

PEER-LED TEAM LEARNING LEADER TRAINING

HOW CAN THE PEER LEADER AND THE STUDENT USE QUESTIONS AS ACTION?

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As with all human communication, the process of learning is an exchange of actions. For example, as a film director will get a variety of unexpected results from the direction, “Be nice,” a workshop leader will be dissatisfied by the reaction to an unspecific command of “Get motivated.” Instead, just as an actor needs an action in order to perform, the student’s actions will be generated by the nature of the question. From the moment of the ice- breaker exercise, the students and leaders engage in a self-perpetuating script, a continual growth of discussion stimulated by the next question.

Because the basic tool of exchange in peer-led workshops is the question, workshop is an opportunity to examine how questions can perform actions and consequently become tools for learning - peer leader to student, student to student, student to self.

A question is complex action towards learning and three examples are discussed here. Notice that both the peer leader and student use the action of the question in similar but personal ways.

Question as Test

What is the molar solubility of $\text{Ca}(\text{OH})_2$?

Actor: **Peer Leader**

Action: **Evaluate progress:** This type of question in which there is one right answer is often necessary for the educator in any setting as a tool of evaluation. It brings to mind a multiple-choice option of evaluation and is the simplest method of keeping track of a student’s progress. Particularly within workshop, where student leaders are given little access to the indicators of progress, like assigned homework or exams, this type of question might be our only option for observing who is struggling.

Secondary effects: A *testing* question by its “dualistic” nature (as described by Perry) suggests that because the *answer* is what is sought, answers are the paramount goal of learning. In addition, when a testing question is used by a ‘leader,’ it immediately defines a political boundary between the student and leader, one which is often counter-productive to the purpose of group learning.

Useful examples of alternatives: All students are asked to explain the steps to take to get to the answer before actually beginning calculations, with a question such as “What equation would help us with this problem?” Also, it might be worth considering this possibility: “Calculate the molar solubility of $\text{Ca}(\text{OH})_2$ showing your work.”

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Actor: **Student**

Action: **Evaluate progress:** This type of question in which there is a right answer is also often necessary for the student to evaluate her own progress. This is most likely the reason that we hear, “What did you get?” or “What is the answer?” before “How did you do that problem?”

Secondary effects: A *testing* question, because it has one correct answer, often does not evaluate progress. This happens because frequently the answer is wrong even when the process was correct, or because the answer supplants the process in importance, frustrating the students who are stuck on problems of basic calculation.

Useful examples of alternatives: Student asks another student, “How can we find the molar solubility of $\text{Ca}(\text{OH})_2$?” Students become partners in the process. Unfortunately, this still leaves the leaders with few tools of evaluation.

Question as Motivation

What do we (or I) know that can help us in this problem?

Actor: **Peer Leader**

Action: **Create interest:** This type of question helps the student with what Deci and Ryan (Roth, Goldstein, Marcus, 2001) call internal motivation. By answering this question, the student feels related to the community through the struggle of others and a competence with the subject through the familiar language of what is already in the past.

Secondary effects: Again, peer leaders face the struggle of the complex emotional issues of learning - helping the student to find an emotional attachment to the work.

Useful example: The peer leader can sometimes only lead by example. Having joy in a problem is often contagious and the group teams to face it. A variation of this question might be: “What is the most challenging part of this problem?”

Actor: **Student**

Action: **Order chaos:** This is an internal moment when the student asks herself, “What is it that I don’t understand here and how can I frame this question using all the language of the subject and the information already covered?” By making lists the student is able to act in some way to analyze where she is and what she needs to do. She can move forward.

Secondary effects: It is possible that if the student believes that material covered should be clear in her mind, she might consider a question based on previous material to be a stupid question, even if its relation to the current material is not intuitive.

Useful examples: Instead of leaving this task to the individual, the peer leader might have the group create a review sheet which can be updated weekly.

Question as Exploration

What is another way to look at this problem?

Actor: **Peer Leader**

Action: **Challenge understanding:** These questions will help to pinpoint frustration within the student who, while pursuing espoused theories as described by Argyris and Schön (Smith, 2001), hits a wall. They can also aid the student in testing the boundaries of possible approaches to each theory or problem. This method of questioning can lead to a deeper Socratic-like dialogue through which the participants can explore and relate disparate material.

Secondary effects: Time limitations in workshop often prevent the voicing of all possible approaches.

Useful examples: This kind of question works in a group setting if the leader is prepared to respect and organize all contributions and the students understand that the project is not the problem but the way of approaching the problem. An alternative question could be: “If one or two variables are changed, how will the process for answering the question change?”

Actor: **Student**

Action: **Break assumptions:** This kind of question comes from a student’s acknowledgment of frustration. It signals that instead of giving in to the frustration, the student has the confidence to know that she has the tools to overcome it.

Secondary effects: The student must have that moment before even formulating the question where she believes, “I can understand this if I formulate a question.” This moment cannot be underestimated. It requires motivation and bravery, which is not available to all students in all settings. However these types of questions can be useful tools for any type of learning.

Useful examples: These questions might need reinforcement with other types of questions – motivational ones and step-wise testing ones in order to build confidence. A little backtracking is not always unproductive. More importantly, it is possible to make the group completely aware from the outset that questions are the fundamental tool for learning in workshop, the more questions the better.

Conclusion

Again, these are only a few examples of the actions of questions. A workshop leader or student incorporates many more. However, it is conceivable that each student or peer leader may perceive the action of the question in a distinctly different way than her neighbor or may use it in ways that are not intended. The testing question might be perceived as accusatory, the motivation question might seem childish, and the exploratory question might not work in a group of different ages or cultures. Consequently for future analysis, this paper might suggest an ice-breaker exercise which illustrates that questions are more important than answers in workshop and that questions are used differently according to purpose, situation and even perhaps individual. It can be argued that both student and peer leader will benefit from being consciously aware early on that as an alternative to the “normal” teacher/student dynamic, questions are the primary tool of exchange in workshop.

Furthermore, these tools of workshop and the actions behind them might become useful to learning outside workshop. Workshop does more than facilitate the learning of chemistry. It exposes new avenues of analysis and interaction.

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