An Roinn Oideachais agus Scileanna
Department of Education and Skills

Subject Inspection of Technical Graphics and Design and Communication Graphics

REPORT

Scoil Ruain
Killenaule, County Tipperary
Roll number: 72430H

Date of inspection: 23 April 2010
REPORT
ON
THE QUALITY OF LEARNING AND TEACHING IN TECHNICAL GRAPHICS AND DESIGN AND COMMUNICATION GRAPHICS

SUBJECT INSPECTION REPORT

This report has been written following a subject inspection in Scoil Ruain. It presents the findings of an evaluation of the quality of teaching and learning in Technical Graphics (TG) and Design and Communication Graphics (DCG) and makes recommendations for the further development of the teaching of these subjects in the school. The evaluation was conducted over two days, 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 the teachers’ written preparation. Following the evaluation visit, the inspector provided oral feedback on the outcomes of the evaluation to the principal. The board of management of the school was given an opportunity to comment on the findings and recommendations of the report; the board chose to accept the report without response.

SUBJECT PROVISION AND WHOLE SCHOOL SUPPORT

Scoil Ruain is a co-educational vocational school under the trusteeship of South Tipperary Vocational Education Committee (VEC). TG and DCG, as relevant, are offered as optional subjects in the school’s junior and senior cycle programmes. During Transition Year (TY), a module in DCG is offered in the first term. Students following the Leaving Certificate Applied (LCA) programme may choose Graphics and Construction Studies as a vocational specialism. The provision of a graphics subject in all of the school’s curricular programmes is commended.

The time allocated to TG, four class periods per week, is appropriate. At senior cycle, DCG is allocated a total of five periods in fifth year and six periods in sixth year. This allocation is very good and allows for the delivery of the various aspects of the syllabus in both double and single periods.

There is a good range of resources available to the subject department. In addition to this, considerable efforts have been made to upgrade the school’s graphics specialist room. The subject department is commended for its work in this regard. In all instances priority is given to the graphics specialist room when timetabling; however on occasion materials technology (wood) specialist rooms are utilised for the delivery of some graphics lessons. These rooms are adequate for this purpose. A good range of information and communication technology (ICT) resources are provided in all rooms enabling teaching and learning to be supported by data projection and student access to subject-specific software and online resources.

Where more than one graphics class exists within a specific year group, concurrent timetabling is utilised to enable students to transfer between groups. This system allows students to be placed in class groups appropriate to their abilities. This system facilitates and encourages collaborative planning and assessment policies.
Currently, there are four teachers in the school qualified to teach graphics subjects to the highest level. Of these four, three are currently deployed to teach the subjects. In planning future timetables, senior management should consider all suitably qualified teachers and deploy them appropriately in order to maximise the resources at its disposal and to further develop the skill sets of the subject department.

At junior cycle, first-year students choose their optional subjects from fixed option bands. Information meetings are held in the school and the principal meets all first-year students and parents prior to admission. To improve this system, the school should consider providing students with an opportunity to sample optional subjects prior to making their subject choices. At senior cycle, the DCG module in TY provides students with a good insight into the subject at Leaving Certificate level. Additional information meetings are also held at this time to further support students’ decisions.

Uptake of graphics subjects in the school is very good with two class groups formed in almost all year groups. As part of its ongoing development planning, the subject department should continue to encourage girls to choose the subjects using the information evenings and the proposed sampling programme to inform students and parents of the benefits of graphics at junior and senior cycle.

The members of the subject department are commended for their considerable level of engagement in continuing professional development (CPD). This includes engagement with the Technology Subjects Support Service (t^4) and their attendance at courses provided by the relevant teachers’ professional network and with a private training company with particular expertise in parametric modelling software.

**PLANNING AND PREPARATION**

Good systems have been developed to plan for the delivery and organisation of TG and DCG. This system includes the identification of a subject co-ordinator who has responsibilities in relation to convening meetings, organisation and maintenance of the graphics specialist room and the dissemination of information to the various members of the subject department. Records presented during the course of the evaluation show that there is a good level of discussion and dialogue at departmental meetings and that important issues are discussed by the group. Examples of these issues include plans to improve the uptake of graphics subjects by girls and analysis of the class organisation systems currently in operation in the school.

The level of collaboration among members of the subject department is good, with common programmes of work identified for each year group. However this collaborative planning is topic focused and could be improved through the identification of key learning outcomes for students. The subject department should use the DCG syllabus document as a guide to developing curricular plans that focus on students’ learning as opposed to the delivery of subject matter.

Overall the planning and organisation of graphics subjects in the curricular programmes was good. A useful booklet, developed by the subject department, collates all of the resources used during the graphics and construction vocational specialism in the LCA programme. This document forms much of the practical coursework that supports the completion of the desired key assignments. The TY plan is based on the eight-week module designed by t^4. While use of prepared coursework is most welcome, the subject department should ensure that the module is
appropriate for the duration of the course and that this material is taught in an interesting and significantly different way to the subject at Leaving Certificate level. As a number of students in junior cycle follow the Junior Certificate School Programme (JCSP), particular attention should be paid to developing common practices to support these students. The subject plan should identify strategies that have been developed collaboratively to further include students following the programme. Possible examples could include subject-specific keyword development in lessons and numeracy initiatives to support students when measuring, calculating and estimating lengths.

The subject department has engaged in a number of reflective tasks that have been useful in identifying areas for development. The use of diagnostic windows has enabled the subject department to be proactive in identifying their strengths and the areas for further development. The subject department also analyses students’ attainment in certificate examinations. This is a positive step and should now instigate and facilitate the further development and improvement of graphics provision in the school.

Planning for all lessons observed was exemplary. Teachers prepared a wide variety of practical resources that supplemented the learning experience for students. The use of the school’s intranet also enabled students to store their electronic files remotely and to access them when required during lessons. This is commended.

**TEACHING AND LEARNING**

All lessons observed were very well structured. Topics were introduced, developed and in most cases recapitulated effectively. Lessons observed were consistent with the curricular plans presented to the inspector during the evaluation, thereby demonstrating the subject department’s planning in practice.

A combination of blackboard constructions, sketches and demonstrations at students’ desks characterised the main teaching methodologies utilised. These methods were efficient and very descriptive, providing students with clear and concise instructions. The subject department is commended for its approach to teaching graphics through the modelling of best practice.

Resources were used appropriately to help students visualise key concepts. In a number of instances these resources were very applicable to the topic at hand. This was particularly evident during a senior cycle lesson focusing on geometric solids in contact.

Student participation in almost all lessons was exceptional. Teachers ensured that all possible opportunities to actively engage students in their learning were seized. A number of strategies were used in this regard including: the use of pair work, encouraging students to model using card, promoting student participation at the blackboard and the integration of research and design project work. These strategies helped to create an active learning environment where students were encouraged to take responsibility for their learning and facilitated their exploration of topics in interesting and, in some cases, imaginative ways. The subject department is commended for its promotion of active teaching and learning strategies.

Differentiated teaching strategies were evident in some lessons. Teachers in all lessons demonstrated a keen awareness of their students’ abilities and provided varying degrees of support accordingly. In some cases, additional work was set for more capable students allowing them to strive to reach their full potential.
ICT was incorporated into almost all lessons. Its judicious use added to the visual impact of the lessons and in all cases provided a good method of demonstrating important principles. In a senior cycle DCG lesson, ICT was fully integrated into students’ learning experiences. In this lesson, students working on a design project combined their very good freehand sketching skills with their parametric modelling skills to produce very high quality work. The approach taken to developing students’ skills in this key area of the syllabus is commended.

The appropriate use of examination-type questions was evident in some lessons. Best practice was observed where the teacher identified the fundamental principle required to successfully complete each question. This was carried out in a discursive manner with students, providing them with ample opportunity to identify the underlying concepts and encouraging them to take a rational approach to solving the various problems.

In all lessons observed students were very well behaved and a positive, supportive and industrious environment was evident. A number of classroom management strategies have helped to create this environment including practices and protocols relating to: electronic file management, clearly defined set-up procedures, drawing-sheet and portfolio storage, and good management of consumables and equipment.

Most students demonstrated good levels of ability in drafting, with a good understanding of subject matter demonstrated by their questions and answers. Senior cycle students showed particularly high levels of sketching and modelling skills. It was reported that the high level of sketching is a result of the use of repetition, the administering of formative feedback and the encouragement of students’ self-evaluation. These assessment-for-learning (AFL) strategies are particularly suited to this aspect of the syllabus and should be extended to all appropriate areas. The majority of students choose higher level at junior cycle. This is a most welcome trend. At senior cycle, student uptake and attainment at higher level in certificate examinations has improved in each of the past three years, resulting in a very high proportion of students taking DCG at higher level. The subject department’s commitment to promoting higher level among TG and DCG students is commended.

**ASSESSMENT**

Formal examinations are held in Scoil Ruain three times during the year: Christmas, Easter and summer. When possible, common assessments are administered to students. This helps teachers to accurately gauge students’ progress. When used in conjunction with the concurrent timetabling facility and the collaboratively developed curricular plans, these assessments provide the subject department with a valuable resource and allow students to be placed in classes appropriate to their abilities.

At senior cycle, fifth-year students’ end-of-term results are comprised of a combination of terminal examination scores and grades achieved for the completion of their project work. This is a very good strategy as it helps students to become familiar with the assessment model used for DCG in sixth year.

Students received very good levels of oral formative feedback during lessons. Written feedback was apparent on a selection of one class groups’ portfolio work. The subject department should endeavor to maximise the written formative feedback given to students to promote the use of their portfolio work as a study aid.
Homework was prescribed at the end of all lessons observed. In some cases homework consisted of task-specific exercises and in other instances homework was focused on students’ project work. In all cases the quantity and educational value of the prescribed work was appropriate. The subject department has shown initiative, particularly with first-year students, by developing a simple and cost-effective solution aimed at providing students with essential drawing equipment in order for them to complete their homework tasks. Initiatives of this kind, aimed at facilitating students’ learning, are most welcome.

**SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS**

The following are the main strengths identified in the evaluation:

- The quality of graphics teaching in the school is very good.
- Students’ knowledge, understanding and skills in TG and DCG are good.
- An appropriate graphics subject is offered in all of the school’s curricular programmes.
- The time allocated to TG and DCG class groups in Scoil Ruain is good.
- The subject department has access to good quality resources and equipment.
- Uptake of graphics subjects in the school is good.
- The subject department has engaged in a variety of relevant CPD courses.
- A collaborative subject department has been formed to oversee the organisation, teaching and learning of graphics subjects in the school.
- ICT was integrated effectively into students’ learning experiences during lessons observed.

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

- Senior management should endeavour to deploy all suitably qualified teaching staff to teach TG and DCG.
- The school should consider all possibilities in relation to providing students with an opportunity to sample optional subjects prior to making their subject choices.
- The subject department should ensure that the TY graphics module is appropriate for the duration of the course and that this material is taught in an interesting and significantly different way to the subject at Leaving Certificate level.

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

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