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Increasing Student Survey Participation Through Single-Subject Interventions Affecting Concurrent Subjects

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Abstract

Student evaluations of teaching (SET) surveys are a widely debated tool used by universities worldwide for quality assurance and improvement. Low response rates often result in non-response bias, significantly undermining their validity. While numerous evidence-based strategies exist to improve response rates, the importance of achieving higher rates to enhance the usefulness of these surveys is frequently underestimated, and applying these strategies across all subjects can be time-consuming and costly. Previous research has not specifically explored whether interventions in one subject could encourage greater student participation in SETs for other concurrently studied subjects. In this study at an Australian metropolitan university, we demonstrate that by targeting key health subjects with a combination of three evidence-based strategies, response rates almost doubled in both targeted and untargeted subjects the same students were studying. This also enhanced response quality, as measured by the length and lexical diversity of open-ended responses. The improved response rates for all subjects were observed regardless of learning modes (blended or online-only), enrolment type (undergraduate or postgraduate), or whether students were on placement. These findings suggest that targeted interventions could encourage students to complete all their SET surveys. The benefits are clear: increased survey participation across multiple subjects can reduce non-respondent bias while minimising the burden of survey promotion. Our study contributes to the body of knowledge guiding university decision-makers in increasing student feedback to improve teaching quality.

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Practitioner Notes

1. To reduce non-response bias and strengthen SET validity, low response rates require intervention.
2. Consider implementing a combination of incentives, peer reminders, and 'closing the loop' messaging.
3. Consider targeting interventions in select subjects to improve online response rates across all subjects.
4. Encourage focused interventions in large core subjects to reduce the burden of survey promotion.
5. Boosted response rates effectively deliver quality feedback enabling informed teaching improvements.

Keywords

Student evaluation of teaching surveys, online student surveys, teaching surveys, response rates, health sciences

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Introduction

Since their inception in the early 1900s, student evaluations of teaching (SET) surveys have been a valuable yet highly debated tool for universities, as their validity has been questioned, as well as their use in performance reviews (Wachtel, 1998). SET scores and feedback, collected for subjects (also known as units or courses) and individual teaching staff, are used to assess teaching quality, evaluate instructor performance, and inform staffing decisions (Kember et al., 2002). Although the validity of SET surveys has been questioned (Clayson, 2022; Cook et al., 2022; Uttl et al., 2017) and there has also been extensive debate on the best frameworks for employing and utilising SET data (Pounder, 2007; Wagenaar, 1995; Wong & Chapman, 2023), they can provide valuable insights into students' educational needs and can inform teaching practices (Chen & Hoshower, 2003; Darwin, 2021; Kulik, 2001; Nederhand et al., 2022; Szopiński & Bachnik, 2022). A significant factor impacting the value of SET results is the decline in response rates (Nair et al., 2008), which is particularly noticeable with the transition from paper-based to online surveys (Ballantyne, 2003; Capa-Aydin, 2016; Dommeyer et al., 2004; Nulty, 2008; Stanny & Arruda, 2017; Stowell et al., 2012). Falling response rates raise concerns about the validity of results and diversity of responses obtained (Dey, 1997; Holtom et al., 2022; Jones, 1996; Nulty, 2008; Porter, 2004; Young et al., 2019). Lower response rates can introduce non-response bias, where the small subset of students who respond is not representative of the overall student cohort (Adams & Umbach, 2012; Bacon et al., 2016; Dey, 1997; Standish et al., 2018). SET rates therefore should be high enough to provide sufficient evidence for the feedback to be useful and to drive improvements (Bacon et al., 2016; Nulty, 2008). This highlights the importance of understanding strategies which can increase response rates without greatly increasing workload.

The widespread use of SET to measure teaching quality is unlikely to diminish soon, as demonstrating institutional 'quality' has become a standard expectation in today's increasingly competitive academic environments (Blackmore, 2009). Due to its numerous advantages, online delivery of these surveys is expected to remain the primary mode of SET administration in many institutions. Benefits include reduced costs, fewer processing errors from improperly completed forms, standardisation of the SET survey process, increased flexibility, reduced instructor influence on SET results, and greater confidentiality, which can lead to more candid responses from students (Standish et al., 2018). Consequently, online SET surveys are anticipated to remain in use for the foreseeable future. As a result, response rates and the factors influencing them continue to be important topics of research.

The shift to online surveys has meant that one link can be provided for multiple SET surveys, one for each of the subjects that students are enrolled in. To date, no studies have investigated whether interventions designed to increase online SET survey participation in one subject influence response rates in other subjects Strategical targeting interventions in a single subject that influence response rates in other subjects could reduce educators' workload while improving both response rates and the quality of text responses. Thus, our study aimed to determine whether evidence-driven interventions could have a broader impact beyond the targeted subject.

Several factors can influence whether students will complete surveys (Sullivan et al., 2024) and employing multiple strategies can significantly improve SET survey response rates. Three strategies were used in combination in the targeted subjects.

- Firstly, since students are more motivated to respond if they perceive their feedback will be acted upon (Sullivan et al., 2024; Vargas-Madriz & Nocente, 2023), the educators closed the loop by explaining to students how previous feedback had been utilised to improve their learning (Nederhand et al., 2022).
- Secondly, the offering of incentives is a well-known student motivator (Sundstrom et al., 2016), therefore a prize incentive was offered in the form of an iPad and magic keyboard, with five electronic stylus pens as runner up prizes.
- Lastly, we engaged student champions - students from the classes with the interventions – who were specifically tasked with promoting the survey to their peers through their own student networks. They provided extra reminders, including information on the prize incentive and general encouragement to peers to complete the survey.

This study looked at the effect of applying these three interventions to five subjects across three degrees at different undergraduate and postgraduate year levels. Our research questions for this study were the following.

Research Question 1. How does combining these three specific strategies alter the student SET response rates and text? We hypothesised that combining an incentive, with a closing the loop endeavour and student peer encouragement to complete surveys, would increase student SET response rates and text quality.

Research Question 2. How do the student interventions in one subject impact response rates in the other subjects that students are concurrently studying? Surveys that follow closely in time to others are prone to lower response rates (Porter et al., 2004), but whether this effect is also observed when surveys are deployed at the same time is unclear. We hypothesised that the combination of strategies would also increase student SET response rates in the other subjects that students were taking in the same semester.

Literature review

Once students begin a survey, the vast majority (around 95%) go on to complete it (Hoel & Dahl, 2019). However, students who are less likely to complete SET surveys are unlikely to spend more than 5 minutes on them (Hoel & Dahl, 2019). Most students who choose not to complete SET surveys make this decision before even opening the survey link; in other words, they opt not to start the survey at all (Hoel & Dahl, 2019). There are several reasons why students may not respond to surveys, including the relevance of the survey content, time constraints, the prospect of multiple surveys, and survey fatigue caused by the frequency of survey requests or the length and complexity of the surveys (Adams & Umbach, 2012; Fass-Holmes, 2022; Porter et al., 2004; Stein et al., 2021).

Given the concerns around response rates, many instructor-led strategies have been employed in attempts to increase them (Goodman et al., 2015; Lipsey & Shepperd, 2021; Sundstrom et al., 2016; Young et al., 2019). These include frequent reminders to complete the survey (Young et al., 2019), allocating time in class for survey completion (Goodman et al., 2015), and offering incentives (Goodman et al., 2015; Lipsey & Shepperd, 2021) or micro-incentives, such as extra credit (Sundstrom et al., 2016). A literature review by (Sammut et al., 2021) showed that incentives considered to be of value by the students, such as entry into a cash prize draw, are

valuable in raising response rates. Goodman et al. (Goodman et al., 2015) showed in their study that incentives had the greatest impact out of any intervention they investigated, with response rates increasing from 50% to 79% with the use of incentives, compared to 57% with other interventions.

Social obligation and understanding of the value of their own participation for others' benefit has also been noted as a motivating factor in completing teaching surveys (Hoel & Dahl, 2019). The influence of peers on student engagement is well documented among high school students (Vollet et al., 2017). Some researchers advocate for more holistic approaches that consider factors such as peer influence, word of mouth, and the broader context. For example, (Nair et al., 2008) highlighted the importance of student engagement in improving survey response rates, citing Monash University's initiative setting up a call centre to engage with students who had not responded to surveys.

Survey participants often avoid completing open-ended questions, as these require more time to complete and may be perceived as additional 'work'. This is significant as open-ended questions provide an opportunity for in-depth feedback, offering valuable and actionable insight for educators. This is especially pertinent now that there are increasingly AI-based tools available to mine actionable insights from open-ended comments, in the form of text mining and machine learning (Nawaz et al., 2022; Okoye et al., 2022). Incomplete or unanswered questions can diminish the quality of information obtained, leading to low-quality evaluations that hinder informed decision-making on teaching (Nicolaou & Atkinson, 2019). An approach to improve both response rates and the completion of open ended questions is to clearly explain to students how past feedback has been utilised, often referred to as 'closing the loop' on student feedback (Goodman et al., 2015; Nederhand et al., 2022; Shah et al., 2017). An emphasis on how written feedback helps educators refine their teaching and enhances the learning experience of future students can show students that their opinions truly matter and that these open-ended questions are important. When students observe that their feedback leads to tangible changes, it can reinforce the value of their participation and encourage future engagement. These strategies go some way in addressing issues like lack of engagement, poor communication, perceived inaction on feedback, and general 'survey fatigue' (Ahmad, 2018; Bennett & Nair, 2010; Sullivan et al., 2023).

Improvements in response rates and quality of text responses are necessary for the individual educator to make informed decisions in the subjects taught. They also enable institutions to analyse the data at the department, faculty and institutional level to identify key themes and sentiments (Medhat et al., 2014; Neuendorf, 2018). By analysing sentiment over time, educators can track changes in student perceptions and identify trends related to specific courses or instructors. Thematic analysis, on the other hand, helps uncover recurring themes and patterns in student feedback, revealing common issues or strengths across large programs and university courses.

Method

Setting And Participants

This study took place in semester 2, 2021, in the Faculty of Health at a large Australian teaching and research university in Southeast Queensland. The project has approval from the University Human Research Ethics Committee approval #5248. Students in the study were enrolled in either

a 3-year undergraduate Health Science bachelor's degree (School A) taking an average of 3.6 subjects per semester, a 4-year Health Science bachelor's Honours degree (School B), taking an average of 3.4 subjects per semester, or a 1.5-year full-time/3- year part time postgraduate Health Science master's degree (School A) taking an average of 2.4 subjects per semester (Table 1). The latter were mainly professionals completing their degree online in the evenings as part of accreditation. Four instructors, teaching five subjects at different levels in the undergraduate and postgraduate coursework degrees, participated in the study. Students in the Honours degree spent the first part of the semester on campus but were on placement when the survey was deployed. Students in this study were enrolled in at least one of these degrees, with class sizes ranging from 31-88 for subjects with an intervention (Table 1).

Table 1

Details on the subjects and degree participating in the SET interventions

Degree		**Target with the interventions**			**Teaching mode**
Type	**Students enrolled**	**Subjects target**	**Student year level**	**Students exposed to the intervention**	
Bachelors	3771	1	2nd	88	Blended learning
Bachelors (Hons)	2472	3	2nd, 4th*	144	Blended learning*
Masters	142	1	1st	31	Online

* Two subjects were targeted in the 4th year subjects. In both these subjects, students had blended learning until week 9 after which the students were on placement. The deployment of the SET was in week 11.

The University SET System

University-wide SET surveys were deployed for each subject at the end of each teaching semester, except for 2020 when no surveys were deployed due to the COVID-19 response. Students enrolled in subjects as part of undergraduate and postgraduate coursework degrees in semester 2, 2021 were invited to complete the online university-wide deployed SET survey via email as per the university's protocol. The survey period (six weeks) started from week 11 of a 13-week teaching semester and remained open until the last day of the examination period. In 2019, the student survey consisted of three Likert scale response questions and an open text question for comments on the subject. In 2021, a redesigned survey was deployed in two semesters. It contained seven questions about their subjects, five requiring a Likert scale response, and two open-ended questions asking: 1) what aspects of the subject were done well, and 2) what could be done better. In the second semester, 111,181 invitations were sent across the university, with an overall response rate of 18.7% (Table 2).

Table 2

Comparison of 2021 student evaluation response rates across two semesters: University-wide, Faculty of Health and Schools A and B

	Average (%) weighted response rate (number invited)			
Semester	**University-Wide**	**Faculty of Health**	**School A**	**School B**
1	17.2 (127,119)	19.1 (31,714)	20.9 (5,481)	16.2 (5,187)
2	18.7 (111,181)	19.8 (29,155)	27.9 (4,770)	22.4 (4,625)
***p*-value**	0.000	0.029	0.000	0.001

*Chi-squared test.

The university-wide response rates have historically been low; for example, in semester 1 2021 the university-wide response rate was 17.2% (Table 2). To promote student completion of the SET survey the university sent regular email reminders to complete the survey while it was open and encouraged instructors to do the same. They also incentivised completion by providing a 10-cent donation to the university food bank or student scholarship scheme for each survey completed. The university added an additional prize incentive, one set of Apple Air Pods, to improve university-wide SET response rates in semester 2, 2021. This prize was randomly drawn after the survey closed. In the Faculty of Health five subjects were targeted with the same combination of evidence-based strategies detailed below to improve the response rate in semester 2, 2021. The target courses are listed in Table 1, and these courses were across two schools in the Faculty of Health: School A and School B.

The Intervention

The first intervention employed in the five targeted subjects occurred prior to the launch of the SET survey. Instructors spent time in classes 'closing the loop' by discussing how they had responded to the previous year's feedback from the SET survey, how the feedback was benefiting them, and they highlighted the value of receiving this feedback for the future design of the subjects. The second intervention was a prize incentive. Students enrolled in the five subjects who completed the SET survey had the chance to win an Apple iPad and magic keyboard or 1 of 7 digital styluses. This prize incentive was advertised to these students, via email and in-class, and through the student champions (see 3rd strategy). The prize was drawn after the SET survey period closed. In the third intervention, student champions from each subject, except the postgraduate subject where the subject coordinator acted in this role, were employed to regularly encourage their peers, through their social networks, e.g., class WhatsApp groups, to complete the survey. Students were asked to upload a screenshot that confirmed they had completed the survey to Qualtrics as evidence of completion so they could enter the prize draw and were asked a question about their reason for completing the survey. Whilst 3 interventions were examined together, for the purpose of this study we will refer to these collectively as the intervention.

Data analysis

The university-wide, faculty, school and the individual survey data for subjects in the three degrees for 2019 and 2021 semesters 1 and 2 was obtained. This included the number of students

invited and the number who responded (Table 2 and Table 3). For the subjects where the intervention was applied, the text comments were also collected by a team member outside the faculty who was not involved in the teaching of the subjects. To account for the relative contribution of different class sizes, an average weighted response rate was calculated for all subjects using (all responded/all invited) x 100. Percentage comment response rates were calculated using (all responses with a comment/all responses) x 100. Improvements in text quality can be measured through metrics such as sentence length, spelling mistakes, abbreviations, and lexical diversity (Cunningham et al., 2022; Malvern et al., 2004). Sentence length was measured by tokenising text responses into individual words and counting the number of occurrences. Lexical diversity was measured as a ratio of unique words to total words in each text sample (Malvern et al., 2004). Chi-squared tests of independence were used to compare response rates between semester time periods across university-wide, faculty, school, degrees and intervention subject-levels. Statistical significance was recognised with a p value of < 0.05.

Results

Improvements in response rates for all subjects where the intervention was applied

In 2021, the university-wide weighted average response rate for all subjects showed a significant increase of 1.5% ($p<0.001$) between semesters 1 and 2 (Table 2). This increase was notably larger when comparing all degrees in the School A (n=3, 6%; $p<0.001$) and School B (n=1, 7%; $p=0.001$) (Table 2). Focusing on the three degrees with the intervention, the overall average response rates had dropped by 3.9% between semester 1 of 2019 and semester 1 of 2021 (Table 3). However, after the intervention in semester 2 of 2021, there was a significant increase in the overall response rates, with a 9.7% increase compared to semester 1 ($p<0.001$) and 8.6% increase compared to 2019 ($p=0.001$) (Table 3).

Table 3

Comparison of the response rates for degrees with interventions

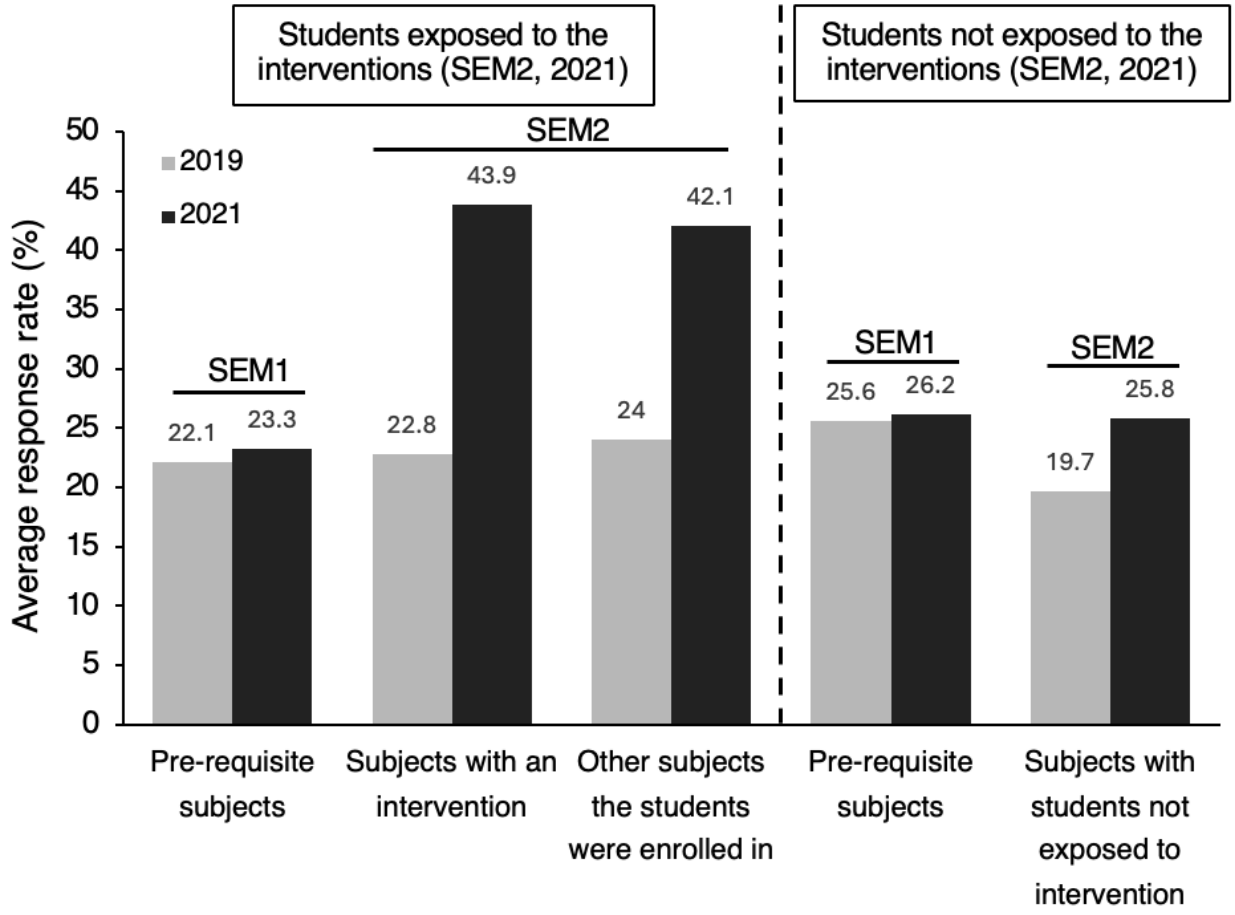
	Average (%) weighted response rate (number invited)		
Semester	**2019 (63 subjects)**	**2021 (74 subjects)**	***p*-value**
1	24.2 (3200)	20.3 (3620)	0.939
2	21.4 (2206)	**30.0 (2551)	0.001
****p*-value**	0.977	0.000	

*One tailed independent t-test (different cohorts); **Semester with intervention; ***One tailed paired t-test (same cohort).

For the five subjects with the intervention, there was a significant positive effect on the response rates, with a 1.9-fold (1.4 to 2.7-fold) increase in response rates from 23.3±2.8% to 43.9±9.2% ($p=0.003$) compared to the prerequisite subjects the same students would have taken in semester 1 prior to the intervention. When comparing the response rates to a previous year, there was a significant increase of 21.1% ($p=0.001$) compared to the same subjects in 2019 (Figure 1). This showed that the interventions had a positive effect on the response rates for the SET surveys in the subjects with the interventions.

Figure 1

Response rates for subjects with and without interventions. Data is separated into response rates for students that in semester 2 2021 were exposed to an intervention in any one of their subjects, and subjects where students had no exposure to the intervention. Response rates for 2019 and the pre-requisite subjects are presented for comparison.



Improvements in number of responses with comments in the subjects with intervention

For SET survey responses to be most valuable, an increase in response rates should be accompanied by an increase in both the quantity and quality of comments. In 2019, only 43% of respondents left a comment for the subjects that had the intervention in 2021. However, 84% of respondents in the subjects with the intervention in 2021 provided comments, showing a significant increase (p=0.001) (Table 4).

Table 4

Number and quality of comments for the subjects with the intervention

Year	Responses with comments	Average length* of comment (mean)	Average length of comment (median)	Mean lexical diversity
2019	43%	54	50	0.83
2021	84%	65	52	0.80
***p*-value**	0.001	0.148	0.443	0.866

One-tailed independent t-test. *Length defined as number of words.

To ensure this increase did not come at the expense of quality, the length and lexical diversity of the comments were also measured. The average number of words per comment increased from a mean of 54 in 2019 to 65 in 2021, with the median length increasing from 50 to 52 words. The lexical diversity remained similar, at 0.83 in 2019 and 0.80 in 2021 (Table 4). This demonstrates that students were not only completing the survey but also providing meaningful feedback.

Subjects with students who experienced the intervention in another subject also have improved response rates

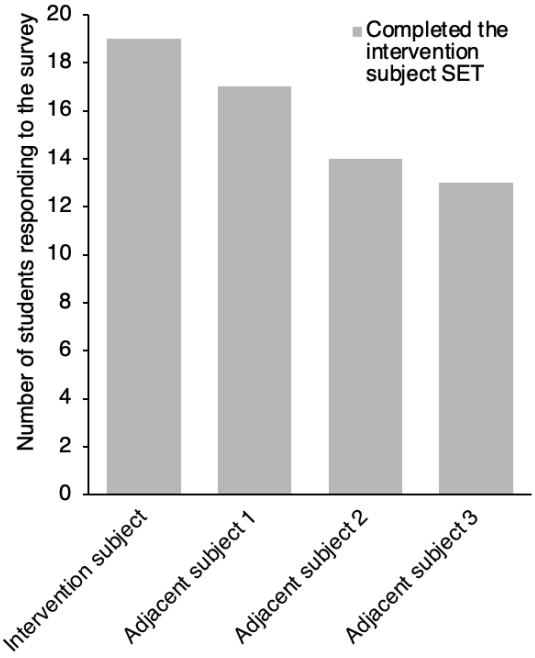
Closer inspection of the data showed that, compared to Sem 1, there was a significant 1.8-fold increase (18.1%; $p<0.001$) in the response rates for the other 14 subjects that these same cohort of students may have been enrolled in (Figure 1). A similar increase was seen when comparing the response rates in 2021 to the same subjects in 2019 (21.1%; $p<0.001$) (Figure 1). No significant change was seen for the subjects where students had not been exposed to the intervention in semester 2 compared to semester 1 2021 (-0.4%; $p=0.487$) and compared to semester 2 2019 (6.1%; $p=0.144$) (Figure 1), suggesting the changes seen are due to intervention in their other subject. The marginal increase between 2019 and 2021 may be attributed to the change in the university-wide survey question format that occurred in semester 1, 2021.

Students with the intervention are completing their other SET surveys

We next looked to see whether the increased response rates were due to the students exposed to the intervention completing their other subject SET surveys. Survey data is not collected in a way that allows tracking of individual students' survey completion across multiple subjects. One subject was chosen for further investigation to ascertain whether it was the same students completing the survey for the other subjects. An author external to the Faculty of Health, who was not involved in student assessment or learning activities, mapped student SET completion for each individual exposed to the intervention in their other subjects. The mapping showed a ripple effect, where most students who had been exposed to the intervention in one subject also completed surveys for the other subjects they were enrolled in (Figure 2), demonstrating a cohort effect of improved responses.

Figure 2

Number of students who completed the surveys in the other subjects. Note, students in this degree average 3.4 subjects per semester, so not all students would be enrolled in all 4 subjects.



Drivers for student completion of the survey

A smaller survey was conducted within the 5 subjects with the intervention strategies. This survey asked the students to identify reasons behind completing the SET survey. Students were supplied with a range of reasons for completing the survey and were able to select more than one response (Table 5). The main driver for SET completion across the subjects surveyed was identified as the incentive strategy, which in this case was 'participation in a prize draw', followed by 'I would normally complete it', then 'I felt feedback would be used' and finally 'to provide specific feedback for improvement' (Table 5).

Table 5

Reasons selected for completing the survey across all five subjects

Reason	Response (%)
Prizes were an incentive	54±22
I would normally complete it	35±18
I felt feedback would be used	27±11
To provide specific feedback for improvement	14±8

Discussion

Our study aimed to determine whether three defined interventional strategies (a prize incentive, closing the loop on feedback, and using a class champion) could be targeted in certain subjects and improve student participation in online SETs for all subjects that students are enrolled in, not only the ones with the intervention. The results showed that these strategies significantly improved response rates, nearly doubling them in the targeted subjects. Additionally, these interventions had a similar positive impact on the response rates for other subjects the students were enrolled in, compared to students who did not experience these interventions in any of their subjects. This suggests that the multiple interventions in one subject enhanced the completion rate for all SET surveys when accessed through the same link.

For the subjects with the interventions, the SET survey response rates almost doubled compared to those of a previous cohort. Response rates were almost double that of the same cohort completing the prerequisite subjects in their first semester of the same year. Student response rates consistently increased across various learning modes, including face-to-face and online formats. This increase was also measured in the subjects where students were off campus on full-time industry placements during the survey deployment. This trend was consistent regardless of the course level (undergraduate or postgraduate), indicating that interventions led to widespread engagement enhancement across diverse educational contexts.

This study thus showed that response rates can be increased with the implementation of specific strategies to encourage engagement. This is consistent with (Goodman et al., 2015) who found that implementing some form of SET tactic to improve response rates received a 13% increase in response rate compared with instructors who did nothing. Furthermore, they reported that increasing the number of tactics used by an instructor resulted in a further increase in response rates. Instructors who used 0 to 1 tactics had similar response rates, whilst those who employed 4 or more tactics had the highest increase in response rates. Therefore, using a combination of different incentives such as the ones outlined in this paper may result in a range of motivating factors for a wider variety of students. If tailored specifically to a subject, this would also reinforce to students that the instructors care, a factor that has previously been shown to increase response rates (Chapman & Joines, 2017).

Although there has been a lot of discussion as to the best framework employed for SET and the best way to use the data obtained (Pounder, 2007; Wagenaar, 1995), it is clear there needs to be a sufficiently high enough response rate to provide adequate evidence for accountability and improvement purposes confidently. Conversely, the number of non-responders should be low enough to be confident that those who have responded are representative of the class. This number is dependent on the number of students in a subject and the conditions applied to the analysis (Nulty, 2008). In other words, subjects with fewer students require a much higher response rate to avoid sample bias. In the current study, 3 of the 5 subjects reached a suitable response rate to allow for enough confidence in the SET results, and the other two came close, using the liberal conditions applied by Nulty (Nulty, 2008) in relation to acceptable sampling errors and confidence level (Table 6).

Table 6

Response rate and required response rate by class size

Class size	Response rate (%)	Required response rate using liberal sampling conditions (%) (class size)
31	41.9	48 (30)
37	40.5	48 (30)
42	45.2	40 (40)
65	30.8	31 (60)
78	56.4	28 (70)

Our smaller targeted survey, which asked the students to identify the interventions that encouraged them to complete the SET, identified that the prize incentive was the main driver for completion for the majority of students. (Goodman et al., 2015) have reported that implementing an incentive strategy provided a 22% higher response rate compared with any of the other strategies used. A similar result was reported by (Sammut et al., 2021), for whom entry into a draw with a cash prize raised response rates. In our study, for students to enter the prize incentive pool, they were required to complete the smaller survey and provide photographic proof that they had completed the SET. Some students did not complete this small survey for unknown reasons, but they could include not understanding the requirements of the competition, forgetting that they had to complete these additional tasks, or not wanting to be part of the prize pool (e.g. this incentive was not a driver for their SET completion).

The improvement in response rates was not limited to the subjects that had the strategies embedded. Subjects where students who had been exposed to interventions in another subject saw response rates almost doubling as well, which has not been previously identified in the literature. This could be due to many institutions employing a whole of university approach to improving response rates rather than targeting specific subjects (Goodman et al., 2015). One possible reason for this outcome could be found in the way the student survey is completed, as students can complete the surveys for all subjects they are enrolled in from a single portal at the same time. The ease of completing the survey for all subjects may have led to a rise in response rates in those subjects where the intervention was not applied. Ease of use has previously been identified as a motivational factor for SET response rates (Nevo et al., 2010). It has been noted that people evaluate the cost to themselves before completing a survey (Porter, 2004) and that, for web-based surveys, a shorter time commitment makes students more likely to complete them (Liu & Wronski, 2018). Therefore, if completing an additional subject survey required limited additional time, then students may have been motivated to complete all their subjects together. This raises an important question: is it necessary to advertise or incentivise in all subjects as opposed to a select group of subjects across the university? Additional research is needed to explore this further, as our study was limited to students in the Faculty of Health in an Australian metropolitan university.

Although response rates are important, so too are the text comments. Likert scale data alone often do not provide sufficient information about what students would like to see improved and

what they thought enhanced their learning. Text comments provide a rich source of information for instructors to improve learning outcomes, but there needs to be enough of them to be of value. In 2019, less than half of the students who responded to the survey, and who were enrolled in the same subjects in which the intervention was applied in 2021, left any comments. Therefore, as well as improving student response rates, this study aimed to improve the quantity and quality of the written comments, by explicitly discussing with students how previous cohorts' comments had helped improve the subject and how they had benefitted from this. This 'closing the loop' intervention was used to allow students to see how valuable comments could be to improving the subject. The data analysis revealed a significant 2-fold increase in the number of responses that had text comments after the intervention, up from 45.6 to 83.3%.

An increase in the number of comments is important, but the benefit is limited if students respond with short comments that do not allow the instructor to understand a student's perspective or enable a deeper and personal insight into their learning journey. Accordingly, text analytics of comments were used to evaluate students' responses and gauge the quality of their comments. In this study, we examined the number of words and the lexical diversity as quality indicators for written comments. (Kiefer, 2019) recommends that average sentence length, number of spelling mistakes, and abbreviations should also be considered as a quality indicator in text mining. For this study, sentence length was chosen as the key measure to ensure that if student cohort response rates increased, students' responses were still meaningful and actionable. Abbreviations and spelling were not used as measures in this study, as these do not affect the potential value of the information. This contrasts with traditional text datasets, where the focus can be on the information contained in these datasets and automated theming, so spelling errors and abbreviations can potentially reduce the quality of such data sets. Data analysis in this study showed there was an increase in the average number of words for each comment, with 65 words in 2021, up from 52 in 2019 for the undergraduate subjects, but no substantial change in lexical diversity. These results suggest that although the number of comments increased, the quality of the comments was not jeopardised.

The quantity and quality of written comments were similar between the undergraduate and post-graduate subjects, even though the latter cohort had a high percentage of mature-age students. Previous research has shown that mature-age students are more likely to complete SET surveys, yet our results did not support this (Macfadyen et al., 2016). Educators are more likely to use comments when improving their teaching rather than the SET scores, because the latter do not provide specific opportunities for action (Alhija & Fresko, 2009). Therefore, it is important that students are encouraged to provide quality comments in their feedback. An older study by (Svinicki, 2001) indicated that students are unlikely to spend quality time writing comments if they do not feel their efforts will be actioned and there is no immediate benefit to them. Each of the 5 instructors in this study gave specific examples of how past students' written comments were considered to enhance the learning and assessment in the current semester (the closing the loop strategy). This simple strategy was used before the deployment of the survey and provided context to the students and increased their beliefs that their feedback was important and would be actioned.

Conclusion

This study:

- Set out to evaluate whether the implementation of three specific strategies across five Faculty of Health subjects would improve university-wide SET survey response rates, both in terms of quantity and quality of responses. The results showed that the interventions in the five targeted subjects had a significant impact, almost doubling the response rates and the number of comments almost doubled, without reducing the quality of the comments.
- Aimed to determine whether intervention in one subject could impact response rates in the other subjects that students are concurrently studying. The results suggested that the interventions in the five targeted subjects had a flow-on effect on other subjects which students were enrolled in, beyond those five targeted subjects.

It is not always possible for interventions to occur in all subjects, so a targeted intervention could help increase the response rate of a subject or set of subjects that are of focus at a given point in time. These interventions might be most effective when deployed in large core subjects to the majority of students, creating a ripple effect that may also benefit smaller subjects. Overall, these results show considerable promise, but it should be noted that this study is relatively small, discipline-specific, and covers only one semester's worth of interventions. Future studies could expand the scale beyond this and even beyond a single institution to explore to what extent these kinds of targeted interventions are scalable.

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