

Teaching scientific writing using the learner-centred approach

Felicity Neilson

Matrix Consultants, Paris, France

Correspondence to:

Felicity Neilson,
Matrix Consultants,
Paris, France
matrixneilson@
wanadoo.fr

Abstract

Learner-centred teaching is particularly suited to the teaching of scientific writing. The underlying premise of the learner-centred approach is simple: the learner will better assimilate new information if it is built on what they already 'know' than if it is imposed from the outside as in a teacher-centred approach. This approach goes step by step, progressively integrating new knowledge without artificially bending the course of the session to fit into preconceived content. The learner-centred approach has enormous advantages for the trainer: it is highly gratifying to stay focused on a group's needs, learn to listen to individuals, share the learning experience, and follow the trainees' progress. At the end of the session, very often groups go home with a deep, relevant training experience that 'speaks' to them, is immediately applicable, and is therefore likely to stay firmly anchored.

Keywords: Learner-centred, Training, Scientific writing

I run a small company specialised in training, writing, and translating for the pharmaceutical and medical sectors in France. Over the years our activities have developed to match changing needs. We now offer a range of training courses that respond to a specific market: professional training in English to non-native speakers. Language schools have been offering 'specialised' courses for years, but these are often delivered by general English teachers working from manuals, lists of vocabulary and particular expressions, and grammar for a given sector. The onus is on teaching the language rather than providing the necessary strategies for the professionals in a group – who are often highly trained and experienced – to become autonomous. My personal interest in medical writing, and an ever-increasing demand for editorial assistance, led my company to explore offering scientific writing training to research

teams in hospitals, biotech start-ups, and pharmaceutical companies.

I have a mixed background of science, language teaching, and communication, the three skill areas which I combine to develop courses in France. One of the most defining periods in my professional life was being exposed to a pedagogical approach called *learner-centredness*. This article describes my experience with learner-centred training and how it is particularly suited to the teaching of scientific writing.

The premise of learner-centred teaching

Though learner-centred teaching came into its own in the 1980s, its beginnings are often associated with the works of John Dewey,^{1,2} Carl Rogers,³ as well as the work of Jean Piaget (1896–1980) on cognitive development.

The underlying premise of the learner-centred approach is simple: the learner will better assimilate new information if it is built on what they already 'know', that is, their own personal experience, than if it is imposed from the outside as in a teacher-centred approach. Learner-centredness means delivering courses where the learning is directly related to the learner's own experience, their own reality. It is 'brick-by-brick learning' rather learning through scaffolding erected around a structure to be built.

In most professional training courses, there is something I like to call 'The Binder'. The trainer arrives at the training session and hands out a beautiful binder containing course material, references, golden rules etc. Everyone is happy: the course organiser because they think they are getting their money's worth (the thicker The Binder the more valuable the training); and the participant who can use The Binder as a crutch to fall back on and an excuse for those moments where attention is low. The trainer may hold The Binder up as proof of how much work was put into the course and may

use it as a shield when the going gets tough. And this ‘off-the-peg’ approach is typically prepared before the trainer has even met the group.

In contrast to training using The Binder, learner-centred training goes step by step, progressively integrating new knowledge, without artificially bending the course of the session to fit into preconceived content. The clear advantage is that, if guided correctly by the trainer, the trainees leave with the necessary tools to carry on the work autonomously. Rather than a training course being a question of simply getting through the material, it is about integrating the tools to become independent. As Carl Rogers put it, ‘A person cannot teach another person directly; a person can only facilitate another’s learning’.⁴

The learner-centred approach is an *active* approach, as opposed to the often-passive Binder approach. In The Binder approach, the trainer announces, ‘We are going to learn “A”’, whereas in the learner-centred approach, the trainee says, ‘I don’t need to learn “A”, I need to learn “B”’, to which the facilitator can reply, ‘Fine, how can I help you?’

The trainer instils a sense of responsibility and confidence in the learner by adopting the role of a facilitator rather than that of a presenter of information. By remaining focused on the real needs of the group, setting realistic objectives, encouraging exchange and feedback, and accepting the power-shift, the outcomes are group-dependent, long-lasting, and pave the way to further learning once the course has finished.

Why the learner-centred approach is effective in teaching scientific writing to non-native English speakers

Who is the expert – or the teacher – in a scientific writing group of non-native English-speaking researchers? How can the individual and collective expertise of the participants be best put to use to optimise active, immediately applicable learning? Typically, the group will have a high level of expertise – they may be researchers, engineers, or bench scientists – but a high level of expertise generally goes hand in hand with an equally high level of frustration when it comes to writing in English. The focus in training should be on the use of English as a tool rather than on the language they have often had so much trouble learning at school. Furthermore, in writing, probably more than in most other situations where trainees need to use English, it is essential that they develop a sense of responsibility and confidence.

Michael Lombardo and Robert Eichinger’s⁵ 70/20/10 Learning and Development model is

especially interesting to consider in this context. This model states that ‘about 70% of knowledge or development comes from on-the-job experiences, tasks, and problem solving, 20% from feedback and from working around good or bad examples of the need, and about 10% from courses and reading’.

So, how does learner-centred training work?

The learner-centred approach starts from the very beginning. Often, the training manager responsible for organising training for their company, or institution, has only a vague idea of the real needs of the group and the task at hand. The trainer might need to make sure that the distinction between English training and scientific writing training in English is clear. This can be dealt with by a quick phone call and followed by a written description, where the trainer describes a typical programme and outlines the approach, stressing that the focus remains firmly anchored on the learners’ needs.

The next step is for the trainer to find out about the participants’ profiles and their perception of needs. This is best done through a needs analysis form which consists of a tick-box questionnaire identifying what their background is, what sort of texts they write, and includes a section for them to express what they feel their needs are. This last item can also be used to get a rough idea of how they write in English. As well as initiating contact, a needs analysis is an ideal way of getting participants to think about what they would like to work on and how they would like to work. At this stage I also ask the participants to send me examples of their writing so that I can compare them with what the institution or company considers to be ‘best in class’, such as reports by headquarters or published articles. I then perform a gap analysis, which means going through their documents, flagging up items that need attention, and selecting similar sentences or paragraphs from the model document for comparison. I then prepare the course work around these examples.

Depending on the group’s needs, the following main points often emerge from the gap analysis:

- Differences in cultural expectations in writing
- Importance of structure: information needs to appear where the reader expects to find it
- Relevant language points per unit of structure
- Importance of the KISS principle (Keep It Short, Stupid!): a particular issue for French speakers who are taught to write in a literary style

- Grammar, vocabulary, typical expressions
- Identifying the purpose of the writing and the goals of the reader to determine expectations and style
- Exploring available resources, discussing how these can be most effectively used
- Creation of a quality check-list and learning how to assess one's own work.

A major challenge in any writing course is creating a dynamic approach and developing a sense of group. Writing is personal and individual and there often is a reluctance (or embarrassment) to have one's own work analysed and used as an example of what *not* to do. Focus on good examples and encourage good ideas from participants who are perceived as being poor English speakers. It should be stressed that the course can be run in the group's mother tongue or that participants can ask questions or participate spontaneously in their own language.

Brainstorming can encourage spontaneous participation. A buddy system, where more experienced participants are partnered with those who are less experienced, is also often effective. Discussions can take place in pairs or small groups and the findings then reported back to the group.

Above all, I highly recommend limiting the use of photocopies and exercises. I have also found that it is far more useful to set up writing tasks as intersession assignments rather than asking people to start writing during the workshop.

So, can you do it?

Confidence is key. While the learner-centred teacher requires relevant experience in scientific writing and needs to feel at ease in the environment, you do not necessarily need to consider yourself an expert writer. As Rogers pointed out, to run a learner-centred course, the facilitator should be '... sufficiently secure within herself (himself) and in her (his) relationship to others that she (he) experiences an essential trust in the capacity of others to think for themselves, to learn for themselves'.⁶

My experience has taught me that certain hurdles must be anticipated. Instilling a true learner-centred approach takes time, not always a cheap resource in our stressful, time-strapped era. Learners are very

much used to a directive approach – the teacher is there to teach me – and they sometimes feel short-changed when they realise that the effort will be coming from them. They also like getting The Binder and time is needed for them to accept that the real Binder is one that they will compile themselves and that the best resources come from their day-to-day environment. And finally, it can be quite a challenge for you to stay on the sidelines and accept that the outcome, or the group's conclusions, might not be perfect or where you would have liked to get them. You may be very tempted to let the group go through the motions only to tell them in the end how it should be done (and thus to justify oneself as an expert)!

The learning-centred approach has enormous advantages for the trainer: it is highly gratifying to stay focused on a group's needs, learn to listen to individuals, share the learning experience, and follow the trainees' progress. At the end of the session, very often groups go home with a deep, relevant training experience that 'speaks' to them, is immediately applicable, and is therefore likely to stay firmly anchored. The approach is particularly suited to groups of non-native English speakers who are 'experts' and accomplished professionals in their fields.

Acknowledgements

I would like to thank Richard Laubly, co-founder of Matrix Consultants, for his useful input as well as Mary Shaffer for her editing skills.

References

1. Dewey J. My pedagogic creed. *School J* 1897;54:77–80.
2. Dewey J. Experience and Education. Kappa Delta Pi lecture series. New York: Macmillan; 1938.
3. Rogers C. Freedom to learn: a view of what education might become. Columbus, Ohio: Charles E. Merrill Publishing Company; 1969.
4. Rogers C. Client-centered therapy: its current practice, implications and theory. London: Constable; 1951.
5. Lombardo M, Eichinger R. The career architect development planner. 1st ed. Minneapolis: Lominger; 1996. pp. iv.
6. Kirschenbaum H, Henderson VL, (eds.). The Carl Rogers reader. Boston: Houghton Mifflin; 1989. pp. 6–28.

Author information

Felicity Neilson has been living and working in Paris for 30 years. She co-founded Matrix Consultants, an agency

specialising in training, translation, and writing services for the medical and pharmaceutical sectors, in 2000.