group size just reaching the point in which enough views and knowledge are available for the problem - solving process. More balanced discussions, and promotion of individual development."

– Kooloos et al, Collaborative group work: Effects of group size and assignment structure on learning gain, student satisfaction, and perceived participation, 2011
Radboud University Nijmegen Medical Center

"Be conscious of group size. In general, groups of 4 or 5 members work best. Larger groups decrease each member's opportunity to participate actively. The less skillful the group members, the smaller the groups should be. The shorter amount of time available, the smaller the groups should be."

– Center for Teaching Excellence, Group Work and Collaborative Learning: Best Practice, 2012
University of Maryland

"When groups are small (meaning 4 or fewer), they have fewer intellectual resources and perspectives at their disposal. This is why groups should be as large as possible, until they become too large for all members to participate. This seems to happen when the groups have 8 or more members. Hence, a group of 5-7 people seems to be an optimum size."

– Dr. Lee Fink, BEYOND SMALL GROUPS: Harnessing the Extraordinary Power of Learning Teams, 2004
University of Central Oklahoma

"Small group learning methods are usually more effective for promoting problem - solving skills & changing attitudes. They promote judgment, diagnosis, discussion skills, clarifying and higher order thinking as well as improved writing skills. Studies indicate that the best group size for complex issues is 5 or 6 students, and that heterogeneous groups are more effective at group decision making."

– Carol Hobaugh, Interactive Strategies for Collaborative Learning, 1997
U.S Army Medical Department Center & School

"One consequence is that as groups enlarge, communication becomes less interactive: Two - party conversations become less frequent and the amount contributed by each additional member to a discussion group decreases exponentially. Thus, the majority of the speech in discussions involving 10 or more participants is produced by only the top 4 or 5 contributors. This is consistent with the finding that an ideal small interactive group should have about 5 members and that groups change in terms of their interaction and communication patterns as they approach a size of 10."

– Fay et al. GROUP DISCUSSION AS INTERACTIVE DIALOGUE OR AS SERIAL MONOLOGUE: The Influence of Group Size, 2000
University of Glasgow

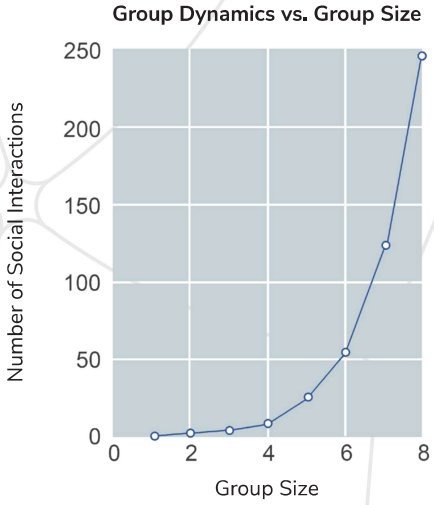
"The optimal number of members for groups to function successfully is usually between 4-6, and heterogeneous groups - with regard to gender, ethnic and social origin, personality, life and work experience, proficiency in the subject etc. - generally function best because students complement each other. The physical setup of the classroom is also important: students should be able to form a circle and face each other during group discussions."

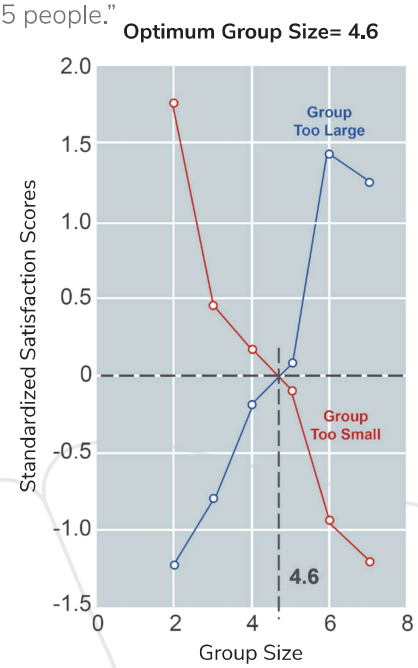
– Dr. Claude Romney, The Benefits of Collaborative Learning, 1996
University of Calgary

Optimal Group Size

Much of class work today is done in teams. Even MBA programs use group structure to meet class goals.
So what is the optimal size for effective decision-making?

"It appears that a recent Harvard Business Review statistic published, that research; by Marcia W. Blenko, Michael C. Mankins, and Paul Rogers indicates, 7 is the optimal size. Yet much of the research I've found says that number is a bit too high. First many students target an "odd" number as the first criteria for group size. According to one resource: This (an odd number) prevents ties and improves the odds of making a correct decision when using majority rules. Even-numbered groups can make decisions, but the decision-making can take more time. Getting back to the actual number, think about the benefits of a large group. The more people you have, theoretically, the better chance you have of getting the best information to make the best decision. Research has shown that collective intelligence does exist. But, according to research reported in Science, the October 2010 issue by authors Anita Williams Woolley, Christopher F. Chabris, Alex Pentland, Nada Hasmi and Thomas W. Malone: This "c factor" (the group's collective intelligence) is not strongly correlated with the average or maximum individual intelligence of group members but is correlated with the average social sensitivity of group members, the equality in distribution of conversational turn-taking, and the proportion of females in the group. So, it looks like social sensitivity - possibly a more common attribute to females-facilitates group decision-making. Emotional intelligence and what some consider the soft stuff, can you have the equality in distribution of conversation turn-taking as the research indicates is an important feature of an effective group? If they measure the number of possible social interactions with varying group sizes, the optimal group size appears to be 5. According to a resource on applications of probability and statistics: As can be seen by the figure below, the number of possible social interactions begins to explode in groups with more than 5 people."





"Research by Hackman and Vidmar (1970) on optimum group size for member satisfaction showed a similar outcome. They composed groups that ranged in size from 2-7 members to assess the impact of size on group process and performance for various kinds of tasks. After the groups had finished their work, they asked participants independently to indicate the extent of their agreement with the following two questions: Question #1 - This group was too small for best results on the task it was trying to do. Question #2 - This group was too large for best results on the task it was trying to do. The chart above indicates the average answers to these 2 questions on the same graph. Not surprisingly, few people in the 2-person group thought it was too large and few in the 7 person group thought it was too small. What is noteworthy is where the two lines crossed. They dropped a perpendicular line from that point to the horizontal axis and discovered that the optimum group size was 4.6 members. So if you're looking for the best size for a team, consider an odd number close to 5, but remember the number is just one factor. Social sensitivity and being able to read emotions are attributes of successful team decision making. Consider the number and consider the members. Maybe they will need a little training in empathy and being sensitive to others as well as having a culture that allows all to fully participate. Sounds like the right-sized team that practices many of the principles of employee engagement can be the most effective".

Posted on January 24th, 2011, Revised: February 4, 2015 by Shelia Margolis

Theory ⟶ Concept ⟶ Application

FLOW - PENTE - IDEA

FLOW, PENTE & IDEA are without a doubt the most well thought out desk solutions that implement 21st Century Learning / Common Core Learning to date. Supportive research has been pivotal in the development of these products.

The research that we have conducted about the most productive collaborative group size, has guided us through the development phase of these products. These studies gave us the blueprint for the foundation that explains why we believe the most productive grouping number is **FIVE**. The R&D process allowed us the opportunity to study important criteria such as human interaction, the physical layout of today's new build classroom and the people involved in the teaching and learning process.

We realized that without looking at the big picture, furniture could become an obstacle instead of acting as the teacher's assistant.

We kept in mind that the Buyer, Architects, Designers, Teachers, and Students are all important players in designing a new learning space. All of their concerns need to be addressed. There are several people that struggle with the thought of change, who need to know that they have been included in this newer concept as well.

The y5 21st century learning concepts fully address these important areas of concerns and physical limitations when utilizing the **FLOW, PENTE & IDEA** desk products.

Some of these concerns or physical limitations are:

- **Two Types of Teachers: TRADITIONAL** or **PROGRESSIVE.** Both need to feel that they can start the school year in their own comfortable set up. Either collaborative groups or traditional rows.
- **Flow, Pente & Idea Desks Accommodate ALL Classroom Configurations:** If a flexible 21st century furniture solution is not purchased to outfit the entire building then the opportunity is lost for a **TRADITIONAL** Teacher to implement the collaborative set up at a later date when they become more comfortable with the concept.
- **Classroom Size Consideration:** If the desks are too big you cannot accommodate a Traditional single row set up and still achieve a classroom size of 25-30 students. Today's classrooms are typically being built to the size of 750sqft - 950sqft (NOTE: older schools were built with bigger classrooms that ranged from 1100sqft - 1400sqft)
- **Testing and Independent Work:** As much as the correct collaborative groups are highly effective, there are times when groups need to be pulled apart for testing or independent work. Therefore, it is necessary to have a highly flexible 21st century desk solution in place that allows option. Flow, Pente & Idea meet this criteria.
- **Mobility:** In a typical class session, not every moment is used in a collaborative set up. There are times when groups need to be pulled apart. If desk configurations are not easy to move, they will never change and frustration will set in.
- **Why FIVE?:** Studies show that this is the most effective grouping number for collaborative learning. It is vitally important to begin with the correct grouping size when implementing 21st century / Common Core learning principles. When applying the correct type of students (over achievers / middle achievers / under achievers) to the group of **FIVE**, a sense of comfort can be realized among those students to be able to engage in a discussion that can move the learning process along.
- **The Right Furniture the First Time:** The opportunity of a renovation or new construction of an existing building only presents itself every 15 to 25 years. If you don't install the correct furniture from the beginning, you will lose the opportunity to implement 21st century learning concepts.

In summary we are trying to create an easy environment for implementing the concept of 21st Century / Common Core Learning Principles. Furniture plays a large part in whether an educator will view the implementation as an easy move or not.

Think About Everything

Connecting Mind & Body

Collaborative groups can gain effectiveness simply through the proper arrangement of sitting positions. Studies demonstrate that very positive results can be achieved by choosing the correct seating arrangement for a specified collaborative activity.

In the K-12 learning space, our goal is to empower all group members allowing them to have equal influence in the group. The seating positions of this group will be the primary factor that will naturally encourage more ideas and discussion through a level of increased interaction. The difference between **"Traditional Rectangular Groups"** and **"Round or Pentagonal Groups"**.

Traditional or Standard Rectangular Groups

In the traditional or standard rectangular seating arrangement of four, there is a mood competition, or confrontation that is present. In this configuration there is often pairing off based on the seating position of sitting on opposite sides. Traditionally, this is the position that negotiators would prefer to be in and is recognized as a "Face Off" position.

When you add one more participant on each side of the group, (equaling six participants in total). In this instance an additional two problems are created that are not conducive to a K-12 Collaboration. The first is a lack of visual contact with every group member and the second is the middle person in each row of three will typically end up taking on a dominate roll of being a mediator or group leader.

Progressive Round or Pentagon Groups

This type of seating arrangement is not new, but it can provide considerable insight into the way that human interactive exchanges can be altered when compared to the traditional style. The most famous example of this was King Arthur and the Knights of the Round Table. Every Knight that sat around the table was considered to be an equal to his peers and there was no central power position.

Visual contact is very inclusive and because of that, there is no dominate roll in the group that has been created through a seating position. The ability to visually see all of the group members is vitally important for the group. This promotes the ability to interact and share ideas better. The result is to gain a better understanding of the subject matter as a whole. Through visual contact you are able to judge a person's Body Language. Body language is displayed in four different yet important ways;

1. Head Movement
2. Facial Expressions
3. Body Posture
4. Hand and Finger Gestures

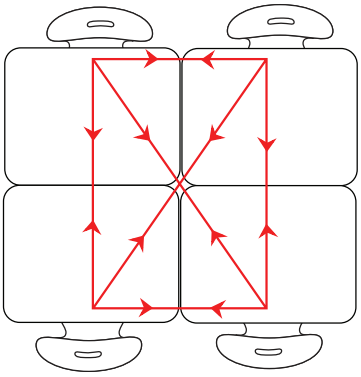
Simply by having visual contact with all group members you are able make a quick determination about the participation level of all members; Are all group members paying attention? Are all group members participating? Is there a sense of agreement or disagreement among the participants? Is anyone choosing not to participate?

This arrangement creates a more cooperative situation for discussion and a sense of equality instead of hierarchy.

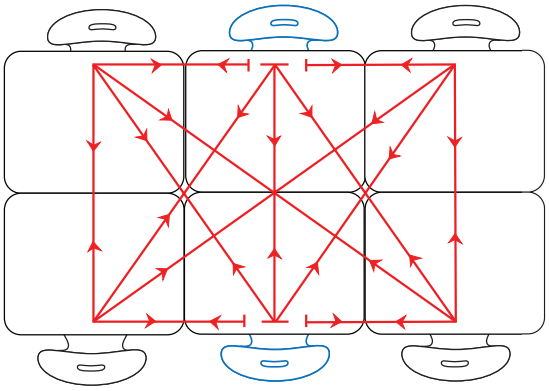
A study from the University of Montana indicates that the “Round or Pentagon Groups” create a Web network type of communication. The word “Web” is to indicate cross directional method of communication. This is a more open method of communication in which members are encouraged to communicate directly with each other. Information is relayed more rapidly, and each member feels they have greater influence in the group. The Alumni y5 groupings are designed around recognized studies detailing the best utilization of collaboration. Alumni y5 practices imprint this knowledge in the most effective manner, creating the footprint for successful outcomes in the implementation of 21st century collaborative learning.

Alumni strongly believes in following the path of research and proven concepts when developing educational solutions. Our goal is to create the absolute best opportunity for all students to succeed with their education.

Traditional Group of 4

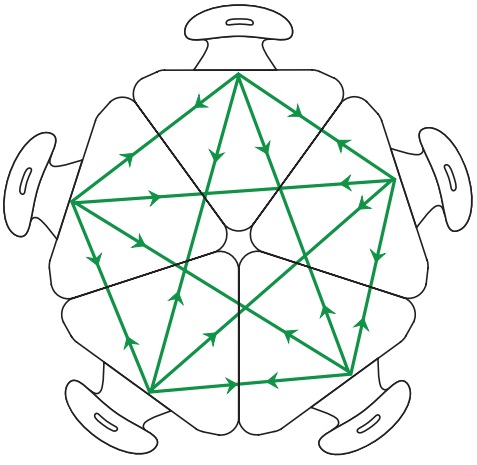


Traditional Group of 6

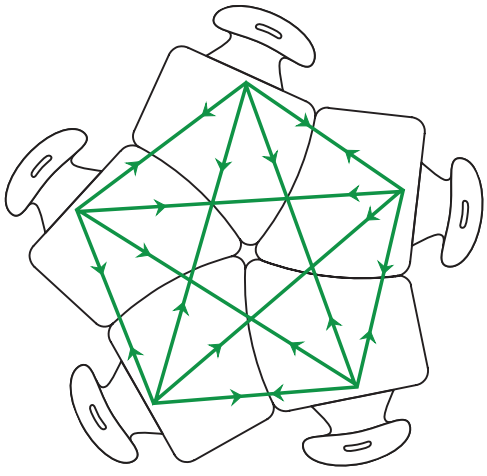


Group leader roll created by default (blue chairs)

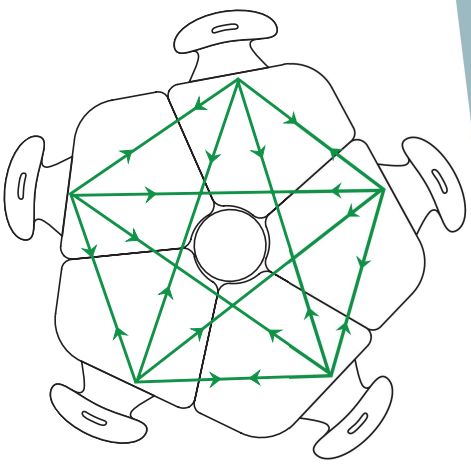
Progressive Group of 5



Pente



Flow



Idea