Enhancing Writing Skills in IT Students

Jocelyn Armarego
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Abstract: Although employer studies suggest that communication is the most important of the non-technical skills sought in IT graduates, students do not consider this a focus of their studies. A project to embed automated support for enhancing writing unobtrusively within the learning environment is described and the results of a pilot discussed. The findings suggest that (most) students need (external) motivation to use the tool, and then do so only to the level required by assessment items. Inhibitors included the accessibility (i.e. in labs) of the software. However, given a conducive environment, the availability of such a tool is seen to be useful.

Keywords: Graduate Attributes, Communications Skills, Writing Enhancement Software

Introduction

In recent years Australia has experienced a significant increase in the number of students from non-English speaking backgrounds enrolling in on-shore tertiary programs (OECD, 2007). Murray (2011) suggests that universities have an ethical responsibility to establish measures which help ensure that these individuals can engage and achieve their full potential both as students and as graduates. At Murdoch University this responsibility is increased: from a student body of over fifteen thousand, a large percentage (43% in 2007) comprises under-represented groups studying at tertiary level, and include, amongst others, those from non-English speaking backgrounds, economically disadvantaged students and women in non-traditional areas of study (Murdoch, 2007). The challenge for higher education is to ensure all students are provided with equal opportunity to engage with all aspects of the tertiary education environment at (at least) the same level. The implication of this is to support the needs of a very diverse group transparently, so that no component considers itself targeted unduly.

However, it is acknowledged that students who successfully meet the language fluency requirements at entry subsequently struggle with the communications demands of their studies. The inadequacy of screening measures is tacitly acknowledged in the DEEWR (Australian Department of Education, Employment and Workplace Relations) publication addressing language competence good practice for international students (DEEWR, 2009). This states, as two separate principles:

Universities are responsible for ensuring that their students are sufficiently competent in the English language to participate effectively in their university studies (Principle 1).

Students’ English language development needs are diagnosed early in their studies and addressed, with ongoing opportunities for self-assessment (Principle 7).
Despite this focus on non-native speakers of English, the question arises: should such principles be applied across the student body, whether or not an English-speaking background exists? This is pertinent for two reasons: the anticipated increase in tertiary participation in Australia from a wider range of socio-economic backgrounds (Bradley, 2008); and the understanding that students in particular disciplines do not have the language skills required to undertake (graduate) professional practice (Koppi & Naghdy, 2009).

This paper looks at addressing the communications needs of students studying within the School of Information Technology (IT), specifically at writing skills, and describes a project to assist students to enhance these non-intrusively. Written communication may be defined as the ability to use the conventions of disciplinary discourse to communicate effectively in writing with a range of audiences, in a variety of modes (eg persuasion, argument, exposition), as context requires, using a number of different means (eg graphical, statistical, audio-visual and technological) (ACER, 2001).

Context

Murdoch University lists communications as the significant first of its (9) Graduate Attributes:

*Communication*

*The ability to communicate effectively and appropriately in a range of contexts using communication, literacy, numeracy and information technology skills…*  
(Murdoch, 2011)

Although the assumption is that Graduate Attribute skills are mapped/embedded in the curriculum, and evaluated through the assessment process, in effect there is no guarantee that a graduate will have achieved an appropriate level in all subskills (in the case of the Communications Graduate Attribute: speaking, listening, reading, writing, numeracy and IT skills). This is especially true across disciplines where an explicit focus is on a subset (such as in the School of IT, where the focus is on IT skills), or where a significant percentage of students fall within the groups described as under-represented. Within the School of IT, 33% of students are within this category. Therefore, while there is an expectation that graduates of the School have a high level of IT skills, this does not imply a high level in other communications subskills.

There is a large body of literature that examines industry expectations of IT graduates, particularly in the soft skills (which include communications skills). A review of that literature is included in Armarego (2007). While employer studies suggest communications is the most important of the non-technical skills sought in graduates (eg DEST (2002, p. 39) and discussed in greater detail in publications such as Lee, Trauth, & Farwell (1995), Lee (1999), Scott & Wilson (2002)), anecdotal evidence suggests students have trouble even writing a resumé, or the covering letter that it attaches to:

> literacy skills and written business communication skills were rated as being very important by the employers participating in an AC Nielsen research project conducted in Australia in 1999. It was found that job applicants who had poor skills in this area did not fare well when seeking positions.

(DETYA, 2000)
The work undertaken in a recent study examining the educational needs within the IT discipline suggests very little has changed (Koppi & Naghdy, 2009). At a more global level (and with increased use of English as a preferred language for academic, business and personal interchange across the Internet) the ability to write well in English is an imperative. This is mirrored by increased emphasis in writing in English-speaking countries (Warschauer & Ware, 2006) in order to enable graduates to compete in a global, technology-infused 21st century workplace (Honey, McMillan, & Spielvogel, 2005).

Data from within Murdoch University supports industry findings regarding the importance of communications skills in IT graduates. The Whole of University Experience Survey (WUES) (Ballantyne, 2010) provides data on student perception of their skills attainment by the end of their studies. Overall, Murdoch undergraduate students perceived communications skills as adequately addressed by their undergraduate learning: across a number of years a mean of between 3.22 and 3.25 (on a 5-point Likert-like scale, as indicated in the ‘Uni Mean’ columns in Table 1), and hence a perception that courses did provide such skills.

<table>
<thead>
<tr>
<th>Students enrolled in</th>
<th>2009 School Mean</th>
<th>2009 Uni Mean</th>
<th>2007 School Mean</th>
<th>2007 Uni Mean</th>
<th>2005 School Mean</th>
<th>2005 Uni Mean</th>
<th>2003 School Mean</th>
<th>2003 Uni Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>undergraduates courses</td>
<td>n=122</td>
<td>n=3301</td>
<td>n=149</td>
<td>n=4371</td>
<td>n=5204</td>
<td>n=4626</td>
<td></td>
<td></td>
</tr>
<tr>
<td>This course has provided me with opportunities to-</td>
<td>2.82</td>
<td>3.23</td>
<td>2.74</td>
<td>3.24</td>
<td>2.67</td>
<td>3.22</td>
<td>2.81</td>
<td>3.25</td>
</tr>
</tbody>
</table>

However, these data for School of IT graduates (‘School Mean’ in Table 1) show that communication skills are not perceived as a focus of their studies. The numbers describe two features of note: a notable difference between University and School means and the larger (than University) decrease from 2003 to 2005.

The Project

In the School of IT, the opportunity for students to practice non-technical writing skills is not extensive: much of their learning is based around developing (programming) code, technical documents (such as specifications or reports) or applications. The CILcomms project looked at the feasibility of developing and embedding an automated tool to assist students in evaluating and taking remedial action on their non-technical writing skills. The proposal was that such a tool be made available to all students as a resource before assignment submission, and that a report of the results be included with submission, where appropriate (ie where students were required to submit some piece of non-technical writing). One important objective was that the support provided did not require extensive involvement by the academic staff.

The value of such a project is that it aligns with the School strategy to improve the quality of its graduates, and their attractiveness to industry, and has the potential for buy-in across all programs taught within the School. It also aligns with the University focus on graduate skills; could potentially be applied in other contexts within the University (the concept is...
not IT-specific) and touches on learning and teaching areas such as scaffolding, assessment, quality assurance and alignment.

**Tools to Support Writing Skills**

The changing importance of English language writing provides the backdrop for the development of language learning tools that make use of IT in order to provide students with quality, individualised feedback on their writing without a large investment of time and skills on the part of the academic staff.

In general, Automated Writing Evaluation (AWE) software can be said to focus on one of two aspects—either a summative assessment of a piece of work, resulting in a holistic score, or formative assessment through analysis of various aspects of the writing (e.g., organisational, stylistic, mechanical (structural and syntactic) features). The aim is not only to give a single grade representing the quality of an essay, but also to provide the writer with detailed feedback and instructions.

The lowest level of automated support for writing focuses on text checking. This comprises computerised spell-checkers, grammar-checkers, and style-checkers. As Warschauer and Ware (2006) note such software has been around for three decades, and is currently integrated into all popular word processing and email applications.

![Figure 1: The Structure of a Semi-automatic Tool (Kakkonen, Myller, & Sutinen, 2004)](image)

Another level of automated support for writing looks at evaluation and feedback on the **content** of written text. In one system (see Figure 1), instead of grading a submitted essay in a black box, a semi-automatic essay evaluation environment assists during the authoring process by working with the author. It parses the language, compares it to available learning materials, analyses the style, grammar, vocabulary, structure and argumentation of the essay, identifies its key sentences and detects potential plagiarism. The student is all the time aware of the evaluation process and can intervene in it. This semi-automatic approach means that the system works as a cognitive tool that helps the student to progress as an essay author.

A final level of support combines these two approaches to provide automated support for both formative and summative aspects of writing.
Software packages are available at each of these levels, with applications originally developed to provide scoring now working to include formative information for the writer. The three product most frequently described in this category are *MY Access* (Vantage Learning, 2008), *Criterion* (ETS, 2008) and packages based on *Intelligent Essay Assessor* (KAT, 1998–2008). These are similar in that they generate scores that correlate highly with hand marked samples. Warschauer and Ware (2006) provide some details of these, summarised in Table 2.

However, it appears that very little research has been conducted on how students use such software. One study (Attali, 2004) does look at the use of *Criterion* by secondary students in the United States, and focuses on what kinds of changes occurred through revision of essays. Attali found statistically significant improvement in the total holistic score (from 3.7 to 4.2 on a six-point scale) as well as in computerised evaluations of development, grammar, usage, mechanics and style. However, only 29% of items (of a dataset of 33,171) were submitted more than once, suggesting the software was not being used as a guide for revision. His results indicate:

- scores rose consistently over the first five revisions
- students were able to reduce their error rates by about 25%:
  - the greatest numbers of errors corrected were spelling and capitalisation
  - the greatest improvements were in garbled sentences, fused words, capitalisation, confused words and wrong form of words
- a significant increase, in revised essays, of the rate of occurrence of background and conclusion elements, main points and supporting ideas.

<table>
<thead>
<tr>
<th>Table 2: AWE Packages (Warschauer &amp; Ware, 2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Company</strong></td>
</tr>
<tr>
<td>Vantage Learning</td>
</tr>
<tr>
<td>Educational Testing Service</td>
</tr>
<tr>
<td>Pearson Knowledge Technologies</td>
</tr>
</tbody>
</table>

Unlike AWEs, Writing Enhancement Software (WES) does not purport to score writing. Instead the focus is on offering relevant feedback with explanations that consider the entire meaning of a sentence or selection and more than one choice of possible corrections. Good reference materials (eg a grammar guide, dictionary and thesaurus) are often included, with the best software usually compatible with popular word processing applications. TopTenReviews (2011) provides a comprehensive report on popular WES (see Table 3).
At the time of the project, Writer’s Workbench was rated the ‘gold’ product, while WhiteSmoke was not in the top 3. The current review briefly describes the editing features of the then ‘gold’ product:

*Writer’s Workbench is a full-service writing enhancement software package that includes tutorials and grammar quizzes built into the software. This TopTenREVIEWS Silver Award winner extensive package offers 27 analysis tools and 31 Self-Tutoring Educational Preparation Steps (STEPS). Writer’s Workbench has more bells and whistles than other products we reviewed, though it is not destined to be the very best quick, everyday spelling and grammar checker.

The software integrates well with MS Word by simply adding onto the word processor’s existing tools. By opening Writer’s Workbench, you will open up a blank MS Word document that takes Microsoft’s features but includes more grammar-related tools at the top.*

(TopTenReviews, 2011)

A significant consideration with WES applications is that, as grading is not a significant aspect, an exemplar solution is not required against which students model their work.

**Methodology**

The project was undertaken with the understanding that it is ‘applied’ research, and therefore contributes to understanding in order to be able to more effectively act or ‘design interventions’ into the environment. Design Research (DR), as a methodology, does not have a long history in education, although applied to its original province of design sciences (eg aeronautics, architecture, engineering and medicine) it is seen as a successful approach to research. Figure 2 illustrates the general methodology.
In summary, the goal of DR is to expose the completed design and its implementation in a way that provides not only insight into the local dynamics, but demonstrates the relevance of the findings to other contexts. The need to address issues of usability, scalability and sustainability are also characteristics of DR: a lack of adequate consideration of the larger systemic constraints in which the context of intervention is a part, is seen to lead to both impoverished designs as well as under-specified theories that lack generalisable power. At the same time, the design experiment itself has similarities with more established methods for combining data of different sorts. An evaluation of the research undertaken in this project take into consideration the criteria noted in Table 4.

Table 4: Criteria for Evaluation

<table>
<thead>
<tr>
<th>Validity Criterion</th>
<th>Addresses [addressed by]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome</td>
<td>Did it solve the problem? [longitudinal study]</td>
</tr>
<tr>
<td>Usability</td>
<td>Are stakeholders able to apply the artefact with minimal external intervention? [observation, analysis of discussion forum posts, focus group]</td>
</tr>
<tr>
<td>Scalability</td>
<td>Is the system incorporating the artefact limited (eg by environment, number of users, etc) [field experience, analysis of documentation, experimentation]</td>
</tr>
<tr>
<td>Sustainability</td>
<td>Will the system/artefact continue to exist once the project is completed? [policy/procedures]</td>
</tr>
</tbody>
</table>

Establishing a Pilot Study

Based on a review of the literature and the TopTenReview, the top two scoring packages (Writer’s Workbench and Editor (currently rated 6)) were downloaded for evaluation. While
this confirmed the reviews, several aspects of Editor were considered problematic: it was standalone—a piece of work needed to be submitted to the application separately to the document-development process; and, more importantly, the report produced by the application was not visually appealing, looking, in fact like a piece of computer coding (see Figure 3). This latter point became a determining factor for the choice of Writer’s Workbench (WWB)—although the initial students exposed to the package were expected to be IT students, ease of understanding the output across all student types and disciplines was a consideration. Integration with Microsoft Word (so access to WWB was by means of an additional toolbar in Word) was also seen as a mechanism for reducing perception of intrusion. The ability to evaluate a piece of writing during the authoring process (as described for the semi-automated system) is then enhanced.

<table>
<thead>
<tr>
<th>Draft Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1&gt; I am a friend of theirs’. &lt;2&gt; We caught less fish today than yesterday. &lt;3&gt; Joe writes in his dairy every day.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usage Output</th>
</tr>
</thead>
</table>
| <1> theirs’  
POSSESIVE MISTAKE: theirs [F]  
| <2> less fish  
POSSIBLE POOR USAGE; use “fewer” for countable items [L]  
| <2> less fish today than  
HOMONYM ERROR: less ... than? [H]  
| <3> writes ... dairy  
EXPRESSION COMMONLY MISSPelled; dairy? [m]  
| <3> every day  
POSSIBLE WORDY PHRASE; daily? [W]  

The bracketed letters at the ends of USAGE comments, when clicked or typed, bring up Reference screens describing and illustrating the problems. You can see Editor’s Reference screen m, describing the expression “less fish”.

![Figure 3: Excerpt from Editor Report](image)

Ethics approval was obtained, and units that would capture a broad spectrum of students across IT programs solicited to act as participants: a 1st year unit in IT fundamentals; 2nd year programming unit (the assessment item chosen was a piece of written work, not a programming task); 3rd year unit in project management and a masters level unit in professional practice. For all bar the programming unit, use of Writer’s Workbench was required as part of the assignment submission process: this ensured a reasonable number of reports to evaluate. WWB enables students to address numerous aspects of their writing style. A summary report, which provides statistics on a number of these, was identified for inclusion with assessment items (Figure 4 provides a sample summary report). In all over 150 students were involved in the pilot, although evidence suggests only two students undertaking the programming unit availed themselves of the opportunity.
The report provides an evaluation of the writing against thresholds configured by the teacher or the defaults within WWB. In Figure 4 (at 4%) as an example, the threshold for vague words has been set at 3% while the writing submitted is rated at 4.46%. The student is provided with support to address the discrepancy: in this case to run a specific analysis provided within WWB and follow the instructions.

**Results from the Pilot Study**

As noted above, 150 students were involved in the pilot project. Writing samples submitted included short answers to questions; article reviews and critiques; essays (both short and long) and a conference paper. The software requirement was for a minimum of 100 words submitted for evaluation (the sample submitted for the report in Figure 4 is 1716 words long).

On the assumption that undergraduate students are provided with more time to explore resources provided through the University, students in the masters unit (who were more likely to be: returning to study after an absence; not Australian-born; part–time) were asked to complete a short questionnaire, before being exposed to the project, to explore their perceptions of their writing skills and of the resources available to them for support. The results from 2 cohorts (see Table 5) are interesting for several reasons:
• the percentage of students who perceived their writing as competent despite the majority (over 70%) undertaking education outside anglo-centric environments (ie Australia, UK, USA)
• an acknowledgement of comfort with technical writing: many of the students perceiving their skills as average or competent indicate
  • technical writing skills are of a higher standard than other styles of formal writing
• the ubiquitous use of embedded tools (only one student nominated other tools)
• of the 71% who would use an additional tool, sentence structure, vocabulary and templates for styles of writing (eg technical reports) were the most requested functionality.

Table 5: Survey Results

<table>
<thead>
<tr>
<th>Perception of competence in written communications (n=30)</th>
<th>Very poor or poor 6%</th>
<th>About average 47%</th>
<th>Competent or very competent 47%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use tools provided in (eg Word) (n=37)</td>
<td>Spellcheck 65%</td>
<td>Grammar check 35%</td>
<td></td>
</tr>
<tr>
<td>And, if a tool was used</td>
<td>Always 72%</td>
<td>Sometime 28%</td>
<td></td>
</tr>
<tr>
<td>Completed secondary and/or tertiary education (n=31)</td>
<td>In Australia 19%</td>
<td>Other anglo-centric 10%</td>
<td>Elsewhere, but in English 39%</td>
</tr>
<tr>
<td>Would use a tool provided in a laboratory (n=31)</td>
<td>Yes 71%</td>
<td>No 26%</td>
<td>Maybe 3%</td>
</tr>
</tbody>
</table>

1 multiple answers acceptable

The results of these students’ submitted written work suggests the perception of competence is over-stated. A focus group with these students as participants attempted to unpack the reasons behind this. Several themes emerged, including: reliance on the English competency score attained; evaluation of personal competence compared to peers (also with non-English-speaking backgrounds); reliance on competence in technical and report writing; unfamiliarity with the conventions of non-technical writing (eg argument development, ‘linking’ of ideas across sections of the writing). Many students noted that they had not been ‘picked up’ for their skill at writing during their prior studies.

Within the questionnaire, responses regarding why competence was so rated, yielded the following examples (based on a 5-point Lickert-like scale; 5 indicating highest competency:
Because when I try to put my idea into the sentences, people don’t understand what I try to say

Gamma is very bad. Don’t know how to express my thoughts

I can write reasonably well but I cannot erase my writing style based on my cultural background

My communications skill and word stock is not well enough

Though I am from non-English speaking background/non English-speaking country, I have taken the initiative to improve my written skills and I do even now

Native language, active reader, active writer, enjoy languages

Thus, only those students rating their competence at 2 (or below) acknowledged fundamental problems with their writing.

Evaluation of the reports submitted with assessment items in the pilot units indicates strategic use of the software: less than 5% of users did so more than once for the same work. Where they did, once the statistics were ‘acceptable’ (ie not too far from the goals identified in the statistics (which can be set by the teacher)) the item and WWB report were submitted for assessment. It should be noted that ‘acceptable’ was completely subjective, although most assessment included a mark for communications (often around 10% of the total marks). As the sample report shows (see Figure 4), where there is a discrepancy between the goal and the student statistics, the package indicates which analysis should be run to address the problem. However, very few students made use of the feedback provided.

Although a simple instruction manual had been made available, it was seen that 1st year students, at least, benefited from a ‘hands on’ walkthrough of the software. This therefore required rescheduling of a laboratory class to incorporate activities based on WWB (the software package includes a tutorial, which was available to students, but under-utilised). All other students were able to apply the package with minimal intervention. However, as a caveat, the discussion forums do indicate peer assistance—as one student located a problem,
another solved it. The excerpt (see Figure 5) provides an example—at this stage the evaluation licence had expired and the licensed version not yet installed in the labs. This exchange occurs within 30 minutes, undoubtedly much faster than a response addressed to the tutor or unit coordinator.

**Discussion**

There are two significant (though not unexpected) findings. Firstly, as the low numbers in the programming unit attest, IT students (at least those involved in the pilot) are unlikely to utilise the software unless it is mandated. Despite exposure to industry comments regarding the importance of these, prior work had indicated IT students do not consider communications skills as a study focus. However, anecdotal evidence shows students at 3rd year, at least, are pleased to have access to such a tool, to use as they saw fit.

Secondly, the great majority of students did not work with the feedback provided in order to improve their writing: items were submitted only once, rarely twice and never more often. Discussion within a focus group of 3rd year students suggests time-pressure: needing to complete the work to allow time to fix and resubmit the work to WWB; overwork (other assessment, outside work); and the need to go to a lab on campus, as major influences.

With regard to the validity criteria noted (see Table 4 above), these results indicate several elements of ‘operational knowledge’ to be implemented in any subsequent iteration. In general, these relate to the learning environment rather than the software itself. For example, despite mechanisms built into the system some students (in particular those early in their studies) require additional support. Beyond first year, peer support appears to provide adequate assistance. At the software level, collaboration with the developer achieved either fixes or workarounds for issues identified as Murdoch-context (eg the software expected Windows US regional settings).

Therefore it is possible to suggest the following:

- **usability**—the needs of 1st year students should be addressed separately. Otherwise, resources made available (instructions/self-paced tutorial/embedded tutorial) plus peer support would seem adequate
- **scalability**—discussions with the developer suggest the software could be deployed across the School of IT and the wider university community. One major obstacle has been the need to install the software on individual machines within laboratories. In addition, the cost is high for individual students ($US100), therefore making access impossible for external students and in an off-shore teaching environment. However, dialogue with the developer indicates a possibility to deploy WWB through a Citrix server environment, with all processing conducted on the server, accessible via the Internet. The benefits of such a configuration (secure worldwide access for Murdoch University students, and statistics captured in a central location, the server) remove the biggest obstacles to scalability
- **sustainability**—within the School of IT sustainability is based on several factors
  - financial support (licences needed to be funded beyond the duration of this project)
  - buy-in and support from academic staff across all or specific units at under-and postgraduate level. Support at the dissertation/thesis level is based on supervisor buy-in for individual desktops.
These are also true for university-wide deployment, although the financial cost becomes indirect.

**Beyond the Pilot Study**

Although the focus of the project is on one specific subskill of a graduate attribute, the process of explicitly addressing this was expected to lead to:

- improved assessment and learning activities—a strategy for addressing writing skills explicitly incorporated in all units offered within the School
- higher quality learning materials—a repository of support material could potentially be available for staff to use within individual units
- greater flexibility of access for students—the expectation that tools provided to students be ultimately web-based. This means student learning in the area of writing skills can approach own time/own place.

The final criterion, outcome, required a longitudinal study to be conducted. Until the end of 2010 this was actioned to some extent: the software was made available across laboratories on a regional campus of the University (and hence available to non-IT students); a concurrent study of hand-editing and use of WWB for a thesis-level document was proposed; and discussions commenced to explore the real feasibility of a web-based application. These initiatives were conducted through the University’s Educational Technologies Committee, which makes recommendations for the uptake of any university-wide educational technology. However, a final decision was made that not enough data supported a university-wide deployment, and the project was closed at the end of February 2011.

Although very little research appears to have been done on the decision to continue with e-learning innovations, a number of studies provide some of the reasons why such projects are discontinued: the need for strategies to move from isolated innovations to sustainable e-learning (Tham & Werner, 2005); lack of institutional support including financial (Salmon, 2005) and training (Nichols, 2008); the individually ‘hand crafted’ nature of some projects (Salmon, 2005); and the lack of conclusive evidence of the impact on learning (Cox & Marshall, 2007). In reality an environment to support such innovations embraces organisational (eg a sponsor at organisation level, peer support from colleagues), developer (eg workload acknowledgement of the project), teacher (eg time to learn and apply the innovation), student (eg ease of use) and technology (eg maturity, cost) factors. Together these provide the level of institutional sustainability that ensure e-learning activities will not, in the long term, be limited to enthusiasts (Nichols, 2008).

**Conclusions**

The pilot project may be considered a success in that it explored the feasibility of addressing a specific communication skills shortfall with minimal intervention from teaching staff. Further work initiated to both expand use of the tool beyond units (to dissertations and thesis development) and to integrate this support with other resources offered through Murdoch, resulted, however, in a lack of support and eventual closure of the project.
References


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Zhou Zuoyu, Beijing Normal University, Beijing, China

The Learner Community
This knowledge community is brought together by a common concern for learning and an interest to explore new educational possibilities. The community interacts through an innovative, annual face-to-face conference, as well as year-round virtual relationships in a weblog, peer reviewed journal and book series—exploring the affordances of the new digital media. Members of this knowledge community include academics, teachers, administrators, policy makers and other education practitioners.

Conference
Members of the Learner Community meet at The International Conference on Learning, held annually in different locations around the world, each selected for the particular role education is playing in social, cultural and economic change. In recent years, the Conference has been held at Universiti Sains Malaysia, Penang, Malaysia in 1999; RMIT University, Melbourne, Australia in 2000; the University of Athens, Spetses, Greece in 2001; Beijing Normal University, Beijing, China in 2002; Institute of Education, London University, London, UK in 2003; Institute of Pedagogical Sciences, Havana, Cuba in 2004; University of Granada, Granada, Spain in 2005; Sam Sharpe Teachers College, Montego Bay, Jamaica in 2006; the University of the Witwatersrand, Johannesburg, South Africa in 2007; the University of Illinois, Chicago, USA in 2008; the University of Barcelona, Spain in 2009; Hong Kong Institute of Education, Hong Kong in 2010; and the University of Mauritius, Mauritius in 2011. In 2012, the Conference will be held at The Institute of Education, University of London, London, UK.

Our community members and first time attendees come from all corners of the globe. Intellectually, our interests span the breadth of the field of education. The Conference is a site of critical reflection, both by leaders in the field and emerging scholars and teachers. Those unable to attend the Conference may opt for virtual participation in which community members can submit a video and/or slide presentation with voice-over, or simply submit a paper for peer review and possible publication in the Journal.

Online presentations can be viewed on YouTube.

Publishing
The Learner Community enables members to publish through three mediums. First, by participating in the Learning Conference, community members can enter a world of journal publication unlike the traditional academic publishing forums—a result of the responsive, non-hierarchical and constructive nature of the peer review process. The International Journal of Learning provides a framework for double-blind peer review, enabling authors to publish into an academic journal of the highest standard.

The second publication medium is through the book series The Learner, publishing cutting edge books on education in print and electronic formats. Publication proposals and manuscript submissions are welcome.

The third major publishing medium is our news blog, constantly publishing short news updates from the Learner Community, as well as major developments in the field of education. You can also join this conversation at Facebook and Twitter or subscribe to our email Newsletter.
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