

Reflection

Levi: My name is Levi Molenje. I've been a TA in the Math Department for the past five years.

Leah: My name is Leah Bridgers and I've been a TA in the Math Department for several years. One of the things that I've learned that's important when preparing for a recitation is making sure that I'm familiar with all of the homework problems, not just looking through them. I've found that occasionally when I just sort of looked through them and then get into class and I, I think, I know how to do them, and then I get into class I've had and I've had it happen a couple of times a student asks a question about a particular one, and I say, how does that work, you know some of the more, the trickier problems so I've that I really need to make sure that I've gone through the problems to know all of the steps so that I'm not in that awkward position of saying, hold on a second, I'm not sure where to go from here, because I think that sort of situation, if you do that too often then you lose credibility with the students.

Levi: And along the same line, I've also learned similar things and what I've learned is that if you look at the problems, the homework problems, just a few minutes before class, they may look obvious because obviously you, ah your mathematical knowledge is higher than the course you are teaching, and you, maybe I tend to just browse and say okay this one can be worked this way, but not really paying attention to the details involved. But when you get to class you find that things start going a little bit different. So I've learned that it's good to go over them well beforehand. Maybe even a day before the session. And it's good also to be ahead, not just what you are going to cover the following day, but also look through some material ahead so that you get prepared, you have a good idea of the general picture of the entire course.

Leah: Yeah, and it's nice to kind of know where the course is heading so that then as you're um, as you're going over a particular topic early on in the semester, if you know the over-arching theme of the course of where you're heading you can have a sense of what's important at this point for the students to really understand because it's going to come back later and what are the things that are not as important to dwell on because they're not then coming back later.

Levi: And, um, as you work through the problems it's good to identify not only those that will be challenging, but even those that are easy to handle because not all students have the same level of understanding in a course they are taking, so there may be some students who are struggling and if you have some problems you know they are nice, but they involve fewer steps, they are easier to work through. You can use such problems to

engage those students who, they may be having some nervousness at handling other problems and that way they will start getting encouraged and maybe participate more.

Leah: Yeah, and also when you're taking questions from students, um, often I'll start out a recitation with, asking if students have any questions on the homework or anything that's come up and one thing I found, that, when I first started doing recitations I had the tendency to just answer the questions. Okay, a student has a question, I know how to do it, I'm going to answer the question. I'm going to do the problem for them, show them how to do it and everybody's going to be happy and I've learned through experience that that's not always the best approach. That's a sometimes approach and that it's often much more helpful in knowing where students are coming from to ask questions about how far did they get in the problem, where did they get stuck, if they're... And sometimes they're not able to tell you, they just sort of are lost from the beginning and they don't really know even where to begin and so then even getting some ideas from other students, often there are students in the class who were able to successfully complete a particular problem and so you can draw on their knowledge and their ideas to then get something that you can work on as the whole class so that then that gives you a starting point and then often those students who had the question, or other students who were unsure can then get into the problem and, and then help you proceed from there.

Levi: Just to follow up a little on what Leah just said, it's also good if you look at a problem and look at the steps involved in that problem so rather than maybe just letting one student solve the entire problem, you can have different students come up with solutions to the problem by involving them at various steps. So, one student gives the first step and then go to another student for the next step and so on. Then this way you can get all the maybe, most of the class involved even on just one problem.

Leah: Um, there are some times when you go into recitation and you ask for student's questions and they don't have any. Any you think, well they must have questions, but, you know, sometimes depending on where you are in the semester they may not have, they may not be fully prepared to ask questions. They may not have looked at the problems in the book or they just may not be really ready to ask questions and so you need to make sure that you're ready with something to do other than just hand them the quiz and say, okay we're going on our merry way, um, because I think you know that sometimes can set up a bad precedent where students know if I don't ask any questions I'm going to get out of recitation really early. And so then that's a strategy that they use to sort of just get out early. So, what I like to do is to come in. I've looked at the, homework problems and I know what's going on in the class and then what I would want to do then is come in with a set of problems that the students could work on. Things that I know maybe are a little bit tricky, things that I know are going to come up later, want to

make sure that they, that they have a good understanding of, and then have them work some problems in recitation. Sometimes I might have them work in pairs, sometimes alone, sometimes, you know, in slightly larger groups just depending on the day, the particular students, and what's nice is that then you can, sometimes I'll have the students go up to the board and put the problems on the board so that then you've got all these students who have then worked the problem and then you can have a discussion about, okay, what, you know, let's look at what has been put up on the board. Is this how everybody did the problem? Did we do it different ways? Are there any mistakes? And sometimes, um, the mistakes in student's work when they put it up on the board can actually be really useful. Um, when I first started teaching I had a tendency to kind of stand up by the board with the students and sometimes, you know, if I saw that they were making a little mistake I'd correct it. You know, say something to them right then as they're putting it up on the board and I've realized that that's only then helping that one student who's up at the board. It's not then helping the whole group of students. I mean, it helps the student to feel yea, I know I've got it right, but then you, you miss that opportunity to talk about, okay, what's the, because it may be a bigger issue that a lot of students are confused on. And you just need to make sure that then if you're asking students to go to the board and there may be some slight problems with their solutions that you make that a, uh, you want to make that as comfortable as possible for them because it's difficult. I mean if students feel like they're going to go up to the board, they've got an incorrect solution, and they're going to be belittled in some way, they're not going to be volunteering to go up to the board. Um, so you have to try and make sure that they know that it's okay to make a mistake. What we're interested in here is the process, not the solution. And, and focus on that. And we're trying to get the process down so that if there are some mistakes, that's an opportunity then to figure out what's going, what's going wrong and how we can fix that.

Levi: Yeah, just along the same lines, even if I'm the one writing a student's solution on the board and the student, student has some error, maybe the solution is not correct and I notice the error early, sometimes other students will also say, oh that's not correct. But I say okay, let's just give her or him the time. I write the entire solution to this if the student had completed the problem and then we start going over the steps and then we point out where do we think the error is and ask the student which how are you thinking to come up with this so that it, also helps to, to, uh, maybe discover if this student is having some misconception which, if you just say, oh this was wrong and then you give the correct way, the student may not, uh, tell you exactly what he or she was thinking. So, it helps to write down the entire solution and then you analyze it as you discuss the steps.

Leah: Yeah, I think, uh, another thing that helps students to be comfortable with their own mistakes is if you, you yourself admit when you make mistakes. I mean, you're

going to make mistakes and it's never a fun or comfortable situation when you realize that you're not really sure what's going on or you've made some sort of mistake, you've said something wrong and, and what's important is for you to own up to that and say, okay, this, I told you this and that was incorrect and I, you know, here's what I ought to have said, here's, you know, where my thinking went wrong there, and, and let the students know that you're human because I think sometimes they, they get a sense that you're sort of this super-human math machine and, and it's just not the case. Everybody makes mistakes and it's not comfortable, but, but I think by owning up to your own mistakes it also makes it more comfortable then for students to see, okay, she's not perfect either, so it's okay to make mistakes.

Levi: And, uh, after you go through what you are discussing in class, maybe students have, they don't have further questions to ask, before you move on or before you give a quiz if you are going to give one, ask them, maybe put a summary on the board. The main points in that section, what they, they have covered and just, again, confirm whether anybody still has still has something that is maybe worrying, maybe not understood, well understood. So that as you move to the next step, you are sure at least everybody is understanding.

Leah: Another thing that, that's come up for me, um, early on in my teaching experiences was that I learned that it was important for me to take control of the situation in the classroom in terms of students chatting or sort of behavior that was not conducive to what was going on. I had an incident early on in my teaching where I just let it, you know, it just kind of got out of control. There were a couple of students who were always chatting and I was unsure of myself and I just, I just let it go and, hoping, hoping that if I ignored it, it would just go away and that just wasn't the case. I mean it didn't go away and it sort of, um, it just expanded so that it became a big incident and, um, and I finally had to, had to deal with that incident and I think, I probably shocked some of my students with my, my forceful directive that, you know, this is not acceptable and if you're going to behave like this then you need to leave. And, and I realized at that point that it, I had really let it get out of control. And it became really clear when, then after the class several of my students came up to me and said thank you for dealing with that. That said to me that they were noticing it as well, so little things like that you think, oh, it's just bothering me, it's not, it, it really is affecting other students in the class and, and the sooner I think that you, deal with, with those sorts of little issues and, and making it clear what's expected in the class, I think the better it is overall for both you and for the students.

Levi: And, um, to add on that, um, it's also important to be clear about attendance. And attendance also refers to the timeliness in coming to class because some students, after some time, maybe they realize, okay, they think that there isn't much they gain from the

recitation so they just come the time the quiz will be given so they will come, maybe start coming maybe half an hour late. So, be clear about such and the consequences that these students can face if they did that so that they know and they cannot be tempted to do some things. Well, another thing I've learned is that as much as I am the one handling this class during the recitation session, I know that there is a professor who is teaching it, and so I don't want to teach it just in isolation. So it's good to also keep in touch with the professor. Find out how the professor is covering the material. If there is technology being used, find out how much, to what extent is it being used, in what ways, and so that when you go to class you also know what is happening in the larger lecture. And then you can, um, make your teaching to be in line with what is going on there.

Leah: Another thing that I've learned is that it's often nice for students if you can, um, show them multiple ways to approach the same problem. A lot of problems that you deal with there's lots of different ways that you can look at it; lots of different ways that you can approach it. And I think sometimes we have a tendency to say, okay, this is the way to do it and, and then that's the only way whereas that may be shutting out some other students who are able to see it in another way and are not sure, are not maybe confident with those other ways and that by showing that there are many different ways to look at a particular problem, that helps to bring in more students who may have different sort of natural ways of looking at things.

Levi: And for, to add onto that, when there's a problem you know can be done more than one way then maybe you have got, ah, one solution using one approach, it's good to ask the class, is there another way we could do this? And then give them time to think of it. You say, we know we have got the correct answer, we worked it right, but do you think there's another way. And then if come up with it, that's what you're looking for. If they don't, then try to suggest these ways, so that they can see they don't just have to know this way, but there are other ways of doing the same.

Leah: Another thing that, that comes to my mind when I think about your role as a recitation, someone who leads recitations as opposed to the full professor is that often times students are intimidated by the professor who's teaching the course. I mean if it's a large lecture that you're doing recitations for, and sometimes even otherwise, you're much nearer to the students in some ways then, then the professors are and, and, you can, I think you can use that to your advantage and really make yourself approachable, make sure that they know that you're more than willing to meet with them outside of class to help them, you know, understand some concepts that they're not really sure of. And really you're sort of, you can be that, that connection between them and the professor whereas they may not feel comfortable going directly to the professor. That may be more intimidating so, and so, really just be aware that, that it, that that is a real asset that you

have, that your, you can make yourself more approachable.

Levi: One other thing, and this is for international TAs is that particularly during the first semester and maybe second semester, the differences in languages. The way we speak English may be a fact and may affect the way you are teaching. Maybe students will not understand you the first time you start talking and for several weeks this may happen simply because you have a different accent that they're not used to. And particularly for freshmen, some of them have not had maybe an experience to interact with people from different countries and who speak differently than they do. So the best advise I can give to you is let such things not frustrate you. Accept yourself as you are and also try to let students know that that's whom you are, that's the way you speak. Try to teach them to understand, to try to understand you, rather than maybe frustrated and seeing that they're giving you a hard time because sometimes you may say something they will not understand. They will want you to repeat many times. When they say something, the same thing, you will not understand it maybe the first time, you will want them to repeat sometimes. You say okay, that's fine, but maybe it's not fine they didn't understand, so try to work on having to know that you have a difference that's maybe affecting the way you're teaching. Try to address it slowly, by slowly as you go about class. And, uh, another thing is maybe there are some things that you may be doing differently, some pronunciations, which is still to do with accent. I remember knowing that the letter z is pronounced zzz and not zed. Just such small things and maybe you make, you forget and you use the different version that you know then the students will say, what? So, such things, just be prepared that they will happen.

Leah: So, something to keep in mind is that, that students have different ways of learning and when you're talking about something or using a term that students are not quite sure of, you're getting these, these blank looks, it's often important to make sure you're giving students more than just the, the auditory clues. That you have some sort of visual clues as well and you can use the board to, to write down things if you're getting these, these confused looks or, or you're not sure that students are understanding what you're saying. Use, using the board to write a word down or, um, you know, to write something down so that, that you're sure that not only are they hearing it, but they're also seeing it. That can help to reinforce what you're talking about.