

- Leave questions for individual exploration.
- Provide further activities; these activities can represent an extension of the lesson or general enrichment of various types.
- Assist students in written work.

Level 2 represents ways in which whole-group instructions may be modified. These ways are listed below:

(a) Independent Progress - provision should be made for individual conferences to discuss the pupil's progress and determine understanding of concepts and underlying relationships.

(b) Ability Grouping - attention must be given to the quality of experiences provided for slower learners.

(c) Flexible Grouping - allows for the separation of classes into smaller groups for short periods of time on specific content. This approach appears to be effective in skill areas where wide divergence in achievement is present.

Level 3 represents modifying whole-group instruction to include independent self-selected activities. These may be

- laboratory oriented,
- enrichment activities,
- general-interest topics.

The Next Decade in Mathematics Education

Eric MacPherson
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(keynote speaker)

Reported by *Wayne J.P. Turley*, Calgary

The next decade in mathematics education will abound in four themes: individualism, getting priorities straight, return to modern mathematics, and educational research.

The old notion of individualization which concerns itself with the needs and abilities of individual students is not as important as the assumption of a child's own rate of learning. This assumption is a fraud until the mode of instruction is specified; otherwise the educational implications of that assumption are horrendous. One implication is that each child would have his own correspondence course; another is that education be approached from a psychological, rather than a sociological, point of view.

One of the most discussed matters in education in the next decade will be priorities in education. Can we dilute staff? Is the killing of the PTA and home and school associations a desirable thing? Should we listen to parents?

There should be a mass return to Modern Mathematics. There has been a steady growth of mathematical skills, but these have continued under the cover of a bizarre collection of topics such as other bases, set language, logic, formal logic and residue classes. But we are getting over this.

The value of educational research is limited, since no major questions in education can be solved by educational research (only minor ones). But what research can and cannot do for education must be found out.

Structuring for Learning in a Mathematics Laboratory

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Reported by *Wayne J.P. Turley*, Calgary

Mathematics laboratories are instructional settings which should provide for diagnostic-remedial work, for motivational-enrichment activities, and for individualized learning. The non-availability of funds and the restriction of space, tempered with the ingenuity of a mathematics department, will accentuate the differences in mathematics laboratories as they are established.

STAFFING

The mathematics resource teacher and his staff must be ready and willing to incorporate the mathematics laboratory concept into the school mathematics program. While the initial establishment of a laboratory situation may involve only one or two members of the department, the development of the laboratory as a mathematics learning center is dependent upon total staff involvement.

Dr. Weise suggests that the mathematics laboratory is a different approach to mathematics. Students initially meet in a large group for a daily presentation and assignment, whereupon they proceed to areas labelled:

- (1) calculator group
- (2) measurement and geometry,
- (3) A-V and research,
- (4) fundamental skills,
- (5) problem solving, and
- (6) games.

Groups rotate from day to day until they have performed the tasks or experiments in each area. Each teacher uses his Instructional Related Activity period to help in various areas; thus the students have the advantage of many teachers.