

Children Challenging Industry

Tees Valley Region Report, 2000-2003

Executive Summary

Classroom-based training, consisting of three 2½-hour sessions, was delivered to primary school teachers and their year 5 and 6 pupils. The children completed one of four topics on offer, chosen by the teacher. These were, Water for Industry, A Pinch of Salt, Plastics Playtime and Exploring Colour and Industry.



The advisory teacher demonstrated how industry could be used as a resource, by providing a real and motivating context in which to teach science. The classroom activities were set within an industrial context, and 87% of children visited one of twenty possible industrial sites. The advisory teacher conducted a 1½-hour training session on science-industry links for the whole staff in each school.

The Children Challenging Industry (CCI) project aims were as follows:

- Provide classroom-based training for teachers in aspects of the National Curriculum for science
- Improve primary school children's perception of the chemical industry and its relationship with science
- Increase children's enjoyment of science
- Improve teachers' knowledge and confidence of teaching science
- Improve teachers' perception of the chemical industry and its relationship with science.

Children's data

363 children completed questionnaires from the year 2000 to 2003, before and after the CCI project.

The children were asked about the environment of industrial sites. Before the project, the predominant view of industry was that it was noisy, smelly, dirty and hot with many people working on production lines. After the CCI project the children, whether they had been on a site visit or not, portrayed a significantly more accurate view of industry. They were more likely to say that an industrial site was safe and employed fewer people than expected.

The children drew pictures of their perceptions of industry, both before and after the project. They were scored, with a positive score indicating a more informed image as a result of the project. The children's drawings of the internal and external views of an industrial site were significantly more detailed and accurate after the project. The children who had been on a site visit were particularly more likely to attain a higher positive score than the children who had classroom lessons only.

The children were asked to draw someone in industry and give this person a job title. After the project, the two jobs that were significantly more likely to be mentioned, were scientist and engineer. The children were eight times more likely to draw a scientist, while the number of children drawing a 'materials handler' dramatically decreased. When asked to list other jobs carried out on industrial sites, children were also much more likely to list scientist as a job carried out in industry.

After the project, when asked which job they would choose to do in industry, the children were nearly ten times more likely to choose scientist as a job they would like to do. The reasons the children chose to be a scientist were that it would be enjoyable or fun. They were far less likely to choose to be a 'materials handler' (i.e. jobs involving handling materials directly, such as pouring, stirring, etc.). By the end of the project the children were significantly less likely to say that they did not want any job in industry or that they did not know which job they wanted to do.

Many of the children learnt new things about science, as shown by the number of children who said that the ingredients or the processes of making materials were not as they expected. Virtually all the children learnt about the importance of science in industry shown by the fact that nearly all the children said scientific testing was important.

The children enjoyed the project, as shown by the number who indicated activities that interested them. The most popular activities were those that were practically-based and contained new information.

These results demonstrate how much the children learnt about industry and the types of jobs in industry during the CCI project. By the end of the project, the image of scientists was immensely positive. Nearly half of all the children mentioned that scientists and engineers worked in industry. They felt that these professional jobs were far more attractive than before the project. If these views were sustained it would be expected that the number of children who wanted to work in industry would rise.

Teachers' data



78 teachers returned questionnaires from the year 2000 to 2003, before and after the CCI project. Half of the teachers had not had recent training in delivering the science curriculum and many had no science qualifications. Training related to industry was even less common.

Few teachers had links with industry and only half of the teachers had used any resources developed by industry. Teachers were more likely to teach industry in the context of geography and pollution, than science.

The feedback from the training was overwhelmingly positive. The sessions were of an extremely high standard and were highly rated by all the teachers. The weaknesses most likely to be mentioned were that there was too much to cover and there were difficult concepts covered in the project. These were both more strongly associated with younger age groups.

Prior to involvement in CCI, when prompted, nearly all teachers thought there were positive and negative things about the chemical industry. Many teachers had not seen or received any information about the chemical industry either through resources developed by industry or through links with the chemical industry. By the end of the project, 86% of teachers said they had learnt something about science or industry.

Those that had used resources, prior to involvement in CCI, were most likely to say they did so because they were free and of good educational standard.

The change in attitudes towards industrial resources that occurred during the project was impressive. Virtually all the teachers thought that industrial visits would be useful in future and 89% of teachers wanted to use resources developed by the industry after the training. This was a vast improvement when compared with the two thirds of teachers who wanted links with industry, and the half who had used industrial resources, before the training.

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