

Open Classrooms: Has the Term Outlived Its Usefulness?

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Recent reviews of the research on the effectiveness of open education continue to reveal the inconclusive nature of the results despite refinements in the methodology of research synthesis. Among the unacknowledged deficiencies in research syntheses that may contribute to the lack of clear-cut findings are the failure to consider discrepancies between the classification of open classrooms and the actual implementation of open education in these classrooms. These discrepancies derive from differences between classrooms in (a) the degree of implementation, and (b) the areas or component dimensions in which openness has been implemented. Evidence is presented that indicates that reliance on the current methods of assessing the implementation of classroom openness is inadequate. Investigating the relationships between the component dimensions of classroom structure and particular outcome variables is suggested as a potential strategy for yielding more meaningful results.

Over the past 5 years, several reviews of the research on the effectiveness of open classrooms have appeared. Each of these reviews has commented on the inconclusive nature of the results. Successive reviews have incorporated more sophisticated methodology for overcoming some of the weaknesses of earlier syntheses. Nevertheless, certain deficiencies in the process of integrating the results remain unacknowledged. These inadequacies may contribute to the sense of inconclusiveness in this field. This paper examines certain of these deficiencies, with particular focus on the failure to ascertain whether classroom openness was actually implemented in classrooms labeled open. In addition, a strategy for a more incisive analysis of the effectiveness of the component dimensions of classroom openness is suggested. In brief, it is argued that research on what has been termed Open Education be restructured so as to consider the separate component dimensions of open classrooms as important interventions in themselves rather than continuing to struggle with widely varying definitions of the global concept of classroom openness.

Reviews of the Research on the Effectiveness of Open Education

The earliest of the major reviews evaluating open education was conducted by Horwitz (1976, supplemented in 1979). Although he recognized the need for a more scientific "meta-analysis" (Glass, 1976), his interim approach was a "box-score" or "voting" method in which studies were tallied according to whether they (a) significantly favored open education, (b) significantly favored traditional teaching, (c)

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showed mixed results, or (d) found no significant differences. For this review, classrooms classified as open were those “explicitly labeled with the term open” and those “described as having characteristics generally ascribed to open education” (Horwitz, 1979, p. 73). Differences in definitions of openness as well as in sample size, design, and analysis were ignored, though the danger of treating all of the studies as equal was noted. Studies were grouped, however, according to the outcome variable investigated.

Exemplifying the inconsistency of the findings in most outcome areas are those for academic achievement. Of the 102 studies using achievement as the outcome variable, open classrooms were favored in 14 percent of the studies, traditional classrooms were favored in 12 percent, mixed results were found in 29 percent, and no significant differences were found in the remaining 47 percent. In other areas, such as self-concept, attitude towards school, and locus of control, the percent of studies which showed no significant or no consistent results was similarly greater than those where significant relationships were found—in these cases favoring open classrooms. Horwitz (1979) cautions that any conclusions must be qualified by the variations in definitions of openness and other differences between studies which were not analyzed in his review. Because no systematic analysis was made of the design and measurement factors which might be contributing to the varying correlations between openness and particular outcome variables (cf. Jackson, 1980), the inconsistencies between the results from different studies remain unexplained.

Peterson’s review (1979) moved beyond that of Horwitz in two ways. First, to overcome the disadvantage of basing tallies on the number of statistically significant results rather than the direction, regardless of the level of significance, she calculated the “effect size” (Glass, 1976) for 25 of the studies cited by Horwitz that had sufficient data, plus several other studies. Using this method of integrating the results, she found, for example, that where achievement was the outcome variable, the difference between open and traditional classrooms was about .10 standard deviations, favoring traditional rather than open classrooms. Results in the areas of creativity and problem solving as well as independence and attitude toward school favored students in open classrooms, although in most cases the effect size was small. Little or no differences were found for self-concept and locus of control.

Second, Peterson sought an explanation for some of the apparent inconsistencies by examining the effect of student characteristics, such as ability and personality, on outcomes in open and traditional settings. Based on a box score approach for reviewing seven studies in which student characteristics were measured, no definitive conclusions could be drawn, however.

Peterson’s attempt to consider the interaction between type of students and open and traditional treatments provides a step toward taking into account the multitude of factors affecting discrepancies between results from different studies. Nevertheless, her integration, based on Glass’s method, ignores other aspects of these studies which may have influenced her conclusions, such as the type of measure of openness, design of the study, and sample size. (See Mansfield & Busse, 1977, for a critique of Glass’s method.)

In an effort to consider the nature of the student, the setting, and the design of the study as well as the type of outcome, Hetzel, Rasher, Butcher, and Walberg (Note 1) utilized a variety of quantitative methods in their synthesis of the effects of open education. Both the box score and effect sizes were reported for various outcome

types, such as achievement and affect, as well as for setting factors, such as type of operational definition and school, and for design factors such as bias, controls, unit of analysis. Their results are comparable to those of Horwitz (1979) and Peterson (1979). Because student, setting, and design factors were considered in a separate analysis from that in which the type of outcome variable was investigated, again no information is available regarding the possible influence on results for specific outcome variables of, for example, lack of uniformity in the type of measure of openness. Thus, despite the refinements in methods for research synthesis, much remains to be explained about the effectiveness of open education, particularly in terms of the potentially differential effects that various methods of determining classroom openness may have on the results for specific outcome areas.

Source of Inconclusiveness

A major source of the inconclusiveness which has plagued open classroom research derives from problems in both (a) the conceptualization and (b) the operationalization of classroom openness.¹

Definitions of Openness

Various attempts have been made to define the concept of open education (e.g., Barth & Rathbone, 1969; Bussis & Chittenden, 1970; Kohl, 1969; Marshall, 1972; Spodek, 1975). Horwitz (1979) has synopsized this concept as "a style of teaching involving flexibility of space, student choice of activity, richness of learning materials, integration of curriculum areas, and more individual or small-group than large group instruction" (p. 72-73). More basic to some educators might be other characteristics such as the role of the teacher as facilitator of learning, the development of student responsibility for learning, or honesty and respect in interpersonal relationships. Indeed, different educators seem to place emphasis on somewhat different components to the concept. Because of these differences in the salient features of openness, confusion persists in research studies (as well as in practice) between, for example, defining openness in terms of teaching strategies and defining openness in terms of architecture and open space (Horwitz, 1979).

Measurement of Openness

Furthermore, difficulties in measuring this elusive construct—in part a function of the lack of a clear and agreed upon definition—have been postulated as a reason for the inconclusive results. Among the problems in the measurement of classroom openness which confound integrative summaries are (a) variations in the way in which openness is measured, (b) questionable, operational validity of the measures, and (c) discrepancies between the classification of classrooms as open and the actual implementation of open education in these classrooms.

A variety of ways of identifying open classrooms has been utilized, including "nomination" or ratings by school administrators (e.g., Arlin, 1975; Kocher, 1977;

¹ Methodological flaws (cited by Hetzel et al., Note 1) and type of outcome measure used in these studies may also contribute to the inconclusive results, but these problems are beyond the scope of this paper.

Weinstein, 1980), teacher-rated questionnaires (e.g., Barth & Rathbone 1969; Traub, Weiss, Fisher, & Musella, 1972; Walberg & Thomas, 1972) and observational measures (e.g., Marshall, 1976a,b; Ross, Zimiles, & Gerstein, 1975; Walberg & Thomas, 1972). Due to the haziness of definitions of openness, nominations by different administrators may be based on different conceptualizations of the meaning of open classrooms. Similarly, different questionnaires and observation systems may emphasize a somewhat different, although overlapping, set of criteria. For example, half of the items of the Walberg and Thomas (1972) questionnaire and observation systems focus on provisioning the environment; whereas fewer items are devoted to this area on the questionnaire developed by Traub and his associates (1972). Integrating research studies which use different methods of measuring classroom openness based on somewhat different conceptualizations may therefore contribute to the failure to reach definitive conclusions. Although Hetzel et al. (Note 1) explored the effects of different operationalizations in general, reviewers have not analyzed the possibility that the effectiveness of open education for particular outcome areas may be influenced by the method of determining openness.

Moreover, the operational validity of the various methods of measuring openness has been called into question (e.g., Hetzel et al., Note 1). The lack of a uniform conceptualization of open education leaves various operationalizations of openness vulnerable to criticism by those favoring a slightly different emphasis. In addition, the lack of easy observability of many aspects of classroom openness (Marshall, 1974; Thomas & Walberg, 1975) makes difficult the process of generating visible indices of the construct. For example, the selection of observable behaviors appears to have resulted in an unequal number of items representing the various component themes on the Walberg and Thomas instrument. As a consequence, it is possible for classrooms to be classified as open mainly on the basis of ratings on the dominant provisioning scale. Those advocating the importance of other aspects of openness, such as the nature of the learning and the interpersonal relationships, would consider classrooms thus selected to be "false positives" and question any resulting correlations with outcome variables.

Finally, a crucial but as yet unacknowledged measurement problem concerns the discrepancies between the classification of open classrooms—regardless of the criteria used—and variations in the actual implementation of openness that exists in these classrooms. That classrooms may be labeled "open" without determining whether the model of education termed open has in reality been put into effect may be a major source of inconsistent results. Concern with implementation has been recognized in both curriculum evaluation (e.g., Fullan & Pomfret, 1977) and program evaluation (Charters & Jones, 1973; Leinhardt, 1980; Stallings, Note 2) but apparently has been overlooked in the research reviews on open education.

Implementation of Openness

Discrepancies between the classification of open classrooms and the extent to which open education is actually implemented are of two types: (a) differences between classrooms in the *degree* of implementation among classrooms labeled open, and (b) differences between classrooms in the *area* or *component dimensions* in which openness has been implemented. Both types of discrepancies present problems for

investigators of the effectiveness of open education and for those who wish to make recommendations based on a synthesis of the research. The following two sections of this paper center on problems which surround the discrepancies between label and implementation: First, those involving degree of implementation are considered; then those concerned with areas or dimensions of implementation are discussed.

Differences in the Degree of Implementation

Too often research comparing open and traditional classrooms has not included any measure to confirm the type of classroom structure. As noted above, classrooms may or may not be taught in a manner corresponding to the label. Hence, investigators may be basing their conclusions on classrooms which have been classified as open, but which in reality may not be implementing the essential components of the model. Such studies may, in fact, be evaluating a "non-event" (Charters & Jones, 1973).

In examining this problem, the issue of whether or not the three types of measures which have been used to determine classroom openness are adequate for assessing the degree of implementation must be addressed.

Nominations and teacher reports. An investigation of studies using nomination procedures and teacher self-ratings yields two types of evidence which suggest that reliance on these methods of determining openness may be inadequate. The first type of evidence comes from a study in which 16 teachers nominated as open or traditional by school administrators were asked to rate their beliefs about both the importance of items on the Open Education Teacher Questionnaire (Walberg & Thomas, 1972) and the extent to which they were actually able to implement these behaviors² (Marshall, Weinstein, Middlestadt, & Brattesani, 1980; Weinstein, 1980). The revised set of instructions was used to diminish the likelihood of a "social desirability set" in responding (Sealey, 1976). The results indicated that whereas classroom openness as determined by nominations was significantly correlated with teachers' beliefs about the importance of the questionnaire items (Importance score) ($r = .55, p < .05$), nominations were not significantly correlated with teachers' responses regarding the extent to which they actually implemented these behaviors (Extent Implemented score) ($r = .37, n.s.$). Furthermore, their beliefs regarding the importance of the items and about the extent to which they implemented the behaviors were not significantly correlated ($r = .37, n.s.$).

The correspondence between the nominations and the Importance scores, as contrasted with the nonsignificant correlation between the nominations and the Extent Implemented scores, may reflect administrators' greater awareness of what teachers believe is important rather than what is actually happening in their classrooms. Yet most of these teachers seemed to be aware of the discrepancy between what they believe is important in structuring a classroom and what they believe they are actually able to implement. Thirteen of the 16 teachers responded that their actual implementation was less open than their beliefs about the importance of these behaviors. These results are consistent with those of Kremer (1978) who found differences between teachers' beliefs about progressive education and both their knowledge of how to implement these goals as well as their expectation of achieving

² The original instructions for this questionnaire asked teachers to estimate the extent to which the statement was "true" of their classroom.

these goals. If indeed the revised instructions used in this study helped to overcome a social desirability set, questions may be raised concerning the actual implementation of classroom openness in studies where nominations or self-ratings alone were used.

The second type of evidence demonstrating the inadequacy of relying on nominations or teacher self-ratings is derived from an inspection of studies in which both teacher and observer measures are available. In Hook and Rosenshine's (1979) review of the accuracy of teacher reports, some support for agreement between teachers' and observers' "general impressions" was found, but less accuracy was revealed for specific behaviors. However, evidence more cogent to the specific purpose of assessing implementation of openness emerges from a review of those studies in which both the Walberg & Thomas (1972) Open Education Teacher Questionnaire and their Open Education Observation Ratings have been used.³ These instruments are comprised of equivalent versions of 50 items to be rated on a four-point scale, such that the maximum score of 200 indicates the most open classroom. In those studies where mean scores were reported, the mean scores on the Teacher Questionnaire were generally found to be higher than those on the Observation Ratings. Although mean scores for open and traditional teachers were not reported by Walberg & Thomas (1972), Evans (1971), who conducted additional analyses of the data, reported a 12-point difference for open teachers between observers' ratings of teachers and teachers' self-ratings and a 28-point difference for traditional teachers. Others (e.g., Groobman, Forward, & Peterson, 1976; Klass & Hodge, 1978) have found similar disparities. In most cases, teachers have rated themselves more open than have observers. Further, the discrepancy tends to be larger for traditional than for open teachers (see Table I). In a recent sociological study (Bossert, 1979) too, a similar divergence was found for "high recitation" (traditional) teachers between self-reports about the amount of help given and observer field notes. Discrepancies between teachers' perceptions of their innovative behavior and those of observers have likewise been reported by Goodlad et al. (1970). Thus, while some administrators and teachers report that educational innovations are being put into effect, many traditional educational practices appear to persist. As a consequence, relationships between reported classroom structure and outcomes may be diluted or distorted.

Despite these discrepancies between teachers' and observers' ratings, the possibility has been overlooked that different relationships with outcome variables might be found depending on whether the teachers' or the observers' reports of classroom structure were the criteria. Studies in which both questionnaires and observations have been used have not generally reported separate correlations with outcome measures based on the two types of measures. However, in the Weinstein (1980) study cited above, the divergence between teachers' Importance and Extent Implemented scores affected the results. Significant correlations with mean gains in reading achievement were found for the Importance scores ($r = .71, p < .01$) but not for the

³ The source of studies using the Walberg and Thomas instruments were: (a) Horwitz (1976, 1979), (b) those used by Hetzel et al. (Note 1), which added to Horwitz's list, later studies cited in ERIC and the *Education Index* (Rasher, Note 5), and (c) a search of the *Education Index* for 1979 and the more recent issues of *American Educational Research Journal* and *Journal of Educational Psychology*.

TABLE I
Mean Scores for Open and Traditional Classrooms in Studies Using the Walberg & Thomas Measures

| Source | Open | | | Traditional | | |
|------------------------|------|---------------|-------------|-------------|---------------|-------------|
| | n | Questionnaire | Observation | n | Questionnaire | Observation |
| Evans (1971) | 21 | 175.1 | 163.2 | 21 | 145.5 | 117.5 |
| Groobman et al. (1976) | 4 | 157.5 | 156.3 | 9 | 138.6 | 111.3 |
| Klass & Hodge (1978) | 7 | 137.4 | 123.0 | 5 | 116.7 | 84.4 |

Extent Implemented scores ($r = .38$, n.s.). Differences in correlations with achievement as a function of whether teachers' responses concerned the importance of open teaching strategies or their ability to implement these strategies cast further doubt on the value of pooling findings from investigations utilizing self-ratings with those utilizing other measures which may be less subject to a social desirability response set.

Classroom observations. The results of surveying studies where classroom observations were used to assess openness poses a new problem: When is an implementation an adequate implementation? That is, at what point along a continuum of traditional to open does a classroom need to be located in order to be classified as open?

The wide variations in mean scores for openness between studies using the same instrument have been ignored by reviewers. However, in the few cases where these scores are reported for the Walberg and Thomas scales, some of the mean scores for open classrooms (e.g., Klass & Hodge, 1978) are close to or lower than those for traditional classrooms in other studies (e.g., Evans, 1971; Groobman et al., 1976), as can be seen in Table I. Without clear-cut criteria for an acceptable level of implementation, one may well question whether classrooms labeled open, even on the basis of observations, are in reality implementing models of openness.

Differences in Areas of Implementation: Components of Open Education

With few exceptions (e.g., Marshall, 1976b; Solomon & Kendall, 1979), research on the effectiveness of open classrooms seems to be based on the assumption that classroom openness functions as a global construct and that it is implemented on an all-or-none basis rather than recognizing that the concept is comprised of components, each of which may be implemented to varying degrees in classrooms under the same global label. In fact, however, the attempts to operationalize classroom openness both by Walberg and Thomas (1972) and by Traub et al. (1972) were based on a review of the literature which yielded 8 (Walberg & Thomas, 1972) to 10 (Traub et al., 1972) rational factors or sets of characteristics, such as materials and physical environment, individualization, evaluation. Although some questions have been raised regarding the logic of these separate rational factors in the Walberg and Thomas system (Bennett, 1976; Marshall, 1974), these factors or dimensions have been largely ignored by investigators using the instrument. Instead, correlations with outcome variables have generally been calculated based on total scores. No studies

were located which reported separate findings for the rational factors, and the one study which attempted a factor analysis of the Walberg and Thomas instrument was limited by an insufficient sample size (Morris, Langenbach, & Richek, 1977). Although a factor analysis was performed on the Traub instrument, research using this questionnaire, too, has been conducted using only total scores—on the assumption that “programs with a high degree of measured openness embody more open characteristics than programs with a low degree of measured openness” (Traub, Note 3, p. 9).

Nevertheless, it is possible for classrooms to vary on the component dimensions of openness even where the mean scores for openness between classrooms are equivalent. These variations in the particular dimensions of openness implemented suggest that assessing the degree of implementation alone, without considering the degree to which the various component dimensions have been implemented, may be misleading in evaluating the effectiveness of open education. Several researchers have noted that classrooms do not seem to fall into two distinct categories of open and traditional, but rather that there are variations and patterns in the way that teachers structure the classroom (Bennett, 1976; Marshall, 1976b; Solomon & Kendall, 1979; Henderson & Hennig, Note 4). It would be possible, for example, for one set of “open” classrooms to receive high ratings in the area of locus of responsibility, while another set of “open” classrooms may receive high ratings for “provisioning the environment.” Although the means and ranges for both sets of classrooms labeled “open” may be the same, correlations between outcome variables and the two sets of open classrooms—based on a global score alone—may reveal different patterns of correlation coefficients. For example, correlations between measures of inquiry skills and the first set of open classrooms might be positive; whereas correlations between these measures and the second set of classrooms might be nonsignificant. Without knowing that the mean scores were based on different areas of high implementation, the misleading conclusion might be drawn that the findings from the two sets of “open” classrooms were “inconsistent.” In contrast, knowledge of the specific dimensions which were adequately implemented would allow an assessment of the relationship between these component dimensions and specific outcome variables.

Proposed Strategy: Focus on Components of Classroom Structure

Both the ambiguities in definition and the variations in degree and areas of implementation suggest the potential usefulness of investigating the component dimensions comprising classroom openness—and classroom structure in general—in contrast to relying on global classifications. Considering classroom openness as a continuous rather than a dichotomous variable has been recommended (Hetzel et al., Note 1). However, a solution which may be more reflective of classroom reality and which may produce more definitive relationships with specific outcome variables may be to investigate the relationships between the component dimensions of classroom structure or patterns of these components and various outcome variables, such as achievement, creativity, self-concept. The dimensions or domains of the classroom learning environment have been used as a meaningful perspective for analyzing and interpreting results concerning outcome variables by both Solomon and Kendall (1979) and Soar and Soar (1979).

Furthermore, interest in examining the effects of aspects of classroom structure such as the task orientation and social environment has been expanding rapidly. Although not necessarily conducted within a framework of open classroom research, investigations have been carried out on several aspects which have been considered criterial characteristics of open classrooms, including grouping, task organization, instructional goals and rewards, and locus of responsibility for learning and evaluation. Bossert (1979) has explored the activity and grouping structure of the classroom, comparing "multi-task" and "high recitation" classrooms. Individualistic, cooperative and competitive goal structures have been compared by Johnson and his associates (e.g., Johnson, Skon, & Johnson, 1980; cf. also Johnson & Johnson, 1974; Sharan, 1980; Slavin, 1980). Recent research on locus of responsibility and student-managed learning was reviewed by Thomas (1980).

Studies conducted outside the framework of open education have paid less attention to the effects of the physical characteristics associated with open classrooms, such as flexibility of space, richness of materials, and time schedule. It may be that these physical characteristics serve to support the implementation of individualized or small-group, multitask instruction and cooperative and self-directed learning, but may have a less direct influence on outcome variables.

Summary and Conclusions

In brief, it has been argued here that in addition to ambiguities in definition and inadequacies of operationalization, research on the effects of open classrooms has failed to consider the degree to which and the areas in which teachers have implemented the construct of classroom openness. Pooling classrooms which implement different aspects of openness or which implement aspects of openness to different degrees contributes to the lack of consistency across studies. Despite the "general understanding within the educational community" of the style of teaching reflected in the term open education cited by Horwitz (1979), the confusions in the use of this term and the resultant problems of conducting and interpreting research in this area suggest that this terminology has outlived its usefulness. Early studies on open classrooms served an important function in focusing the attention of educators and researchers on an alternative view of classroom structure. Now, however, it would seem that taking into account the degree and the areas of implementation will be more likely to shed light on the linkages between particular components of classroom structure, such as individualization or locus of responsibility, and particular outcomes, such as independence or task persistence. Studies which focus on specific components of classroom structure, such as those noted above, and which are designed to include a measure of implementation would seem to be productive means of investigating and interpreting teaching effectiveness. As knowledge accrues concerning specific dimensions, the effects of clusters of dimensions can be investigated. Cluster analytic methods have been used successfully for this purpose by Solomon and Kendall (1979).

Pursuing this line of research has several advantages. First, syntheses and meta-analyses of research on classroom structure can be based on more specifically defined component dimensions and thus be more likely to result in more clear-cut conclusions.

Second, exploration of the relationship between the component dimensions of classroom structure and various outcome variables will inform educational decision

makers regarding the importance of implementing particular dimensions of classroom structure for varying educational purposes. This information would seem particularly useful as parents and communities have increasing input into the kind of education desired for their children.

Third, research on the components of classroom structure will permit more adequate generalization of findings concerning classroom structure to the real world where teachers do vary both in the degree and in the areas of implementation of various aspects of classroom structure.

And fourth, results concerning the effects of various aspects of classroom structure will aid teacher educators/developers in supporting teachers in making changes in areas of importance to particular educational outcomes.

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