Academic literacy diagnostic assessment in the first semester of first year at university

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Abstract

One vital aspect of the first semester of the first year at university is how academic literacy expectations are made explicit though teaching and assessment practices at the disciplinary level. This paper describes how an academic literacy diagnostic process, and the MASUS tool, was used to ascertain the academic literacy profile of a cohort of undergraduate nursing students [N=569] at the beginning and end of their first semester. Key findings of this quantitative descriptive case study were that only just over half of commencing students possessed appropriate academic literacy skills in all four aspects of the diagnostic and nearly 20% scored in the lowest band—suggesting difficulty with multiple aspects of academic literacy. By the end of semester, 77% of the students who had scored in the lowest band of the MASUS at the beginning of the semester had improved their scores to the middle or highest band, and 73% of them eventually attained a pass or higher grade for the course. The findings of this study suggest that large-scale academic literacy diagnostic assessment, when embedded and contextualised within a course of study, is an effective means of providing the early feedback and targeted support that many commencing university students need.

Background

Since the 1980s, issues relating to academic literacy in higher education and students' readiness for university have become topics for media headlines and public policy debate. A body of scholarship and research has also emerged. One impetus for this are the dramatic changes in commencing student profiles that have occurred as entry criteria and pathways became much more broadly inclusive and diverse than was previously the case (Curry & Lillis, 2003). This increase in demand for access to higher education is a global phenomenon that continues to grow faster than projections (International Council for Open and Distance Education [ICDE], 2009). It has been driven by a range of factors including specific government policies in countries such as the United Kingdom and Australia and also by dramatic social, political and economic changes such as the dismantling of apartheid in South Africa and the emergence of an economically able middle class in China and India (ICDE).

These changes have also brought about widespread perceptions of falling standards (Ganobcsik-Williams, 2004), employer disquiet with the quality and skills of graduates and concerns about how students' progression, attrition, retention and satisfaction with their university experience are affected by their academic language and writing ability (Ransom, 2009. In Australia, the Bradley review of higher education recommended that by 2025, 40% of all 25-30 year olds should hold a bachelor level qualification (Bradley, Nugent, Noonan & Scales, 2008). This rekindled debate about whether continuing to broaden the equity and access base of entrants places at risk the ability of universities to maintain academic standards, the costs of doing this effectively, and how best to support greater numbers and increasingly diverse groups of students. Questions have also been raised about how tertiary institutions have responded to this situation, including the nature and effectiveness of academic literacy education and the reasonableness of their academic literacy requirements and practices (Lea & Street, 1998). It has even been argued that prevailing academic literacy conventions may operate in such a way as to preclude certain groups of students from succeeding at university and in effect undermine policies of openness and diversity (McKenna, 2003).

We undertook the process of examining our curriculum and teaching and assessment practices with respect to academic literacy for many of the same reasons that tertiary institutions around the world are experiencing. Our first year student intake not only has significantly increased in numbers but also has become much more diverse. For example, over the six years prior to 2012, the proportion of students entering from Vocational Education and Training (VET) award courses increased by 49%, while there was a reduction of nearly 20% in entry via the secondary school pathway. Furthermore, during this time period, attrition from the nursing program nearly doubled and students with non-traditional entry pathways had higher failure and attrition rates than students who entered directly from secondary school. This suggested that increasing numbers of students with much greater needs for academic literacy support and development were entering the nursing program. The challenge was to find logistically feasible ways to address those needs that were pedagogically sound, effective and contributed to a positive

experience for students in their first semester.

Academic literacies in higher education

Academic literacy is a complex and multidimensional construct rather than a singular entity; hence the plural "literacies" is more often used (Murray, 2010. Many of the current understandings of academic literacies reflect notions of multiplicity of practices, contexts, genres, identities and meanings, which constitutes a significant shift from the early "study skills" model (Lea & Street, 1998). These different dimensions of academic literacies fall essentially into three categories or approaches. The first is operational which focuses primarily on language and grammatical competence, while the second focuses on the enculturation of students into discipline-specific discourses and genres. Both of these approaches have their roots in systemic functional linguistics (SFL) and the analysis and critique of text (i.e., students' writing). The third, and most recently emerged, is the critical social perspective, often called New Literacy Studies (NLS). This approach focuses on critically examining institutional practices, rules and mores, the dominant discourses of the academy (Coffin & Donohue, 2012).

The differences between the SFL informed and NLS approaches are more often emphasised than their compatible elements, which is perhaps unfortunate. However, as Coffin and Donohue (2012) point out, critique of existing practice is also possible in the SFL perspective, and considering the reality of current institutional environments, might be usefully combined with the SFL approach of seeking to make the contexts of texts more explicit for students. That is, the latter might also usefully engage with students from a wide range of backgrounds and previous experiences, and there are many possibilities for enriching and expanding the embedding of academic literacies into teaching and assessment practices in a way that draws on the best of both approaches. This is important because of the evidence indicating that development of academic literacies competence is associated with students' overall academic success (Donohue & Erling, 2012). While there are other factors that contribute to academic success—including motivation and help-seeking behavior—academic literacies are a significant aspect of student achievement, and it is likely that there is a threshold of capacity below which progression or even coping confidently and well becomes increasingly difficult. All this has led to a focus on the development, validation and utilisation of academic literacies diagnostic tools and assessment processes to better identify students' needs, chart their progress, improve curricula and teaching practices and target support for students who may be at greater risk of failing, withdrawing from or not achieving their goals for their undergraduate courses of study.

Post-entry language assessment in universities

Dunworth's (2009) survey of Australian universities' use of post-entry English language assessment (PELA) found that 40% of institutions had undertaken some form of academic literacy diagnostic assessment. Most of this was at a disciplinary level among first year students. As yet, few universities have adopted a co-ordinated, institution-wide approach to PELA. One notable exception is

the University of Melbourne in Victoria, Australia, which has used a university-wide early post-admission mass academic literacy screening and diagnostic process for over a decade (Ransom, 2009. Also notable is the strategy adopted by the University of Wollongong in New South Wales, Australia which involves some diagnostic assessment but is a much more an integrated, co-ordinated, collaborative and holistic approach to academic literacies education (Purser, Skillen, Deane, Donohue & Peake, 2008). For those teaching in universities that do not have this co-ordinated approach, but who wish to do some form of diagnostic academic literacy assessment, identifying the best and most appropriate tool is an important first step.

Table 1: *MASUS rating criteria, adapted [1] with permission from Bonanno & Jones (2007)*

Criterion	Descriptor
A. Use of source material	Relevant ideas and evidence from sources have been selected, understood, interpreted correctly and used effectively.
B. Structure and development of answer	A reasonable answer has been developed clearly and logically. There is a thesis statement from which this answer subsequently unfolds, and a conclusion. There is balanced evaluation of ideas and support for generalisations.
C. Control of academic writing	The writing style and language conveys the writer's meaning effectively, and it can be clearly understood. There are paragraphs with topic sentences that flow, sentences that make sense and effective use of "signpost" language. Language is appropriate to the task.
D. Grammar	Grammatical errors are minimal and do not interfere with communicating the message.

KEY:
4 = excellent / no problems / accurate / highly appropriate
3 = good / minor problems / mostly accurate / mostly appropriate
2 = only fair / some problems / often inaccurate / often not appropriate
1 = poor / major problems / inaccurate / mostly not appropriate

What the ratings mean:
If you were rated 4 in all areas, this means that your writing skills should be more than adequate to cope with the requirements for writing at first-year university level. Most students will not get a rating of 4 in all areas. If your rating is 3 in an area it means your writing skills are adequate but we suggest that you continue to work on that particular aspect. Ratings of 1 or 2 indicate that there are significant weaknesses that are likely to impede your progress and you will need to improve your skills in those areas. If you have received ratings of 1 or 2, please speak to your tutor about developing a plan to improve your academic literacy skills and to ensure you are aware of the support services that are available to help you do this.

[1]Note: adaptations included some changes to the wording of the descriptors to reflect the nature of the writing task and expectations, and the explanatory text in the box under "what the ratings mean".

The MASUS diagnostic tool

Measuring the Academic Skills of University Students (MASUS) is a diagnostic tool developed specifically for university students in the 1990s by a team at the University of Sydney Learning Centre (Bonanno & Jones, 2007). It is composed of four elements with associated descriptors that can be modified according to the specific nature of the particular set writing task (see Table 1). The four elements relate to different aspects of academic literacy, including effective use of source material and ability to structure an answer. Raters rank each of the elements on a scale ranging from one to four. A rating of 4 means that the particular literacy skill is excellent or highly appropriate while a rating of 1 means that it was poor or mostly not appropriate. The four rated scores provide students with an individual literacy profile (ILP) and written feedback explaining the ratings can also be added.

A validity assessment of the MASUS by Erling & Richardson (2010) reported that it possesses satisfactory degrees of construct validity—with 60.8% of the variance explained—and external validity with correlations between the MASUS and assignment marks ranging between 0.39 and 0.5. The reliability coefficients of the MASUS were 0.84 for internal consistency and 0.66 for test-retest reliability, which Erling & Richardson (2010) argue is also satisfactory. Since its development, several studies have reported on their experiences of using of the MASUS as a PELA, most of which have been conducted in Australia (Holder, Jones, Robinson, & Krass, 1999; Skinner & Mort, 2009). However, specifics relating to logistics and ratings procedures are often not reported in sufficient detail for those interested, as we were, in ascertaining what was best practice in administering the MASUS procedure. Therefore, the aims of this study were to:

1. Diagnose the academic literacy profile of a commencing cohort of first year Bachelor of Nursing (BN) students at the beginning and the end of their first semester of study;
2. Examine patterns of students' literacy scores and final course results; and
3. Explore the logistics of using the MASUS as a diagnostic tool for a large and diverse cohort of undergraduate students in their first semester at university.

Method

The study design was a descriptive case study using a validated academic literacy diagnostic tool to assess the academic literacy profile of a cohort of commencing undergraduate nursing students, to examine the effect of the embedded academic literacy education strategies and to describe the lessons learned in the process. According to Yin (1994), case study methods are appropriate when the researcher is conducting research in the real-life context in which the intervention is occurring, or wishes to describe the intervention and examine its effects. As far as we can ascertain, this is the first published study to have assessed the academic literacy skills of an entire undergraduate cohort of a particular discipline at the beginning and end of their first semester of study. Permission to use the MASUS for teaching and research purposes was obtained from the Learning Centre, University of Sydney in Australia and ethics approval for the study was granted by the university's Human Research Ethics Committee. Data for the study was collected retrospectively, however, students were informed about

the study and had the opportunity to have their MASUS scores and course results removed from analysis if they wished to do so.

Course materials were developed in which the MASUS was used to introduce students to some of the concepts associated with academic literacy. One such activity involved students practicing assessing and rating samples of written work and discussing the results. Prior to the commencement of the semester, the 19 tutors involved in teaching the course were briefed on the nature and purpose of the MASUS. The briefing sessions entailed explaining the nature and purpose of the MASUS, how it works, practice in rating samples of writing, discussions about inter-rater reliability and procedures for student follow-up. Colleagues from the learning development unit of the university were involved in the pre-implementation process. Based on both the available literature and logistical constraints, the details of the MASUS procedure used for this study were as follows:

1. Students were introduced to the MASUS diagnostic and its purpose in Week 2 of semester, in tutorials, in the context of teaching about critical thinking and clinical reasoning. This was to signal its importance and enable sufficient time for rating and feedback.
2. Students were allocated one week to complete their writing task. The task involved reading a journal article about clinical reasoning (Levett-Jones, et al., 2010 and the Code of Professional Conduct for Nurses in Australia (Nursing and Midwifery Board of Australia [NMBA], 2008) and answering the question *What does it mean to think like a nurse?* in 400-450 words.
3. The MASUS submission was not formally marked, but given a rating score (which is not a mark). However, the submission formed part of a longer assessment item due later in the semester for which students were expected to use their MASUS feedback to improve. Skinner and Mort (2009) recommend the MASUS be part of a formal, weighted assessment in the belief that this is needed for students to take it seriously. However, using it as a formative assessment is more consistent with an approach in which it is embedded as a tool for learning.
4. Ratings were undertaken by the usual tutors of each tutorial group, rather than by external expert raters not involved in teaching the course. This was partly for cost and logistical reasons and partly because it allowed tutors to give personalised feedback and gain insight into their students' writing capacities (which would not have been possible had they not done the rating themselves).

Tutors rated submissions and returned them to students in one week. Students were provided with their individual results and aggregated results for the entire cohort were discussed in lectures. Advice and additional learning support were offered to students whose MASUS scores indicated that they had significant problems with academic literacies (a rating of 9 or below), but was not compulsory. Staff from Learning Development wrote and delivered additional workshops (which were based on the four elements of the MASUS). While students with MASUS scores of 9 and below were encouraged to attend these workshops, they were open to

all. MASUS ratings were then repeated at the end of semester, for a summative assessment item (a 1500 word essay). Finally, MASUS score data were obtained from raters after both MASUS exercises and entered into excel spreadsheets. Course results were obtained at the end of semester and also entered into the spreadsheet. Data were collated and analysed in excel and presented descriptively in the form of frequency and percentages of students scoring in each band of the MASUS.
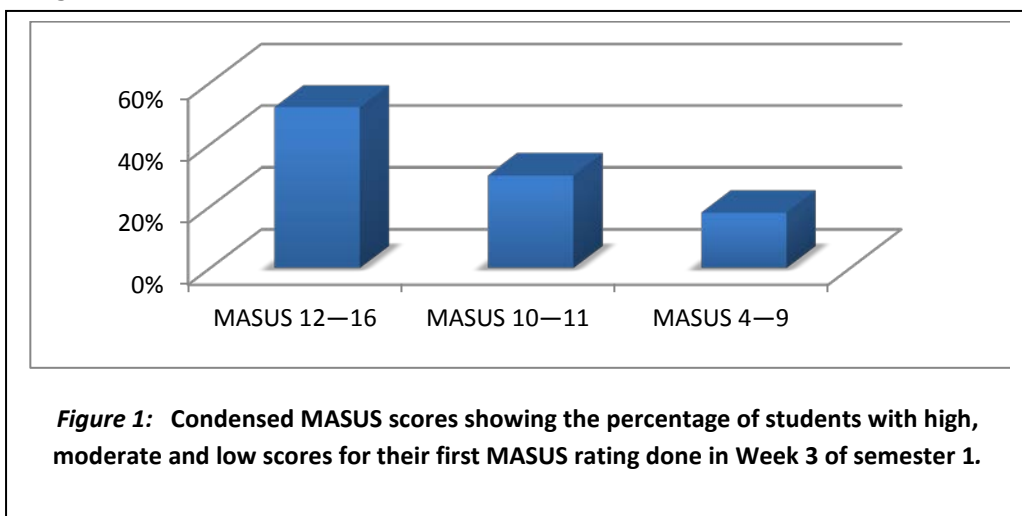
Results

The demographic profile of the sample of students in this study was overwhelmingly female, at 87%. Reflecting recent trends in broadening paths of access to university, only 23% entered first year directly from secondary school, while 24% gained entry on the basis of VET courses and 35% from the university alternative pathway programs *Newstep* and *Open Foundation*. Over half (54%) were under the age of 25, while 30% were 39 years or older and 14% were aged over 40. Thirty-five percent were from a low socio-economic background and 6% were international students.

The first MASUS rating was conducted in Week 3 of semester, at which time there were 569 students enrolled in the course. Of these, 513 submitted a piece of work for rating and 56 (10%) did not. Students' ratings were grouped into the following three categories or bands:

- 12-16; indicating appropriate or nearly appropriate skills in all four areas of the MASUS
- 10-11; indicating problems in at least one area of the MASUS
- 4-9; indicating problems in multiple areas of the MASUS

The results for this grouping are shown in Figure 1. At the beginning of the semester, just after admission to university, nearly half (48%) of students obtained a MASUS score in the lowest two bands: between 4-9 and 10-11. Of most concern were the 92 (18%) of students who scored in the lowest band, indicating that they lacked appropriate academic literacy skills in multiple areas. This placed them at increased risk of failing the course and in need of additional support. Only 24

Figure 1: **Condensed MASUS scores showing the percentage of students with high, moderate and low scores for their first MASUS rating done in Week 3 of semester 1.**

students (4%) scored a rating of 16; that is, were excellent in all four areas.

We then examined how early feedback and provision of learning support may have helped the 92 students who had scored in the lowest band (4-9). While 27% of them either failed or withdrew from the course, 73% attained a pass or higher grade. In the absence of a control group and a clearly defined intervention, caution needs to be exercised in attributing too much of this success to the MASUS procedure—some students may have improved anyway Nevertheless it seems reasonable to conclude that without the early feedback and opportunity to address the problems identified by their first MASUS rating, more of these students would have failed the course.

Disparity in final course results between high and low band MASUS scorers, while expected, was also quite marked (see Figure 2). Seventy percent of the 56 high distinctions (a mark of 85% or higher) awarded for the course went to students who had scored in the highest band in the first MASUS exercise. At the other end of the spectrum, of the 80 students who failed

the course, over half (56%) had either scored in the lowest MASUS band or had not submitted a piece of writing for rating. We were interested in the fate of the 56 (10%) of students who did not submit a piece of writing for the first MASUS. Of these students, 33 (nearly 60%) ended up either failing or withdrawing from the course, while 18 (32%) scored a credit or higher. Thus, there were in effect two quite disparate groups among the non-submitting students; nearly two thirds who were struggling already by the third week of semester, and the remainder who were apparently confident in their academic literacy skills and made the decision not to participate in the exercise as it was not mandatory.

The second MASUS ratings exercise at the end of semester was affected by missing data (26%). This was due to tutors' marking workload and some students' non-submission of the final assessment. There were 542 students still enrolled in the course at the end of semester and a second MASUS score data was recorded for 400 of them. Of these students, 172 (43%) still scored in the lowest two bands at the end of semester. Compared to the first MASUS
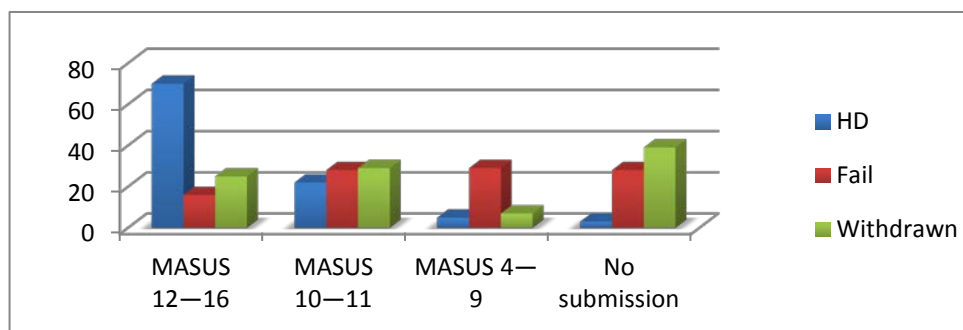
Figure 2 Pattern of first MASUS scores for students achieving High Distinction, Fail or Withdrawal for their final result in the course, expressed as percentages.

rating, this is a reduction of only 5%. However, there were some interesting shifts in the lower two bands (see Figure 3). Second MASUS data was available for 66 of the 92 students who had scored in the lowest band for the first MASUS. Of these 66 students, 51 (77%) had improved their MASUS scores by the end of the semester and for 26 of these students this was a substantial improvement of two bands. That is 40% of students who had scored in the lowest band for academic literacy at the beginning of the semester were in the highest band by the end.

semester and 30% of these students ultimately failed the course.

Discussion

Logistically, properly implementing the MASUS procedure with over 500 undergraduate students is a time consuming, complex undertaking. Planning needs to take into account three phrases; preparation, implementation and follow-up. Students need to see it as beneficial and worthwhile so care needs to be taken in explaining it beforehand. Prior briefing of
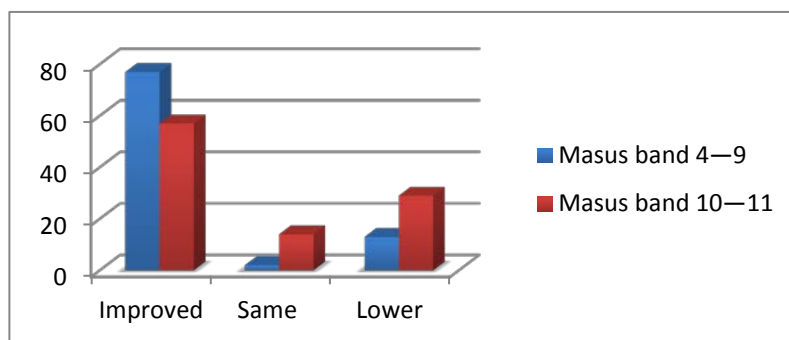
Figure 3: **Comparison between first and second MASUS ratings for students in lowest bands, expressed as percentages.**

Students who had scored in the middle band (10-11) of the MASUS at the beginning of semester demonstrated both less improvement and greater regression by the end of semester. Second MASUS data was available for 125 of the 156 students who were in the middle band for the first MASUS. Of these 125 students, 71 (57%) had improved by the end of semester, while 18 (14%) scored the same and 36 (29%) scored lower. For many of the latter, this was not a dramatic fall but was one or two rating points. Seventy-four students scored in the lowest band at the end of

tutors is also essential. Inter-rater reliability issues should be addressed including tutors practicing rating and discussing discrepancies. It is likely that this will reveal differences in perceptions among different tutors about how different aspects of the MASUS are interpreted and applied and also differences in expectations. Tutors found that the short turnaround time was stressful for them, so it is important for raters as well as students that the writing task not be too long. Despite the extra workload, all the tutors involved in the exercise thought it

worthwhile because it gave them very early insight into their students' writing abilities. The decision to give students time to write their response and to make the exercise formative but not allocate marks was the correct one, as it gives them the opportunity to do their best work, reduces their stress, and emphasises the positive, educative nature of the exercise. It may raise the non-submission rate, but we found that for the majority of students who did not submit, this was actually a sign they were already struggling and hence this could be a useful trigger for identifying and assisting those students very early in the semester.

The process for feedback to students is crucial. A low rating can be an unpleasant shock, as many students already lack confidence in their writing abilities so this must be handled appropriately and sensitively. One of the issues with the numbering scoring for the MASUS is the potential for the rating score to be misinterpreted as a mark. We found that many students did not initially grasp the distinction, and they thought (for example) that a rating of 8 constituted a pass because the highest rating was 16. In fact a rating of 8 indicates that here are likely to be problems in all areas of the MASUS. We did correct this, but it took some time and as a result we added the "what the ratings mean" section at the bottom of the ratings sheet (see Table 1).

Implications

There are several implications arising from this study. The finding that nearly half our commencing cohort had one or more problems with academic literacy is congruent with previous studies (Holder et al., 1999). However, the considerable degree of improvement by the end of semester among many of the students who

had initially scored in the lowest band of the MASUS at the beginning is significant and it provides strong support for calls to embed academic literacy education into disciplinary courses of study (Gunn, Hearne & Sibthorpe, 2011). It is also consistent with research into student retention, which highlights the need for "timely and targeted transition support [and] … active and clear information on expectations (Scott, Shah, Grebennikov, & Singh, 2006 p.14). A potentially useful additional strategy would be to explore correlations between entry pathway demographics (particularly years since prior study and previous level of study) and academic literacy assessment data. This would provide schools and faculties with a better understanding of their commencing cohorts' entry profiles with respect to academic literacy, and hence enable them to target early support both proactively and much more effectively.

Secondly, the finding that some students did not show improvement (and some actually regressed) by the end of semester suggests the continued need for academic literacy support beyond the first semester of study and further investigations as to the reasons why this is occurring. This may indicate that, particularly in the middle band, academic literacy skills are labile. This may be due to factors such as lack of time (a semester is only 14 weeks duration and there was only eight weeks between the return of the first MASUS and submission date of the final assignment) or the difficulty of the assessment task. However, there may well be other factors at work and this requires further investigation. We recommend that future studies examine the development of academic literacies longitudinally, beyond the first semester, with a focus on what happens to students who initially score in

the low and middle bands over a longer time frame. Qualitative research exploring how students perceive the usefulness of academic literacy diagnostics, what aspects of academic literacy they find most challenging, how they experience practices of the academy (such as different expectations and inconsistencies between different academic staff and disciplines) and how students develop their identities as writers, would all potentially provide useful insights into this phenomenon.

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