DOES ATTENDANCE MATTER?

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What we did?

Aston Business School Undergraduate Office undertook a series of pilot exercises to monitor student attendance. The aim of the pilots was to gain an understanding of the issues and resources required to monitor attendance and to make recommendations for monitoring the attendance of first year students in October 2007. With the help of academic staff attendance information was obtained from a variety of modules including Business Decision Analysis (BDA), English Language Support Classes, Value Based Strategy, European Computer driving License (ECDL) and the Business Game. Business Decision Analysis was used as the main case study. Data was collected by tutors in lectures and/or tutorials. For speed, students were asked to add their candidate number to lists sent round the class. Candidate number, lecture/tutorial and time were then entered into a database; BDA students who missed lectures in both weeks one and two were sent a standard poor attendance letter used regularly by the Undergraduate Office. Letters were sent to their term time addresses.

What happened?

The letter asked students to contact a named person to explain their absence. Fifty nine percent of these students responded by e-mail, in person or by telephone. The data collected in weeks three and four appears to show that all students who received a letter attended lectures in week three and/or four, but due to the large number of students in each lecture it is impossible to tell whether or not some were signed in by other students.

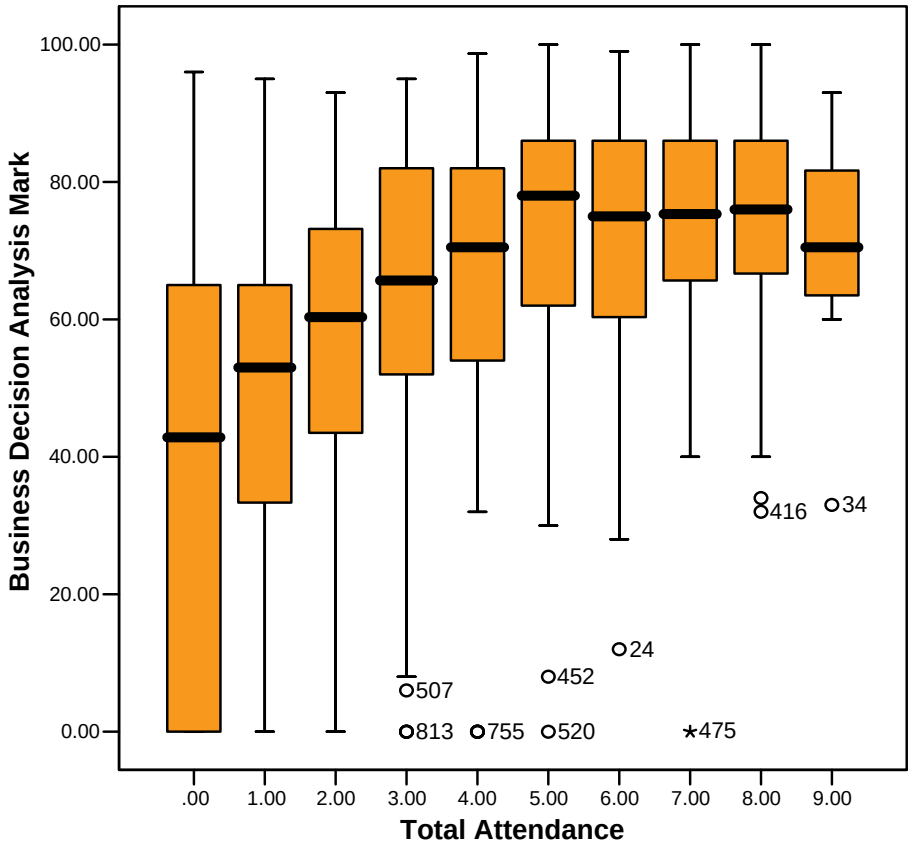
What we found?

We examined the effect of attendance on marks achieved in the module using a multiple regression methodology (all variables significant at the 5% level of significance).

Dependent Variable: Business Decision Analysis Mark	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**95% Confidence Interval for B**	
	B	**Std. Error**	**Beta**			**Lower Bound**	**Upper Bound**
(Constant)	23.832	2.277		10.468	.000	19.363	28.301
Qualitative Techniques Mark	.535	.031	.513	17.317	.000	.475	.596
Number of attendances at correct lecture	2.387	.450	.197	5.304	.000	1.503	3.270
Number of attendances at other lecture	3.077	.606	.183	5.080	.000	1.888	4.266
Number of tutorial attendances	2.545	.728	.127	3.496	.000	1.116	3.974
Number of lectures recorded attending repeatedly	-4.613	2.233	-.069	-2.065	.039	-8.997	-.228
Number tutorials recorded attending repeatedly	-6.757	2.755	-.072	-2.453	.014	-12.165	-1.349

Firstly, we noted that prior attainment is important; the mark that the student achieved in the preceding Quantitative Techniques module is the most important single factor and on its own explains about 30% of the variation in marks achieved.

Both lecture and tutorial attendance has significant effects on the mark attained in the module, this is shown graphically in the box plot below which shows the distribution of marks against the number of lectures and tutorials attended in total (out of a possible nine; three tutorials and six lectures) during the first six weeks of the module. Note that this gives some indication that the effect may not be linear as performance is flat for attendance at five or more. This may be in part because of the unreliability of the tutorial absence data, with tutorial sheets for some tutorial groups being lost or tutorials being cancelled because of staff illness or interrupted by fire alarms! It is also likely, however, to reflect the high attendance of the "enthusiastic strugglers", those students who know they have difficulties with a subject and take the advice to attend everything.



For the current sample, there is no evidence that attendance at the correctly timetabled lecture rather than the alternative lecture has a differential effect on performance (the confidence intervals for these coefficients overlap). Many students varied which lecture they attended and, if anything, attendance in the "wrong" lecture appears to be an indicator of a better student, perhaps indicating enthusiasm or diligence in seeking to attend at an alternative time if unable to at the correct time.

Being recorded as present more than once, however, for the same lecture or tutorial appears to be an indicator of poor performance. The wide confidence intervals here are an indication of the small number of students where this occurred. It is likely that these students may have not attended at all and may well have been signed in by several friends independently.

Below is shown a regression that simplifies the above factors regarding attendance and further investigates the behaviours displayed by the students. Again, only variables that are significant at the 5% level are shown and prior ability is included using the students mark in BDA. We now consider,

however, the total number of lecture and tutorial events attended (net of any repeated attendances) and the number of times attendance was recorded repeatedly, and three additional binary variables indicating if a student adopted a particular behaviour.

Dependent Variable: Business Decision Analysis Mark	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	26.520	2.369		11.194	.000
Mark in Quantitative Techniques	.522	.031	.500	17.067	.000
Total Attendance (net)	1.964	.311	.203	6.305	.000
Number of Repeated attendances recorded	-6.621	2.714	-.071	-2.440	.015
Varied which lecture time attended	2.924	1.447	.059	2.021	.044
Failed to respond to warning	-9.420	2.713	-.107	-3.472	.001
Claimed attendance at least one of missed lectures	6.909	3.263	.062	2.117	.035

It can be seen that the 50 students who received a warning about attendance but failed to make contact to explain their lack of attendance attained significantly lower marks, attaining marks nearly ten percentage points lower in the module than those students with similarly low attendance but who did respond. Whereas those 30 students who claimed that they had attended at least one of the two lectures, but for various reasons this had not been recorded, are probably to be believed.

Also, as previously noted, students who varied which time they attended the lecture appear to do better than other students with the same overall level of attendance but who always attend at the same time. This behaviour is less likely to be displayed in future as students now receive individual timetables and so will be generally unaware of any alternative time for the lecture.

Note that the students who where warned and did respond are not significantly different to the other students with the same level of attendance and prior ability. This is not, however, the same as the warning having no value as we do not know the extent to which the warning caused students to attend. In order to assess the value of a warning as an intervention in an individual students' behaviour we would need to have a control group of students who we did not warn even when their attendance was poor. This raises both practical and ethical problems and would still not address the issue of the extent to which monitoring attendance itself encourages students to attend.

What were the practical issues?

During the project, we encountered a number of issues which should be taken into account when monitoring attendance:

- Circulating attendance sheets in large lecture theatres is quicker if sheets are distributed at the start of the lecture and collected at the end.
- Occasionally attendance sheets went missing. Circulating multiple copies reduces the amount of information lost on any single sheet.
- Students who arrive late need reminding to complete an attendance sheet.
- Some students sign in for absent friends.
- Collecting candidate numbers allows speedy data entry, whilst using names can be problematic and slow.
- Some students incorrectly guess their candidate number or write their name illegibly and it takes time to attempt to match these with known students on a module.

- Once two absences are noted letters should be sent quickly to encourage students to attend the next session.
- Attendance monitoring and dealing with responses is time consuming so it is important to target monitoring where it is most effective.
- Staff resources need to be available to deal with at risk students identified during the attendance monitoring process.

What else is known?

There has been previous work investigating the effect of attendance on academic performance. Some of the most notable papers are:

- Paisey C & Paisey NJ (2004) who looked at the reasons and effects of non-attendance in a final year accounting module at a Scottish university and find that paid work is the most common reason for non-attendance. It found that attendance was correlated with performance but did not take into account prior attainment. It also found that the time of day had an influence on attendance.

- In an American context Cohn, E & Johnson, E (2006) did take prior ability into account when considering an Economics class, and found that attendance did have a significant effect on performance even after taking into account ability and that very low attendance was particularly important. They also noted that poor results in class tests did not reduce future attendance after overall ability was taken into account.

- Lin, Tsui-Fang & Chen, Jennjou (2006) attempted to disentangle the affects of student motivation and attendance while correcting for prior attainment for a third year economics class and found that while the effects of attendance were overestimated if motivation was not considered it was still a significant factor.

What next?

It is clear that students who regularly attend lectures are less likely to fail modules than those who either do not attend or attend sporadically. Good practice would be to encourage students to attend in their first year, as this should enforce the habit in subsequent years. In the year starting October 2007 it is intended to:

- Monitor first year students' attendance at lectures in weeks two and three of term and send e-mails to students who fail to attend both weeks.
- Make information on failure/pass rates against attendance available to students in fresher's' week.
- Make new students aware that attendance letters will be kept on file and that the information they contain may be used when writing references.
- Remind new students of how little class contact time they have each week and the hours within which they are expected to be available to study on campus.

References

Paisey, Catriona and Paisey, Nicholas J. (2004) 'Student attendance in an accounting module - reasons for non-attendance and the effect on academic performance at a Scottish University', Accounting Education, 13:4, 39 – 53

Cohn, Elchanan and Johnson, Eric (2006) 'Class Attendance and Performance in Principles of Economics', Education Economics, 14:2, 211 - 233

Lin, Tsui-Fang and Chen, Jennjou (2006) 'Cumulative class attendance and exam performance', Applied Economics Letters, 13:14, 937 – 942

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Example used with first year undergraduate students
BN1106/BN1113: Business Decision Analysis and other modules