Support for online students: Reducing attrition

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Abstract: Australia has seen significant increase in online enrolments in recent years; however, non-completions and early attrition of online students are often above 30% (TEQSA attrition report, 2017). This raises several issues for institutions including financial costs associated with dropouts, failure and non-continuation, potential institutional reputational damage and the need to meet TEQSA threshold standard requirements to demonstrate parity between face-to-face and online instruction. Several Australian institutions have taken affirmative action to address these issues. One such approach is to provide proactive and one-to-one personalised academic assistance anchored in specialised technology-assisted student engagement strategies delivered by qualified academics. This paper explores the nature of the student cohort, the supports provided and the outcomes.
Keywords: online, attrition, support strategies

Background: Institutions offering units and courses through any mix of online technologies can no longer be considered new or revolutionary. However, in 2004 two approaches to online courses were described. The first was that online technology as a medium for instruction was embraced by economic rationalists who argued the cost effectiveness of the medium. The second was related to quality teaching and learning where advocates argued the increase in teaching and learning quality opportunities made available by various online tools (Brook & Oliver, 2004). Regardless of the paradigm, online learning has been embraced by higher education institutions across the world and is seen as a strategic asset when managed, monitored and resourced appropriately (McCarthy & Samors, 2009).

Over the past decade, online enrolments in higher education institutions have continued to grow with over one third of learners having engaged in online learning representing a significant trend in higher education (Allen & Seaman, 2013). However, while there is some level of disagreement (Atchley et al, 2013) it appears that a statistically significantly difference exist in outcomes achieved by online students when compared to those students studying face to face (*ibid*). In keeping with more traditional distance education programs, those students who persevere with online learning tend to achieve higher grades than their face to face colleagues, although the volume of completions is significantly lower. This eventuality is reflective of historic data exploring the benefits of traditional external studies programs which concluded that students who complete courses tend to do well, but the attrition rate is high (*see* Phipps & Merisotis, 1999).

Attrition is an issue for universities in Australia for several reasons including the cost associated with lost enrolments and potential reputational damage. In addition, in Australia the Tertiary Education Quality and Standards Agency (TEQSA) monitors student attrition as a mechanism to gauge quality and equity and ensure compliance with the TEQSA Threshold Standards (i.e., attrition is compared across modes of study to ensure equity of service and outcomes between the various modes of delivery).

However, as is sometimes the case, different organisations use different definitions for attrition. TEQSA and the Department of Training (DET) are considered the most influential government agencies in Australia which monitor attrition. TEQSA define attrition as:

> *the ratio of first-year higher education commencing students in a year who neither completed nor returned to study in the following year, to the total commencing students in that year. (TEQSA, 2017)*

Importantly, this definition includes study at all levels including pre-bachelor, bachelor and postgraduate and is designed for the traditional two semester academic year. It also includes those students who do not enrol in subsequent semesters of study as attrition, but is limited to first year students.

DET define attritions slightly differently:

> *... the proportion of students who commenced a course in year(x) who neither complete in year(x)* ***or year (x + 1)*** *nor return in year (x + 1). (DET, 2018)*

For the purposes of DET this definition is used for Bachelor degree students only and includes those students who fail to complete a semester and do not enrol in subsequent semesters. In addition, this definition allows for students who do not return to study within one academic year of the completion of the original year of enrolment, and appears to reflect course level yearly enrolment and not specifically unit enrolments in a given semester.

Both definitions provide a strong framework for how *attrition* is understood and calculated at the system level. Typically *census* (the time at which a domestic student fees are calculated) is used as the date from which enrolments are counted. This is logical as it is also at this point that the university attracts funding based on enrolments, but it appears not to include those students who enrol in a unit of study and withdraw prior to *census*. This group of students enrol in a unit of study but withdraw prior to census or simply never show up and have been dubbed *summer melt* (Castleman et al, 2014).

Summer melt typically refers to students who graduate high school, are offered a place in a university course, but never attend. In the Australian context with multiple enrolment periods that cater for both high school graduates and increasingly mature age students this group might be more accurately dubbed *melt* being the group of students who enrol and withdraw prior to *census* in a given study period regardless of being year 12 graduates or mature age.

For the purposes of this study any definition of attrition must reflect *melt* and students at any academic level who fail to complete a *unit* of study in a given study period and do not enrol in subsequent units. Therefore, for the purpose of this study attrition in online units of study is defined as:

> *The ratio of students who enrol in a unit of study in study period x who neither complete that unit of study in study period x nor return in study period x + 1.*

Reducing attrition of online students clearly has benefits to institutions. Obviously, an increase in unit completions coupled with an increase in student progression to subsequent units means an increase in income to universities. Additionally, course and consequently unit completions are becoming an important measure of university quality reflected in *my university* web site and TEQSA incorporates attrition and course completions in the Threshold Standards which must be met.

Online learning is increasingly considered a strategic asset (McCarthy, 2009) when delivered effectively. With this in mind online learning presents a challenge to institutions which are attempting to reduce attrition as these units typically have a higher attrition rate than face to face settings (TEQSA, 2017).

There is no shortage of research studies that explore factors that influence attrition in online units and courses (see Gulatee et al, 2008; Diaz & Cartnal, 2006; Morris et al, 2005). Some studies explore student characteristics suggesting that verbal and physical learning styles coupled with a tendency toward procrastination increase the likelihood of attrition while a clear purpose decreases the likelihood of attrition (Shaw et al, 2016). Self-regulated variables (such as self-regulated learning traits) have been shown to have a statistically significant influence on student success in online units (Yukselturk and Bulut, 2007). Total page hits opposed to discussion posts are considered a strong indicator of success in online units of study (Ramos and Yudko, 2006), early and regular communication is considered important (Palloff and Pratt 1998) and student early access to the learning setting is considered an important indicator of future success.

It seems clear however that the various technologies used for online learning cannot replace the human factor in quality higher education (Gold and Maitland, 1999). Several researchers posit the positive impact of developing a *learning community* to support online learning (Brook and Oliver, 2003; Paloff and Pratt, 1999; Hiltz, 1997) but it is well recognised that intentional action is required in order to develop such a community (Brook and Oliver, 2003). Simply employing the technology and hoping for the best is unlikely to achieve the desired result. Key strategies include establishing a common purpose, requiring regular and meaningful communication, normalising conflict and weaving communication (Brook and Oliver 2004).

The question becomes how might other *human elements* be incorporated into online learning in a way that reduces *melt* and other forms of attrition and promotes unit completion, progression and course completion?

Research questions:

1. In what ways might early individualised telephone communication in online units influence student behaviour?

2. In what ways might individualised and ongoing tutor support and guidance influence melt and other forms of attrition?
3. In what ways might individualised and ongoing tutor support and guidance influence unit completions?

Methodology: The quest for both fundamental understanding and application of findings have been the guiding factors in the selection of both the research paradigm and methodology. Accordingly, this study seeks to engage in *use inspired basic research* (Stokes, 2011) with a dual focus on practical application of findings and a contribution to a growing theoretical knowledge base. Acknowledging that qualitative and quantitative paradigms are not mutually exclusive (Patton, 1990) both paradigms are used according to need.

The context specific nature of the learning experience and the desire to ensure congruence between the goals of the researcher and those of the practitioner (Reeves 1999, 2000) influenced the methodology adopted for this study. To meet these goals a Grounded Theory (Strauss, 1987) approach was chosen allowing theory to be generated from close contact with the empirical world (Patton, 1990). In the tradition of Grounded Theory, data collection strategies were embedded in the experiences, actions and behaviours of the actors involved. This was facilitated through a case study approach to the inquiry (Willig, 2001). This approach accounted for the context specific nature of the learning experience providing for theory to be generated from the actions of expert practitioners and their students. A multi-case approach (Burns, 1996) involving multiple instances of online learning was used. This allowed for refinement and further development of findings based on multiple instances of the same phenomenon under different conditions (Willig, 2001). Two instrumental cases considered exemplar models (Willig, 2001), selected on replication logic (Burns, 1996) of authentic learning (Oliver and Herrington, 2000), scenario based learning (eg. Lave & Wenger, 1991) and group work.

Core student support strategies: Selecting and training online tutors known as LINC Fellows. LINC Fellows are selected on the grounds of either holding a doctorate of philosophy in an appropriate discipline or equivalent industry experience. Once selected LINC Fellows undergo 25 hours of upfront training in how to support students who study online followed by ongoing weekly coaching sessions. Training includes:

- Roles and responsibilities
- Understanding online student needs and challenges
- Identifying issues and early indicators of attrition
- Approach to online engagement
- Proactive support strategies
- Collaboration with unit coordinators
- Academic integrity and misconduct
- Time management
- Using technology to improve effectiveness
- Effective discussion forum moderation
- Assessment marking and effective feedback

Instructional strategies involve a mix of information presentation and scenario based learning. On the successful completion of the training program LINC Fellows are then immersed in an authentic context incorporating a simulated online learning setting with several pseudo students who simulate typical online behaviours i.e., disengaged students, frustrated students, avid learners. LINC Fellow engagement with the pseudo students is monitored and reviewed for coaching purposes.
LINC Fellows adhere to strict guidelines for delivering online support to students that include:

- Proactive support
- Early and ongoing communication with students individually
- A 60 minute turn around for all student questions and engagement
- Standards that separate the role of tutor and student and guide engagement
- Academic integrity

On the successful completion of all training LINC Fellows are allocated to units of study. The LINC Fellow role might include *academic coach* where they act as a supplement to traditional university employed online tutors or *online tutor* where they assume all the responsibilities of tutors. In each role one LINC Fellow is allocated for every 25-30 students.

LINC Fellows utilise LINC's proprietary teacher productivity platform to plan and manage all interactions with students. The platform comes with automated functions that suggest interventions based on student online

behaviour and tracks all interactions including date, time, duration, direction of communication (who initiated the discussion) and all content.

Two cases were chosen for this study. The first involved LINC Fellows assuming the role of online tutors and the second involved LINC Fellows as academic coach supplementary to university employed tutors.

Data collection: Data collection methods provided for *triangulation* (Willig, 2001) and the context specific nature of the learning experience (Hill, 1996). To meet these conditions, it was necessary to adopt data collection mechanisms that allowed participants to describe their experience and allowed an objective interpretation of the learning experience. Data collection methods included:

a. Interviews: LINC Fellow interviews were used to account for the forms of engagement and activity employed by Fellows to promote learning. Interviews were conducted in the early and latter stages of course delivery and were sensitive to the instructor's understanding of the learning setting (Willig, 2001).

b. Observations Potential incongruence between what the interviewee said and what actually happened was explored through an observational data collection strategy (Becker & Blanch, 1970). Observations were made of all participant online interactions throughout the various courses. To avoid the potential limitations of observations as a data collection strategy (Burns, 1996), the structured approach proposed by Kiddler (1981) was followed;

1. What should be observed?
2. How should observations be recorded?
3. What procedures should be used to try to assure the accuracy of the observations?
4. What relationship should exist between the observer and the observed, and how should such a relationship be established.

This observation schedule provides for the opportunity to gauge participant practices and experiences before, during and after the learning experience.

c. Questionnaire A questionnaire was employed to collect data on individual experiences that appeared likely to influence the learning experience including communication patterns. Participating students were asked to complete the questionnaire at the end of the various courses. In addition, students were asked to respond to open ended questions that explored their learning experience.

Data analysis: Resulting data sets were analysed using a constant comparative approach (Patton, 1990). Qualitative data was coded according to emergent themes. Themes were constantly compared with emergent categories to establish a best fit with the data set. Quantitative data collected through student participation and completion data was analysed using descriptive statistics in accordance with the limitations associated with a relatively small sample size.

RESULTS

Each of the cases explored in this study are introduced individually in subsequent paragraphs. The training provided to the online tutors and quality assurance methods are also described. Presentation of the results aligns with the research questions.

In each case all communication, voice calls, text messages, emails and discussion board threads between the LINC Fellow and student were recorded and stored for analysis. In addition, all communication initiated by the student to the LINC Fellow were similarly recorded. Student recorded data also included access to course materials and attendance in live webinars via the Learning Management system, access and utilisation of LINC Fellow support, enrolment, progression, completion and grades achieved.

Case one: An online MBA offered through a large Australian University over a twelve-month period incorporating six cohorts of students. Students study one unit at a time in 7-week blocks across 6 study periods in the twelve month timeframe. Course design affords students a choice to complete four foundation units and exit with a Postgraduate Certificate in Business Administration or complete 12 units for the full MBA. A total of 552 students started the study period. Census was in the third week from the start of a study period.

The course design utilised problem based learning and case studies, discussion forums and industry seminars were used to enhance student learning.

The majority of students were categorised as mature age, professionals who fit study around existing commitments, including work, family and children. this category of student requires a high degree of flexibility in study times and locations.

Nineteen LINC Fellows assumed the role of *online tutors* working with 552 students across eight units of study. Their role was to provide ongoing academic support to students through one-to-one interactions, moderate discussion forum based learning activities and mark assessments.

Additionally, there is one university supplied Unit Coordinator for each unit who is responsible for conducting six online seminars in the six week period, moderating assignments and providing guidance and support to the online tutors on key academic matters. For approximately every 150 students enrolled a Student Success Advisor was allocated to provide administrative and non- academic support to students including advice on study progression.

All 552 enrolled students were provided the same level of learning support that included:

- Access to course materials via the LMS (including live webinars and discussion forums)
- Individual student telephone calls
- Individual student text messages
- Individual emails

Table one shows student engagement with the various learning supports and emergent trends.

Table one: Patterns of student engagement with learning supports

Patterns of student engagement	Number of students	Number of LMS forum posts per student	Number of phone calls per student	Total time spent on phone per student
Individual communication only	352	5.5	5.4	70 min
LMS and Individual communication	52	31.2	6.0	88 min
Erratic use of both learning supports	47	11.6	2.2	30 min
Disengaged from both learning supports	101	0.7	1.0	14 min

The majority of students (352) took advantage of various modes of one to one communication with the LINC Fellow. Relatively few students (52) used both the one to one communication and the communicating tools available through the LMS, and a relatively small number of students (48) were erratic uses of the LMS and tended not to engage in personalised and individualised communication. While a relatively high number of students (100) were disengaged from both learning supports.

It is worth noting the volume of individual communication over telephone between various types of students. Majority of the students (352) who were using only one to one mode spent on average 70 minutes on the phone with their tutor across 5.4 calls during the study period. In addition, they only posted on average 5.5 times during the entire study period suggesting a minimal use of LMS resources when compared with other students. 52 students who used both LMS support resources and one to one support posted on average 31.2 times during the study period and spent 88 minutes across 6 phone calls with their tutor suggesting an intent to maximise the use of available resources. In contrast, students who were disengaged from both forms of learning support (101) posted on average 0.7 times and only spent 14 minutes on the phone with their tutors.

Early patterns of communication were seen to be predictors of attrition prior to census date (melt). Table two shows the communication patterns of students and *melt*.

Table two: Patterns of Communication and melt prior to census

Patterns of student engagement	Number of students	Melt
Individual communication only	352	-1
LMS and Individual communication	52	-0
Erratic use of both learning supports	47	-6
Disengaged with both learning supports	101	-56

Not surprisingly, only one of the students who actively engaged in individualised communication (352) withdrew prior to census. Although a much smaller cohort (52), none (0) of the students who engaged in both LMS and individualized communication withdrew prior to census. Erratic users of both communication

strategies tended to withdraw at a higher rate (6) and as might be expected those disengaged students (101) represented the largest volume of withdrawals (56).

It is also important to note that the tutors made a proactive effort to reach out to all students who started at the beginning of the study period. The objective of this outreach was to understand the student's academic concerns, explain how they could help them and provide them an early guidance on academic expectations from the unit. The relationship between student engagement before census and melt is noted in the table three below.

Table three: Incidence of individual engagement before census and melt rate

Incidence of individual engagement by census	Number of students	Melt
In both weeks before census	375	27
Once before census	160	30
No engagement	17	6

A significant number of commencing students (375) or 68% chose to hold introductory conversations with the tutors followed by a second conversation or exchange before census. Of these just over 7% withdrew by census. Another 160 students had one conversation and just under 19% or 30 of these students withdrew by census. Only a small number (17) chose not to have any communication with the tutor during this period and subsequently just over 35% of them withdrew by census.

The individual engagements continued over the study period with students who moved past census and the patterns of engagement can be further explored according to time and purpose. Table four shows the nature and purpose of communication.

Table four: Timing and purpose of individual engagement

Timing and purpose	Number of students	Percentage
Ongoing throughout study period	334	68%
Limited or no engagement	67	14%
Assessment focused	88	18%

Post census the majority of students 334 or 68% engaged relatively consistently throughout the study period while 88 or 16% only engaged just before assessment due date and only for the purpose of clarifying the assessment requirements. A significant number of students 67 or 14% continued to have limited or no engagement.

Finally, student engagement can be mapped to successful unit completion and grades. Table five shows patterns of engagement, completions and achieved grades.

Table five: Patterns of engagement, completions and achieved grades

Patterns of engagement	Pass	Credit	Distinction	High Distinction	Fail	Total
Individual communication only	29	89	126	71	36	351
LMS and Individual communication	2	13	24	12	1	52
Erratic use of both learning supports	3	15	13	6	4	41
Disengaged learners	5	8	6	5	21	45

The volume of students who engaged in one to one communication with the LINC Fellows and did not avail themselves of LMS learning support were by far the largest cohort (351). Of those students just over 90% achieved a pass grade or higher with just over 56% achieving a Distinction or High Distinction. Those students who engaged with both learning supports (52) also achieved high results with 98% achieving a pass grade or higher with just over 69% achieving a Distinction or High Distinction. Erratic users of both learning supports (41) were the smallest sub group. Of those just over 90% (37) achieved a pass grade or higher with just under 50% achieving a Distinction or High Distinction. Those students characterised as disengaged learners (45) were less likely to achieve a pass grade with just 24% achieving a Distinction of High Distinction, 47% of this cohort failed.

Feedback from the students was gathered around the individual support they received via an online survey. Students were specifically asked to comment in the responsiveness and availability of the tutor and the usefulness of support provided. Additionally, space was provided for open ended comments. The results are in table six along with an analysis of student commentary in table seven.

Table six: Student feedback on individualised support*

Patterns of engagement	Responsiveness and availability	Usefulness of support	Total respondents
Individual communication only	4.7	4.5	240
LMS and Individual communication	4.4	4.4	43
Erratic use of both learning supports	4.8	4.7	21
Disengaged learners	5.0	4.4	7
Overall	4.6	4.5	311

* Rating on a scale of 1 to 5 where 5 represents high satisfaction

Of the 489 students enrolled at census, 311 or just over 63% of the students filled in the survey questionnaire. 156 or about 50% of these students also provided qualitative commentary on the individualised support. Across all student types, feedback on the individualised support provided by LINC Fellows was very high both on responsiveness an availability (4.6) and usefulness of support (4.5). However, it must be noted that a very small number (7) of disengaged students filled in the survey which means their responses may not be representative of the larger population.

Table seven: Analysis of open ended comments received

Patterns of engagement	Direct impact on completion or outcomes	Improved learning experience	Other	Number of comments
Individual communication only	14	83	19	116
LMS and Individual communication	2	19	6	27
Erratic use of both learning supports	1	9	2	12
Disengaged learners	0	1		1
Overall	17	112	26	156

Analysis of the commentary suggests that 17 students directly attributed their success in the unit to the individualised support with 14 of these students being ones who largely relied on individual communication. Another 112 or just under 72% of the students who provided comments indicated that the support improved their learning experience. In addition, those students who responded positively reported an increase in the satisfaction with the learning experience. This increase in satisfaction was reflected in university surveys. Of the total student population who commenced the unit (552) only 63 (11%) withdrew and of those students who completed the unit only 62 (13%) failed.

Discussion: the case study is notable for the low withdrawal rate (11%) representing a significantly lower withdrawal rate than the national average for online units of study. A further notable trend in communication is the volume of students (351) who chose to engage in personalised and individualised communication instead of LMS based channels and the significant number of these students (335) who chose to continue communication throughout the unit rather than at assessment times only (88). The pattern of communication suggests that a significant portion of the student cohort actively engaged in personalised and individualised communication and made heavy use of phone calls for ongoing interaction with their online tutor.

Also noteworthy is that those students who engaged in this form of communication represented the largest proportion of students who completed and passed the unit. It is interesting that even with regular and meaningful communication not all students in this cohort passed with 36 failing. This pattern suggests that while individualised and personalised communication will support the learning of many students, it is not the panacea for all students and that despite high levels of engagement some students are still likely to fail albeit at a significantly reduced rate.

As might have been expected those students who were erratic in their engagement including those students characterised as disengaged were proportionally the largest cohort that either withdrew or failed. It is interesting that any of these students passed at all and it is significant that some achieved distinctions and high distinctions. This trend suggests that erratic users and disengaged students are likely to withdraw or fail at a proportionally higher rate that those students who engage, but it is possible that some of these students, despite what might be considered poor levels of engagement, might complete the unit and achieve satisfactory results.

A comparison of student engagement patterns, withdrawals, completions and grades suggests that those students who engaged in one to one personalised and individualised communication were more likely to continue enrolment and achieve satisfactory results. Student outcomes and results suggest that those students who engaged in this form of communication outperformed students who engaged in LMS activities alone or were characterised as disengaged learners. Furthermore, this cohort appeared to communicate throughout the study period and not at only at key times such as assignment due dates, suggesting a more continual engagement with learning. Finally, this mode of engagement and communication was by far the most frequently used suggesting that it was the preferred mode of communication for this cohort of online students.

Students who engaged in this form of communication reported a benefit to their learning experience in terms of participation, completion and satisfaction.

Case Two: Online postgraduate programs at an Australian based university. Coaching support was provided for one study period to courses identified by the university based on past course performance. The courses were selected from disciplines in management and business including Marketing, Supply Chain, Human Resources and Project Management. Students study one unit at a time in 7-week blocks across 6 study periods in the twelve month period. Course design affords students a choice to complete four foundation units and exit with a Postgraduate Certificate in Business Administration or complete 12 units for the full MBA. Census was in the third week from the start of study period.

The majority of students were categorised as mature age, professionals who fit study around existing commitments, including work, family and children. this category of student requires a high degree of flexibility in study times and locations.

Staffing for each course included a Course Coordinator who was responsible for moderation and overall guidance of the teaching team. Online tutors in groups of 25-30 students who provided weekly webinars, assessment marking, discussion forums and general student guidance.

LINC Fellows assumed the role of an *academic coach* responsible for providing one-to-one academic assistance and guidance on content, subject matter and assignments. One academic coach was assigned to 25-30 students to foster student engagement in course related discussions including proactive student engagement. A total of 20 coaches supported 616 students across 6 courses over the 6-month period of trial.

Additionally, for approximately every 150 students enrolled a Student Success Advisor was allocated to provide administrative and non- academic support to students including advice on study progression.

Table eight shows student engagement with the various learning supports and emergent trends.

Table eight: Patterns of student engagement with learning supports

Patterns of student engagement	Number of students	Number of webinars per student	Number of phone calls per student	Total time spent on phone per student
Individual communication only	269	0.5	5.7	77 min
LMS and Individual communication	58	5.1	7.1	114 min
Erratic use of both learning supports	64	1.5	2.5	32 min
Disengaged from both learning supports	225	0.0	0.8	8 min

The majority of students (269) took advantage of various modes of one to one communication with the LINC Fellow. Relatively few students (58) used both the one to one communication and the communicating tools available through the LMS, and a relatively small number of students (64) were erratic uses of the LMS and tended not to engage in personalised and individualised communication. While a high number of students (225) were disengaged from both learning supports.

Early patterns of communication were seen to be predictors of attrition prior to census date (melt). Table nine shows the communication patterns of students and melt. It is also worth noting the volume of individual communication over telephone between various types of students. Majority of the students (269) who were using only one to one mode spent on average 77 minutes on the phone with their academic coach across 5.7 calls during the study period. It can be contrasted that they only attended on average 0.5 of 6 webinars during the entire study period thereby indicating a minimal use of LMS based resources when compared with some other types of students. In contrast, students who were disengaged from both forms of learning support (225) did not attend any webinar during the study period and only spoke for an average of 8 minutes with their academic coach. 58 students who used both LMS support resources and one to one support attended on average 5.1 of 6 webinars and spent 114 minutes across 7.1 phone calls with their academic coach.

Table nine: Patterns of Communication and melt prior to census

Patterns of student engagement	Number of students	Melt
Individual communication only	269	-0
LMS and Individual communication	58	-1
Erratic use of both learning supports	64	-11
Disengaged with both learning supports	225	-93

Not surprisingly, very few (1) of the students who actively engaged in individualised communication (269) and the much smaller cohort (58) of the students who engaged in both LMS and individualized communication withdrew prior to census. Erratic users of both communication strategies tended to withdraw at a higher rate (11) and as might be expected those disengaged students (225) represented the largest volume of withdrawals prior to census (93).

It is also important to note that the academic coaches started out with a proactive outreach effort to all students who started at the beginning of the study period. The objective of this outreach was to understand the student's academic concerns, explain how they could help them and provide them an early guidance on academic expectations from the unit. The relationship between student engagement before census and melt is noted in the table ten below.

Table ten: Incidence of individual engagement before census and melt rate

Incidence of individual engagement by census	Number of students	Melt
In both weeks before census	229	4
Once before census	190	14
No engagement	197	87

A significant number of commencing students (229) or 37% chose to hold introductory conversations with the tutors followed by a second conversation or exchange before census. Only four (4) of these students withdrew before census. Another 190 students had one conversation and just over 7% or 14 of these students withdrew by census. There were 197 students who chose not to have any communication with their academic coach during this period and just over 44% of these students withdrew by census.

The individual engagements continued over the study period with students who moved past census and the patterns of engagement can be further explored according to time and purpose. Table eleven shows the nature and purpose of communication.

Table eleven: Timing and purpose of engagement

Timing and purpose	Number of students	Percentage
Ongoing throughout study period	234	46%
Limited or no engagement	156	30%
Assessment focused	121	24%

Post census the majority of students 234 or 46% engaged relatively consistently throughout the study period while 121 or 24% only engaged just before assessment due date and only for the purpose of clarifying the assessment requirements. A significant number of students 156 or 30% continued to have limited or no engagement.

Finally, student engagement can be mapped to successful unit completion and grades. Table twelve shows patterns of engagement, completions and achieved grades.

Table twelve: Patterns of engagement, completions and grades

Patterns of engagement	Pass	Credit	Distinction	High Distinction	Fail	Total
Individual communication only	36	63	83	52	35	269
LMS and Individual communication	1	7	22	26	1	57
Erratic use of both learning supports	7	10	11	4	21	53
Disengaged learners	7	17	25	12	71	132

The volume of students who engaged in one to one communication with the LINC Fellows and did not avail themselves of LMS learning support were by far the largest cohort (269). Of those students just under 87% achieved a pass grade or higher with slightly over 50% achieving a Distinction or High Distinction. Those students who engaged with both learning supports (57) also achieved high results with 98% achieving a pass grade or higher with just over 84% achieving a Distinction or High Distinction. Erratic users of both learning supports (53) were the smallest sub group. Of those just over 60% achieved a pass grade or higher with just over 28% achieving a Distinction or High Distinction. Those students characterised as disengaged learners (132) were less likely to achieve a pass grade or higher (46%) with just 28% achieving a Distinction of High Distinction. Not surprisingly 54% of this cohort failed.

Feedback from the students was gathered around the individual support they received via an online survey. Amongst a number of questions asked, most relevant were those around the responsiveness and availability of the tutor and the usefulness of support provided. Additionally, space was provided for open ended comments. The results are in table thirteen along with an analysis of student commentary in table fourteen.

Table thirteen: Student feedback on individualised support*

Patterns of engagement	Responsiveness and availability	Usefulness of support	Total respondents
Individual communication only	4.7	4.4	201
LMS and Individual communication	4.8	4.3	50
Erratic use of both learning supports	4.7	4.8	34
Disengaged learners	3.7	2.9	94
Overall	4.7	4.3	379

* Rating on a scale of 1 to 5 where 5 represents highest satisfaction

Of the 511 students enrolled at census, 379 or just over 74% of the students filled in the survey questionnaire. 136 or about 36% of these students also provided qualitative commentary on the individualised support. Except disengaged learners, the feedback on the individualised support was very high both on responsiveness and availability (4.6-4.7) and usefulness of support (4.3-4.8). Disengaged learners gave a relatively low rating to the coaches on both aspects indicating that the individualised approach was not helpful for them.

Table fourteen: Analysis of open ended comments received

Patterns of engagement	Direct impact on completion or outcomes	Improved learning experience	Other	Number of comments
Individual communication only	17	68	18	103
LMS and Individual communication	8	11	5	24
Erratic use of both learning supports	0	2	3	5
Disengaged learners	0	3	1	4
Overall	25	84	27	136

An analysis of the commentary suggests that 25 students directly attributed their success in the unit to the individualised support with 17 of these students being ones who largely relied on individual communication. Another 84 or just under 62% of the students who provided comments indicated that the support improved their learning experience. When making general comments those students who responded positively to individualised support also indicated that the support was pivotal to their progression and completion of the unit and positively influenced their satisfaction with the learning experience.

Discussion: the withdrawal rate in this case study remains low (17%) representing a significantly lower withdrawal rate than the national average for online units of study. A further notable trend in communication is the volume of students (269) who chose to engage in personalised and individualised communication and the significant number of these students (234) who chose to continue communication throughout the unit rather than at assessment times only (121). The pattern of communication suggests that a significant portion of the student cohort actively engaged in personalised and individualised communication. The volume of phone conversations indicates that a large proportion of students chose to hold almost weekly conversations with their *coaches* despite other channels being available through the LMS.

Also noteworthy is that those students who engaged in this form of communication represented the largest proportion of students who completed and passed the unit achieving satisfactory and high results. It is interesting that even with regular and meaningful communication not all students in this cohort passed with 35 failing. This pattern suggests that while individualised and personalised communication will support the learning of many students, it is not the panacea for all students and that despite high levels of engagement some students are still likely to fail albeit at a significantly reduced rate.

As might have been expected those students who were erratic in their engagement including those students characterised as disengaged were proportionally the largest cohort that either withdrew or failed (92). It is interesting that any of these students passed at all and it is significant that some achieved distinctions and high distinctions. This trend suggests that erratic users and disengaged students are likely to withdraw or fail at a proportionally higher rate that those students who engage, but it is possible that some of these students, despite what might be considered poor levels of engagement, might complete the unit and achieve satisfactory results.

A comparison of student engagement patterns, withdrawals, completions and grades suggests that those students who engaged in one to one personalised and individualised communication were more likely to continue enrolment and achieve satisfactory results. Student outcomes and results suggest that those students who engaged in this form of communication outperformed students who engaged in LMS activities alone or were characterised as disengaged learners. Furthermore, this cohort appeared to communicate throughout the study period and not at only at key times such as assignment due dates, suggesting a more continual engagement with learning. Finally, this mode of engagement and communication was by far the most frequently used suggesting that it was the preferred mode of communication for this cohort of online students and was positively linked with student satisfaction.

Trends across both case studies: Some trends emerge across both case studies that suggest online student preferred communication strategies as well as those strategies that are more likely to yield success. Students clearly preferred individualised and personalised communication and those students who engaged in this form of communication were more likely to remain enrolled, achieve pass grades and report high satisfaction with the learning experience. Students who relied solely on the LMS for engagement represented a much smaller cohort, but were very likely to achieve pass grades. Disengaged learners and erratic users of the LMS and communication tools were the most likely to withdraw or achieve fail grades. A notable observation in this cohort of students across both case studies is that despite what would be considered poor engagement patterns a few students achieved a pass grade with some achieving excellent grades.

Student engagement patterns and achievement across both case studies suggest a level of predictability in outcomes.

Conclusion: Data gathered in each study suggest common answers to the research questions that are presented below:

1. *In what ways might early individualised telephone communication in online units influence student behaviour?*

Available evidence suggests that the majority of students across both case studies chose telephone communication as their preferred mode of communication. In addition, those students who engaged with individualised and personalised telephone communication were more likely to remain enrolled in the unit, achieve satisfactory outcomes and report a satisfactory learning experience.

2. *In what ways might individualised and ongoing tutor support and guidance influence melt and other forms of attrition?*

Those students who engaged with ongoing one to one tutor support and guidance were less likely to withdraw pre-census and were more likely to remain enrolled post census.

3. *In what ways might individualised and ongoing tutor support and guidance influence unit completions and outcomes?*

Across both case studies, those students who engaged in individualised and personalised communication were more likely to complete the unit and achieve satisfactory outcomes.

Usefulness, limitations and further study: The outcome of this study suggests that students prefer to communicate one to one with their tutor and learning supports via personalised telephone conversations. In addition, when this form of communication is accessed students are less likely to withdraw and more likely to complete the unit and achieve satisfactory outcomes. This finding suggests that at least to some extent high level of attrition in online learning could be reduced through the introduction of personalised one to one communication with tutors and learning supports. Given advances in technology and cost effectiveness it is suggested that higher education providers concerned by the disproportionate attrition rate of online students might alleviate this concern by providing personalised and individualised communication with students.

As is often the case, this study has limitations, the first of which is that it is primarily a qualitative study utilising descriptive statistics and it is therefore difficult to argue generalisability. Furthermore, although the volume of students in each case study was relatively high it remains a small sample of the massive number of students studying online.

While it is clear that students prefer individualised communication and that those students who avail themselves of personalised communication are more likely to succeed it is not clear what communication strategies encourage engagement. It is also not clear what tutor behaviours are likely to encourage engagement. Further

study in these areas are likely to provide further insight into how to address the high rate of attrition in online learning.

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