

Embedding Literacy and Numeracy Into A Vocational Programme

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Abstract

The purpose of this presentation is to show how tutors developed a model for implementing embedded literacy and numeracy (based on the Learning Progressions) into a vocational programme, in this case Food and Beverage. The model was developed for students in the VET sector who were accepted into this course under open entry policy, many lacking the requisite literacy and numeracy skills to succeed in the course.

Excerpts from Food and Beverage texts were mapped against the Learning Progressions to ascertain levels of competence learners needed to bring to these texts. Students were then assessed diagnostically to identify their strengths and weaknesses in terms of required competencies. Where a discrepancy was identified between text demands and students’ skills, strategies and activities were employed to address the gap.

The three themes are:

- *Knowing the demands of the text*
- *Knowing the student*
- *Knowing what to do*

The three areas of focus are:

- *Supporting students to read with understanding*
- *Supporting students to write to communicate*
- *Supporting students to make sense of number to solve problems*

The three main outcomes are:

- *Better understanding of high-quality tutor practice, based on sound research evidence*
- *Ongoing professional learning communities which support tutors to improve practice*
- *Familiarity with the Progressions and other tools for improving teaching delivery*

Introduction

The purpose of this presentation is to illustrate how a collaborative effort by literacy tutors, hospitality tutors and e-learning facilitators produced a model for implementing embedded literacy and numeracy (based on the Learning Progressions¹) in a vocational programme, in this case Food and Beverage. The model was developed for students and trainees in the VET sector who were accepted into the course under an open entry policy. In many cases, these students did not have the requisite language, literacy and numeracy (LLN) skills to succeed in the course.

Our experience has taught us that where tutors work as a team, student retention and success rates improve. 'Successful teacher teams are strongly motivated to provide embedded provision; they have time to plan and work together, and are willing to learn from each other.' (NRDC, 2006). Such collaboration involved team-teaching, joint planning, peer observation and peer review. Vocational tutors in particular needed opportunities to learn from one another and from experts in other areas by reflecting regularly on lessons, sharing teaching methods, resources, materials and outcomes. This co-operative approach is supported by New Zealand researchers Thomas and Ward (2009). They agree that effective teaching teams in adult education are learner focused and therefore share both responsibility for and celebration of learner progress. Learner focus for our team involved comprehensive embedding of LLN into course content.

It is now widely recognized that embedding the LLN into a course by linking it to the vocational components of the course is producing improved student outcomes. In short, embedding LLN learning within vocational courses will increase adults' motivation for developing their knowledge and skills in LLN (Thomas & Ward, 2009). These links between LLN and vocational learning must be identified explicitly to both learners and tutors. LLN tuition is provided right at the moment it is needed for the vocational task being either discussed or demonstrated. Immediacy is the key here. Teaching and learning materials must also reflect the requirements of LLN within the vocation itself and should be differentiated to accommodate learners' different levels of skill.

¹ The Learning Progressions: New Zealand is attempting to ensure that all adults have the crucial literacy and numeracy skills they need for living and learning. The Progressions (4 literacy and 3 numeracy handbooks) have been developed to offer a robust framework for other tools and resources. The Progressions can be used to underpin the development of high quality teaching and learning and also provide a common language for practitioners to share. See www.tec.govt.nz

Pre-existing skills, knowledge and experiences are what all adult learners bring to the classroom. A constructivist approach to teaching and learning will support these adults to further develop understanding and making meaning by linking to these prior experiences. In this case, we define the constructivist approach as one which acknowledges that each individual has unique understandings based on their experiences, culture and background. Learners bring this knowledge to interpret what they are exposed to in learning. In this way learners construct their own understanding, while the tutor's role is to support individuals in this process. Bingman and Stein (2001, p. 19) emphasise this, claiming that 'taking a constructivist approach to building knowledge and skills focuses on helping students develop their understanding and make sense of the world'.

Furthermore, as learners develop expertise in their chosen fields, they become increasingly aware of the key concepts that help to structure that knowledge (Thomas & Ward, 2009). They realize they need to remember significant chunks of new information. To do this, they also realize they need to develop independent learning skills that are built on LLN. It is preferable that learning is easily transferrable from the instructional context, to work and to everyday life. Learners are more likely to gain transferrable knowledge when the instruction is meaningful and identifiable in terms of the learner's own needs. This is why we used an embedding LLN model, based on the following four themes:

- Know the learner
- Know the demands of the text
- Know what to do
- Know how to do it

Our model was further supported by a theoretical viewpoint of reading as an interactive process as readers bring background knowledge based on knowledge of self, text and world (schema) to bear on text. The author of the text has already brought his own schema to bear on the text he has constructed. The tutor's role is to help the learners unpack the writer's intended meaning and assist the learners to reconstruct the meaning in terms of their own schema. This required that texts were unpacked, key terminology and concepts identified and strategies developed to link what the learners already knew with what was new.

Thomas and Ward (2009, p. 18) state that where tutors 'take responsibility for student learning, there is a sound basis for continual improvement to knowledge and practice'. Perhaps then, the core question here is 'what do we as teachers need to

do to promote the learning of our students?’ (Timperley 2008, p. 11). To be an effective tutor requires the following four components: subject knowledge; how to identify key concepts; how to teach; how to assess learner progress. We identified our role as helping the tutors to operate using these components. The tutors in this project were already subject specialists – experts in the field of Food and Beverage. They were experts in the first component ie. subject knowledge.

We identified our role as supporting them in the other three components and we proceeded using an embedded model to achieve this. ‘Successful professional development efforts are those that help teachers to acquire or develop new ways of thinking about learning, learners, and subject matter, thus constructing a professional knowledge base that will enable them to teach students in more powerful and meaningful ways’ (Borko & Putnam, 1995, p. 60). The tutors involved are quickly becoming experts in all four components.

In an article about identifying the expert tutor, Pritchard (2007) nominates the two values she identifies as exemplifying individuals who perform at the highest level of teaching: reflective practice and collegiality. Working in a team as we do, affords opportunity for both of these. We are open to one another, emulating the notion that good teachers should be able to reflect critically on their teaching abilities, and understand that in order to improve on an ongoing basis tutors must acquire increasingly complex professional knowledge (Ramsden, 1992). How then did we approach our tutors?

Implementation of the initiative:

As our tutors had not been previously exposed to teaching, we decided that the best approach was to keep it very simple. We considered the different approaches around our work, and the work that they were going to do with their learners, as small drops of support that eventually build up into a large pool of knowledge.

As the model we developed was intended to be transferable to other programmes and tutors, we created an ‘idealized’ tutor based on our experience of vocational tutors at Institutes of Technology and Polytechnic (ITPs). The assumptions we made were that the tutor:

- Had both training and expertise in own vocational area but had limited exposure to adult educational theory and practice
- Had some experience teaching in a vocational context but had very limited, or no tutor training
- Was new or fairly new to foundation learning and was totally new to LLN implementation and development

The focus was on ensuring the team of tutors had tools and skills to:

- Know the learner in terms of the Progressions
- Know the literacy and numeracy demands of the courses they were teaching in terms of the Progressions
- Know what to do after comparing the demands of the course with steps the learners were at
- Have both the confidence and the competence to address these identified gaps

To gain confidence, the tutors needed a sound framework to inform their lesson planning and teaching. This framework included the expectations as above, as well as:

- Being aware that we are dealing with adults –not children. This means that we acknowledge adult learning theory and use it to inform our practice. It also means looking critically at child based literacy approaches and acknowledging that children and adults learn and develop literacy and numeracy in different ways. Not only do they begin from a different starting point but their knowledge of the world and the word is essentially different. Adults are more likely to engage in study for sustained periods of time when the outcomes will benefit their own needs. Scribner (1998) says that we undertake cognitive tasks not merely as an end in themselves but as a means of achieving larger objectives and goals that have meaning in the community.
- Being aware of group and individual needs (diversity)
- Being aware of content materials used, ascertaining which are easier to teach than others, areas where difficulties may occur and where the written presentation of the material is difficult to follow
- Being aware of the gaps between the demands of the course or the assessment and where learners are at. Knowing what to do to bridge this gap in a way that acknowledges the strengths within the learners also requires adult teaching methods

How did we support tutors to know the learner?

We used:

- Focus groups where learners discussed in a non-threatening peer group their experiences of LLN and identified where they felt they needed help
- Attitude surveys where learners answered questions about LLN to inform the tutor about what they saw as their experiences, strengths and weaknesses
- Diagnostic assessments for literacy and numeracy that showed us, in terms of the Progressions, what LLN competencies the learners had

- Informal discussions as daily formative assessments to indicate progress or lack of it. Slightly more formal formative assessments included quizzes, oral or written summaries, and learners asking and answering questions in teams
- Summative assessment
- Observation of learners in the classroom

How did we support tutors to know the demands of the vocational area?

Tutors began by classifying the subject content that needed to be taught. Then they established what was key to know, useful to know and less important. Time was allocated according to the importance of the content. The next step was to look carefully at all assessments and group them according to whether they would be presented orally, in writing or practically. We then identified the key skills needed for these in terms of the Progressions. From a literacy point of view, the tutor had to carefully examine the requirements of the written assessments and identify whether an essay, paragraphs or multiple choice would be required. All learners then needed to be made aware of the written response format and how to do it.

We acknowledged that the subject content was pre-determined and what had to be taught is similarly predetermined. Nevertheless, the tutor can choose how the material is presented and in what order and what support needs to be provided. To address this need, the tutors looked at the demands of the course to determine an order from the simple to the most complex. Concepts, theories and ideas were identified and introduced in a way that was based on the background knowledge already existing in the learners. Texts that were discovered to be very dense in terms of the Progressions were reduced to smaller chunks but not re-written. A cross section of typical texts was then mapped against the Progressions to ascertain levels in terms of literacy and numeracy demands.

After texts were mapped, some of these were developed into diagnostic assessments. The purpose of the assessment was limited to knowing whether the learners were able to meet the literacy and numeracy demands of the course they had enrolled in; and further, to identify whether there were areas that they needed help in. The marking of the assessment was recorded simply as:

- Can (Independent)
- Can with help
- Cannot

Typically, learners who were 'Can with help' were the candidates we felt would benefit from the LLN support provided by vocational specialists. Learners who were classified as 'Cannot' in all the Progressions were in need of extra assistance from a literacy specialist, however very few students fell into this category. In this way, coupled with the knowledge gained from the surveys and the focus groups, an individual learner profile was drawn up as well as a class profile.

How did we support the tutors in knowing what to do?

This model used a team teaching approach to address the gaps identified in the class profile. The literacy teacher and the hospitality teacher taught together and the e-learning facilitators developed Moodle material online for learners that supported what occurred in the class. Learners could access this material in their own time and also in allocated time to consolidate their learning. In this way, learners took control of their own learning as they accessed Moodle support as often as they felt they needed to. Motivation is a key component for adults engaging in study. They are motivated when they can see the value of the learning impacting on their own goals in life. Adults are therefore more likely to be motivated to engage in LLN learning when it is embedded within a vocational or leisure course which is their primary motivation (Thomas & Ward, 2009). The embedding initiative we adhere to provides this motivation.

Conclusion:

To sum up the initiative, course materials were mapped at steps in the Progressions and learners were assessed in terms of materials that they would need to work with on their courses. Gaps where the learners needed to be supported were identified, providing the evidence that was needed for the tutor to prepare content based lessons with deliberate acts of teaching LLN. We believe teaching is more likely to be successful when it is an integral part of the trade or vocational study a student is engaged in. LLN is not an optional extra, reserved for one-to-one sessions with a literacy or numeracy specialist. 'Learners improve their literacy, numeracy and other key skills when the whole organization believes key skills are an essential underpinning for learning vocational skills and technical knowledge.' (Cranmer et al., 2004, p. 4).

Student learning is core business at our institution. It is an educational institution which views teaching and learning as its key responsibility. We are constantly striving for 'whole-of-organization' change wherever it needs to occur. Setting goals, monitoring progress and reviewing performance on the basis of this

information is what we do. 'Professional learning communities can successfully effect and sustain change by highlighting learner performance. When tutors work collaboratively to reflect on achievement data and modify teaching approaches...the entire team gains new insights into what is working and what is not, and members discuss new strategies that they can implement in their classrooms to raise student achievement.' (DuFour, 2004, p. 10). While this is a very workable model, all team-teaching members recognise the need for further professional development programmes that espouse collaborative teaching initiatives like this one. We hope that our experiences at the Western Institute of Technology at Taranaki have informed, inspired and excited you as you reflect on your own practice.

References:

- Bingman, B. & Stein, S. (2001). *Results that matter: an approach to program quality using Equipped For The Future*. Washington DC: National Institute for Literacy.
- Borko, H. & Putnam, R. (1995). Expanding a teacher's knowledge base: a cognitive psychological perspective on professional development. In T. Guskey & M. Huberman (Eds.) *Professional development in education, new paradigms and practices* (p. 35-66). New York: Teachers College press.
- Cranmer S., Kersh, N., Evans, K., Jupp, T., Casy, H., & Sagan, O. (2004). *Putting good practice into practice: literacy, numeracy and key skills within apprenticeships*. London: NRDC.
- DuFour, R. (2004). What is a "professional learning community?" *Educational Leadership* (May), 6-11.
- NRDC (2006). *Skills for Life Quality Initiative. Embedded teaching and learning*. London: National Research and Development Centre.
- Pritchard, C. (2007). Identifying the expert teacher. *Te Iarere Wavelength: Interdisciplinary Journal of Academic Activity*, 2. Western Institute of Technology at Taranaki.
- Ramsden, P. (1992). *Learning to teach in higher education*. London: Routledge.
- Scribner, S. (1988). *Head and hand: an action approach to thinking*. Occasional Paper No. 3, National Center on Education and Employment, New York.
- Thomas, G. & Ward, J. (2009). *Numeracy for adults: latest findings from teaching and learning research*. Maths Technology Ltd. Tertiary Education Group: Wellington, New Zealand.
- Timperley, H. (2008). *Teacher professional learning and development. Educational practices series, 3*. Brussels: International Bureau of Education.