Chapter 3: Incorporating Active Learning into Your Classroom

Active Learning activities are commonly divided into activities that are simpler and easier to implement in the classroom within a limited amount of time and thus likely to succeed (Low Risk Activities) and more complex activities that require a considerable amount of time and could span a number of classes (High Risk Activities).

Along with the description provided above, these two types of activities can be further characterized as shown in the table below.

Dimension	Low Risk Strategies	High Risk Strategies
Class Time Required	Relatively short	Relatively long
Degree of Structure	More structured	Less structured
Degree of Planning	Meticulously planned	Spontaneous
Subject Matter	Relatively concrete	Relatively abstract
Potential for Controversy	Less Controversial	Very Controversial
Students' Prior Knowledge of the Subject	Better informed	Less informed
Students' Prior Knowledge of the Teaching Technique	Familiar	Unfamiliar
Instructor's Prior Experience with the Teaching Technique	Considerable	Limited
Pattern of Interaction	Between faculty & students	Between students

Figure 23: Low Risk Activities and High Risk Activities Comparison (Bonwell & Eison, 1991, p.66)

If you are new to Active Learning, it is probably best to begin by adding some low risk activities to your usual approach initially in order for you to become familiar and comfortable with ways to engage students more actively in the classroom before trying to make major reworks to your curriculum. By making minor changes that may take only five or ten minutes in class, the teacher can realize some of the benefits of Active Learning mentioned earlier. For example, the teacher can regain the attention of the learners, which tends to wander after a mere 10-15 minutes of lecture.

3.1 Low Risk Active Learning Activities

3.1.1 Introductory brainstorming (Individual/Pair/Small Group Activity)

Many times as instructors, we enter the classroom with preconceived notions about our students and their learning thus far. In a traditional lecture, we may assume that they have no prior knowledge of the topic we are presenting and thus begin at the most basic concepts. However, students often have some knowledge no matter how limited it may be. Cognitive science has shown that by getting students to access the information they already have about a topic it allows them to more easily fit new information into the framework of knowledge they already have. Thus, giving students a chance to brainstorm in some way, shape, or form before presenting new information in a class not only helps the students understand better, but it also can provide the teacher with a gauge as to how much the students already know about the material. This could help the teacher adjust what he/she presents.

Thus, one way to begin a class (that could easily tie into an icebreaker) is having students brainstorm. This could be done individually with the students submitting their writing to the
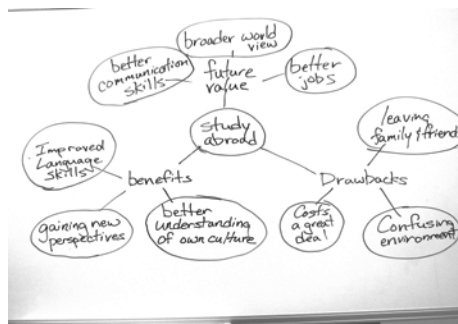

Figure 24: Concept Map

teacher, or it could then be used as part of a "think, pair, share" activity. This could also be used prior to the beginning of each new section of the class. Before presenting a new topic, the teacher could give the students a few minutes to list what they already know about the topic.

Students should be given a limited amount of time, approximately five minutes to generate ideas. They should be encouraged to do this in any way they see fit such as listing ideas or creating a concept map. A diagram similar to the one above can be used as a visual to help explain this concept if it unfamiliar to anyone.

This activity can be introduced with the language provided below.

Teacher: *I would like to get some idea of how much everyone already knows about the topics we will be discussing in this course, so on a piece of paper we are going to brainstorm information that will be covered in this course based on (the course title, weekly topics, …). I will give you five minutes to brainstorm ideas. You can do this by merely making a list on your paper, free writing where you just write as much as possible in the time allowed, or creating a concept map as indicated on the board. Once you have finished this activity, I will collect your papers and look through them to see what kind of base knowledge people in our class have. There is no need to write you names on the paper. Continue brainstorming and*

writing down ideas on your paper until I say "stop". Okay, get out a paper and pencil and let's get started.

Students work for the designated time period. It is important for the teacher to accurately stop the activity or to give extended time if it looks like students aren't finished at the designated time. Thus, if there is not a good clock in your classroom to keep track of the time, be sure to bring a stopwatch or timer.

> **Teacher:** *Okay. Time is up. Please pass your papers to the front of the class. I will collect them from the people in the front row. I will take a look at these before the next class and summarize what the majority of you think this class will cover. We will then straighten out any misconceptions and fill in the blanks.*

An alternative to just collecting the papers, would be to ask the students to share their ideas as the instructor lists them on the board. The contributions should be accepted without judgment and added to the expanding list. These ideas can then be examined, usually in a whole class discussion format.

If the teacher would like to use the students' brainstorming in this manner, he/she can implement the whole class discussion in the following way.

> **Teacher:** *I would like to create a list of some of the ideas, so look through what you have written in the next two minutes and pick the one idea you think is the most relevant. I will call on some students to share their ideas after the two minutes are up.*

This activity can easily be turned into a think, pair, share (described in 3.1.3) by having students get into pairs or groups and sharing their ideas with other members of the group. If you would like to do this, the activity described above would be the "think" portion of the task.

3.1.2 Note clarification (Pairs/Small Groups)

For teachers who are new to Active Learning and want to gradually begin using Active Learning, this may be the easiest way to get started. All one needs to do is pause periodically (every 20 to 30 minutes) during a lecture and give the students a few minutes to check their notes with someone near them to make sure they noted all of the information and clearly understand the concepts.

To implement this activity, the instructor can use the language provided below.

> **Teacher:** *Let's take a 5-minute break from the lecture. We have covered quite a bit of material, so I would like you to make sure your notes are complete and that you understand them. Find someone near you and compare what you have written down. If you are unsure of anything or need further clarification, see if your partner can help.*

The teacher has two options at this point, he/she can either go directly back to the lecture if time is of the essence or the instructor can address any remaining questions that the students might have. If possible, I would recommend using option #2

Option 1

> **Teacher:** *All right, hopefully that provided some clarification. We need to return to the lecture now.*

Option 2

> **Teacher:** *Okay! Time is up. Are there any questions that remain after your discussion?*

If one of the students does ask a question, it is best to restate the question for the class before answering it since the entire class

might not have heard the question or could have misunderstood it.

> **Teacher:** *Let me make sure I understand you correctly, you believe …*

> **Teacher:** *I am not sure everyone in the class could hear you. (student's name) said that …*

3.1.3 Think-Pair-Share (TPS) (Individual/Pair/Group Activity)

This is a relatively easy strategy to implement in a traditional lecture style class with only a minimum level of time invested prior to doing the activity in the classroom. While this activity seemingly was first described in cooperative learning literature (Millis *et al.* 1995), it has gained popularity across the curriculum. As the name suggests, the students will be given a brief amount of time (2-3 minutes) to think and write down some ideas about a question/prompt that the teacher poses. Although writing down what they are thinking does not have to be part of the "think" phase to this exercise, having it written down will help them remember their answers when they move to pair work where they will need to discuss their answers.

> **Teacher:** *We will be working with a partner in a few minutes to discuss the question(s) that I have written on the board. However, I would like you to spend three minutes writing down your answers on a piece of paper so that it will be easier to discuss. Please get started. I will stop you in three minutes and we will pair up to share our answers.*

In the "*think*" phase, it is best for the teacher to set a specific time limit to the activity, maybe two to three minutes for a relatively straight forward question. This time frame can always be adjusted if the teacher feels that more time is required. It is always best to check with the students about their progress

before proceeding with any activity. The teacher can do this by asking:

- *Does anyone need more time before we move on?*
- *Please raise your hand if you would like another minute to finish.*

Once it is clear that everyone is ready to move on, the students will then be paired up with another student with whom they will share their ideas. Again, it is best to group students in a variety of ways to help with community building as discussed earlier. To group students for this activity, you might use the language below.

> **Teacher:** *Since there are 25 of you today, we will need to have one group of three while the rest of you will be in pairs. Thus, I will give you a number from 1 to 12. Once everyone has a number, I want you to position yourselves in the classroom as I have indicated on the board. Group 1 should form their desk into a triangle. The other groups should turn their desks so that they are facing one another.*

Once students have moved into their pairs/groups with the teacher helping to make sure the students are arranging their desks as indicated, the teacher can instruct the students how to proceed with the pair work. The teacher will need to determine who in the group will speak first and possibly the amount of time they have to speak before the other member(s) share his/her answers. For example, the teacher might say:

> **Teacher:** *Now that we are in our groups, we need to decide who will share his/her answer first. Please play "rock, scissors, paper" (jyanken) with your partner. The loser of the game will explain his/her answer first. She/he will have three minutes to do this and for his/her partner to ask questions before the other person answers in the next three minutes. In the group with three members, you will each have two minutes. Please make a note of what your partner is saying because I may ask one of you to share your partner's ideas at the end.*

During the "*Pair*" phase of the exercise, students have the opportunity to hear what another person thinks about the topic, and they can evaluate both their own and their partner's ideas and select which are the most correct, creative or unique. Especially in a class of Japanese students, this helps to build confidence in the students. The students are often reluctant to volunteer their ideas if the teacher just asks questions without giving students a chance to prepare an answer or to see how their ideas compare with others. By allowing them to share their ideas with one another prior to doing so in front of the class, it is less intimidating since the answers they are giving are not solely attributed to them.

> **Teacher:** *Leaders please get started.*

The students will discuss the question for five minutes. During this discussion period, the teacher needs to circulate in the classroom and make sure students are following the directions and communicating with their partner correctly. The teacher can make notes of difficulties that students are having or exceptionally good answers to use as material for further discussion at the end of the exercise.

> **Teacher:** *Okay. Has everyone come up with an answer to the question that you and your partner are both happy with? I will now ask a few of the leaders to present their answers to the class so that we can come to an agreement on this question.*

Finally, students are ready to "*Share*" their ideas. The teacher can ask students to raise their hands if they would like to give a response to the question or ask specific groups to give their answers. Often students are reluctant to volunteer an answer. Thus, it is often best to select students to answer. If you do this,

try to give everyone a chance to answer questions throughout a class. Students might view it as unfair if some students are asked while others are not and they do notice these things.

The teacher will then call on specific students, preferably by name, to give their answers. Having name cards or badges, especially in a large class, can help the teacher call on the students by name. In order to facilitate a whole-class discussion, the teacher should listen to the responses carefully along with the rest of the class and even provide rephrasing of the answers if the instructor believes the other students in the room might not have heard the response or might not have understood it clearly.

> **Teacher:** *Okay, let's start with group one. Who is the leader of your group? (Student's name)? What was your group's answer to this question after sharing your ideas?*
>
> Student provides an answer.
>
> **Teacher:** *Let me make sure I understand you correctly, you believe …*
> **Teacher:** *I am not sure everyone in the class could hear you. (student name) said that …*

The teacher should then provide follow up questions to clearly understand the thinking behind the response. These might possibly be:

> **Teacher:** *What do you mean by that?*
> **Teacher:** *What makes you think that?*
> **Teacher:** *Can you provide an example from your own experience?*

While thanking the students for their answers, the teacher should try to stay neutral to the responses that have been given so that students have a chance to think through the answer on

their own before the instructor gives an explanation. He or she can then invite other students to comment on the previous responses that were given. The teacher might say the following:

> **Teacher:** *Would anyone like to add something to those answers/comments?*
> **Teacher:** *Is there anyone who would like to share an alternative opinion?*

After the teacher has gotten several responses and indicated the good aspects of each, or delicately pointed out errors in thinking, he or she can present the definitive answer for the class.

One of the benefits of Active Learning is that students are receiving immediate feedback on their ideas and any misconceptions can be corrected before these ideas are able to take root in their memories. Students should always be provided with feedback as quickly as possible to avoid this problem.

[Examples] If you would like to see an example of the think-pair-share in action, please check the links below.

1. Greg Hancock Think-Pair-Share Lecture (The Science Education Resource Center, Carleton College) https://goo.gl/UJJhoR
   - ➢ This provides access to a workshop where the presenter is providing an example to the participants and discussing the benefits of this method.
2. iBiology Scientific Teaching Series: Active Learning – Think Pair Share (iBiology.org, YouTube) https://goo.gl/UMVn1V
   - ➢ This link is of a first-year biology class in university with the professor providing explanations.
3. Lecture Clip: Opportunity Cost, Think-Pair-Share (Shared video on YouTube by dmateer) https://goo.gl/S2zB1W
   - ➢ This is a lecture on opportunity cost from State University in Florida.

You can find other examples of "think-pair-share" activities by going to YouTube and searching this subject.

3.1.4 Opinion polling (Individual Activity)

Although somewhat similar to the "think-pair-share", opinion polling has a slightly different format and can be achieved in a variety of ways: 1) by asking students to raise their hands if they think one of the choices is correct; 2) by holding up one of four differently colored cards each indicating one of the choices from the question; 3) using an electronic clicker system, that automatically tallies students votes and displays a graphic representation, just to name a few. Other ideas for polling students can be found at socrative.com and polleverywhere.com.

All of these methods can give the teacher a quick look at which answer to a multiple-choice question is the most chosen to the least chosen. The teacher might use the following language to explain the voting process:

Raising Hands

Teacher: *I would like you to take a look at the following multiple-choice question. Please hold up your hand if you think the answer is "a". Okay, it looks like about 50% chose "a". How about "b"? Approximately 30%. Now, what about "c". Maybe 10% and lastly "d". Only a couple of people; not a popular choice.*

Or

Holding up Colored Cards

Teacher: *I would like you to take a look at the following multiple-choice question. Please make your choice by holding up the colored card that corresponds to your choice. Okay, it looks like about 50% picked "a", 30% picked "b", 10% picked "c", and only about 3-4% chose "d".*

Or

Using Electronic Clickers

Teacher: *Please press the key on your clicker that corresponds to your answer choice for the question being displayed.*

After students have indicated their choices:

> **Teacher:** *Now, talk with the people near you for the next five minutes about the question and the answer you picked and the reason why you picked it. Try to come to a consensus as to what the correct answer should be.*

While the students are discussing their answers and trying to come up with one that they can all agree upon, the instructor can listen in on the group discussions and even provide some input to one or two groups before bringing the attention of the class back to him/her at the front of the room.

> **Teacher:** *Okay, stop. Your five minutes are up. We are going to vote again and see if the results are different. Please hold up your hand if you think it is "a". Okay, the vast majority have chosen "a" this time. How about "b"? Approximately 20% still believe it is "b". Now, what about "c"? No one? And finally "d". Again, no one? Well, we have narrowed it down quite a bit. Let's discuss "a" and "b". Is there anyone who chose "a" who would like to explain why?*
>
> **Or**
>
> **Teacher:** *Please vote again by holding up the colored card that corresponds to your choice (by pushing the appropriate button on your clicker). Okay, this time it looks like about 80% picked "a", 20% picked "b", and no one picked either "c" or "d". Well, we have narrowed it down quite a bit. Let's discuss "a" and "b". Is there anyone who chose "a" who would like to explain why?*

After getting a response as to why they chose the answer from a student who chose "a", have someone who chose "b" explain.

> **Teacher:** *All right, now how about someone who chose "b". Could someone explain his/her reasoning for us?*
>
> **Teacher:** *Okay! Well, the actual answer is "a". Follow this by the correct reasoning for the answer.*
>
> **Teacher:** *Does everyone now understand why "a" is the correct answer? Do you have any questions?*

[Examples]

1. Cliclers: Eric Masur Shows Interactive Teaching (Harvard Magazine, YouTube) https://goo.gl/LejrLt
   ➢ Harvard University physics class is using a clicker as an opinion polling activity.
2. Hand Raising: Introduction, Financial Terms and Concept (MIT OpenCourseWare, YouTube) https://goo.gl/qKfh2Q
   ➢ Topic: Risk Aversion (From 44:40~) – The instructor asks questions and has the students raise their hands to get a general idea of what the students think.
3. Student Response Cards (Elementary School Setting) (the teachetoolkit) https://goo.gl/R7TE69
   ➢ Topic: Language class and gender adjectives

3.1.5 Incomplete outline (Individual Activity)

A common practice for academics is to distribute slides of their presentations to the audience at speaking engagements, and they have carried this practice over to the classroom as a service to the students. At conferences, if you have done this or have been to a presentation where this has been done, you might have noticed how people tend to bury themselves in the printed slides rather than direct their attention to the speaker and the presentation he/she is giving with those very slides.

It is a natural reaction to start leafing through materials that you have been given and to find out what will be coming later on in a presentation. Some people in the audience at a conference might even decide that what is being presented is not of interest to them, get up, and walk out possibly to find another presentation at the conference that is more suited to their taste. While this preview of material may be of benefit at conferences, it is a definite disadvantage in the classroom. Students may decide that since they already have received the information that

will be talked about in the lecture, they can tune out, sleep through the lecture, or even not come to the lecture at all.

This is the reason why I do not give handouts of my slides to the audience until after my presentations/workshops are finished. I tell the audience at the outset that I will be giving them copies at the end of the workshop/presentation and present the reason I just explained. That being said, I do prepare handouts for any activities that I would like the audience to do during my presentation. In this way, I can better keep the audiences attention focused on me as the presenter and on the material that is being discussed at the moment.

This concept can also be applied to the classroom to keep our students engaged in the material being presented. Rather than giving the students a copy of the slides or an outline of the material being presented for the class, the teacher can prepare an incomplete outline in which the students must listen carefully to make note of the missing information from their papers. This will keep them focused on what is being presented in class. This also gives the lecturer opportunities to have the students compare their notes with one another and to reinforce the important aspects of the class.

An example of an outline from a portion of one of my lectures on the U.S. university system has been provided below with information deleted to create an incomplete outline, which the students must complete while listening to my lecture.

U.S. universities lecture

6 Reasons Why Students Think the USA is the Best Higher Education

1. Valued international Universities – 50% of the top 50 universities are in the U.S.

2. Wide range of higher education institutions
    a. Community Colleges
    b. _____
    c. Universities
        I. Research

        _____
        _____
        _____

        II. Comprehensive

        _____
        _____
        _____

        III. For Profit

        _____
        _____
        _____

3. Quality courses – over 1,700 public / 2,500 private institutions 19,500 programs recognized by:
    a. USDE _____
    b. CHEA _____

4. Pragmatic Teaching Style
    a. Students observe and analyze before solving problems.
    b. _____
    c. _____

5. Career advantage
    a. Increased globalization
    b. Interacting with diverse groups helps one gain a global perspective.
    c. _____

6. Becoming a self-reliant individual
    a. _____
    b. _____

Figure 25: Incomplete Outline Example

Note: The slides that accompany this portion of the lecture are provided in Appendix 3 (p.120).

To introduce the concept of an incomplete outline to the class, you can use the example below as a template.

> **Teacher:** *I am distributing a handout that contains a partial outline of what I will present in today's class. I would like you to notice that not all of the information has been provided. Your job is to listen carefully to the lecture so that you can fill in the blank spaces in the outline, thus, creating a complete set of notes that will help you study for the test.*

Once the lecture has begun, the teacher can take periodic breaks to ensure that all of the students have the information they need. This can be done by taking five-minute breaks after a certain amount of time or after a certain amount of material has been covered so that students can compare their outlines in pairs or small groups. The teacher can use the language provided below.

> **Teacher:** *I am going to stop my lecture for a few minutes, so you can compare your incomplete outlines with the students near you. If you have any missing information, ask other students to help you complete the outline. After three minutes, I will call on someone to present his/her incomplete outline to make sure we have all completed the outline correctly.*

> **Teacher:** *Okay! Our three minutes of discussion are over. Is there anyone who would like to volunteer to give us the information from his or her completed outline? If not, I will select someone to do it.*

Be sure to wait a sufficient amount of time for students to volunteer. Students may be reluctant, and, thus, it might take a bit of time for them to build up the courage to volunteer. Thus, pausing to give students a chance to respond is important.

> **Teacher:** *Thank you for volunteering. Please tell me what you put for the three main points that were left blank at the top of the paper. Explain why they are important.*

After the student gives his/her input, the teacher should follow up by either (1) asking other students if there is anything that is missing from the information provided by the other student, or (2) giving direct feedback on the response herself/himself.

> (1) **Teacher:** *Thank you for your answers. Does everyone agree? Is there anything that should be added?*

After getting responses from the students, or no response if they feel that the previous students' responses were correct, the teacher should follow with his/her comments so that everyone has the same information.

> (2) **Teacher:** *Your answers are very good. I would just add that…*

One other way of addressing the need for making sure that students have a complete outline is to post a complete outline online after class. However, one should be careful doing this since students may realize they don't need to attend class or take notes. Thus, this would not be my recommendation for addressing the need for providing feedback regarding a completed outline. If you do this from time to time for convenience it is fine, but if you do it on a regular basis, students may tune out. In that way, students won't feel that it is something they can expect to receive every class making it more likely they will pay more attention while they are in class.

3.1.6 Minute paper/Muddiest point (Individual Activity)

A good way for the instructor to judge how well students have understood the lecture or class discussions is to take a break during the class and have them write down an answer to a

question the instructor is interested in knowing about that was presented during the lecture or information that they did not understand well. My institution has printed special paper in a variety of colors for this purpose; however, you can have students use their own paper if needed. The benefit of supplying the paper is that every paper will be uniform and easy to handle.

Although minute paper is commonly used at the end of a class period, it does not really matter when this exercise is inserted into a class. It is more a judgment of when the instructor wants to receive feedback on the clarity of student understanding. Thus, be it in the middle or at the end of class, the instructor can use language such as that provided below to implement this activity.

Examples of the questions that you might want to pose in a minute paper are supplied in the form in Figure 26. Although this example is given with the questions written on the paper, the teacher could also write the questions on the board or show them on a slide and have the students answer them on a blank piece of paper. Depending on the amount of time you want to devote to this activity, you can vary the number of questions. If you only want to spend a couple of minutes on this task, one question is enough. However, if you were to use three questions as depicted below, you might extend the time to somewhere between 5 to 7 minutes.

In the following example (Figure 27), students answered questions regarding their views on the discussion class. The three questions were: 1) How is this class different from other English classes that you have had? 2) Which type of class do you prefer and why? 3) In what way could this class be improved?

Figure 26: Minute Paper Example

Minute papers are usually anonymous so that students can feel free to express themselves without fear of retribution if they say something the instructor does not like. However, you may want students to include their names and student numbers as a way to monitor for class attendance or for the purpose of giving credit for completing the questions well. One way to have students submit their names and student numbers without the teacher associating a name to a specific answer is to have the students write their names on one side of the paper and the answer to the questions on the other side. Should you do the later, it is best to explain to the students why you are conducting the exercise in
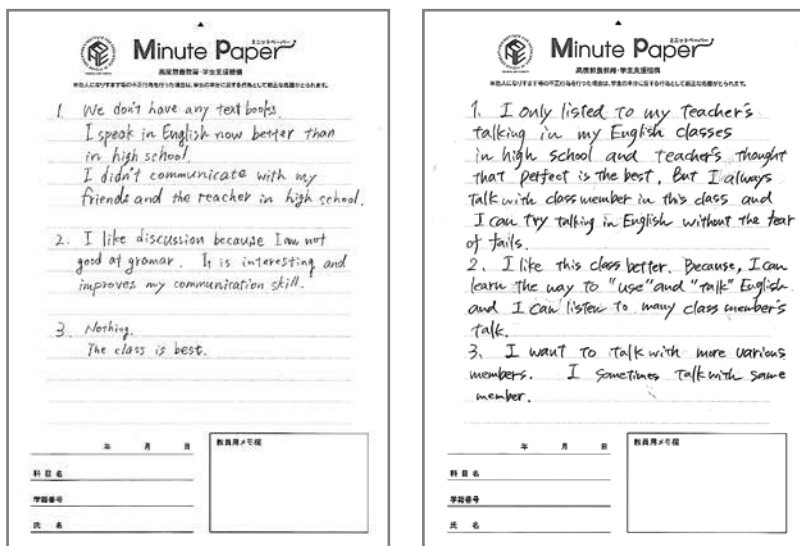
Figure 27: Examples of Completed Minute Papers

this format. This is also a way to ensure an unbiased way of grading.

To implement a minute paper activity in the middle of a class you could use the language provided below.

> **Teacher:** *I will take a short break from lecturing to give you a bit of time to reflect on what we have talked about so far. I would like to know how you feel about the following questions (write them on the board, show them on a slide, or read them from the paper you will distribute). I will distribute paper for writing your answer(s). Based on your answers, I will address common concerns and difficulties in the next class.*

To implement a minute paper activity at the end of class, the following wording would be appropriate:

> **Teacher:** *Before ending the class today, I would like your feedback regarding the material that was discussed. Thus, I will distribute a paper for you to answer the following questions (write them on the board,*

show them on a slide, or read them from the paper you will distribute). I will try to respond to your comments and concerns at the beginning of the next class.

If you want the responses to be anonymous, you would add:

Teacher: *Since this is just for my information, you do not need to write your name or student number on the paper. All I need is your answer to the questions.*

If you want to give credit for the students' responses in some way, you would say:

Teacher: *Please write your name and student number at the top of the paper to ensure that you receive credit for this activity before answering the questions provided.*

If you only want the students' names and student numbers as a way of monitoring attendance in class, you might say:

Teacher: *Before you answer the questions, please write your name and student numbers on the back of the paper. I don't want to know who wrote what, but I need your name and student number to record who was in attendance today. Thus, I will only record your attendance after I have looked through the anonymous responses, so feel free to honestly answer the questions.*

3.2 Implementing High Risk Active Learning Activities

Explaining each individual activity for high risk Active Learning would be extremely difficult because they generally cover an extended period of time and explanations vary greatly depending on the type of task set and the field of study. Thus, rather than try to give a detailed example of how to implement an activity as I did above with the low risk Active Learning activities, I will provide a list of the types of activities that could be used in this category, and then elaborate on difficulties that

often arise when implementing any kind of cooperative learning task.

3.2.1 Types of higher risk activities

1) **Student-centered Discussions** - This type of activity can vary drastically based on how much time one wants to devote to the discussions. These discussions can be used as small breaks in a lecture to check on understanding of the material presented or they can be the basis for the class. In the latter case, students often prepare by reading articles or watching videos outside of class and using that information as the basis for their discussions.

2) **Small Group/Big Problem Solving** - Students work together on open-ended problems (or parts of problems) with more complex variables or solutions. This could be in the form of a case study or similar type of scenario.

3) **Pair or Group Quizzes**- Students can write two or three questions from assigned readings or videos and students can quiz one another in the first few minutes of class. The teacher might also consider collecting the questions and possibly using them as source material for tests in the future.

4) **Collaborative Learning Projects** - Students work together in teams on long-term projects to create, analyze, or research something.

5) **The Flipped Classroom** - Students watch online lectures or read source material outside of class and do what were traditionally homework assignments in the classroom.

One of the key issues for all of the activities in this section is the preparation aspect. In many instances, the teacher assigns a task, such as reading or watching a video, as the basis for the activity that will take place in the class. If the students do not complete this pre-class assignment, it creates a great deal of difficulty when conducting the in-class activity.

Most teachers have experienced this dilemma in some form. I have handled it in a variety of ways in the past. For example, I have given students time in class to read the assigned homework, or have even shown the video that they were supposed to watch for homework so that everyone had the information necessary for a discussion or debate. Of course, by compensating for the unprepared students in this way, the teacher is wasting the time of the students who did do the homework. In addition, time management of the activities in class becomes problematic since less time is available. Thus, getting students to come to class prepared is an issue that needs to be addressed. There are two methods that I recommend, which I will explain below.

3.2.2 Homework completion check

In my discussion-based classes, the students must complete a preparation worksheet, which consists of five or six questions, based on the source material (a reading or video). When the students first arrive at the beginning of class, I check their assignments for completion. If the students have a form that is well done, they will receive an "OK" stamp in the circle that is provided for this purpose at the top of their paper. This indicates to me when I am grading their assignments after class that the student can receive full credit (8-10 points based on his/her answers). If the student has answered all of the questions but

has not used the entire space and effort is lacking, I will put the "OK" stamp outside of the circle to indicate the student will receive less than full credit (5-7 points based on his/her answers). If the student has answered some but not all of the questions, he/she will receive a red "X" outside of the circle indicating to me that he/she should receive less than 50% of the credit (3-5 points based on his/her answers). And finally, if the student's paper is blank or nearly blank, he/she will receive a red "X" in the circle indicating that the student will not receive any credit. This system ensures that students do not get more credit than they deserve when grading their assignments after class since many students will add more to their answers during the class period.

While this process of grading is explained in the course guide that is given to the students on the first day of class, it is always wise to explain the syllabus on the first day of class since many students spend little time reading the syllabus on their own. In my case, doing this also serves as an example of what the students will need to do each week to prepare for the class. Below, I have provided the language that I use to introduce this system to the students.

> **Teacher**: *For each class you will be required to answer the questions on a preparation worksheet. You must do the homework so that you can participate in the class activities that are based on the reading and your answers. You cannot write your answers during class and will not receive any credit for those answers if you do. You will notice at the top of the paper there is a circle for me to stamp. The first thing you should do when you come to class is bring your paper to me so that I can check it for completion. If you have completed each answer and used the entire space available you will receive a blue okay stamp in the circle meaning you are fully prepared and will receive 8 – 10 points based on your answers when I check your papers. If you answered all of the questions but your answer(s) are too short to have given enough support, you will*

An unintended benefit of this type of stamping system, is the shame factor that it adds. Since the students must use their preparation worksheet throughout the class period for the discussions that we have in class, the other students can easily see if they were unprepared and received a poor evaluation. It is my own belief that rather than their scores students are more concerned about how they are perceived by other students, and thus it is rare to have anyone come to class who is unprepared.

3.2.3 Pre-class quizzing

Some teachers use online quizzes or ones administered at the very start of class to ensure student compliance with completing the homework assignments. Though I have never given quizzes on the content of an assignment, I have quizzed students on the vocabulary contained in an assignment to ensure that they are familiar with the vocabulary they will need to explain their answers during group discussions. If enough credit is given to the quizzes, the students will want to do well on them to ensure getting a good grade in the course. I have provided the language I use to explain these quizzes to the students as an example of how you might introduce this type of activity to the students.

Teacher: At the start of each class, you will be given a quiz of the homework. These quizzes are not difficult, but you will not be able to do well on them unless you have completed the homework. Your quiz scores are a substantial part of your grade to ensure that you come to class

prepared. If you are not prepared for class, you cannot participate fully in the discussions that will take place. Since your participation is also a factor in the discussion portion of your grade, you will also lose significant points there. Thus, to do well in this class, you need to come to class prepared.

3.2.4   Key elements of cooperative learning

In explaining the difference between students simply talking in groups and cooperative learning, Johnson *et al*. (2006) describe five key elements: "*Positive interdependence, individual accountability, face-to-face (promotive) interaction, interpersonal and small group social skills, group processing*." Thus, the teacher must structure and organize group projects in such a way to ensure that these elements work well. Below, some possible techniques for promoting each element are provided.

1) **Positive interdependence** - This is the process of building interdependence so that group members must rely on others in the group for reaching the goals.

   - **Jigsaw**: Each member of a group has specific information that other members of the group do not have, so they must teach the other students about what they know. This may be accomplished by having the members of a group read different but related material. For example, the teacher might break up an article by subsections and each person in a group is given a subsection to read and summarize for the other group members.

   - **Peer review**: This is often associated with process writing. Students are taught how to give and receive

constructive feedback. This might be accomplished by creating a rubric, a table of criteria defining how grades are awarded, which students can use to evaluate their peer's writing and ways to communicate their evaluations to the peer. For example, teachers often insist that students start by providing the positive aspects and use indirect suggestions to make critical comments less threatening.

> Note: For an example of a rubric, please see the following websites.
>
> ➤ Grading and Performance Rubrics (Carnegie Mellon University)
>   https://goo.gl/LL4to9
>   - Carnegie Mellon University provides a brief description of rubrics and the benefits of using them followed by examples of rubrics for paper assignments, projects, oral presentations, and class participation/contributions.
> ➤ Grading Rubrics: Examples of Rubric Creation (University of California Berkeley)
>   https://goo.gl/8R7mmQ
>   - Various examples with the problems/assignments they are based on are provided by the University of California Berkeley.

2) **Individual accountability** - While group projects should have output based on group work, one of the dangers is that some group members will rely on others to do the work for them. Thus, grading of projects should include some individual aspects. Some ways to do this are provided below.

   a. **Individual testing**: Tests can be given, or students can be required to write reports on the project

individually to show their understanding of what the group is doing.

b. **Peer assessment**: A member of a group can be anonymously rated by the other group members with the average score from all of the group members used as part of the final score for the project.

c. **Self assessment**: Students can also be required to judge their own efforts in the class. This might be used as a way to reflect on the difference between how they perceive themselves and how others perceive their work. Of course, there is always the concern that students will over-inflate their effort and participation in the group, so the teacher may want to give lower weight to this score in the overall grading system or use some method of checking on the accuracy of the individual's self-assessment.

3) **Face-to-face (Promotive) Interaction** - Students need to be encouraged to interact with one another to help build cognitive and interpersonal capacities. The way the teacher structures the project can help to promote this aspect. Some possible ways to do this are outlined below.

a. **Assigning student roles**: The instructor can assign roles that require interaction to achieve the final product. For example, by assigning such roles as checking accuracy of data, verifying the source material, writing meeting notes and keeping the group on task.

b. **Group contracts:** Rather than the instructors assigning roles for the students, some teachers have turned to

the use of group contracts. These group contracts are created by the groups themselves and outline the roles, rules, expectations and responsibilities of each member. The contract is a document that helps maintain accountability and each member must sign it upon completion to ensure agreement by all members. This document can then be referred to at a later date to remind and reinforce compliance. Hesterman (2016, p.5) points out that these contracts "motivate ownership of learning".

> For further information regarding the creation of group contracts, please refer to The University of Waterloo's Centre for Teaching Excellence's website at:
>
> ➢ Making Group Contracts (University of Waterloo) https://goo.gl/VtMrQz

    c. **Online message board**: The teacher can require that members of the group use online messaging and even specify the number of entries each member is required to make. The instructor can also monitor this interaction.

4) Interpersonal Skills - Part of the reason for using group work is to develop students holistically not just regarding the subject areas that they are studying. Students need to learn and be able to develop effective ways to communicate, manage conflict, lead others, make decisions, and build trust.

    a. **Provide adequate information**: As with any activity, students are more likely to be successful and

participate in a cooperative manner if they understand the purpose behind the activity.

b. **Practice**: As mentioned earlier, it takes students some time to adjust to new techniques. Thus, giving students shorter group assignments with the group members they will be working with throughout the term can help them figure out how to handle each others' schedules and specific strengths and weaknesses.

5) **Group Processing** - Students should reflect on the dynamics of their group work after completing the project.

    Reflection: By writing individual reflections of their group work, which could possibly be based upon a rubric created by the teacher, they can better understand their learning process and use that to improve on future projects.

For more detailed accounts of issues that might arise with group work and how to address them, please see the following websites.

➢ Problem associated with group work (The University of Queensland) https://goo.gl/ba1xgA
➢ Dealing with Group Work Issues (The University of New South Wales Sydney) https://goo.gl/DAgt4M

Because the following website provides an example for teachers of children, the simplicity of the sample lesson may prove to be enlightening to the reader.

➢ Cooperative Learning Sample Lesson (ThoughtCo.) https://goo.gl/PtXUtv

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