

Qualitative formative feedback to the teacher benefits both student and teacher

The use of “LEARN evaluation” a modified “one minute paper”.

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Introduction

Good teaching requires good communication. - How does a teacher know if his or her teaching is understandable? – Or if the students achieve the knowledge expected - the intended learning objectives (ILOs)? It is well known that feedback is important for both teachers and learners (SEaabDA, 2004). The point is that teachers do not always know how students experience teaching and where the problems are (Rienecker, Jørgensen, Dolin, and Ingerslev, 2015).

This paper does a summative evaluation on the formative feedback given to the teacher by medical students using “the LEARN paper”. The question is - does this evaluation method benefit teacher and students? - And if how?

Summative evaluation is known as external, retrospective and indicates a status or value of the course. While formative evaluation is internal and is made to improve the process of learning (Rienecker et al., 2015).

Evaluation by medical students is usually only accomplished by a standardized summative assessment performed at the end of a course provided electronically by the faculty. But is that kind of summative assessment on its own useful when evolving better teaching and purchasing improved learning among students? One could ask the questions: - how many students do fill in these evaluations? - Are these students representative for the class? Is it useful for at teacher to receive an assessment stating only: “*the teacher*

was disengaged”? - What does that mean? - And does it help the teacher’s communication skills? Generalized questionnaire may actually impede educational development. For that reason the teacher need to have a different approach to know what matters in terms of students outcome for the purpose of developing the teaching(Rienecker et al., 2015) By formative feedback the teacher and student can create the best possible conditions for students’ learning. Formative feedback can be obtained by several methods i.e. the Delphi Method, reference groups, the Post-It Method, college supervision(Rienecker et al., 2015).

The formative evaluation method used in this study “the LEARN paper” is based on the “one-minute paper” (Cross, 1987).

Theoretical background

What is the one-minute paper?

The one-minute paper is one of the most widely known and used classroom assessment techniques in higher education. It is based on two techniques the *half-sheet response* described by Weaver and Cotrell (1985) (Weaver and Cotrell, 1985)and the *Minute Papers* reported by Wilson (1986) (Wilson, 1986). The one-minute paper described the first time by Cross and Angelo (1988) involves asking students to write brief answers to a couple of specific questions, usually during the last few minutes of class, thus providing instant feedback from students regarding the lesson of the day(Cross, 1987). The two original questions were:

1. What was the most important thing you learned in today’s class?
2. What question or questions that you have from today’s class remain unanswered?

The questions can be modified in various ways, but they should remain open-ended. If properly focused, the one-minute paper is a manageable way of assessing how well students are learning. The effort it takes to prepare this assessment technique, the time it takes for students to respond, and the time and energy required to analyze the data are low(Angelo and Cross, 1993) The one-minute paper is easily adaptable and is used in lectures, lab and any other type of classroom situation. Vonderwell (2004) has even recently used the one-minute paper technique in an online class to successfully identify the learning needs of her students and to improve her teaching.(Vonderwell, 2004)

What is the LEARN paper?

The LEARN paper is a modified expanded version of the one-minute paper comprising the following five questions asked anonymous:

- Q1 What was the most important **I** learned in today's class?
- Q2 What from today's class remain unanswered or is still not clear?
- Q3 What would **I** like to improve?
- Q4 What **am I** going to use in the future from today's class?
- Q5 How **did I** feel about today's class?

It is unknown for the author of this paper who has promoted this version of the one-minute paper.

Pedagogical background**Why use the LEARN paper?**

The LEARN paper is available for all teachers teaching the "Master's program in General Practice". It is not mandatory but intended as a feedback possibility concerning the teachers teaching. The LEARN paper is only used by few of the teachers possibly just because it has not become a habit for the rest.

The intention for me was to give the best possible teaching with the skills I had. Meaning limited teaching experience and not pedagogically educated most of all autodidact. Therefore as new teacher it was an opportunity and quit demanding for me to receive feedback in terms of optimizing my teaching on-going. With my own former experience of endless frustration due to often poor, demotivating teaching and lectures I was curious about which knowledge for improvement the formative feedback paper could provide my teaching with.

Objectives

Hypothesis: Students motivation for learning in class requires good teaching. Good teaching requires good communication. Improved dialogue between teacher and student by qualitative formative feedback to the teacher both improves teaching and lead to better learning outcomes due to increased student reflection and ownership for own learning.

The aim of this paper is to study what the qualitative formative feedback tool “the LEARN paper” imply for the student’s learning and for the teachers improvements. The following questions are explored:

1. Was the feedback useful in terms of teaching improvements?
2. To which degree did the students feel an increased ownership in their own learning as a consequence of using the LEARN paper?

Materials and Methods

Manuscript for every lesson

Before teaching the very first course, I prepared manuscripts with different medical themes for the five lessons that the “Master’s program in General Practice” spanned. These were used during the lessons. After each lesson I related the manuscript to the feedback I received from the student’s LEARN papers. This experience together with the insight I accomplished during the lesson conducted the base for eventually adjustments of the manuscript. Thus, these assembled experiences were drawn into preparations of the following identical lesson of the next course.

How was the LEARN paper used in class?

During autumn 2015 and spring 2016 I taught the “Master’s program in General Practice” four times. The course signified five classroom lessons each of four hours. All four courses were assessed by using the qualitative formative LEARN paper. The medical students were provided with the *LEARN paper* about 10 minutes before the end of each lesson. The LEARN paper was analyzed by me as mentioned above right after the lesson assessing the various feedback of the day.

E-mail conversation

An e-mail was sent to the students before the first lesson. Furthermore e-mails were sent as follow up on each lesson. The e-mails comprised 1) an overview of the ILO’s or themes of the day, 2) which ILO’s and themes I expected the next lesson would concern, 3) If any consistent problems revealed from the feedback these were answered.

Table 11.1: The number of LEARN papers received during the four courses each comprising five lessons (* lesson that it was unfortunately not possible for me to attend)

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Course 1 (team 12)	8	8	6	6	8
Course 2 (team 23)	6	7	7	7	7
Course 3 (team 6)	9	9	9	10	14
Course 4 (team 10)	10	6	10	10	-*

Reflection on what the questions embodied in the LEARN paper imply for student and teacher

First of all the questioning technique of the LEARN paper differs from the one-minute paper by asking the questions in first person 'I' opposite the one-minute paper using second person 'YOU'. This often appeals to honesty and commitment for the person answering as it appears more personally being asked in first person.

In general question 1 and 2 were answered quiet straight forward and seemed well understood. Medical students attending the Masters Classes are greatly experienced in adapting and understanding new medical knowledge thus ranking highly in Blooms' Taxonomy of understanding (Bloom, 1956). The first question directs students to focus on the big picture, that is, what is being learned, whereas the second seeks to determine how well learning is proceeding. By these questions the students synthesize what they learned before leaving class (Panitz and Panitz, 1999).

The answers gave me, as a teacher, a very good picture of which topics were well understood and which needed further explanation.

The questions 3 and 4 appeals to the students own reflections on the learning outcome. Reflections that lead to the process of ownership or responsibility for own learning. Since the student consider what is useful for 'me' as a physician and hereby assessing which intended learning outcomes are most important or useful for he or she?

Question 5 provides general feedback or informative reasons for why the level of teaching was either to low, high, perfect or out of context or if anything lacking. In addition the very honest comments contribute to gain knowledge concerning the atmosphere in class (which should not be underestimated) and often help to understand the students' on a more personal level. Indeed this approach allows teacher and students to share their

conceptions about both the goals and processes of learning. By this dialogue an invisible contract between students and teacher appears setting rules for both teaching and learning known as the *didactical contract* introduced around 1980 by Guy Brousseau (Brousseau, 2006).

Results and reflections

Regarding aim 1:

The teaching improvements that I implied ongoing was on the basis of the feedback (LEARN papers), the e-mail correspondence, individual as well as dialogues in class and from what I perceived while teaching the class. Some answers quoted by the students in the LEARN paper might appear short or internal - but often these answers gave me a good idea of what they referred to from the lesson. Other times more explanation was needed which could sometimes be possible to get by asking the class by e-mail or simply pick up the issue in next lesson. This would not have happened without receiving the answers from the LEARN papers. I improved my teaching from the knowledge on:

- a) what was understood (question 1) or not understood (question 2)
- b) the diversity of students in the class and knowledge on which learning styles the specific class needed from one course to the next course
- c) how it worked with the overall changes I made from course to course

Regarding the following examples of quotations: I have generally only used one quotation from each question even though several students wrote more than one answer per question.

a) In these examples the first quotations are from different lessons and courses (teams). While the next quotation (student A,B,C,D) refers to the answers from the same lesson and course.

Answers to Q1: What was the most important I learned in today's class?

"The communication aspect of the consultation" (student, team 23 lesson 5)

*"How you have to think as a doctor when having a patient with lower back pain"
(student, team 10 lesson 2)*

*"Check the old patients medicine journal" "give space for dialogue concerning
feelings when with the patient" (student, team 6 lesson 4)*

Answers to Q2: What was the most important I learned in today's class?

"How to handle the clinical questions (used for exam)" (student, team 10 lesson 2)

"Certificates, and sick leave" (student, team 6 lesson 4)

"Exam, how do I prepare best? (student, team 23 lesson 3)

These comments are very tangible in terms of medicine to follow up. They are constructive and telling what to keep in my teaching, what was understood and what needed further effort.

Example: team 6, lesson 3; with themes as: child examination, infections and acute illnesses:

Student A:

Answers to Q1:

"Children in general practice the signs and symptoms to react on and what is normal for this group of patient"

Answers to Q2:

"The PSOAP-model (i.e. a specific way of writing GP journal), but this is probably because it is the first time I'm attending class!"

Student B:

Answers to Q1:

"To distinguish bacteria from virus" and "good ideas to communication technics by watching peers video recordings (the students bring video-recordings of themselves handling patients in general practice)

Answers to Q2:

"Nothing of what we went through today"

Student C:

Answers to Q1:

"Child examination overview and upper tract respiratory infection overview"

Answers to Q2:

? ?

Student D:

Answers to Q1:

"Child examination in general practice the signs and symptoms to react on"

Answers to Q2:

N/A

The later quotations (by student A, B, C, D) show an agreement in the experiences the students adapted from that specific course day. Thus the majority accomplished knowledge about child examination etc. Further concerning this particular lesson the students seemed not to have unanswered questions except student A. Often question 2 was answered with topics that was not well understood nevertheless the most answers were similar. The LEARN paper helped me distinguish which topics to refocus and which to urge the students awareness of not using endless time on.

b) By the following examples of answers to question 5, I got a very good feeling of the diversity of students' in the particular class which differed from course to course. In addition often teaching and learning styles that appeals the most was discovered.

Answers to Q5: How **did I** feel about today's class?

"Interesting! Educative! A bit unclear how we were supposed to do the role play when in groups" (student, team 6 lesson 4)

"Good. Alternatively better time managing on the different topics, instead of using a lot time on the first topic then having to rush through the last ones" (student, team 6 lesson 3)

"Fine, though important to keep it structured when reviewing clinical issues" (student, team 10 lesson 2)

"Really great with coffee in the class – it gives a good and cozy atmosphere which keeps us awake" (student, team 12 lesson 1)

"I lose my concentration if we continue overtime" (student, team 12 lesson 4)

"Comfortable to be in class – the speed which we are taught is high, but we get around much" (student, team 23, lesson 5)

An example of a change I did was: I started every lesson writing the agenda of typically three or four topics on the white board. The students had to agree on the agenda before we moved on and if necessary we agreed on adjustments. Hereby a didactical contract was established. Afterwards the teaching appeared more transparent and structured to both parts and further better time managing occurred due to these adjustments of my manuscript:

Student comment Q1:

"Great with the agenda on the white board" (student, team 6 lesson 3)

Student comment Q5:

"Good, better structure and we are getting around in all corners" (student, team 6 lesson 4)

"Good! Great balance between group work versus plenum and speed as well as level is fine" (student, team 6 lesson 5)

c) Using a manuscript as a tool adding my own comments after each teaching session made it possible to remember my experiences and connect these with the feedback from the LEARN paper. Hereby it was possi-

ble continuously to imply adjustments (i.e. time management or change of learning styles) for the next lesson. Some classes requested more clinical questions or lecture or video-recording others preferred more or less role-play etc. These changes are trackable in my manuscripts covering the four courses and would probably not have been that visible or taking into notice without reviewing the LEARN papers.

The comfortable atmosphere mentioned (several times) by the students' seemed important. Possibly because of the video recordings where the students become vulnerable when exposing themselves. This was one of the reasons why I kept one of the breaks for coffee and bread - the latter brought by the students or me in turns. It was often commented by the student as meaningful to feel in a safe atmosphere.

Regarding aim 2:

What was actually decisive for the increased ownership in own learning that the students became aware of and took on? How much can be ascribed the use of the LEARN paper?

I think at least *four reasons* are to be focused on: a) Probably the most important and not to be underestimated is that medical students attending the "Master's program in General Practice" are becoming doctors within a few months and therefore their motivation for understanding, handling patients, getting all the possible skills needed as a doctor are crucial. b) Thus the LEARN paper might not be ascribed for the increased ownership taken on by the students. Nevertheless the LEARN paper probably helps the process by continuously pushing the students' awareness and reflection. In addition it helps the students' self-assessment on how well they understand what they have been taught and simultaneously supports deciding what is essential or not in the near future as doctors. Especially the LEARN questions 3 and 4 generate this consciousness but even sometimes question 1 does.

Answers to Q1:
"That I need to show reflection and understanding for how one should move on - more than just professional knowledge" (student, team 23 lesson 3)

Answers to Q3: What would I like to improve?
"Everything" ☺ "But especially getting better in systematic examination of the patient" (student A, team 6 lesson 3)
"To structure my consultations with patients – this I'm going to practice now" (student B, team 6 lesson 3)
"Giving the patient time to tell his or her story – not asking the patient questions" "asking questions related to the patients feelings" (student C, team 6 lesson 3)
"To make an action plan (together with the patient)"
"Remember the 'safety net' (refers to an agreement with the patient about how and when to react if exacerbation)" (student D, team 6 lesson 3)

Answers to Q4: What **am I** going to use in the future from today's class?
"The advices on how to get in contact and examine children" (student A, team 6 lesson 3)
"Facts from the power point presentations and the 'centor criteria' (specific diagnostic criteria for upper tract infections)" (student B, team 6 lesson 3)
"Lower back pain/ lumbago overview"

"Elastic workout as breaks during a work day – for sure!" (which we did during the course!)(student C, team 6 lesson 3)
"That it is acceptable to 'wait and see' as long as you have provided the patient with a 'safety net'"
"Lean on guidelines and inform the patients about why they do not necessarily need treatment" (student D, team 6 lesson 3)

c) However the exam and alignment of the course undoubtedly have a certain impact on the students to aspire towards the ILOs for the reason of improving performance on the day. This may influence more than usual exams since exposure by video presentation concerning the students' as doctors treating real patients in general practice is a vulnerable situation.

For a few students this might be the main reason for being active in class and does not walk hand in hand with taking ownership for own learning - but rather contextualized by “how do I pass exam”. d) I always tell the students during the first lesson that their time is precious why they should only attend the lessons if they find it meaningful. This in fact provokes their reflection on deciding how to take responsibility for own learning. Responses regarding the latter:

Comment to Q5:

*“It was cozy and informative. Not waste of my time – I’ll come back again@”
(student, team 6 lesson 1)*

*“So good, that I am very aggravated that it’s my first time attending this class”
(student, team 6 lesson 3)*

Conclusively, the ownership for own learning is obviously present. The main reasons for that are perhaps a) and c), while b) (the effect of the LEARN paper) seems to play a role in facilitating the process.

Discussion and Conclusions

When is it reasonable to use the LEARN paper?

Despite its simplicity the LEARN paper has shown to be a very useful feedback tool especially for me being a new teacher. But still as indicated by others, the concept of the one-minute paper has proved useful for all teachers that wish to improve their teaching based on better dialogue(6, 9).

The pros I experienced **as a teacher** using the LEARN paper was: a) I continuously developed my own teaching skills. b) It helped me establish learning objectives matching learners’ needs and skills and follow the extent to which they were met. c) It provided me with information for ideas to potential changes or adjustments of the course design.

For the **student** the pros observed by this study were: a) to be valued and listened to, this in accordance with Cross and Angelos observations using the one-minute paper, reporting that respect for and interest in student

opinion encourages the student's active involvement in the learning process (Cross, 1987). b) To develop reflective thinking which Angelo some years later refers to by the sentence: "to come up with a question, students must self-assess—asking themselves how well they understand what they have just heard or studied" (Angelo and Cross, 1993) which increases the student's ownership in own learning. c) To maximize their learning which happens during their individual feedback as it helps the students' to hold on to the many facets of their reflection after a lot of discussion in plenum. Instead of confusion they accomplish focus on several aspects.

For **both parts** the benefits I perceived: a) Enhancement of relationships and better understanding of each other despite the course was short. These findings are in accordance with earlier studies (1, 9). b) To provide a 'positive' teacher/student partnership or commitment, which enhance the chance of ensuring high quality teaching thereby meeting learners' needs and moreover attaining the didactical contract. No doubt that speaking at same eye level and dare showing respect, curiousness and a degree of humility as a teacher gives you all the benefits to easily harvest honest feedback from the students. Subsequently their motivation for giving feedback is increased greatly by such dialogue. As clarified by Rienecker et al. : *"Students become more engaged in teaching and more conscious of their role in creating a good learning environment if they are involved in a genuine on-going, formative evaluation of the teaching's qualities and shortcomings"* (Rienecker et al., 2015). c) To contribute with another qualitative understanding of the mechanisms of teaching and learning.

In conclusion, the LEARN paper being a simple, flexible and widely applicable technique requiring no technology and producing very beneficial results for a modest amount of time and effort, has for me been overwhelming beneficial regarding the above mentioned aspects during my teaching. Nevertheless, I am aware of that the LEARN paper is only a part of the didactical contract I accomplished with my students which further comprised; The individual talks I had with the students in the breaks, the e-mail correspondence, the dialogue during the lessons and the follow up on my manuscripts. These are all cornerstones in the didactical contract that appeared between me and the students. Being aware of this I strongly recommend using the LEARN paper as feedback tool in teaching.

Perspectives and limitations

Basically the LEARN paper gives great advantaged being a new teacher, as well as an experienced teacher or when starting a new course. If teaching a very long course i.e. classes every week a whole semester, maybe spot evaluations during the semester could be valuable in terms of sensing the students and keeping a respectful and fruitful dialogue. If being a very experienced teacher who has taught a course for several years possibly a period of formative feedback might be an eye-opener for up-grating the course. Even if only used in the very first lesson (perhaps again midterm and at the end of a course) it can be valuable providing better learning outcomes. Moreover, the LEARN paper can be used in any kind of teaching large as well as small classes or lectures as seen with the one minute paper that has been used successfully in lectures with 150 students (Cross, 1987). Though it might be tough to read through 150 questionnaires holding five questions each and thereby perhaps analyzing data is the greatest limitation?

Nevertheless continuously use of the LEARN paper will in time become annoying and stressful for everyone and hereby provide a non-useful tool that may even impede the dialogue, resulting in declining learning outcomes.

As mentioned initially, the technique has been used fruitfully in an on-line class(Vonderwell, 2004). Which feeds interesting thoughts in the direction, of how to use the five LEARN questions in an interactive digital media such as 'Socrative' or 'TodaysMeet' during class (perhaps not all question in one). Hereby giving the students the opportunity to reflect on comments from their peers and maybe even during class as formative feedback to peers and teacher.

References

- Angelo, T. A. & Cross, K. P. (1993). Classroom assessment techniques: a handbook for college teachers. *San Francisco: Jossey-Bass.*
- Bloom, B. S. (Ed.). (1956). *Taxonomy of educational objectives. Handbook I: Cognitive domains.* David McKay Company.
- Brousseau, G. (2006). *Theory of didactical situations in mathematics: didactique des mathématiques, 1970–1990.* Springer Science & Business Media.
- Cross, K. P. (1987). Teaching for learning. *AARE Bulletin.*

- Panitz, T. & Panitz, P. (1999). Assessing students and yourself using the one minute paper and observing students working cooperatively.
- Rienecker, L., Jørgensen, P. S., Dolin, J., & Ingerslev, G. H. (Eds.). (2015). *University Teaching and Learning* (1st ed.). Samfundslitteratur.
- SEaabDA, N. (2004). Student feedback - a staff resource pack. university of kent. Retrieved from <https://www.kent.ac.uk/ess/ep/set/stufe.html>
- Vonderwell, S. (2004). Assessing online learning and teaching: adapting the minute paper. *TechTrends*, 48(4), 29–31.
- Weaver, R. L. & Cotrell, H. W. (1985). Mental aerobics: the half-sheet response. *Innovative Higher Education*, 10(1), 23–31.
- Wilson, R. C. (1986). Improving faculty teaching: effective use of student evaluations and consultants. *The Journal of Higher Education*, 57(2), 196–211.