Written critique instead of a score

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It is very common that written tests are graded based on the sum of scores of assignments. The concept is popular since it is simple and well known by teachers and students, but few have reflected on the disadvantage or alternatives. A score will in the best case mirror how large fraction of the contents of the course that is acquired by the student if the test is well constructed. The actual grading is performed in different ways by different teachers. Some might make an extensive table of errors and misconceptions and the reduction of score they will yield. Other teachers just go for the feeling how correct the answer of the assignment, and even if there is a risk that it will not give the exact same score, it will even up in the end resulting the same grade. Some teachers will just write down the score(s) at the test and others will write some comments to motivate the reduced score. Even with these brief notes it shouldn't be enough from a qualitative perspective. Instead of just writing what the student doesn't know or is unable to handle, she should also get information about what she actually knows and is able to. If both these kinds of information are available, scores shouldn't be necessary. The teacher will maybe also avoid the pitfall how to score the basic simple assignments --- should it be low scored because it is so simple, or should it be high score because it is so important? The student and the teacher can instead of counting scores focus on what important knowledge in the course or education actually is. Each bullet beneath, is an example of a written critique from an assignment;

Computer architecture
- "Understand how the cache block is mapped into a direct mapped cache but not in a set-associative cache. Understand how the LRU replacement algorithm works on reads but didn't grasp that it continues also under writes."

- "Pipelining conflicts is well solved by inserting NOPs and forwarding. Optimizing performance by the reorganization of code is only performed during branches, not memory-operations or other independent code."

Data communication
- "Understands some key concepts of sequence numbers and sliding windows, but doesn't describe the difference and implications of the size of the sizes sending and receiving window."

Elementary programming
- "Understands concept of simple loops. Have difficulties with nested loops, selections in loops or more complex instruction structures. Is not able to solve complex programming problems."
- "Understands types and use of variables, constants and structures/containers of variables except for pointers"
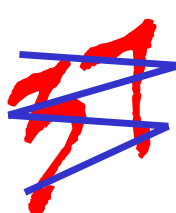
If all comments in the assignments of a test are compiled into a list it will show very clearly what the student understand and what he doesn't. The list can be compared with the course plan and show how well the student has covered the contents of the course. It will also show how well the test mirrors the course and if some assignments unintentionally cover the same subject or course contents.

It is my belief that written critique instead of a simple score will help students to make them understand what they actually learned and didn't learn during a course. It will also force the teacher to create tests that covers the parts of a course to be examined well.

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Grading with score as foundation

○ **Sum the scores of all assignments in test**

U	– 30
3	31 – 40
4	41 – 50
5	51 –

○ **Actual grading the assignment**
  ⇨ **by extensive list**
  ⇨ **by feeling**

Grading with score … (cont.)

○ **Pros**
  + simple
  + well-spread = "known"

○ **Cons**
  – impression of exactness and fairness
  – non-reflective

○ **Improved by comments**

Improve improvement

○ **Comments ⇨ Written critique**
  ⇨ **comments both wrong and right**
  ⇨ **scores shouldn't then be necessary**

○ **Avoid pitfall about the "basic simple question"**

○ **Student and teacher can focus on important knowledge instead of counting scores…**

Example computer architecture

○ **"Understand how the cache block is mapped into a direct mapped cache but not in a set-associative cache. Understand how the LRU replacement algorithm works on reads but didn't grasp that it continues also under writes."**

○ **"Pipelining conflicts is well solved by inserting NOPs and forwarding. Optimizing performance by the reorganization of code is only performed during branches, not memory-operations or other independent code."**

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Example programming

○ **"Understands concept of simple loops. Have difficulties with nested loops, selections in loops or more complex instruction structures. Is not able to solve complex programming problems."**

○ **"Understands types and use of variables, constants and structures/containers of variables except for pointers"**

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… and then

○ **Compile a list of the written critique**
○ **Compare list with course plan to decide grade**

○ **Effects (?)**
  ⇨ **Reflections**
  ⇨ **"Better" tests**
  ⇨ **…**

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What do you think?

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