

Does a student's expectation of a high pass mark affect their raw mark?

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ABSTRACT: In order to qualify as a professional pilot a student is required to pass a theory examination conducted by the licensing authority with a raw mark greater than 70%. Historically at the University of South Australia, and in order to be consistent with the licensing authority, students were required to achieve a mark of 70% in order to pass a course. In more recent times, the pass mark has been reduced to 50%. This offered an opportunity to investigate whether a student's expectation of a high pass mark motivated students to perform better or worse. Some researchers have shown that there is a positive relationship between teacher expectations and a student's performance. This study investigated two groups of students, the experiment group, where students expected a pass mark of 70%, and the control group, where the pass mark was 50%. Results were analysed using both *t* test and *F* test and indicated that, on average, students performed significantly worse when there was an expectation of a high pass mark. However, further analysis revealed that a high expected pass mark caused the good students to perform better and the poor students to perform worse.

INTRODUCTION

The degree programme at the University of South Australia (UniSA) was established in order to train and educate students to become successful in both the practical and theoretical aspects of piloting an aircraft. In order to pass the practical examination for the Private Pilot License (PPL), Commercial Pilot License (CPL) and Air Transport Pilot License (ATPL), examinees are required to pass the respective theory examination prior to the practical examination.

The pass mark for the theory examination set by the licensing authority (Civil Aviation Safety Authority (CASA)) is a minimum of 70%. As a provider of an aviation degree, UniSA, similarly to the licensing authority, originally set the pass mark for all technical aviation courses in the programme at 70%. The intension was to assist students as much as possible with the CASA theory examinations.

However, over time, students became concerned about the requirement to pass courses in the programme with a raw mark of 70%. Some students were also struggling to pass courses at the initial attempt due to the high pass mark. Therefore, some years ago academics in the aviation programme at UniSA decided to remove the hard requirement to pass courses with a pass mark of 70% and bring the aviation programme into alignment with other programmes at UniSA.

It can probably be said that all teaching establishments, and particularly teachers themselves, would argue that they hold high expectations for student performance. Educators, therefore, are struggling with the problem of how to improve a student's ability and, ultimately, their performance in the assessment. Lumsden's research has indicated that *evidence suggests that schools can improve student learning by encouraging teachers and students to set their sights high* [1].

However, not all of a teacher's expectations are rewarded with favourable results, especially when students come from vastly different backgrounds. A student's performance can in many ways be attributed, to some extent, to his or her background.

Further, a student's poor performance could be attributed to a student's low ability or that a student's ability is static and is, therefore, unable to be improved. As a result, poorly performing students would often tend to believe that no matter how hard they try, they would never be able to improve their performance. On the other hand, in some countries, where the culture dictates that hard work and effort are key elements to success, high expectations are often held by students themselves, and if students do not perform well, the prevailing culture believes that the student has failed due to lack of effort, rather than personal ability [1].

Wasserstein investigated student expectation by surveying 200 middle school students in Colorado [2]. The survey asked questions about their most memorable work in school. Many students responded that they *equated hard work with success and satisfaction* and also suggested that *challenge is the essence of engagement*.

Based on Wasserstein's results students did support the idea that a suitable amount of expectation from teachers was acceptable and motivating. Nevertheless, Omatoni and Omatoni have argued that high expectation does not magically equalise all students' abilities and their rate of learning and in order to accommodate the differences among students, teachers have to manipulate three aspects, namely: time, grouping and methodology [3].

From a wide range of studies, Stockard and Mayberry have suggested that grouping of students into ability levels appeared to be detrimental to students, especially those with lower ability, because the grouping process might, in all likelihood, reduce expectations from both teachers and students and effectively determine the teaching pace and, thus, the material learned in the group [4]. In contrast, the study showed that groups comprising students with mixed-ages and mixed-ability demonstrated higher levels of achievement. Stockard and Mayberry argued that this was most likely due to the relatively higher expectation placed on lower ability students [4].

In another study Good and Weinstein agreed that higher expectations from teachers did effectively stimulate increased effort on the part of both teachers and students. This was shown to lead to an increase in students' overall achievement [5]. Therefore, methodologies adopted by teachers are vital to the learning outcomes of students. However, if teachers hold too high an expectation of students, there could be an increase in student stress brought on by the pressure to succeed. However, if methods are adopted, which make students feel more comfortable, positive effects on performance would not be too difficult to achieve.

Ma has concluded that students' participation in classes was independent of teachers' expectations [6]. Six groups of students from Grade 7 through to Grade 12 in classes of advanced mathematics were involved in the investigation. The study aimed to determine the effects of expectation and influence of students, peers, teachers and parents on participation in the advanced mathematics classes. Results of the study found that those students who had a high future expectation of themselves tended to be more likely to attend classes, however, peer influence, teachers' expectations did not have strong effects on the students' participation in the advanced mathematics classes [6].

Although the issue of whether or not teachers should present a higher expectation to students is still under discussion, there are various researchers arguing that teachers' expectations do have an influence on students' achievements. Bamburg agreed and suggested that the expectations teachers have on their students, as well as the way they assumed students' potential and learning ability, reflected a remarkable effect on students' performance. In other words, teachers' expectations play a major role in determining how well students' learn [7].

What is more, Raffini has suggested that a teacher's expectation of students did have an effect on how students reacted. If teachers show their beliefs in students, students tend to hold that same belief [8]. Hence, a positive expectation does stimulate students' performance. *Students tend to internalize the beliefs teachers have about their ability* [8]. Generally, *they rise or fall to the level of expectation of their teachers*. When teachers believe in students, students believe in themselves. *When those you respect think you can, you think you can* [8]. Conversely, when students were being viewed as having a lack of ability, they may not be able to make any further improvement, as they tend to accept the perception made by their teachers that they are poorly performing students [9].

Expectations could be influenced by teachers' beliefs and assumptions. For instance, studies have found that teachers are likely to engage in supportive nonverbal behaviours such as smiling and making eye contact with students whom they believe are of higher ability more frequently than those students who are assumed to have a lower standard [7]. Consequently, Cotton has suggested that students who are perceived to be low in ability often receive less chance to learn new and stimulating materials, called on less frequently, given with briefer and less informative responses and feedback, and praised less than those students who are considered to be of higher standard [10].

This retrospective study was designed to investigate whether a higher performance expectation from a lecturer had an effect on students' performance as judged by the students' final raw mark. In particular, the study looked at the effect of a student's expectation of a higher passing mark on the raw mark of a student. Comparisons were made between two groups of students, an experiment group, which were told they had a higher pass mark of 70%, and a control group, which were told that the pass mark would be 50%. The study will be discussed below.

METHOD

The investigation was based on students enrolled in the first and second year of the Bachelor of Applied Science (Civil Aviation) degree. Two groups of students were randomly selected from this population. The Experiment Group was randomly selected from the earlier cohort of students, who had been informed that the pass mark was 70% (the high expectation group). The Control Group was randomly selected from the more recent cohort of students, who had been informed that the pass mark was 50% (the normal expectation group). The experiment group consisted of 178 students, while the control group consisted of 201 students.

Two hypotheses were then formulated:

1. H_0 : that expectation of high pass mark had no effect on students' raw mark. (Null hypothesis);
2. H_1 : that expectation of high pass mark had an effect on students' raw mark. (Alternate hypothesis).

Both the t -test and F -test for two groups of students were used to determine if an effect existed. The t -obtained value and F -obtained value were compared to the t -critical and F -critical values for $\alpha=0.05$ and $\alpha=0.01$. In other words, if obtained values were found bigger than the critical values (i.e. if obtained values were negative, obtained value < critical value; if obtained values were positive, obtained value > critical value), the null hypothesis would be rejected. That is, if the null hypothesis was accepted, it would imply that there was no effect due to expectation of high pass mark on students' raw mark.

If the null hypothesis was rejected and the alternate hypothesis accepted, it would imply that there was an effect of expectation of high pass mark on students' raw mark. With the t -test this effect could be either positive or negative as a two tailed, non directional test was used.

RESULTS

In the analysis, the experiment group was designated Group 1 and the control group designated Group 2. Both t -test and F -test were performed on the data. Table 1 shows the calculated data.

Table1: Data obtained from students' raw mark.

Group 1	$n_1 = 178$	$\sum x_1 = 11237$	$\sum x_1^2 = 805166$	$\bar{x}_1 = 63\%$
Group 2	$n_2 = 201$	$\sum x_2 = 13542$	$\sum x_2^2 = 967359$	$\bar{x}_2 = 67\%$

The t -test analysis revealed the following: Given that the total degrees of freedom for the two groups was $178+201-2 = 377$, the critical t -values obtained were ± 1.96 for $\alpha=0.05$ and ± 2.58 for $\alpha=0.01$. The t obtained value was calculated as -2.06 . This indicated that the null hypothesis was rejected at the $\alpha=0.05$ significance level, but not rejected at $\alpha=0.01$ significance level.

The F -test analysis revealed the following: Given that the degrees of freedom within groups was 377 and the degrees of freedom between groups was 1, the critical F -values were 3.936 for the $\alpha=0.05$ significance level and 6.895 for the $\alpha=0.01$ significance level. The obtained value for F was 4.251. Thus, similar to the t -test previously performed, the F -test indicated that the null hypothesis was rejected at the $\alpha=0.05$ significance level but not rejected at $\alpha=0.01$ significance level. These results are summarised in Table 2 below.

Table 2: A summary of the values found from variance tests.

	$\alpha=0.05$	$\alpha=0.01$
F_{crit}	3.936	6.895
F_{obt}	4.251	4.251
t_{crit}	± 1.96	± 2.576
t_{obt}	-2.060	-2.060

DISCUSSION AND CONCLUSIONS

The results obtained indicated that at the $\alpha=0.05$ significance level the expectation of a high pass mark did have an effect on students' raw mark. However, at the $\alpha=0.01$ significance level the effect was not significant. Furthermore, the means of the two groups, 63% for the high expectation group and 67% for the control group, tended to indicate that if there was an effect, the effect was counter intuitive in that the expectation of a high pass mark reduced a student's performance in the assessment (see Table 1).

There are some obvious extraneous or confounding variables which could have influenced these results. These include the difference in ability between the two groups of students, the level of difficulty in the assessment types of the two groups, the difference in delivery style of the lecturers involved, the different marking styles and the different marking standards applied to the two groups. This last variable may be important in that a lecturer may have marked the papers differently as they had known the pass mark had been adjusted down from 70% to 50%; although, one would have thought that this would have had the opposite effect to that observed.

However, perhaps the main factor that was being exhibited in this study was the increased stress a student felt by having to achieve at such a high level. That is some students may have believed that 70% was too high and not possible for them to achieve. As a result the students may have failed to achieve their full potential.

Alternatively, perhaps there had been the perception that if the lecturer had had a high expectation of students, then the students themselves may have tended to believe that they had greater ability than they actually did. This may have caused them to underperform and fail to realise that they would have to work harder in order to achieve the higher pass mark. They may come to believe that the course is easy if the lecturer believes that most students will achieve more than 70%. In this way, they do not try as hard as they perhaps should! Research has shown that students do become overly optimistic [11].

Despite all of this, one important observation should be made that the results do tend to indicate that better able students did better and less able students did worse under a regime of high expectation. But on average, it appears that students do better without the high expectation placed on them.

In conclusion, it can be said that higher performance was obtained under the regime of high expectation by the better able students. If the intension was to increase, the number of student in the 85th and greater percentile range, then, a high expectation regime appears to be the better strategy. However, a high expectation regime also appears to increase the number of students in the less than 40th percentile range. If the intension was to increase the average mark of the student group, then it appears that a normal expectation regime is more effective than a high expectation regime. Further analysis is required to determine if the above inferences are significant.

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