Computer Science at Kent

The Value of Guided Revision

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Abstract

In the summer of 2002 the CS department at the University of Kent at Canterbury (ukc) signed up to a guided revision and key skills programme intended to help students pass their first year exams and ease the transition to the second year. The scheme, called VALUE, proved to be extremely popular with CS students and more students applied than could be accommodated. The departmental response was to create a cut-down version of the scheme, called Value-LITE. This paper describes the schemes and explores the impact of the revision phase upon examination results.

Introduction

First year Computer Science failure rates are well known to be problematic. Many institutions have a pass rate of approximately 80%, and the University of Kent at Canterbury is no exception. When ukc's UELT (Unit for the Enhancement of Learning and Teaching) invited the Computer Science department to join their VALUE (Value Added Learning in University Education) scheme it provided an opportunity to address the problem.

What is the VALUE scheme?

The VALUE scheme is split into three phases:

- Phase A – the first two weeks of the Trinity term. Guided subject specific revision and study skills.
- Phase B – results week. Counselling and support for students unsure about their results and future options along with relaxation and stress management sessions.
- Phase C – intro week. An introduction to the second year, both study skills and subject tips and techniques to ease the transition to part II of the degree programme.

Phase A of the scheme consisted of 20 hours of guided subject specific revision along with a further 10 hours of key skills and study skills sessions. The study skills involved sessions on examination and revision techniques, concentration and memory, relaxation, and presentation skills. The CS subject specific sessions were equally divided between Java, Haskell, Discrete Maths & Automata, and Mathematics. Postgraduate students from within the CS department ran these subject specific sessions. All sessions were compulsory for students wishing to participate in the scheme, although joining was voluntary.

What is Value-LITE?

The Value-LITE scheme is a cut-down version of the VALUE scheme and has been organised by the director of 1st year CS, who was also the departmental liaison with UELT for the full VALUE scheme.

Phase A included four 1-hour subject revision sessions along with sessions on revision techniques and concentration and memory skills. All sessions were voluntary – students could attend as many or a s few of the sessions as they wished.

Registering for the schemes

The VALUE scheme was introduced to the students by a member of UELT towards the end of the Lent term. They were informed that in the previous year 39 out of 40 students that had registered for the scheme had successfully managed to proceed to their second year. The introductory talk took place in a CO309 lecture that was attended by CSE and Maths&CS students as well as CS students. To register for the scheme all students needed to do was fill in a form and hand it in at the UELT reception. One week later there had been 42 applications.

Only 30 of the 42 VALUE applications could be accepted (there were only 90 places to be shared amongst all participating departments). 12 of the applicants were CSE rather than CS students, and since Electronics did not sign up to the scheme, Electronics students were rejected. A further selection process ensued and 27 "CS" places were eventually allocated. Five of the supposedly CS students belonged to Electronics and one was studying Religious Studies! 21 CS students were eventually registered for, and participated in, the scheme; at least 9 were rejected.

The Value-LITE scheme was advertised on the ukc.cs.cs1 newsgroup and was open to all CS, CSE and Maths&CS students that were not registered for the VALUE scheme. Registration involved sending an email message to indicate an interest. 35 students registered for Value-LITE, 30 of these belonged to the CS department.

Results

The following students have been excluded from the calculations shown below:

- Two of the VALUE students were repeating the year – both passed.
- One Value-LITE student was a repeater – he passed.
- One VALUE student had the May examination results set aside and sat as for the first time in August – he passed.

Figure 1 shows the mean scores of students taking different revision options and clearly shows that students utilising the Value-LITE scheme performed better than the other students.

	All CS	No intervention	Value-LITE	VALUE
Number of students	126	78	30	18
Mean	55.2	53.2	61.7	52.9
Standard deviation	15.0	15.3	10.7	16.9

Figure 1: Average first attempt overall results (excluding repeaters)

The postgraduate students supervising the revision sessions for both VALUE and Value-LITE unanimously agreed that the Value-LITE students were much more prepared for the sessions – asking more questions, having prepared for the sessions.

Further investigation (Figure 2) shows that all the Value-LITE students passed their examinations at the first attempt, and further that 80% managed to obtain a grade of >50%. Of the four VALUE students that failed, two had been sent formal academic warnings throughout the year for lack of effort and one has decided to change degree programme.

	All CS		No intervention		Value-LITE		VALUE	
	No.	%	No.	%	No.	%	No.	%
<35	13	10.3	9	11.5	0	0.0	4	22.2
<40	6	4.8	6	7.7	0	0.0	0	0.0
<50	26	20.6	17	21.8	6	20.0	3	16.7
<60	26	20.6	15	19.2	7	23.3	4	22.2
<70	33	26.2	18	23.1	10	33.3	5	27.8
70+	22	17.5	13	16.7	7	23.3	2	11.1

Figure 2: Students within each grade boundary

Figure 3 highlights the difference between the performance of the Value-LITE students and the rest of the cohort, and also shows the similarity in performance between the students attending the VALUE programme and those adopting no revision intervention strategy.
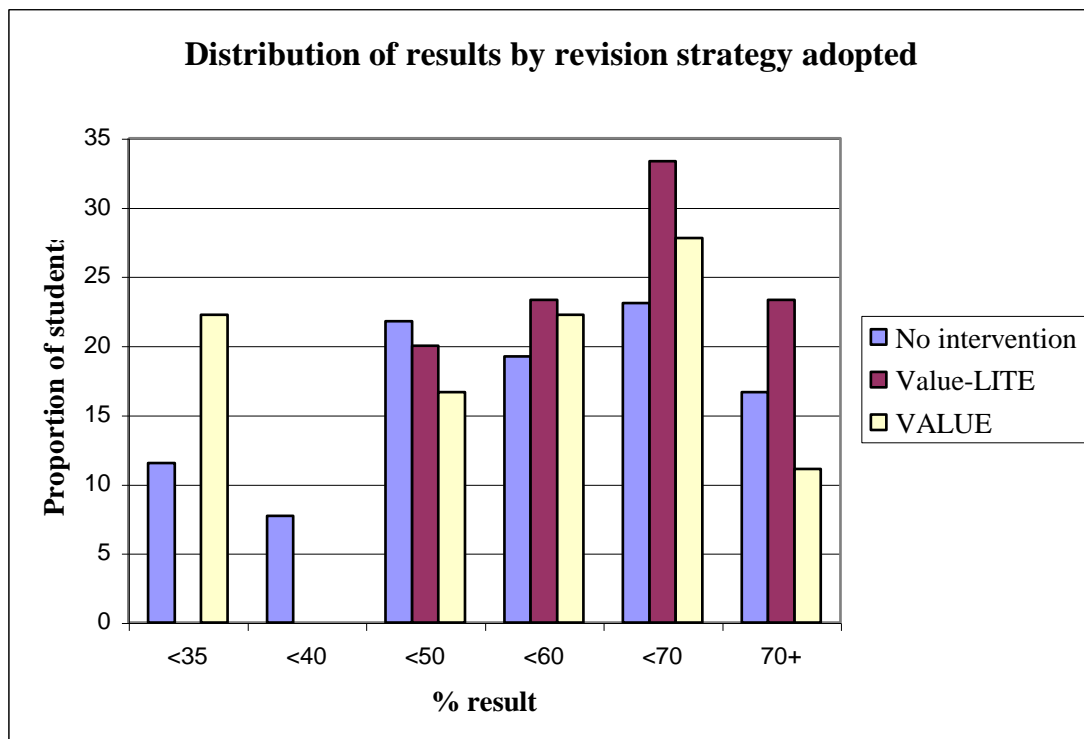

Figure 3: Distribution of results

This result must be treated with caution. It is likely that the students participating in the VALUE programme would not have performed as well as they did had they not

attended the special sessions. Indeed the overall results for 2002 show a lower failure rate than those for 2001, along with a significant increase in the number of students obtaining a distinction for their efforts.

	2001(%)	2002(%)
Fail	27.1	15.4
Pass	39.0	37.0
Merit	24.6	26.9
Distinction	9.3	20.7

Figure 4: Comparing overall results for 2001 and 2002

Conclusion
Feedback suggests that the Value-LITE scheme was popular amongst the students and that they appreciated a unified departmental approach. The scheme was additional to any revision sessions provided by individual lecturers and all sessions were well attended.   The scheme may not be the sole reason for the improvement in the students' results for this year, but the improvement that has been made indicates that it would be a worthwhile investment to run this again in future years.