

PROCONSTR

Report of an evaluation of new materials and resources for training in bricklaying, carpentry, heating and ventilation

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1 Introduction

This report is an evaluation of training programmes and materials carried out as part of the PROCONSTR project, a project part funded by the Leonardo da Vinci programme, which is part of the EU Lifelong Learning Programme.

In each of the three skills/trades considered in this report, the training that has been developed through PROCONSTR is related to innovative techniques that were not common practice in Britain. These were:-

- Bricklaying – Cellular blocks and new mortar types;
- Carpentry - System shoring and self-inversion system; and,
- Heating and Ventilating – Geo-exchange heating and cooling systems

Three meetings were held to evaluate these, based on two main issues; how easily was the information absorbed by trainees and trainers; and secondly, was there an understanding of the wider European context in which these innovations applied?

This report summarises the meetings which were outlined in the original programme agreed with the Young Builders Trust (YBT), including –

1. Meeting with trainers in selected trades;
2. Meeting with trainers and trainees in Bricklaying and Carpentry; and,
3. Meeting with trainers and trainees in Heating and Ventilating.

Although the responsibility of the UK partner (The Chartered Institute of Building, CIOB) is to produce training material in relation to Heating and Ventilating (covered by the third of these meetings), the CIOB also considered it important to provide feedback on how trainees in the UK might respond to material produced by other partners from other countries.

2 Trainers meeting

The initial meeting arranged by the Young Builders Trust was at the CIOB headquarters in Ascot. Following a presentation by YBT, the CIOB led the presentation of the Proconstr training material in order to achieve the following outputs

- The trainers understanding of the



proposed training material which had been circulated beforehand,

which included

- Trainers Manual
- Trainees manuals, including suggested Tests for trainees, for – Brickwork - Carpentry
- Outlining the arrangements for presenting the programme in more detail to trainees
- The duration of the later workshops involving the trainees and staff undertaking their understanding of the training material produced by Proconstr. This would involve formal feedback and evaluations by the participants

This meeting involved staff from Carillion Training, Old Ford and Circle Registered Social Landlord. These organisations represented two different types of training provider, a national industry based organisation, and a community led local organisation typical of social developers

Those participating in the meeting had been requested to consider presentation, language, content and accuracy. The following summary is based on transcripts of the recorded meeting. The main points were as follows:–



○ Presentation and style

1. As the manual is aimed at trainees from many countries there should be greater emphasis on visual aids rather than words
2. An overview of how countries differ with the conventional trade being described should be provided
3. Such an overview needs to describe the acceptance of the technique in other countries where this is more common than in Britain
4. There is no great evidence of young people from other EU countries coming to Britain to continue training and employment. There is considerable evidence of issues around training second generation Britons with the lack of supportive industry experience
5. Consideration of an introductory programme at level 1 could supplement the manual, which was considered to be at level 2/3
6. Where the trainees might come from disadvantaged background, then a certificate could be important
7. Funding needs to be considered, an indication of whether the manual could attract funding from an awarding body or is simply added to an internal curriculum that is already mainly funded

8. Presentation needs to be more 'sexy'. Use of more graphics, but this could well be part of what happens next once the manuals and the LdV project have been signed off

- Language

1. The manuals were considered wordy, more like level 3 text
2. Trainees should not interpret this as needing to know all of the content but to have indicators as to where to find information later
3. Language is 'stiff' for the trainers let alone the trainees, and the use of pictures as a common language becomes essential
4. The trainees understanding might be better recorded at more frequent intervals, eg at the end of each page or section
5. Suggested questions at the end of each manual may be confusing with the multiple choices

- Content

1. With each country there should be an introductory section on how the innovative process described sets against the more conventional processes
2. Tests are set out as knowledge, practical tests would be observed also but are not set out in the manuals
3. Practical tests may be possible for bricklaying but for carpentry and H+V could only be successful on site
4. Asking trainees to 'understand' may be too demanding, 'being aware' of the techniques described is more circumspect
5. It was generally agreed that a delivery time of 2 to 3 days seemed appropriate, although there was debate on the number of hours involved
6. Curricula may need to be changed to include the manual, and in some cases choice by the trainees will need to be considered

- Accuracy

1. Issues around variations within the UK not referred to, practice differs between Scotland and England for example
2. Ensure all measurements are in mms

3 Meeting with trainers and trainees in Bricklaying and Carpentry

This meeting took place at the Academy for Economic Renewal in Neasden. Trainees and trainers came from the same two organisations attending the first meeting, so neither group was on 'home' territory. The training products considered included a manual, backed up by visual information including short films illustrating the innovative nature of the training products



A powerpoint introduction was made that was similar to that used in the first meeting, but more focused on the trade concerned. Each trade then met as separate groups where the film presentations were made. These graphic illustrations were readily appreciated and in both trades came across well. The animated content of the carpentry film was considered particularly good. In the case of the bricklayer film, the absence of a commentary was remarked upon.

Each group then discussed the contents of the manuals.

Following the presentations and discussion an evaluation session was undertaken.

The trainees were asked six questions –

1. Were the course objectives explained clearly?
2. Will this course improve your knowledge about new techniques and innovations in construction industry?
3. Will this course help you in your job or future career?
4. Was the course material useful and relevant?
5. Does the structure of the module meet your expectations, both in theoretical and practical terms?
6. Do you feel you have gained new skills and knowledge?
What was the best thing you did today?

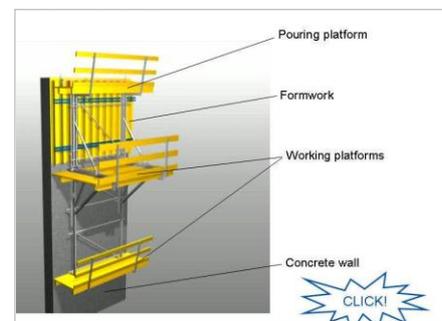


The response to the first question was equally divided, but was more positive with the second question. On the whole the responses to the third, fourth and fifth questions were negative, and were equally divided on the sixth question

The trainers were asked a further two questions:

7. Do you think the material will be easily understood by your trainees?
8. Does the material fit easily with the standard accredited course you undertake in this skill?

The responses to the first four questions were largely positive, as it was for the theoretical part of question five, and question 6. There was mixed reactions to the two additional questions, with a mainly negative response to question 7, although a totally positive response to question 8.



These responses should be treated more as a snapshot, not as a structured survey.

However the responses could suggest that the trainers were more optimistic than their 'wards'. It should be noted that whilst the trainees varied in their levels of competence, both groups considered that the course improved their knowledge of new techniques and innovations in the construction industry. The responses from the national training provider were more positive than those from the community led provider, which may have been due to the trainees selected to attend the session rather than the nature of their provider.

The more negative responses from the trainees concerning course content might reflect the earlier comments relating to presentation made by the trainers at the first meeting. These indicated a more considered introduction setting these new techniques against conventional processes and what is considered conventional in other European countries.

At the end of this session there was discussion about some prepared questions to test if the visual content of the supporting information had been absorbed. Although it was suggested these were not undertaken, some trainees accepted the challenge.

4 Meeting with trainers and trainees in Heating and Ventilating

This meeting took place at the College for Northwest London. The trainers and trainees in this case were on home territory

A powerpoint introduction was made similar to that used in the first meeting, but more focused on the trade concerned. In this case there were no visual supplements to the manual, however the powerpoint made reference to other tools such as the Calculation tool Akwadukt thermo



The group then discussed the contents of the manuals. This session was recorded and the following comments arise from the transcript. This group were at a higher level of competency than the earlier group discussing other trades. The group were clearly conversant with their subject as illustrated by them referring to detailed technical points arising from the presentation.

In many ways this discussion came to similar conclusions to those expressed at the first meeting of trainers:-

1. The manual was considered wordy and possibly too long
2. There should be greater emphasis on visual aids rather than words. The subject manner would suggest a film
3. The manual focuses on installation. This needed to be set into the wider context of the more conventional exchange units required in the buildings served. It was

suggested that a flow diagram of the design and installation

stages be considered

4. The above reaction might best be summed up in the following comment made by one of the trainers –

I'd like to see the whole project start off with an introduction into what it is, yes the ground source, what it is, how it works as an introduction and then have an actual building project going on with people explaining what's going on each step of the way and then this would be a good back up to that, because once you'd seen it going on then you've got a better idea and then you can read it and you'd understand all of the diagrams. And I think that's a very good way of doing it and I mean then that would be next best to installing it yourself.

5. The question was raised of costs and suitability to most British housing provision, which would be a higher densities than in other countries
6. The suitability of the manual as an 'add on' component would be enhanced if it was part of an awarded unit. It was highly recommended that the CIOB approach the City and Guilds who are seeking new programmes in the context of the QCF replacing NVQs, particularly where this involves 'green' issues to enquire its suitability under the new QCF structure replacing NVQs. This would be a very opportune time
7. The manual did not pose any issues around industry's capability to undertake the work outlined
8. There was no consideration of an introductory programme at level 1 as with the other trades. Discussion around how it could provide a supplement level 2/3 was discussed in some detail
9. The time to deliver the training was discussed, suggesting four 3 hour sessions over a four week period
10. Whilst the group felt they may not have learnt new skills, they have gained new knowledge
11. In respect of the Akwadukt calculating tool, some of the group undertook to use it and found it easy to manipulate, although needing to understand more about soil conditions
12. It was suggested that whilst the knowledge was good it needed to go through another phase of presentation when some of the points referring to graphics could be accommodated
13. Nobody seemed attracted to working abroad, unlike the other trades. This might be due to the respect given and financial reward for H+V is sufficient to give job satisfaction in Britain

In conclusion it was felt that the message embodied in the manual did not quite 'get there' a nominal 40% success was given if this were aimed at level 2 trainees, whilst the amount of knowledge embodied in the manual was felt to be much higher in its achievement at a nominal score of 90% success. The following quote is pertinent –

It comes down to resource, the manual is one resource. A model can be another, a movie of it could be another one and a practical, putting some pipes together is another resource. So you are

using a lot of different props to get the subject across. But you've got to do that, you've got to use more than one medium or more than one way of getting it across. But I think as installation manuals go, it tells you what you need to know...

Following the presentations and discussion an evaluation session was undertaken based on the same questions which had been posed in meeting 3.

The responses by the trainees were largely positive to the first four questions and to the sixth question, with a more negative response to question five dealing with the structure of the module meeting their expectations, particularly relating to the practical part.



The trainer's responses were totally positive to the first five questions, and to theoretical section within question 6. The responses to questions seven and eight were mainly positive indicating confidence in their trainees although possibly reflecting the earlier comments regarding greater emphasis on visual and modeling aids



5 Overall Conclusions

It is difficult to draw concrete overall conclusions bridging the three trades considered in the above meetings, however the following strong indicators are worth noting:-

- There was a need for a more simplified context in the language of young people, which needed to consider two broad aspects:-
 - The technical context
 - The European context
- In seeking a simplified language there was a clear indication that visual tools were preferred, with pictures being a common language.
- There was clearly a distinction between how the trainees from the more conventional trades reacted to those in the more technical activities involved in heating and ventilation (H&V):-
 - With bricklaying some of the aspects such as thin mortars were now embedded within training programmes and therefore easier to deliver, whilst interlocking cellular blocks were not. Although the advantages of these techniques might be

appreciated there appeared to
be some apprehension as to

whether they would become common practice in Britain

- With carpentry it was acknowledged that the techniques illustrated would become more common practice in larger projects, so any apprehension was more diluted as a result of this understanding
- With H+V there was more enthusiasm for the subject illustrated, although some comment that it would have been good to have used supplementary visual presentations (those involved in this meeting were not aware that such presentations had been used in the other trades)