# Learner-to-Educator Feedback – Acquiescence Bias, Reliability and Learner Opinion

Orla Bulter and Brett A. Becker brett.becker, orla.butler {@gcd.ie}

Faculty of Computing Science Griffith College Dublin, Ireland

## Abstract

There is considerable research on the topic of providing feedback to students. Practices such as formative and summative feedback are well researched and have in fact become part of the lexicon of modern pedagogy. The provision of educator to learner feedback (ELF) is one of the key ways students know where they stand in a module or programme and based on this feedback can alter course or focus concentration as necessary. There is less research being conducted in the area of Learner to Educator Feedback (LEF), which learners provide to educators and institutions, specifically on how this is gathered, influenced, and utilized. There is a particular lack of study on student perception of LEF and the LEF process itself. This also needs to be addressed.

Just as ELF can be [should be] pivotal in a learner's progress in a module or programme, LEF should be a central influence over decisions about improving module and programme delivery. If this feedback is not gathered in a fair and transparent manner, if it is biased, not robust, or not utilized and acted upon correctly, the educator has failed in responding to feedback in the very manner that students are expected to respond to feedback provided to them. Most of all, if learners do not have a positive opinion or response to the feedback they have provided, if they feel that it has not been heeded, they may lose faith in the system. This also may have the consequence of negatively affecting future feedback provided, either consciously or unconsciously.

This paper describes a study in the LEF process involving five cohorts of students: B.Sc. I, II, and IV in Computing Science, M.Sc. in Computing Science (MSCC) and M.Sc. in Digital Media (MSCDM) at Griffith College Dublin, in the spring semester of 2011. Over 150 students participated, providing feedback on 23 modules spread across three programmes. A total of exactly 700 forms were analysed during the course of the study which involved the following aspects of LEF:

- o Robustness, particularly reliability
- Acquiescence bias how does the wording and presentation of questions on a feedback questionnaire introduce bias? Do positively and negatively worded questionnaires measure the same thing?
- Do students prefer to fill out paper or online feedback questionnaires? What are the pros and cons of each?
- What are student perceptions on the following length and complexity of feedback questionnaires?

- Do non-native English speakers feel they have difficulty in providing feedback due to English-language difficulty?
- Did students feel that *mid-semester* feedback had been taken into account by the end of the semester?
- o Did students feel that the feedback process could be improved with their input?

## Keywords

Feedback, Feedback Questionnaires, Learner to Educator Feedback, Reliability, Robustness, Student to Teacher Feedback, Feedback Bias, Acquiescence Bias, Cronbach's Alpha, Quality Assurance

## **1. Introduction**

Why should educators collect feedback from students? There is no denying that as actively engaged participants in the process of teaching and learning, they are well placed to offer a valuable insight into the day-to-day operation of a higher educational institution (Martin, 2003). More specifically, Learner to Educator Feedback (LEF) is obtained for at least three different reasons: monitoring the quality of teaching and learning; improving the quality of teaching and learning; and advising potential students about the quality of teaching and learning.

The term given to feedback provided by learners to institutions, teachers, educators, etc. has not been standardized. In Gordon (2005), the term Student Evaluation of Teaching and Learning (SELT) is proposed, as an iteration of the generic term "student feedback". We prefer the term "Learner to Educator Feedback", as its reciprocal – "Educator to Learner Feedback" is obvious, and allows one to draw a simple line of distinction between the two in discussion.

Research suggests that LEF provides an important source of evidence for assessing quality and that it can be used to inform attempts to improve quality (but simply collecting such feedback is unlikely to lead to such improvements), and that student feedback can be communicated in a way that is informative to future students. (Brennan, et. al., 2003). In most institutions a combination of questionnaires, student representation and staff/student liaison committees represents common practice. It is universally accepted that using more than one mechanism will be more effective than relying on a single one (Williams, 2004).

Williams (2004) also found that in most institutions questionnaire feedback is the most important part of the monitoring and review processes. It is recognised as a major source of information for review exercises and for regular monitoring although it always needs to be interpreted in context and used with other sources of information such as progression data, external examiners' reports, and input from student representatives.

It has been strongly argued that open ended questions should be included in questionnaires to provide students with opportunities to expand on issues raised, or to raise new issues not covered by "tick box questions". Normally such tick box questions are in the form of ordinal-polytomous questions, where the respondent has more than two ordered options available for selection. However, in dealing with questionnaires, costs of analysis have to borne in mind. If students are asked to provide these comments, their answers should at least be read by teaching staff, if not processed and analysed (Williams, 2004). This needs to be encouraged from the beginning of the QA process. Quite often the procedure focuses on the distribution and collection of the data from students, and little emphasis is placed on the understanding of their comments, and the implementation of change, inspired by the feedback. Furthermore, the questionnaires must meet all criteria of a good questionnaire – validity, reliability, lack of bias, etc.

Another reason that questionnaires are so ubiquitous is their value – they are easy and cheap to administer and return a wealth of information. A very brief questionnaire may aim to elicit quick feedback on the effectiveness of a module or even a single class session, and a more substantial questionnaire or other procedure may put the whole course under scrutiny (Silver, 1992). There is also a risk of flooding the student with too many surveys which may lead to despondence thus making the whole process a redundant exercise.

#### 2. Questionnaire Robustness and Bias

The robustness of a questionnaire is composed of two factors: *reliability* and *validity*. Validity is notoriously (and by definition) difficult to measure. A questionnaire is said to be valid if it measures or describes what it is intended to measure or describe. One approach to assessing the validity of an instrument is to examine the wording or structure of the constituent items. This might be carried out at a relatively superficial level, simply by asking whether the contents of the instrument appear to be appropriate; this is known as *face validity*. On the other hand, it might be carried out by a more thorough process of analysis and comparison of

the items, known as *content validity*. Both techniques are limited in so far as they rely upon subjective and qualitative judgments rather than objective procedures and quantitative methods.

### 2.1 Reliability

Reliability is easier than validity to quantify. Reliability is the extent to which similar results are produced (or reproduced) under constant conditions. One means of evaluating reliability is the *Test-Retest* mechanism which sees the same cohort(s) of students administered the same questionnaire on two separate occasions. The results are then compared, ideally matching identically. Obviously a major issue in implementing the test-retest mechanism is timing. The amount of time elapsed after the first test being administered must be long enough so that when the retest is administered the original test is not fresh in students' minds, but not so long that considerable changes (content, environment, student base, etc.) have taken place which will adversely affect results (reproducibility). Within the context of Higher Education, time can be a scarce commodity.

Another method of testing reliability is *Equivalent Forms*, where different questionnaires are administered, each intending to measure the same thing (in terms of validity). As with test-retest, results should ideally match closely. The equivalent forms method can be practised in one questionnaire, using the *Split Test* method, in which one questionnaire is split into two parts (ideally in a manner transparent to those filling out the questionnaire). Each part tests the same thing (although in a different manner or approach), and the results of each half are then compared. This is in effect giving two questionnaires at the same time, unbeknownst to those filling out the questionnaire.

A very quantifiable way to measure reliability is Cronbach's alpha, denoted  $\alpha$ . This technique was originally developed for dichotomously scored data (0 or 1, yes or no, etc.) by Kuder & Richardson (1937). It was generalized by Cronbach (1957) to deal with any scoring method. Cronbach's alpha estimates the internal consistency of an instrument (the questionnaire) by comparing the variance of the total scores with the variances of the scores on the constituent items. It is defined as

$$a = \frac{K \overset{\&}{\underset{K \to 1}{\varsigma}} \overset{\&}{\underset{C}{\varsigma}} - \frac{\overset{K}{a} \overset{Z}{s} \overset{Z}{,} \overset{O}{,}}{\underset{K \to 2}{s} \overset{K}{s}} - \frac{\overset{Z}{a} \overset{O}{,}}{\underset{K \to 2}{s} \overset{Z}{,} \overset{V}{,}}$$

where *K* is the number of questions,  $S_X^2$  is the variance of the total scores, and  $S_{Y_i}^2$  is the variance of question *i*. Alternatively it can be expressed as a function of the total number of questions, *N*, the average inter-item covariance,  $\overline{c}$ , and the average variance,  $\overline{v}$ :

$$a = \frac{N \times \overline{c}}{\overline{v} + (N - 1) \times \overline{c}}$$

Numerically  $\alpha$  can be any value from  $-\infty$  to 1, but only those between 0 and 1 make sense. The higher  $\alpha$  is, the better the reliability is. For most social science institutes,  $\alpha > 0.7$  is considered "acceptable" (Streiner 2003). However, if  $\alpha$  is too high (generally > 0.9), it can be an indication of repetition or redundancy in the questionnaire (Streiner 2003, Choudhury 2010). This leaves scores in the 0.8 – 0.9 range as most likely indicating a very good, yet meaningful reliability.  $\alpha$  does not require more than one administration of a questionnaire as does the test-retest technique, although the comparison of  $\alpha$  values for two different questionnaires meant to measure the same thing can be useful.

### 2.2 Acquiescence Bias

Acquiescence bias occurs in a questionnaire when some respondents prefer (consciously or subconsciously) to agree with statements on the survey instead of disagree. Acquiescence Bias can be a particular problem when a respondent does not immediately know how to respond to a certain question – the natural tendency is to agree with whatever direction the question is "leaning" towards. This bias can be negated by having a 50/50 mix of positively and negatively keyed questions. In respondents exhibiting acquiescence bias, the bias should be cancelled out between the positively and negatively keyed questions. For an in-depth case study, see (Erikson and Tenin 2010).

#### 3. Methods

#### 3.1 Reliability and Bias

To determine reliability and identify bias, our approach combines three techniques listed above – test-retest, equivalent forms, and Cronbach's alpha. Our method is as follows:

- 1. Students are administered a "positively worded" LEF questionnaire mid-semester (these are the standard Griffith College "Module Delivery Assessment Forms")
- 2. Students are then administered a similar LEF questionnaire at the end of the semester
  - Questions in the second questionnaire correspond to the first, except that they are worded in a "negative" way i.e. if a question on the first questionnaire is

"Was your lecturer approachable?" the corresponding question on the second questionnaire would be "Was your lecturer unapproachable?"

3. Statistics from both questionnaires, including  $\alpha$ , are calculated and compared

Each questionnaire is a short (eight question), four-level, forced-choice Likert scale questionnaire. The options are Agree Strongly, Agree, Disagree, and Disagree Strongly. These are the standard Griffith College Student Feedback Forms. It is well known that this type of questionnaire is susceptible to many types of bias, however acquiescence bias is the most related to this study (psych-it n.d.). This bias can be negated by having a 50/50 mix of positively and negatively *keyed* questions. In respondents exhibiting acquiescence bias, the bias should be cancelled out between the positively and negatively keyed questions. Point 2 in our methodology above combines test-retest and equivalent-forms, and in this manner takes acquiescence bias into account.

The eight questions asked in the mid-semester questionnaire are shown in Table 3.1. The eight questions asked in the end-of-semester questionnaire are shown in Table 3.2. Each questionnaire also had three open-ended questions at the end, however these were not qualitatively taken into account for the purposes of the main argument made in this paper, but are referred to in the conclusion and future work section.

During the first part of the semester your lecturer:				
1. always arrived punctually for sessions	5. provided useful learning materials			
2. outlined the purpose of each session at the outset	6. presented new termes, concepts and principles clearly			
3. was well prepared	7. stimulated interest in the subject			
4. used teaching resources effectively	8. was approachable			

#### Table 3.1 – Questions from the mid-semester questionnaire<sup>1</sup>

During the first part of the semester your lecturer:				
1. did not arrive punctually for sessions	5. didn't provide useful learning materials			
2. did not outline the purpose of each session at the outset	6. did not present new termes, concepts and principles clearly			
3. wasn't prepared	7. failed to stimulate interest in the subject			
4. used teaching resources ineffectively	8. wasn't approachable			

#### Table 3.2 – Questions from the end-of-semester questionnaire<sup>2</sup>

## 3.2 Opinions of Learners on the LEF Process

<sup>&</sup>lt;sup>1</sup> Abbreviated. For the full questionnaires, see Appendix I.

<sup>&</sup>lt;sup>2</sup> Abbreviated. For the full questionnaires, see Appendix II.

The second part of the study involved the opinions of learners on the Learner to Educator Feedback process. This involved a short (nine question) questionnaire in the same format as in the reliability study (Section 3.1). Additionally there were two open-ended questions at the end. All 11 questions are given in Appendix III.

Amongst the topics students were asked were:

- Do students prefer to fill out paper or on-line feedback questionnaires? What are the pros and cons of each?
- What are student perceptions on the length and complexity of feedback questionnaires?
- Do foreign students feel they have difficulty in providing feedback due to English-language difficulty?
- Did students feel that *mid-semester* feedback had been taken into account by the end of the semester?
- o How would you improve the LEF feedback questionnaire?
- o How would you improve the LEF feedback system in general?

## 4. Results

#### 4.1 Reliability

Figure 4.1 shows Cronbach's Alpha for the original (positively keyed, mid-semester) and modified (negatively keyed, end-of-semester) questionnaires for all five cohorts (BSCI, II, IV, MSCC, MSCDM). In general the modified questionnaire shows a higher  $\alpha$  than that of the original questionnaire. The range of the original questionnaire is  $\alpha > 0.57$ -0.95. The 0.57 is slightly lower than desired and the 0.95 slightly higher, however 14 out of 23  $\alpha$ -values are within the desired 0.7-0.9 range. Bearing in mind that the 0.7-0.9 "rule" is not set in stone, a further 5 (for a total of 19 out of 23  $\alpha$ -values) can be considered acceptable. The range of the modified questionnaire is  $\alpha > 0.65$ -0.99. 17 of 23  $\alpha$ -values are above 0.9. This is a clear indication of elevated redundancy in the modified questionnaire. The  $\alpha$  values have a larger range in the MSCC and MSCDM cohorts compared to the BSC cohorts because the number of students (and therefore questionnaires) in these cohorts is an order of magnitude less.



Figure 4.1 – α for the original (positively keyed, mid-semester) and modified (negatively keyed, end-of-semester) questionnaires for all five cohorts (BSCI, II, IV, MSCC, MSCDM).

Nonetheless, the correlation between both  $\alpha$ -values does indicate that they are fairly consistent in reliability – the original questionnaire has an average  $\alpha$ -value of 0.83 with a standard deviation, s = 0.11, while the modified questionnaire has an average  $\alpha$ -value of 0.89, s = 0.09.

## 4.2 Acquiescence Bias



Figure 4.2 shows average feedback scores per-question for the original (positively keyed, mid-semester) and modified (negatively keyed, end-of-semester)

Figure 4.1 –  $\alpha$  for the original (positively keyed, mid-semester) and modified (negatively keyed, end-of-semester) questionnaires for all five cohorts (BSCI, II, IV, MSCC, MSCDM).

questionnaires for all five cohorts (BSCI, II, IV, MSCC, MSCDM). For 37 of the 40 data points (8 questions, 5 cohorts), the average feedback score of the modified questionnaire is higher than that of the original. (A higher feedback score indicates dissatisfaction and is less desired.) This is direct and compelling evidence that there is a strong acquiescence bias between the two questionnaires. Positive wording is soliciting satisfied (desired) feedback while negative wording is soliciting dissatisfied (not desired) feedback. On average the modified questionnaire feedback score is 0.39 higher than the original feedback score.

Considering the range of scores (1 - 4), this represents an overall feedback shift of 13% towards dissatisfied. Conversely, it can be seen as a 13% shift towards satisfied for the positively worded original questionnaire. As the original and modified questionnaires represent extremes (positively and negatively keyed, respectively), true student satisfaction should be somewhere within this 13% spread. A split-test feedback form could be designed to cancel out this bias by balancing the number of positively and negatively keyed questions. This is a suggestion for future work.

Question	BSCI	BSCII	BSCIV	MSCC	MSCDM	Corrected Average <sup>3</sup>	Std Dev
1	2.62	3.06	2.69	2.75	2.44	2.71	0.23
2	2.77	2.44	2.79	3.03	3.22	2.85	0.29
3	3.5	3.78	3.31	3.25	3.44	3.46	0.21
4	1.88	1.72	2.13	2.31	1.89	1.99	0.23
5	2.00	2.94	1.97	2.31	2.67	2.38	0.42
6	2.85	3.12	2.33	2.81	2.22	2.67	0.38
7	2.15	2.33	2.13	2.38	2.72	2.34	0.24
8	2.85	3.39	2.76	3.12	3.00	3.02	0.25
9	3.15	3.11	2.69	3.13	3.00	3.02	0.19
Avg	2.64	2.88	2.53	2.79	2.73	2.71	

4.3 Opinions of Learners on the LEF Process

Table 4.1 – Opinions of Learners on the LEF Process (for questionnaire see Appendix III).

Table 4.1 shows the results of the Opinions of Learners on the LEF Process questionnaire. The target score is 4.0, representing 100% satisfaction. Over all courses and all questions the average satisfaction is 2.71, or 68%. Question 3 was the highest relative to the average at 28% higher than average. This indicates that the majority of students did not feel that their level of English-language comprehension affected their ability to fill out the questionnaire. It should be noted that the cohorts sampled have a very high (more than half) percentage of non-native English speakers. On the other hand, 3.22 is approximately 20% off ideal which could indicate an English comprehension problem. Of course if English comprehension was too low this result may not be accurate, as the question itself may have been misunderstood.

Question 4 was the lowest relative to the average, at 27% lower than average, the same distance from average as the highest scoring question. This indicates that the strongest negative feeling towards the feedback process was that mid-semester feedback was not taken into account. Disappointingly this is probably the most important metric of feedback on the

<sup>&</sup>lt;sup>3</sup> Some questions were positively keyed while others were negatively keyed. Specifically, questions 4, 6 and 8 were "inverted" about 2.5 (the average theoretical score) so that so that higher scores represent relative satisfaction while lower scores represent relative dissatisfaction

LEF process. This is possibly a timing issue, as only 6 weeks ( $\frac{1}{2}$  of a teaching semester) elapsed between the administration of mid-semester and end-of-semester questionnaires – hardly enough time to complete all required changes in module delivery. Additionally, not all requested changes would be put into effect.

Questions 5, 6 and 7 were related to filling out feedback questionnaires online. These results indicate that students are for the most part indifferent on preference to filling out questionnaires online, with a 5% preference towards doing so, and 6% believing that doing so would result in better feedback. Interestingly there was a 7% agreement that if the questionnaires were given online, students may forget to do so entirely. The use of online questionnaires sparks widespread concerns not limited to any particular course, discipline or demographic, but nonetheless has been used successfully at times. In particular, some Scottish institutions consistently achieve response rates of over 70%, in some instances as high as 90%, using online methods. A potential response to this could be a cooperative policy whereby those institutions achieving high response rates assist or 'mentor' institutions adopting online evaluation for the first time (Gordon, 2004).

Overall, questions 1, 2, 8, and 9 indicated (with an average of 2.9 out of 4) that students did not find the feedback process and/or forms too long or time consuming, not confusing or vague, and felt that the LEF process could lead to positive changes and a better system overall.

### **5.** Conclusions and Future Work

This paper described a study in the LEF (learner to educator) process involving five cohorts of students: BSCI, II, and IV in Computing Science, MSC in Computing Science (MSCC) and MSC in Digital Media (MSCDM) at Griffith College Dublin, in the Spring semester of 2011. Over 150 students participated, providing feedback on 23 modules spread across three programmes. A total of exactly 700 forms were analysed during the course of the study.

The study included an analysis of the reliability of two matching LEF satisfaction questionnaires, one positively keyed and the other negatively keyed. Overall the reliability of the two questionnaires were correlated although the use of Cronbach's Alpha indicated that the negatively keyed questionnaire may have some internal redundancy.

An acquiescence bias was identified in both the positively and negatively keyed questionnaires resulting in a 13% shift towards satisfaction and dissatisfaction respectively. Future work includes designing a split-test to cancel out this bias. It is hoped that such a test

would also have a reliability between that of the positively and negatively keyed questionnaires, safely within the accepted range of  $\alpha > 0.7 - 0.9$ .

This study also involved student perception and opinion on the LEF process itself. This can be summarised as follows:

- The strongest negative feeling towards the feedback process was that mid-semester feedback was not taken fully into account. Disappointingly this is probably the most important metric of feedback on the LEF process. This is possibly a timing issue, as only 6 weeks (1/2 of a teaching semester) elapsed between the administration of mid-semester and end-of-semester questionnaires hardly enough time to complete all required changes in module delivery. Additionally, not all requested changes would be put into effect.
- The students in question are largely indifferent in preference to filling out questionnaires online, with a 5% preference towards doing so, and 6% believing that doing so would result in better feedback. Interestingly there was a 7% agreement that if the questionnaires were given online, students may forget to do so entirely.
- With an average satisfaction of 2.9 out of 4, students did not find the feedback process and/or forms too long or time consuming, nor confusing or vague, and felt that the LEF process could lead to positive changes and a better system overall.

Those involved in the design, delivery and interpretation of student feedback should reflect upon their current practice to ensure that the tools used for measurement do not facilitate bias. Students participating in this process should do so, confident that what they have to say matters in the eyes of the Institution. A prevailing perception among students that their feedback is not considered is most alarming, as it indicates a QA process that is exposed to high risk. To return to the reciprocal terminology; LEF is considered a mirror of ELF Educator to Learner Feedback. In the case of the latter, educators expect that their feedback will be assimilated and acted upon by the student; this should also be the case with the former. Quality Assurance, and its measurement should lead to Quality Enhancement, and features of this change should be influenced by processes such as LEF. Students should be viewed as partners, who together with the Higher Education Institution can enjoy a constructive channel of communication that ultimately leads to a more enriched learning environment.

## Notifications

Students participating in this study were informed that their feedback would be used in a study designed to improve the student feedback process and all students were given the option not to participate.

The feedback forms given to students in this study were administered in keeping with Griffith College Dublin Quality Assurance procedure and with the permission of the QA department.

The use of feedback forms for this work has been approved by the Head of Academic Programmes.

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# Appendix I.

Please circle the number corresponding to your level of agreement with the following statements				
During the first part of the semester your lecturer:	Agree Strongly	Agree	Disagree	Disagree Strongly
<b>1</b> . always arrived punctually for sessions	1	2	3	4
2. outlined the purpose of each session at the outset	1	2	3	4
3. was well prepared	1	2	3	4
4. used teaching resources effectively	1	2	3	4
5. provided useful learning materials	1	2	3	4
6. presented new terms, concepts and principles clearly	1	2	3	4
7. stimulated interest in the subject	1	2	3	4
8. was approachable	1	2	3	4

# Positively keyed, mid-semester ("original") LEF questionnaire\*

# Appendix II.

# Negatively keyed, end-of-semester ("modified") LEF questionnaire\*

Please circle the number corresponding to your level of agreement with the following statements				
During the first part of the semester your lecturer:	Agree Strongly	Agree	Disagree	Disagree Strongly
1. did not arrive punctually for sessions	1	2	3	4
<b>2.</b> did not outline the purpose of each session at the outset	1	2	3	4
3. wasn't prepared	1	2	3	4
4. used teaching resources ineffectively	1	2	3	4
5. didn't provide useful learning materials	1	2	3	4
6. did not present new terms, concepts and principles clearly	1	2	3	4
7. failed to stimulate interest in the subject	1	2	3	4
8. wasn't approachable	1	2	3	4

# Appendix III.

Questionnaire "Opinions of Learners on the LEF Process"\*

Please circle the number corresponding to your level of agreement with the following						
statements						
	Agree Strongly	Agree	Disagree	Disagree Strongly		
<b>1</b> . The feedback forms are too long / time consuming	1	2	3	4		
<b>2.</b> I found the feedback forms to be confusing or vague	1	2	3	4		
<b>3.</b> My knowledge of English made understanding the feedback forms difficult	1	2	3	4		
<b>4.</b> I think that my <i>mid-semester feedback</i> was taken into account and changes responding to my feedback were made during the semester	1	2	3	4		
<b>5.</b> I would rather fill out feedback forms online	1	2	3	4		
<b>6.</b> I would not fill out or might forget to fill out feedback forms if given the opportunity to do so online	1	2	3	4		
7. Doing feedback forms online would result in better feedback as I would have more time to think and fill out the form	1	2	3	4		
Questions about this form:						
1. I didn't mind filling out this form, and think it may lead to a better system	1	2	3	4		
2. This form was too long / time consuming	1	2	3	4		

Please list any other ways you would improve **this form:** Please list any other ways you would improve the **feedback system in general:** 

\*The questionnaires presented here have been physically condensed for presentation but all information is present.