Subject Inspection of Construction Studies and Materials Technology (Wood)
REPORT

Bishopstown Community School
Bishopstown, Cork
Roll number: 91397T

Date of inspection: 16 April 2010
REPORT ON THE QUALITY OF LEARNING AND TEACHING IN CONSTRUCTION STUDIES AND MATERIALS TECHNOLOGY (WOOD)

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in Bishopstown Community School. It presents the findings of an evaluation of the quality of teaching and learning in Construction Studies (CS) and Materials Technology (Wood) (MTW) and makes recommendations for the further development of the teaching of these subjects in the school. The evaluation was conducted over one day during which the inspector visited classrooms and observed teaching and learning. The inspector interacted with students and teachers, examined students’ work and had discussions with the teachers. The inspector reviewed school planning documentation and teachers’ written preparation. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the deputy principal.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

CS and MTW are included in a comprehensive range of technology subjects in the school. The range also includes Technical Graphics (TG) and Metalwork in junior cycle and Design and Communication Graphics (DCG) and Engineering in senior cycle.

Planning in CS and MTW is facilitated by formal meetings at the beginning and at the end of each year. Subject planning takes place informally throughout the year in the context of daily contact between the two teachers involved in the delivery of the subjects. Co-ordination of the subject department is undertaken by one teacher who is the main teacher of the subjects. It is recommended, particularly in light of imminent and expected changes in the staffing of the subject department, that steps be taken to formalise a more collaborative model of subject co-ordination and subject-department planning. Specifically the role of subject co-ordinator should rotate, perhaps annually, and opportunities should be sought for teachers of CS, MTW, TG, and DCG, and ideally Metalwork and Engineering also, to collaborate more formally in areas of common interest including subject-department planning. Consideration should be given to the development of a role for a rotating co-ordinator of all the technologies. The broader, more collaborative structures that emerge from this model of co-ordination should be used to further enhance practice regarding regular self-review and evaluation of subject-department planning. The process of self-review should include more formal analysis of outcomes, including achievement in certificate examinations, for students in each of the subjects. To further support continuity in subject-department planning, concise records of decisions made at meetings should be kept.

In line with good practice, the teachers of CS and MTW have availed of opportunities for in-career development. Such opportunities have increased with the introduction of changes in the
technologies’ syllabuses in recent years and the establishment of the Technologies Subjects Support Service. It is good that the teachers’ involvement in these activities has been facilitated by the school.

Good practice is followed regarding the allocation of appropriate amounts of time for CS and MTW and also, in the division of the time into double-period and single-period lessons. CS benefits from an allocation of two double-period lessons per week for half the year in Transition Year (TY) and six periods per week in fifth year including two double-period lessons. In the Leaving Certificate Applied (LCA) programme, two double-period lessons per week are provided in sixth year for teaching the Graphics and Construction Studies (GCS) course. At the time of the inspection, there were no sixth-year CS or fifth-year GCS classes due to variations in the programme choices exercised by students in preceding years. MTW is timetabled for two double-period lessons per week in second and third year. In first year the time allocation for three concurrent subjects, one of which is MTW, is also two double-period lessons per week, with the class groups following a carousel arrangement. In this arrangement the first-year students are divided into three mixed-ability groups each of which studies MTW for each third double-period lesson in rotation while each of the other two groups takes one of the two other subjects. This arrangement, while it brings about a reduction in the time allocated for the study of each of the three subjects, facilitates each student to experience each of the subjects before choosing which to study in second year and third year.

The deployment of teachers of CS and MTW has resulted in the subjects being taught almost entirely by one teacher, while this teacher’s involvement in teaching TG and DCG is very limited. Collaborative practice should be further supported by providing for the fuller involvement of all teachers in each of the technology subjects which they teach. Such an involvement should be an aim of teacher deployment, in particular as changes in the overall staffing of the department are imminent.

CS and MTW are well accommodated in two specialist rooms: a woodwork room and a construction studies room. Both of these rooms are well appointed and maintained. The construction studies room is fitted with a central dust-extraction system while a stand-alone dust-extraction unit is fitted to the bench saw in the woodwork room. Given the absence of a dedicated wood preparation room, the issue of dust extraction is appropriately managed. There is appropriate storage of materials and equipment and both rooms were neat and tidy at the time of the inspection. Information and communication technology (ICT) is used in the teaching of CS and MTW, most notably for the completion of the typed elements of students’ design project work. This is good practice. To further expand the use of ICT in teaching and learning, it is urged that students be introduced to the use of computer-aided design from an early stage in MTW and CS. The facilities in place in the school for teaching SolidWorks to students of the technologies should be used for this purpose. It is also urged that the use of ICT for teaching be extended. The use of data projectors in the woodwork and construction studies rooms along with the sourcing and development of appropriate digital teaching materials would be very positive steps in this regard.

Good practice is followed in giving each student experience of MTW in first year and CS in TY before he or she makes the respective subject choices in junior cycle and senior cycle. It is commendable that the needs and interests of students are considered paramount in deciding the provision for subject choice.
PLANNING AND PREPARATION

In line with good practice, the written subject-department plan is well structured. It consists of documents that follow a coherent template and provide clear information on the work planned in each year. The programmes of work presented are consistent with the requirements of the MTW and CS syllabuses. The subject plan presents the approaches adopted under a range of common headings. As a next step in the further development of the plan, the successful teaching methodologies, approaches and strategies being applied should be noted and linked to specific content in the programmes of work. Particular attention should be paid to differentiation with regard to the design-project work undertaken by students. CS and MTW are taught in a mixed-ability setting throughout the school. The variety of abilities and educational needs of the students are taken into account in planning. In junior cycle, in which virtually all students follow the Junior Certificate School Programme (JCSP), very good practice was seen in the support of students’ literacy. The classes are small and teachers provide appropriate individual teaching and support in the course of lessons.

Active co-curricular and cross-curricular planning is reported by the subject department. Students have been involved in making pieces of furniture for the JCSP reading room, a commendable example of integration of the students’ educational experience. It is recommended that the subject department explore the opportunities for further integration. It is suggested that the programmes of work in the technologies in first year be examined. An opportunity exists, by means of the carousel arrangement, to develop integrated projects involving elements of MTW, Metalwork and TG linked by the student-design approach. The introduction of an element of SolidWorks, mentioned earlier in this report, should also be considered as part of this development. An added advantage of adopting an integrated approach in this way is efficiency in the use of class time. Common elements of the different subjects can be suitably scheduled, to be taught in one subject, to facilitate progress in the integrated project. The balancing of the teaching load between the subjects should be carefully and collaboratively planned.

Planning for the use of teaching resources has resulted in the selection and development of a range of appropriate transparencies for use with the overhead projector. Good practice was also seen in the use of actual components to explain and clarify construction techniques. The investigation and addition of appropriate digital teaching resources should be undertaken as a next step in further enhancing this aspect of the subject department.

Very good practice was seen in the emphasis placed on health and safety in the course of lessons. Issues of health and safety are dealt with systematically both at a formal level, in terms of documentation and regular review, and more informally in the interaction between teachers and students. Clear and discrete reference is made in subject planning documentation to the maintenance of health and safety. This reference details the procedures to be followed. It is recommended that these sections of the subject plan be appended to the overall health and safety statement of the school. It is further recommended that rules for the safe use of the woodwork and construction rooms, based on the health and safety procedures contained in the subject plan, be prominently displayed in both rooms. Standard safety signage is in place in the vicinity of many of the machines in the rooms. To further improve students’ awareness, the display of signage should be increased, particularly in the woodwork room. Where not already erected, informational signboards should be displayed adjacent to each machine used by students. These signboards should contain, in concise form, the practices and procedures to be followed to ensure safety. It is further recommended that safe operational areas be marked on the floor around
machines used by students. The rational for these areas, and the implications for movement and behaviour in the vicinity of machines, should be displayed in adjacent instructional signboards.

TEACHING AND LEARNING

The lessons observed in the course of the inspection included theory lessons in MTW and CS, the realisation of coursework projects in GCS and a practical MTW lesson. One lesson involved the use of the computer room where students embarked on designing a project by beginning the investigation of a brief supplied by their teacher. On the evidence of the inspection it is clear that teaching and learning of a high standard is the norm. Lessons are very well structured. At the beginning of a lesson students are made fully aware of the expected outcomes. A review of the work done in the preceding lesson is undertaken to ensure continuity. The teaching methods used are appropriate to the content of the lessons and are generally successful in maintaining the students’ interest. Demonstration of practical woodwork skills by the teacher is of a high standard and is immediately reinforced by the individual attention of the teacher as the students undertake the work at their own benches. This is good practice.

In the lessons observed, there was some evidence that students’ learning would have benefited from greater attention to differentiation. As the work becomes more advanced, it is more likely that the time taken by individual students to complete a task will vary much more. It is recommended that the projects being undertaken respond to this situation by incorporating appropriate differentiation to provide suitable levels of challenge for all students. Differentiation of the level of difficulty in student projects should include differentiation of the student-design elements. One way in which this can be achieved is by varying the design briefs given to individual students to take account of the student’s ability and interests. Particularly good practice was seen in the integration of literacy support with the development of the students’ sketching skills. At the end of one practical lesson observed in JCSP, students were encouraged to make small sketches as an explanation of new terminology encountered in the course of the lesson. The words and explanatory sketches were added to the students’ individual key-word folders.

Theory lessons involve students in a range of activities including sketching and note making. Very good use is made of the overhead projector to illustrate the content as it is presented by the teacher. Questioning of students is appropriately varied and directed to individual students to ensure their continued attention. Questions are differentiated providing appropriate levels of challenge depending on individual ability. This very good practice can be further enhanced by increased differentiation of the teaching methods or strategies used. It is urged that the use of additional active methodologies be explored to provide more transitions from the direct-teaching approach.

There are significant numbers of students learning English as an additional language (EAL) and in one of the lessons observed these students formed a clear majority. The teaching approaches adopted in the context of JCSP are clearly being adapted for use in senior cycle and this is good practice. It is recommended that particular care be taken to further reinforce language learning in all lessons with EAL students, including senior cycle lessons. All new terms should be written on the white board or word list as is common practice in JCSP. Students are encouraged by their teachers to study the subjects at the highest level consistent with their ability. Special-needs assistants were in attendance in most of the lessons observed and their clearly defined role was very effectively discharged.
The lessons observed were characterised by a positive, suitably informal and friendly atmosphere. Discipline is maintained by suitably low-key interventions by the teacher when needed. These interventions are well timed and do not distract unduly from the achievement of the planned objectives. The rules governing behaviour during lessons are consistently enforced, established by observance and willingly accepted by students. Interaction among students and teachers is predominantly positive and founded on mutual respect. Students are affirmed for their work and behaviour and encouraged to achieve their full potential. In line with good practice, the physical learning environment in the woodwork and construction studies rooms contains a range of subject-related materials. Posters and charts enhance the walls. Many examples of students’ work are displayed. The room layouts are very effective in providing safe and comfortable learning spaces. Management of the learning activities of students is very effective. Clear, well-ordered routines are in place and these ensure that smooth procedures are followed at the start and end of lessons. Students are well prepared for involvement in the distribution and gathering of materials, tools and equipment and lesson time is very efficiently used for teaching and learning.

The effectiveness of student learning, as indicated by the quality of students’ work and their response to the enquiries of the inspector, is consistent with high expectations given the range of student abilities. Students display an appropriate level of knowledge and understanding of the subjects. The involvement of students in lessons and their engagement with the work they undertake are of a high standard. In lessons where students were involved in the realisation of their own designs, an appropriate level of creativity and initiative was in evidence. Opportunities should be developed to further strengthen these aspects of students’ learning. The integration of student design into all projects, at a level appropriate to individual ability, would provide such opportunities.

Students show enthusiasm for CS and MTW, in particular for the practical elements of the subjects. Good practice is seen in the integration of theory and practical work. In one lesson observed, following revision of wood defects, students began a process of designing the next project that they would make. This approach is very effective in maintaining students’ interest, enthusiasm and curiosity.

ASSESSMENT

Formal assessment of CS and MTW follows accepted practice in the school. The main in-school examinations are held at Christmas and in summer. Good practice is followed with regard to continuous assessment. Students’ project work is assessed and the outcomes of this assessment are aggregated with the Christmas and summer examination marks to arrive at the overall result. This approach is consistent with the assessment practices in Junior Certificate and Leaving Certificate which both include a coursework element. To further improve these good assessment practices, it is recommended that the subject department develop a more formally structured process of assessment. The detail of this process, including the proportion of marks allocated to continuous assessment, should form part of the subject-department plan. The elements of project work assessed should include all aspects of student-design work as well as the realisation of the artefact. Students should be kept fully informed of their progress through regular feedback and be kept aware of the likely impact of the continuous assessment process on their final result. It is urged that the subject department collaborate with the teachers of the other technologies with a view to adopting a common approach to assessment in each subject.
Informal assessment and assessment for learning is a feature of all lessons. Teachers provide affirmation and guidance to students as an integral part of lessons as students undertake tasks including practical work with materials, drawing and sketching. This good practice was seen in all of the lessons observed.

Teachers maintain appropriate records of student attendance and achievement including completion of homework. Communication with parents is in line with good practice. School reports, which are sent home following formal examinations, provide information on students’ achievement. Parent-teacher meetings are provided annually and the students’ journals are used as a regular means of communication with the students’ home.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

The following are the main strengths identified in the evaluation:

- Providing all students with prior experience of MTW and CS and basing the subject choice on meeting their needs and preferences is very good practice.
- The subject-department plan is well structured, follows a coherent template and includes programmes of work that are consistent with the requirements of the MTW and CS syllabuses.
- Based on the evidence gathered during the inspection, teaching and learning of a high standard is the norm in this school.
- Particularly good practice which integrates literacy support with the development of the students’ sketching skills was observed during the evaluation.
- The lessons observed were characterised by a positive, suitably informal and friendly atmosphere.

As a means of building on these strengths and to address areas for development, the following key recommendations are made:

- Steps should be taken to formalise a more collaborative model of subject-department coordination; the development of a role of rotating co-ordinator of all the technology subjects should be considered.
- The use of data projectors in the woodwork and construction studies rooms and the sourcing and development of appropriate digital teaching materials should form part of subject-department planning.
- Programmes of work in the technologies in first year should include student projects with elements which integrate with MTW, Metalwork and TG and are linked by the student-design approach.
- The use of active methodologies should be explored to provide for more differentiation of teaching methods in theory lessons.
- The subject department should develop a more formally structured process of assessment.

A post-evaluation meeting was held with the deputy principal at the conclusion of the evaluation when the draft findings and recommendations of the evaluation were presented and discussed.

Published, April 2011