

Peer critiques

Students can learn a great deal about clarity of communication by having classmates respond to their work and by responding to the writing of classmates. This experience also prepares students for communication after MIT, when they are unlikely to receive feedback unless they seek it from peers. However, students need guidance to write good critiques, so it's helpful if instructors tell students what is expected and monitor and respond to the critiques, at least in the beginning of the semester. A grade can be helpful to provide motivation to the students to do a good job with the critiques. The grade sheet in Appendix B gives an example of how grades could be assigned to peer critiques.

Commenting

The wording and focus of comments affect how students respond to those comments: some comments help students to learn, others may encourage students to unthinkingly make the marked changes, and others may turn students against writing.

How best to comment depends on whether there is only one correct way to solve the problem (for example, when a student doesn't appropriately use the conventions and language of the field) or whether there may be multiple successful ways to solve the problem (as when an explanation is difficult to follow).

If there is only one correct way to solve the problem, the instructor must tell the student what to do (or direct the student to an appropriate reference). However, if the instructor marks all instances of the problem, the student is likely to make the changes without thinking and is likely to make the same mistake again in the future. An alternative is to mark the problem once, tell the student to find and fix all other instances, and tell the student to add the problem to their editing checklist. (An editing checklist is a checklist of common mistakes that each student can make for him or herself and should go through before handing in papers.) It can be discouraging for instructors when students make the same errors over and over again, but it may be helpful to realize that learning the conventions and language of a field is like learning a foreign language: it can be achieved through a combination of immersion (listening and reading) and direct instruction (comments), but it takes years to become fluent in the language.

Although some writing problems require the instructor to tell the student exactly what to do, many problems with exposition have more than one possible solution. When text is confusing or unclear, often an instructor can help the student to improve the text simply by pointing out the problem: "I don't understand this sentence. Are you saying _____ or are you saying _____?" "I'm not yet convinced that this is true. What if..." The instructor could suggest a solution or two, but ideally the students should choose their own solutions. The solutions a writer chooses are what comprise that writer's "style." Also, if the student is told what to do, the student is likely to make the corrections without thinking about them and is less likely to learn than if he or she chooses or comes up with the solution. Another problem with telling the student what to do is that instructors don't always fully understand what students are trying to accomplish, so students are occasionally able to identify better solutions than those proposed by the instructor. So,

when possible, it's beneficial to students if instructors point out problems but give students some leeway to choose or find their own solutions.

Should an instructor point out all of the different kinds of problems with a paper, from paper-level issues down to word-level issues? Some students appreciate receiving a large amount of feedback, while others are overwhelmed by the comments. In either case, students often need guidance to prioritize the comments. For those instructors who are inclined to give many comments, there are various ways to indicate the relative importance of those comments. One way is to emphasize the most important comments in a summary note or on a grade sheet, as illustrated in Appendix C. Another option is to de-emphasize the less-important comments by using a coded list of common comments like that in Appendix D.

Whether an instructor chooses to give many comments or few, which comments should the instructor emphasize? If students do only one writing assignment with one revision (as with an end of term paper), then there is time to emphasize only one set of issues, so the instructor should choose whichever issues she or he considers to be most important. But if students do multiple writing assignments or revisions during the term, then the instructor has the leeway to emphasize different issues for each assignment or revision. In this case, it may be most efficient to emphasize paper-level and paragraph-level issues before emphasizing word-level issues. (See Fig. 2 on p. 4 for examples of paper-level vs. word-level issues.) If students polish wording before larger-scale problems are addressed, some polished text is likely to need to be discarded or rewritten, and the revision is likely to require additional polishing. Although discarding text is a normal part of writing, it's possible to minimize the amount of text that's discarded by focusing on larger-scale issues earlier in the writing process.

Identifying paper-level and paragraph-level issues is challenging. Most instructors find that larger-scale issues are obscured by the smaller-scale issues, and don't become visible until those smaller-scale issues are fixed. It is possible, though, to learn to see large-scale issues even while smaller-scale problems are present. A grading sheet that includes large-scale issues can be helpful as a reminder to look for them.

Students often take comments about their writing personally, and occasionally comments can turn students against writing. Students are more likely to be receptive to comments if criticisms are offset by occasional honest praise. Because instructors may not be in the habit of giving praise, it may initially be necessary to consciously look for honest praise to give, but experience shows that honest praise is an effective motivator. To prevent comments from being taken too personally, the comments should be worded to describe the text, not the student: "this paragraph should be more concise" not "you don't write concisely enough." Reading papers can be frustrating, so instructors must take care to remain professional when frustrated.

Appendix E summarizes some of the issues involved in writing helpful comments for engineering papers; many of the issues apply also to mathematics papers.