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AUTHOR Spinks, Warwick
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ABSTRACT

The need for ongoing evaluation of physical education programs in the context of the total school curriculum is discussed, and the following objectives of physical education are identified: 1) development of attitudes toward physical activity based on individual student needs; 2) experience in physical ability; 3) knowledge about physical ability; 4) understanding the role of physical activity in society; and 5) knowledge about the connection between physical activity and learning processes. A model evaluation instrument based on these criteria is presented which integrates teacher evaluation, students' self-evaluation, and peer evaluation. Emphasis is placed on evaluation of students on an individual basis. (JD)

EVALUATION IN THE DEVELOPMENT OF INSTRUCTION IN PHYSICAL EDUCATION (OR CAN THE CRIPPLE SURVIVE?)

WARWICK SPINKS

LECTURER, DEPARTMENT OF PHYSICAL EDUCATION,

KURING-GAI COLLEGE OF ADVANCED EDUCATION, LINDFIELD, N.S.W.

INTRODUCTION

One can even say that there are often contradictions between the function of evaluation and that of education. Education means a subjective involvement, while in evaluation one has to take a position of an objective, and thus often heartless judge.

(Przeweda, 1976:9)

Even a cursory examination of the literature (and the popular media in particular) would reveal that all aspects of education are currently undergoing the closest scrutiny. In fact, Polidoro (1976:20) is of the opinion that historians discussing education in the 1970's will probably label this period as the era of relevancy and accountability. As well as the question of the ever increasing costs of education, there is an increasing demand for the justification of the inclusion of various subjects in the total curriculum. There is also a much greater demand for all subjects to be held accountable, that is, to be held responsible for the learning of its students and the realisation of the objectives of the

programme.

Polidoro (1976) believes that eventually these demands will lead to an educational system designed around a hierarchy of subject matter.

> Those subjects shown to be accountable for what they are teaching, shown to be relevant to the student and shown to provide justifiable results for the student and public will retain an important position in the school curriculum. Conversely, those which do not provide these essentials will fall by the wayside.
>
> (Polidoro, 1976:20)

What is the current status of physical education in relation to these concerns? Is physical education accountability conscious and does it attempt to provide evidence which justifies its inclusion in the total curriculum? It would appear, that for the most part, physical educators (both teachers and administrators) have not attempted to develop effective measurement and evaluation programmes which accurately assess what learning behaviours are developed through participation in physical education. Therefore, it is arguable that physical education currently occupies an unstable position in the total curriculum.

As pointed out by Nixon and Locke (1973: 1225) the aftermath of the physical education lesson has received very little attention of a scientific nature. Little is known about the extent to which current knowledge about evaluation can be used to modify teaching procedures in physical education.

The physical education teacher is therefore deprived of the sort of information he could use to assist those children who fail to learn. In fact, it is generally believed that physical education teachers experience great difficulty in assessing the outcomes of their lessons.

Apart from this, many teachers view the current concern for evaluation as a personal threat, a situation vividly expressed by House (1972):

> The first observation I want to make is that there is no real demand among teachers... for evaluating their own programmes. At times, in that strange ideology with which we disguise our motives and cover our tracks, we educators convince ourselves that we would be overjoyed to receive data about our teaching and educational programmes. Well, try it some time. Try evaluating a programme. On simply asking teachers their goals, we have had them break into tears and throw chalk across the room... After all, what does a teacher have to gain from having his work examined? As he sees it, absolutely nothing. He is exposing himself to administrators and parents. He risks damage to his ego by finding out he is not doing his job as well as he thinks he is... The culture of the school offers no rewards for examining one's behaviour - only penalties. Since there are no punishments for not exposing one's behaviour and many dangers in so doing, the prudent teachers gives lip-service to the idea and drags both feet.
>
> (House, 1972:17)

While this view of evaluation is understandable, it is totally indefensible and indicates a lack of foresight in the present climate.

Moore (1965:5) indicates that physical education teachers commonly cite external factors such as facilities, class sizes

and student attitudes as the greatest obstacles to successful teaching. Areas such as class discipline, equipment supply and grading appear to be more important to physical education teachers than effective evaluation of all factors involved in the instructional process. As Gibbon (1977:9) suggests, it is important that physical educators undertake the very difficult task of evaluating their programmes before it is imposed on them externally: wherein lies a very real threat.

In describing the research relating to the analysis, evaluation and adjustment of instruction, Nixon and Locke (1973: 1226) see critical incident and descriptive analysis research as offering some important promise in the area of feed-back for teachers. However, this extensive review of research on teaching physical education does not concern itself with a direct examination of research in the area of evaluation of instruction in physical education particularly as it concerns students, teachers and programmes.

It is obvious that the development of instruction in physical education must be accompanied by similar development in evaluation. It is the present author's contention that physical education is an integral part of any worthwhile educational programme and as such must provide educators, administrators and the general public with concrete and reliable information concerning the contributions that physical education makes towards the total development of the student.

THE NEED FOR AND THE ROLE OF AN EVALUATION PROGRAMME FOR PHYSICAL EDUCATION

A. The Need for An Evaluation Programme

The focal point of evaluation procedures in physical education centres around the fact that certain students engaged in particular programmes in physical education, simply do not succeed in the instructional environment of physical education even under the guidance of qualified teachers.

Indications that physical education has failed to meet the needs of the student in the past is seen by Kidd (1971:35) as being illustrative of the importance of present and continuous evaluation of all physical education programmes. Physical education courses which are espousing new philosophies and objectives are seen as particular targets for continuous investigation to ascertain if they are meeting these new objectives.

Almond (1976:115) believes that if physical educators are concerned about doing a better job than they do at present, then they should see evaluation as an integral part of the attempt to obtain a more realistic picture of the impact of physical education in schools. Almond (1976:115) also believes that it is essential to examine teachers as well as pupil achievement even though teachers may risk damage to their egos or, worse still, risk discovering that pupils neither care for

physical education nor the teacher. As the author points out, much lip service is paid to plans to collect data about teaching but there does not seem to be any great demand among teachers for evaluation of their courses. As in any other branch of education, it is necessary to encourage practising teachers to regularly examine the value judgements upon which they base their work.

The stimulation of the constant need to justify their work is seen by Andrews (1976) as being both necessary and beneficial for physical educationists:

> it makes one constantly examine and restate the case - exposing sometimes painfully - the bases, facts, dogmas, and value judgements on which daily employment depends.
>
> (Andrews, 1976:8)

If one accepts that evaluation involves judgement in respect of some criteria then the building, refinement and strengthening of these criteria is of basic importance to the process. The quality of the criteria has a major impact on the quality of the evaluation and the day to day instructional process. (Andrews, 1976:8).

In examining the literature pertaining to evaluation in physical education, it is obvious that there has been considerable emphasis lain on measurement, leading one to the conclusion that there has also been a great deal of evaluation. However, the concept of evaluation in physical

education has been very limited in that it has traditionally involved comparisons between objectives and actual results.

Telama (1976:1-2) sees the reason for this limited approach as being due to the close connection between physical education and international sports. The latter involve essentially a comparison of performance abilities with the accurate measurement of performance results. Much of the measurement that has been carried out in physical education has been measurement for its own sake with little attention being paid to the significance of measurement as an educative process.

For example, with the increasing movement towards goal orientation and goal definition in physical education (as in education generally) there was a corresponding recognition of the importance of evaluation, with interest being focussed on learning outcomes in relation to specified objectives. This led to the proliferation of manuals and hand books espousing evaluation but providing mainly measurement techniques. (Clarke, 1976; Haskins, 1971; Mathews, 1968; Smithells, 1962; Willgoose, 1961.) Many current teacher-education programmes in physical education still prescribe these manuals as basic texts for courses studying evaluation techniques.

There is a need, however, to make evaluation in physical education something more than a simple comparison of results with objectives. The objectives themselves and their

implementation need to become the target of evaluation.

Three characteristic features of physical education are seen by Telama (1976:2-3), as providing the interest and challenge in developing evaluation (in physical education).

1) A central concern is the measurement and evaluation of movement through the cybernetic model of motor learning, involving the analysis of feedback data as formative evaluation.

2) There exist a multitude of psychomotor, affective and cognitive objectives.

3) One of the major objectives of physical education is the development of lifelong involvement in physical activity. The evaluation of goal attainment in this area is seen as a difficult task.

> Overall, it can be said that the multiplicity and many-sidedness of physical education objectives, the wide time span of some objectives and significance of psychomotor objectives make the evaluation of physical education interesting but also very challenging.
>
> (Telama, 1976:3)

B. The Role of Evaluation

Educational decisions are seen by Ingram (1976) as being based on evaluations of the inputs, processes and outputs

within the social context in which the school, department or teacher operates. The inputs include: needs of pupils, human resources, physical resources, curriculum guidelines, policy statements, community habits, attitudes and skills. The processes include: curriculum planning and implementation, teaching and learning operations, pupil-teacher interactions, community involvement, management and supervision, inter-grade and teacher co-operation and documentation. The outputs centre around pupil achievement, teacher development, school and class tone, morale and school-community interaction.

Evaluation in this model should be consistent and methodical at all levels, should be a basis for decision making at all levels and above all should not be restricted to a measurement of pupil progress, i.e. input and process factors also need to be evaluated (Ingram, 1976:17-18).

Mathews (1968:1) sees evaluation as a "continuous process dealing with overall goals of education." The term evaluation implies assessment, rating, appraisal and interpretation. Qualitative methods are used and instruments such as teacher observation, peer and expert judgements, check lists and score cards are used in order to appraise evidence in the context of value standards in terms of particular goals and situations. Measurement is seen as an integral part of evaluation concerned with quantitative procedures to obtain information regarding an immediate objective. The evaluation of students must, therefore, be

related to measurements of attainment of immediate objectives in the context of the goals of the programme and institution. In short, we must measure if we aim to determine accurately whether lesson or unit objectives are being achieved, and we must evaluate if we are to assess the effect of what is measured on progress toward the goals of education (Leslie, 1973:85).

Within the traditional concepts of instruction, effective teaching is seen as the key point. Any evaluation of the programme as a whole is negated by instruction which does not extract the best out of the programme.

For evaluation to be successful, Woods (1969:97) believes that the following principles must be taken into consideration.

1. Evaluation must always be related to the objectives of the programme. In fact, the only justification of evaluation is seen as being the follow-up which accompanies it; that is, a comparison of the results with the objectives.

2. Successful evaluation occurs when the procedures are applied to both the student and the entire teaching process.

3. Evaluation does not take the place of teaching and learning.

4. Evaluation is used for a specific purpose.

5. Evaluation must be conducted by competent personnel.

Przeweda (1976:1) likens evaluation to a mathematical fraction. The numerator of the fraction represents the effects of activity while the denominator represents the goals of activity. The process of teaching gradually increases the value of the fraction with the teacher comparing the effects with the goals throughout the whole teaching process as well as on completion of the process.

Wheeler (1974:113) sees evaluation as "the process of coming to conclusions about the educational enterprise. While it may be considered under numerous headings and may be seen to serve diverse purposes or ends, it is neither measurement nor assessment, ... It is judgement with respect to explicit criteria":

In looking at evaluative criteria in physical education Gustafson (1973:172-3) believes that physical education as a profession has not been unified in recognizing legitimate criteria for evaluation which adds to the difficulty of justifying its retention in the curriculum.

Several authors are cited as agreeing with Gustafson's main point that the evaluative process should reflect a single factor, namely, the degree of attainment of programme objectives. In satisfying this requirement, two considerations are paramount:

1. Only programme objectives may be legitimate evaluative criteria.

2. The programme objectives must reflect legitimate concerns of physical education.

The author sees many violations of the first consideration involving the use of objectives involving attendance, tardiness, conduct, lauguage use and clothing and showering habits. The teacher is urged to regard these factors from a management viewpoint, not as determining factors in final evaluation, unless they affect the attainment of legitimate programme objectives.

It is believed that the second consideration is widely abused as programme objectives often propose the development of social traits such as sportsmanship, attitude, citizenship or co-operation, which are not recognized by Gustafson (1973: 172-3) as the legitimate concern of physical education.

However, Vannier et al. (1973:633) sees the evaluative process in physical education as involving the appraisal, measurement and checking of the progress of four main factors:

1. An examination of student progress, health status, behaviour and reaction to the instructional programme and to peers.

2. The teacher's ability to teach and successfully interact with both individuals and class groups.

3. Checking the strength and weaknesses of the instructional programme.

4. Describing more effective ways to inform parents, professional colleagues, education administrators and the general public what physical education is all about.

> To be more effective, evaluation should be continuous, be done by all who participate in and/or are affected by the program, and be concerned both with end products and the means with which to reach these ends.
>
> (Vanhier et al., 1973:633)

Young (1974:39) believes that "one plans on the basis of evaluation and that one evaluates on the basis of planning" and that it is important to keep in mind the symbolic relationship between the two when considering evaluation in physical education. Curricula competencies and experiences are planned to achieve educational goals and Young states that the planning that determines this needs to be based on a current evaluation of student needs, needs of society and the needs of physical education as a profession.

Almond (1976:115-7) sees three types of evaluation data as being necessary in order to have a realistic picture of the impact of instruction in physical education:

C. Examination of Intentions

All written aims, goals and objectives should be closely examined to determine if realistic claims are being made about what can be achieved in physical education. There is

some confusion regarding the claims made for physical education, (Gustafson, 1973) but Almond (1976:116) believes that this may be due to the inability of some teachers to verbalise clear intentions which can then be translated into meaningful teaching procedures. The major task is to provide clear teaching specifications that are realistic for the teacher and the pupil.

D. Transactional Curriculum: What is Actually Happening?

The teacher must adopt a research role in order to provide information about what is happening in the interaction of teacher and learner. The teacher must attempt to develop:

1. An awareness of what he is attempting to do by examining practice and past experience;

2. An awareness of the consequences of his teaching;

3. An understanding of the range of possibilities that teaching can encompass; choice of factors may restrict possibilities, but a teacher may not be aware that alternatives are open to him; and,

4. An awareness of his own performance.

E. Input Evaluation

In order to maintain an effective instructional programme

it is necessary to have access to feedback information relating to how decisions were made, what constraints existed, and what the reactions of pupils and teachers were to such decisions. This sort of information is often unavailable but is necessary to support and justify decisions and to make future decisions.

Overall, the relationship between curriculum theory and the "real world" of teaching is seen by Andrews (1976:1) as a somewhat strained relationship. If we accept that evaluation is a major factor in this relationship then we must examine how much the full time physical educationist, working in a school, knows about evaluation and is actually engaged in the objective measurement of the process and product of physical education.

> Evaluation....pervades the entire curricular process and teachers of physical education, whether involved in objective testing or not, must be continually involved in evaluation, albeit in an informal, unstructured and perhaps almost sub-conscious manner.
>
> (Andrews, 1976:6)

If it is accepted then, that physical education does play a significant role in the total curriculum and if attention is paid to the increasing emphasis being placed by theorists and practitioners alike on the need to evaluate the outcomes of teaching, then it is necessary to develop a rational approach to the examination of the outcomes of instruction in physical education. Such a rational approach would involve the initial determination of criteria by which

the knowledge, skills and values, which it is intended that students should acquire, are to be assessed - whether by written test, objective measurement or teacher grading. If they are to have any meaning in estimating the effects of courses, the criteria for evaluation must be explicit regardless of whether the planning emphasises intended outcomes or, as Kane (1976:89) describes, the post hoc assessment of unintended outcomes.

SPECIAL PROBLEMS OF EVALUATION IN PHYSICAL EDUCATION

A. Standardised Testing

B. Evaluating Programme Objectives

C. Training in Evaluation

D. Approaches to Evaluation

E. Fallacies in Evaluation

F. Resistance to Change

G. Field Testing

H. Measuring Affective Objectives

I. Accountability

A. Standardised Testing

The problems connected with evaluation in physical education are myriad. The physical educator, in order to

use evaluation instruments effectively, must be au fait with both motor performance and written tests. Safrit (1973:73) states that the classroom teacher is well served by counselling centres and testing services in choosing standardised tests and in developing tests to suit the teacher's own needs. There are a wide variety of standardised tests in most academic areas, however, there are relatively few such tests in physical education. The existing instruments, most of which are of American origin, include the A.A.H.P.E.R. Youth Fitness Test, the Sports Skills Test Series, the co-operative Physical Education Knowledge Tests and a variety of physical fitness and motor performance tests that have been developed for limited norm groups.

Motor skill assessment procedures developed by individual physical educators are generally validated for a specific population and therefore are not widely applicable as they do not take into account individual differences in skill, physical capacities and different age groups. This is important because physical performance is closely related not only to physical development, as expressed by gains in height, weight and strength, and certain proportional change both structural and physiological, but also to age, which plays a major role, particularly during the pre-pubescent growth spurt. The growth process and its interacting variables make precise measurement extremely difficult.

B. Evaluating Programme Objectives

The aims of physical education are numerous and complex, therefore, it is often difficult for the practising teacher to compare the effects of a programme against programme objectives during the process of instruction. Similar comparison upon completion of instruction is also difficult as the full impact of many physical education programmes cannot be evaluated until some months or years later when students have experienced various situations in life. This is particularly true of programmes which aim at developing life-style recreative skills. The evaluation of such long term objectives would involve expensive longitudinal research. In actual fact, the physical activity patterns of adults may have developed quite independently of the influence of school physical education due to the influence of the home environment, friends, sports organisations, mass media, the sports facilities of the community and social factors. (Laakso, 1976:3).

Przewada (1976:2) points out that the physical educator is perhaps the only educator in the school who has to utilise to the same extent, two major branches of science in his instruction. Firstly, he often needs to evaluate his activities with educational, psychological and sociological methods in ascertaining the effects of his programme upon the pupil's personality and social development. Secondly, a comprehensive knowledge of human physiology and mechanics is necessary if the teacher is to make an accurate assessment

of the effects of physical education on the pupil's body and health. As well as these two areas, it is expected that the teacher will be well versed in the contribution of cognitive ability to skill development. Many of the evaluation techniques involved here can be applied simultaneously, are interrelated, complement one another and sometimes interfere with each other. Therefore, in order to compare effects of instruction with goals, the physical education teacher needs not only a seemingly encyclopaedic knowledge of content but also an ability to choose those evaluation techniques which are valid for all areas and which enable him to obtain optimum rather than maximum information.

C. Training in Evaluation

Lack of trained personnel in the area of educational measurement as it relates to physical education is an area of concern. Safrit (1973:73) correctly states that most of the top researchers in physical education are involved with measurement in so far as it concerns their own narrow speciality in areas like exercise physiology and biomechanics. However, very few physical educators have concerned themselves with measurement as it applies to the teaching - learning situation in physical education. There is some evidence (Splinter et al., 1976; Underwood, 1976; Akkanen, 1976; Heinila, 1976,a; Hanke, 1976; Heinila 1976,b.) to suggest.

however, that this situation may be changing, particularly in relation to the teacher-pupil interaction process in physical education classes. Teachers and lecturers need advice and direction from measurement specialists in physical education who are constantly updating advanced measurement theory and who know and understand the theoretical aspects of evaluation and measurement.

D. Approaches to Evaluation

The notion of evaluation in physical education has suffered at the hands of a very narrow approach. For example, the overall evaluation programme may be composed of a testing situation at the completion of a unit of work; or a certain period of time may be put aside from the teaching programme for evaluation purposes; or a practitioner may rely on the evaluation criteria in a standard textbook as his one and only source of evaluation materials. As Karvonen (1976:8) points out, evaluation is a much broader concept than the mere measurement of results. The evaluation process needs to be continuous and to outline any future changes within the programme. Evaluation becomes an ineffectual, mechanical process if it does not assist teachers in making decisions related to the multitude of problems they face.

E. Fallacies in Evaluation

Young (1974:39) sees several common fallacies which exist

regarding evaluation:

1. There is a tendency to restrict evaluation to those things which can be measured in convenient units that can be counted. Instruments and techniques which allow value judgements to be made of student and teacher attainment of goals need to be developed.

2. Evaluation is an infrequent, final process rather than an on-going one which emphasises acquisition of knowledge. Timing, quality of instruments used and expertise employed are essential components of evaluation.

3. Evaluation is conducted by isolated individuals rather than by a consortium operating in a co-operative continuous relationship. Evidence of adequacy of performance should be gathered by individuals and selected agencies, working constantly together and should include self assessment, peer assessment, teacher assessment and assessment by other expert personnel.

F. Resistance to Change

There is some evidence (Sam, 1973:79) that some individuals and institutions (who feel insecure, due to incompetence or otherwise) are usually in the forefront in rejecting any attempt to evaluate the status quo. These are seen as

the type of people who have "solved" all of the problems facing physical education and who regularly resist the thought of any change, rejecting such a suggestion with the "change for change's sake" rationale.

Such institutions or individuals faced with external evaluation of their teaching and programmes often provide evaluators with what the evaluators would like in the way of an ideal programme. The result is that the evaluators tend to see a reality that in fact does not exist. In this situation decisions are made well before the evaluation, the decision being to perpetuate the status quo. Under these conditions, evaluation is worthless.

G. Field Testing

Certain problems exist concerning the practical issues surrounding the administration of tests in the field. Annarino (1971:113) believes that the setting of large numbers of physical education objectives presents difficulties in selecting one test for all inclusive measurement purposes. Therefore, as no single test can measure all the objectives, the main uses and limitations of each test should be recognised by the teacher. It is also pointed out that most physical educators are aware of the need, aim and availability of evaluation materials but most are confronted with problems (real or imagined) related to time and feasibility of administration.

A major criterion for selecting a test is the feasibility

of that test in administration. Annarino (1973:113) is of the opinion that in many cases the problem is not with the test itself but with the administrative method. The majority of tests used in the physical education context are developed in atypical situations, with a small sample and a large contingent of evaluators. This makes evaluation of a two or three-days-a-week programme a most difficult exercise.

H. Measuring Affective Objectives

It would appear that in certain areas of the physical education programme, the problems of evaluation are minimal, for example, in the assessment of organic fitness (Kane, 1976:89). But when referring to proposed social, emotional and aesthetic objectives the difficulties of evaluation are magnified. When teachers are concerned with evaluating such general and relatively imprecise objectives they tend to base their judgements on personal philosophy and perceptions (Kane, 1976:90).

I. Accountability

Additional problems related to evaluation in physical education arise when evaluation is used in an accountability context. While most administrators may be satisfied with their teachers, public pressure and the desire to assist in rewarding good teachers may stimulate the establishment of an accountability policy. The main obstacle to implementing

such a system would seem to be the establishment of criteria to evaluate teacher performance. Field (1973:27-28) is of the opinion that teachers are opposed to accountability because they lack control over the home environment, the child's innate capacity, the child's desire to learn and the materials necessary for learning.

The issues referred to above indicate the diversity of problems faced by physical educators in their attempts to evaluate instruction. The list is by no means comprehensive but it does suggest those areas which are creating the greatest concern.

A MODEL FOR THE EVALUATION OF INSTRUCTION IN PHYSICAL EDUCATION

Having considered the role of physical education in the total curriculum, the need for and the role of evaluation in physical education and the special problems of evaluation in physical education it is necessary to develop a model which will enable a close examination of the evaluation of instruction in physical education.

As mentioned previously evaluation in physical education most frequently involves assessment of student progress in skills and knowledge and to a lesser extent, instructional

programmes are evaluated as regards relevance, effectiveness and necessity. Elliot (1975:32) calls for an accurate evaluation process which incorporates the three major components of the education setting, students, teachers and programmes:

> Evaluation should be considered as a positive, ongoing process which is designed to aid in the attainment of educational goals. Only by assessing each of the major components of the educational situation is there assurance that each component is contributing to that attainment.
>
> (Elliot, 1975:34)

Elliot's process calls for the following interaction of the component parts:

1. Identification of objectives: The intent of the experience must be fully outlined so that proper measurement techniques can be identified. If the intent is to improve neuro-muscular co-ordination, for example, what are the best means of measuring co-ordination? How many measurements are necessary? How often should the student be measured?

2. Description of learning experiences to facilitate implementation of objectives and selection of measurement tools.

3. Selection of measurement tools: Selected tools must be specific enough to provide useful information. Some very specific tools require a great

deal of time to collect enough data to make judgements.

4. Test administration: Test conditions should be constant for valid results, measurement devices should be accurate and directions and indications should be comparable from one test to the next. Scores should be recorded in a usable form.

5. Analysis of data: This can be a comparative or comulative process. The analysis relates directly to the objective. Has the student attained the objective? Are changes required?

6. Re-statement of objectives: Continual evaluation allows a constant assessment of progress to be fed back directly to programme objectives for the purpose of revising objectives where necessary.

7. Re-design of learning experiences.

Progressive evaluation must also include the learning environment, the facilities and equipment required to conduct the programme, the content areas and whether or not they are appropriate for students and the degree of flexibility introduced to meet individual student variations.

Telama (1976:4-16) calls for an adaptation of Stufflebeam's

(1976) model (see Figure 1) which involves the concepts of context, input, process and product (CIPP) in emphasising administrative connections and effects with respect to decision making. In this model, context evaluation involves a needs assessment, which aids in choosing and defending goals, input evaluation is a means of identifying and assessing plans intended to meet certain goals, process evaluation is a monitoring activity that aids in guiding, documenting and judging efforts to carry out given plans, and product evaluation is a means of assessing achievements during and at the end of an activity cycle. Telama (1976:4) believes that when the CIPP model is applied to educational considerations, it widens the concept of evaluation in physical education from a mere comparison of results with objectives to an examination of goal setting and goal attainment.

While this model looks at the objects of evaluation, such as projects, programmes, students and personnel, Telama's (1976:7) model (see Figure 2.) suggests that it is more beneficial to look at the situation in relation to providing information for different levels of decision making so that the object of evaluation is goal directed; that is, it specifies its objects and functions; for instance, evaluation of the learning process rather than of the student or the student and teacher could be measurement objects in the evaluation of learning and teaching.

Whilst recognising the potential of the CIPP model, the multi-faceted nature of physical education implies that

Figure 1. The CIPP Model and Evaluation of the Curriculum and Teaching of Physical Education.

(Adapted from Telama, 1976:4)

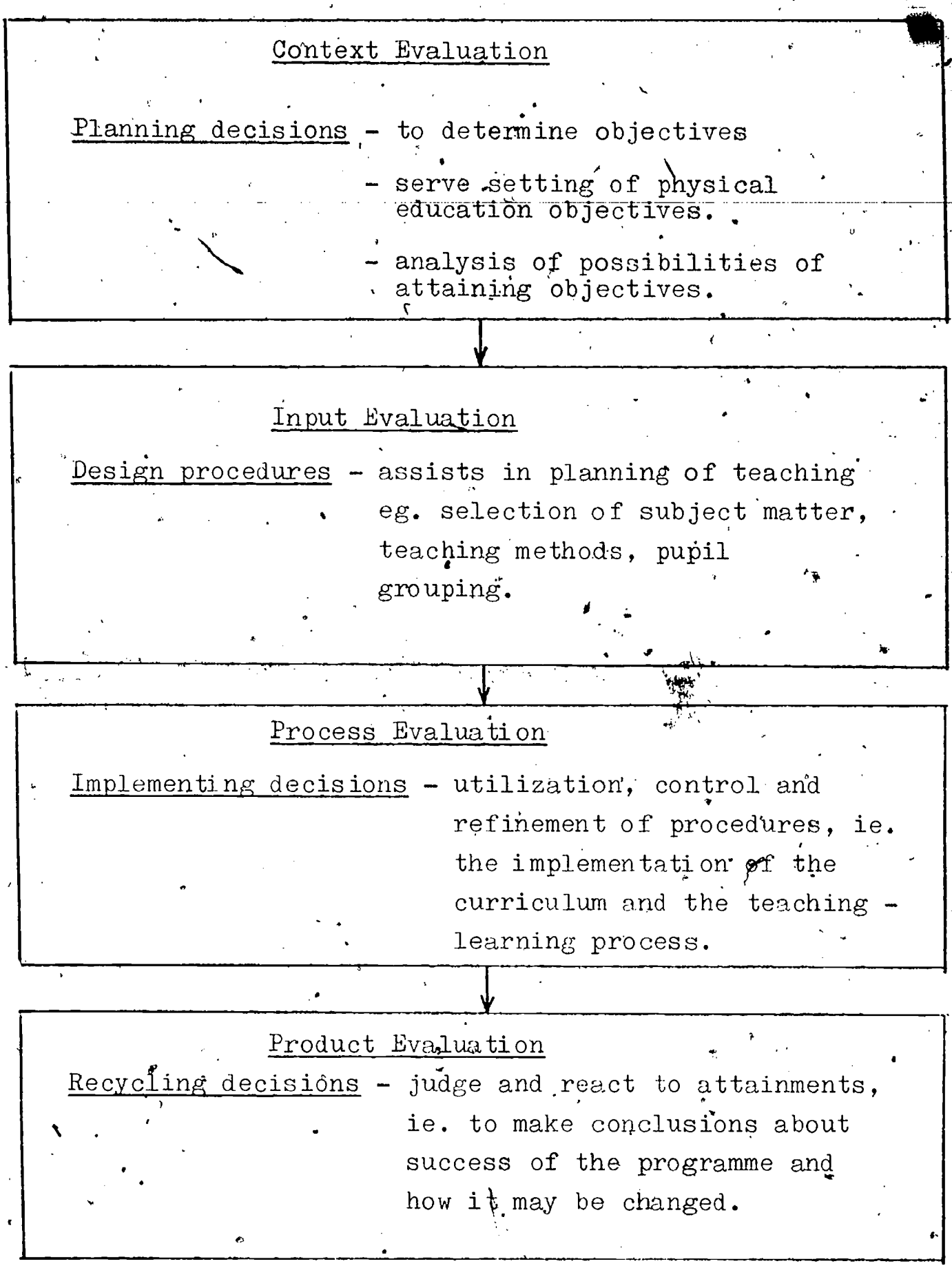


Figure 2: The CIPP Evaluation Types in Relation to Different Levels of Decision Making. (Telama, 1976:7)

LEVELS OF DECISION MAKING	TYPES OF EVALUATION: CONTEXT	INPUT	PROCESS	PRODUCT
PUPIL/LEARNING (Pupil, educand, athlete) Function: Promotion of learning.	Survey of pupil's objectives and diagnosis of their readiness - entry level - diagnosis of learning difficulties	What goal achievement presupposes of the pupil - time input - energy input - sport equipment - potential need of remedial teaching	How do pupils progress towards objectives - pupil responses to teaching - learning difficulties - formative evaluation	Outcomes in relation to pupil's objectives and background - psychomotor - affective - cognitive
TEACHER/TEACHING (Teacher, parents coach) Function: Promotion of teaching.	Analysis of teaching objectives and of their attainability - pupils' entry level and background - teaching conditions	What demands the attainment of teaching objectives sets of - facilities - teacher - methods	Progress of teaching arrangements Interaction in the teaching-learning process and difficulties in it - discipline problems Teaching behavior	Pupil achievements in relation to teaching objectives, input data and process data
CURRICULUM (Plan of education teaching, coaching, training) Function: Curriculum development.	Specification of curricular objectives Analysis of possibilities of implementation	Comparison and evaluation of available means of implementation - subject matter/ contents - methods - facilities - equipment	Follow-up of the curriculum implementation, and analysis and evaluation of problems in implementation	Evaluation of the degree of implementation by comparing output with objectives, input data and process data - studies of school achievements - pedagogical tests
EDUCATIONAL SYSTEM Function: Quality control and development of education.	Analysis of the social and educational significance of physical education Analysis of the general conditions of realizing physical education	What decisions are likely to contribute most within available resources to the development of physical education - teacher education - conditions - number of lessons	Follow-up of the implementation of physical education and analysis of factors affecting implementation	Quality control of physical education by product indicators and continuous monitoring.

it is not possible to describe and evaluate all manifestations of the discipline within a single frame of reference. Evaluation of instruction in physical education is examined by the use of a tripartite approach as outlined in Figure 3.

The difficulty with this tripartite approach is that at best, the boundary between teaching and learning is indistinct, as is the boundary between teaching and curriculum (Nixon and Locke, 1973:1212). However, if one were to accept the following five areas as the desired outcomes of physical education (Coonan, 1976:11):

1. the development of attitudes towards physical activity based on individual student needs;

2. experience in physical activity;

3. knowledge about physical activity;

4. understanding of the role of physical activity in society; and

5. knowledge about the connection between physical activity and learning processes,

then, it would appear logical to evaluate instruction from the point of view of the student, the teacher and the degree to which the programme meets basic standards and expectations.

Figure 3. Evaluation of Instruction in Physical Education: A Tripartite Approach.

What Should Be Measured?

The Student

a) Promotion of the pupil's own motivation and learning.

b) Status at specific times.

c) Progress over a given period of time.

d) Individual needs, interests and ideals.

The Teacher

a) Judgement by the teacher of the effectiveness of his teaching.

b) Personal goals.

c) Professional effectiveness.

The Programme

a) Judgement by teachers, pupils and researchers of the effectiveness of the programme.

b) Progress towards objectives.

c) Value in meeting the needs of students, teachers, administrators and the community.

d) Details of weaknesses in construction.

SUMMARY

If we agree that physical education has a role to play in the total curriculum, it is then necessary to devise an evaluation programme which provides concrete, objective and reliable evidence of the contributions physical education is making toward the overall development of the student. It must be kept in mind that evaluation aims to assist learning by determining the points at which the learner is not achieving. The evaluation programme should not be over-ambitious, it should be strictly relevant to any one group of students in a particular school, in a particular year. Another important determinant is the extent to which a busy teacher can manage an evaluation programme.

In developing an evaluation programme, the first step involves deciding on objectives. Evaluation needs to be guided by educational objectives (be they traditional or performance based) that can be kept clearly in mind. It is important to avoid detailed, grandiose schemes and to arrive at a set of achievable psychomotor, cognitive and affective objectives.

Secondly, evaluation must be seen as an ongoing and developmental process. Teachers need to view evaluation as an integral part of the learning process whereby students are evaluated so that they can improve in motor skill performance rather than solely for the satisfaction of final grade requirements. Evaluation should not be conceived simply as a periodical check-up, whether weekly,

termly, half yearly or yearly. Therefore, evaluation should be:

> utilized as a means of interpreting the programme to the community to enable a greater understanding of educational values and coutcomes. It also provides the basis for determining the behavioural response of the student to the planned learning experiences and the development of learning experiences to follow.
>
> (Brault, 1971 : 46)

Data should arise from day to day teaching and use of the programme.

Thirdly, evaluation must be individualised. Each student should be seen as an individual and evaluated in the sense of developing from where he was in the programme during the last lesson. Comparison (grading) with other children would appear to have little or no educational value in that it does little or nothing at all to foster individual learning. Children should be encouraged to set simple goals of their own and evaluate their own progress.

Aiding pupils' self evaluation is the main focal point of Andrews' (1976) argument. He feels that evaluation will only be relevant if it stems from an

> increased awareness amongst teachers of the need for care in evaluation of individuals and even greater sensitivity in communicating their evaluations to children.
>
> (Andrews, 1976 : 12)

rather than from an overexposure to a bewildering array of objective tests

It is important that teachers of physical education see themselves as <u>educators</u> who are conversant with current trends in contemporary education and who use evaluation to check if their teaching methods and their programmes fulfil demands for education for the future, self education, intellectual development, humanistic education and the realisation that evaluation, while an important aid, should not be applied so rigorously that the teacher no longer respects pupil individuality.

Fourthly, teachers should select a range of evaluation techniques that fit their own individual teaching styles. The range of techniques would probably include:

1. Direct observation of advances in motor skills, knowledge (of techniques, strategies and etiquette) and attitudes, these being recorded by means such as notes in a log/profile/ cumulative folder/case study or the completion of a check list.

2. Teacher-pupil conference which enables opportunities for discussion of strengths and weaknesses and which allows the teacher the opportunity to listen to a pupil's self-evaluation and explanations.

3. A variety of tests such as screening or diagnostic tests along with standardised and teacher made tests.

Finally, it is necessary to make use of the evaluation data. The whole evaluation programme represents wasted effort if its findings are not put together on a regular basis and used to assist the learner. As a result of this data the teacher may decide to institute a remedial programme, provide more personal attention or set more difficult tasks for the learner. On the other hand, it may be necessary to set simpler tasks which ensure a sense of accomplishment. Mood (1973:70) believes that it is necessary to provide for success, which is generally believes to stimulate and maintain basic motivation. By increasing the opportunities for success, the student have a greater opportunity to maintain their sensitive self images. This situation may be achieved by:

1. Providing varied opportunities in which to succeed.
2. Grouping students in ability groups and enrolling students in courses suitable to their skill levels. Under this system, small differences in initial ability obviate the necessity for grading on improvement.

Information on evaluation has to be gathered in an economical fashion. There is already too little teaching and pupil practice time available to physical education. Therefore, while attempting to maximize objectivity, evaluation techniques which require inordinate amounts of time to prepare or administer cannot be tolerated.

FUTURE DIRECTIONS

When looking into the future of physical education in secondary schools, Nixon (1974:93-95) makes some brief predictions about evaluation in physical education:

1. Teacher evaluations will continue to be important. However, this process will be much more individualised plus the teacher will need to devote a lot of time to recording, communicating directly with the child and notifying him of his progress, consulting parents, keeping detailed cumulative records (with the assistance of computer processes).

2. Pupil self-evaluation will receive more emphasis and will involve pupil set goals to a large extent. The teacher will assit pupils in discovering how to evaluate themselves in a variety of ways.

3. Peer student evaluation will also be more prominent. Teachers and pupils will need to perform evaluations in a positive, supportive way.

4. The above methods of evaluation will emphasise formative evaluation as compared to summative evaluation which is so common at the present time. Each child will be evaluated in terms of his own progress in terms of his own background, capacities, interests and motivations. This

process will emphasise immediate feedback and positive reinforcement of gains made in learnings which aid the student in attaining his goals. Group comparisons and norms of any description will not be used in any significant manner.

Criterion or content-referenced measures in individualised instructional programmes will be developed for use in continuous performance type curriculum programmes (successful completion of each learning step enables movement to the next step).

5. Primitive letter grading systems will be abolished. Students will not be graded on the assumption that grades such as C, D or F must be awarded when a student does not perform as well as other students. Teachers will also have to cease relying (incorrectly) on the external threat of low grades in an attempt to motivate students toward better performances.

6. The allocation of external rewards such as medals, stars and physical education costumes of varying colours to denote excellence of performance will cease as physical educators develop learning situations which emphasise enjoyment and satisfaction inherent in moving

and succeeding in a strongly supportive educational environment.

There is a great need for the development of a validated, functional evaluation device in physical education and it may well be that an adapted version of Stufflebeam's (1976) CIPP model could make a significant contribution to the development of evaluation of instruction in physical education in so far as it broadens the scope of evaluation and specifies its objects and functions. (Telama, 1976:5). The CIPP evaluation model could provide physical educators with valuable information about the learning process, the teaching process, curriculum development and the extent to which the educational system provides for quality control and development of physical education.

It is this type of instrument which would allow a much more flexible system of evaluation, one which enables closer scrutiny of the complex interactions which occur during the physical education lesson. As Gibbon (1977:9) points out, the concept of evaluation as an objective, end-judgement process is far too limiting. Objective techniques should be utilised where appropriate but subjective judgements based on selected criteria and skilled observation should not be ignored. Both techniques could be built into the CIPP model. The real test of this model would be its capacity to maintain up-to-date information on pupil assessment despite the hectic pace of school life

and to provide the kind of feed-back which assists pupils to learn and teachers and administrators to plan that learning.

If physical educators are really concerned about developing a truly professional image, then they must build into their concept of professionalism a systematic and structured process of evaluation such as that described above. Many physical educators would argue that the construction and operation of such a system is overly time consuming and totally impracticable in the "real" world of the school. Such a process may be time consuming but the results may indicate that time hasn't been well used. As for practicalities, it is difficult to assume that a process is impracticable if it hasn't been tried. If there are any doubts about the need to devise a system of evaluation, it is important to attempt to answer four questions:

1. How well do we know the abilities of all pupils in our schools?

2. How often do we observe individuals working rather than groups?

3. How often do early subjective judgements of pupils colour all our subsequent judgements?

4. If we have set ourselves some realistic and appropriate aims have we any idea whether they are being attained?

(Gibbon, 1977:12)

FUTURE RESEARCH

Despite the extent of the bibliography accompanying this report and of Haajanen and Vakiparta's (1976) selected bibliography of evaluation in physical education, there still exists a great need for research in the field of evaluation of instruction in physical education (See Figure 4.), particularly with respect to:

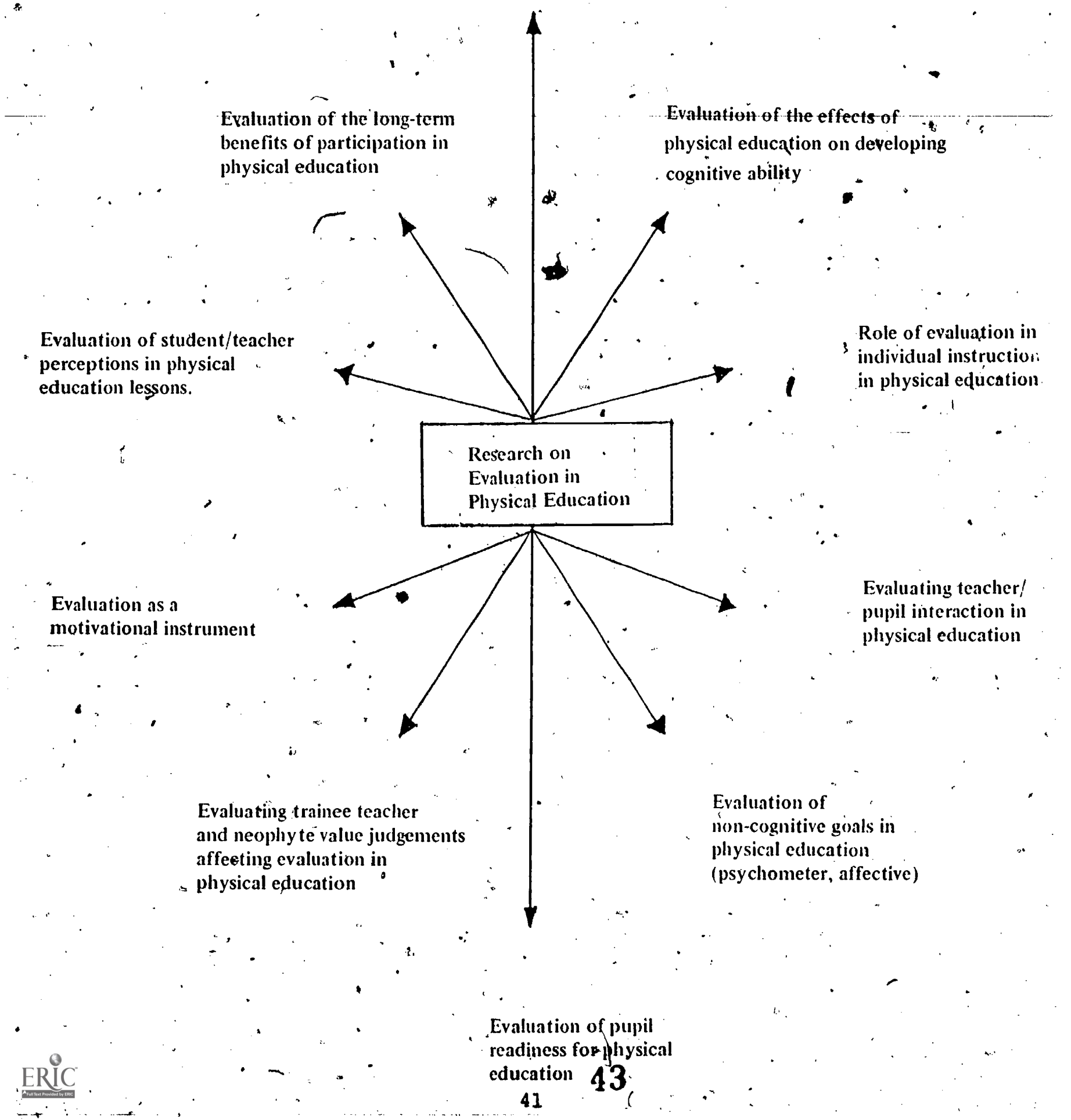
1. The validation of a functional evaluation instrument for physical education which incorporates goal setting and goal attainment along with the comparison of results with objectives. Telama's (1976) modification of the CIPP model would appear to be a worthwhile starting point. The tripartite approach utilised in this report is adequate in defining <u>what</u> should be measured but appears to be deficient in outlining just <u>how</u> evaluation should be conducted.

2. The development of an instrument to evaluate the long-term benefits of participation in physical education. One of the major aims of physical education is to provide the student with the necessary skills to participate in physical activity throughout life. Major longitudinal studies appear to be necessary in this area.

3. Evaluation of the effects of physical education

Figure 4: THE NEED FOR FUTURE RESEARCH

(A diagrammatic synthesis by the present author)



on developing cognitive ability. Methodological difficulties (for example, small samples and attitudes of co-operating teachers), need to be overcome before seemingly encouraging results can be accepted with any degree of confidence.

4. Evaluation of non-cognitive goals in physical education particularly as regards evaluation of the affective domain. More attention needs to be directed towards:

   a) examining the role that physical education plays in the development or alterations of self-concept;

   b) determining how self attitude predisposes individuals toward certain physical activities and their performance in these activities;

   c) ascertaining the degree to which motor skill proficiency influences relationships within the peer structure; and

   d) physical fitness evaluation which incorporates psychological and biomechanical assessment as well as human performance factors such as aerobic endurance.

5. Evaluation of pupil readiness for physical education. A needs assessment approach must be developed which may be used with confidence by practising teachers

in preparing physical education programmes in accordance with student needs.

6. The role of evaluation as a motivational instrument particularly within the context of individualised instruction. It would be interesting to determine the extent to which evaluation segments influence movement between module stages in individualised instruction in physical education.

7. Evaluation of the teacher and his teaching by the use of interaction analysis, allowing an objective analysis of what is actually taking place through examination of the stated objectives with the outcomes. Future research could compare different teaching styles with different aspects of physical education, as well as with the age and sex of the teacher.

8. An examination of the value judgements upon which practising teachers base their evaluative criteria. In conjunction with this, teacher education courses in physical education should provide comprehensive courses in evaluation which not only examine the mechanics of evaluation techniques but which also explore the philosophical features of value judgements upon which evaluative criteria are developed.

Whatever their purpose these future studies should con-

tribute to an understanding of evaluation in physical eduation and help show the value of evaluation in three important ways:

1. By providing complete documentation of the content, educational soundness and design decisions of physical education programmes.

2. By providing certain insights about classroom procedures and their impact, both psychological and sociological.

3. By gauging the impact of instruction in physical education on the broad area of human movement studies, for example, sports psychology, theories of motor learning, sociology of sport, etc.

The following statement perhaps best sums up the situation as it currently exists:

> At present, physical education is compulsory in schools in all developed countries. Young people are generally interested in physical education and sport and, therefore, are fairly favourably disposed toward physical education. Physical education can be of considerable social and educational importance. For this reason, we should be very clear in our minds about what physical education seeks to accomplish, what methods are used in it, what kind of image of man it helps to create, and what kind of resources it should be allocated. Correctly conceived and well organised, evaluation may help answer such important questions.
>
> (Telama, 1976:14-16)

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