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ABSTRACT

Learner Verification and Revision (LVR) has been part of Florida's instructional materials adoption process since 1974, when state statutes required textbook publishers to provide written proof that their materials were revised based on student feedback before publication. Publishers were also required to collect student data and make revisions during the entire market life of the product. In 1983, the LVR guidelines were made more specific and required that the LVR be submitted by publishers prior to submitting textbooks for adoption. The current 1985 Florida LVR guidelines required four sections: (1) product background information; (2) intended learner outcomes; (3) prepublication LVR--overview of LVR process, data collection and use, instruments used, and sample revisions; and (4) post publication LVR--plans for further data collection. Training was provided for publishers, and state instructional materials councils felt it was easier to evaluate the reports. Publishers, however, expressed concerns about the cost of field testing an entire textbook, validity and reliability of students' feedback, paperwork, and lack of evidence validating LVR. In light of these problems, it was recommended that the guidelines be reviewed, that publishers work with authors in implementing LVR, and that guidelines be applied more consistently. (GDC)

IMPROVING TEXTBOOKS: LVR FLORIDA STYLE[1]

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If there is one state that is serious about improving education, it's Florida. For the past three years the Florida Legislature has passed initiatives which would put into place a system that would provide required student performance standards, quality instructional materials to help teach to these standards, and an assessment program to see how well students are learning. Standards or objectives, instructional materials, and assessments - these are the three basic elements for any good instruction. So Florida seems to be on the right track.

The focus of this paper is Florida's initiatives for improving textbooks. Florida's special interest in teaching materials goes back a number of years. For over 50 years, Florida has used a state adoption process. A rather intricate system that involves a state level council of 9 members, who are mostly teachers, decide which books are to be recommended for the state adopted list. Input from school districts around the state is used in making these decisions. The system works fairly well and school districts get to purchase with state funds from a list which may have up to 15 titles for each subject area.

Part of the adoption process is Learner Verification and Revision which is familiarly known as LVR. The intent of LVR is to improve the quality of textbooks by involving the learner in the development process. LVR has been required of publishers since 1974.

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The purpose of this paper is to describe and analyze how LVR is used in the Florida adoption process. More specifically, the paper will (a) define LVR and its research basis; (b) describe its roots in Florida Statutes; (c) describe the current Florida requirements; (d) problems associated with the implementation of the process; (e) and some recommendations.

Historical Background of the Textbook Revision Process

Instructors have been changing their approach to teaching based on feedback from students for as long as there has been teaching. So the selection of a starting point for a description of the historical development of the revision process is relatively arbitrary. The current legislative interest in the process has its roots in several developments from the 1960s. This was a time when the federal government put forth its most significant funding of elementary and secondary school curriculum development projects. The textbook development model most typically used during that era was to bring together the best subject matter experts to write the instruction. The materials were edited and prepared for distribution by a project staff or by a major publisher that had temporary rights to them. It was soon recognized that many of the new texts were effective only with the brightest students. Evidence indicated that they were decidedly ineffective with average and below average students.

The issue of the instructional effectiveness of Instructional Materials came to prominence in 1967 with the publication of Scriven's paper "The Methodology of Evaluation".[1] He proposed that the concept of evaluation be expanded, as suggested earlier by Cronback, to include the collection of data and information to improve instruction.[2] He referred to this process as

formative evaluation. Scriven was not proposing that this data be used as the basis for making decisions about the current value or worth of the instruction. This type of evaluation he referred to as summative. Instead, the purpose of formative evaluation, was to provide a stimulus to writers to make informed revisions to make the instruction more effective. He argued that had this process been used in the major curriculum development projects, project directors would have been aware of the limitations of the instruction they were preparing. They could then have made significant changes prior to the publication of the textbooks and supporting materials.

While Scriven provided the conceptual rationale for formative evaluation and revision, he did not list detailed guidelines for how it was to be done. There was another set of instructional development activities in the 1960s which would provide this guidance. This was the Skinnerian approach to developing programmed instruction. Those who followed this small step, linear approach to instruction developed procedures for collecting data on posttest performance, answers to attitude questions, and answers written to questions which were asked during the learning process. This data was used to pinpoint problems in the programmed instruction text and to indicate the type of revisions to be made. This developmental testing strategy, as it was called by Markle, closely resembles the formative evaluation strategy used today by instructional designers.[3]

Thus, by 1967 both the concept of formative evaluation and the process for doing it were in place. What brought them together was an emerging technology called the systems approach. The most basic systems approach model indicated that the developer had to start with a set of objectives for which

instruction was to be developed. Following use of the instruction, students were tested with items that assessed how well they had mastered the objectives, and the instruction was revised in those areas in which students did not achieve mastery. The systems approach model requires a testing and revision process, or it will not operate like a system. That testing and revision process is now commonly accepted to be the formative evaluation process described by Scriven and Markle in the 1960s.

It is important to emphasize that the basic approach in this model is one that depends upon input from learners as the crucial component of the formative evaluation and revision process. Student incorrect answers to test questions and their comments about the materials are the basic elements in the revision process. This does not rule out input from subject matter experts or teachers, but rather it puts a premium on the responses of learners since they are the ultimate beneficiaries of effective instruction.

The focus on student data was evident in the research that was conducted in the 1960s and 1970s. Many studies were done on the general effectiveness of programmed instruction. One of the most quoted studies of that era was conducted in 1965 by Roebeck.[4] This classic study focused on the revision process which was then being tried out. Roebeck wanted to determine the effectiveness of a revision based upon input from only one student. He asked a sixth grade student to complete a prototype copy of a programmed instruction text. Based upon the student's feedback, the instruction was revised and tried out with a second learner. The feedback was also used to create a second revised version of the instruction.

The prototype and the two revisions were then provided to three groups of matched students. Analysis of posttest performance indicated that both

revised texts resulted in significantly better posttest performance than the orignal prototype. There was no significant difference in the effectiveness of the two revised texts. This relatively straightforward study is noted here because it, and others like it, would be referenced repeatedly in the 1970s as evidence of the effectiveness of the formative evaluation process. It was to be argued that a revision based upon the input of only one student would result in significantly improved instruction.

METHODOLOGY

The methodology for revising instructional materials is not cut and dry. Research has not come up with any simple rules. However, there are generic steps that are followed by most instructional designers. The current procedures have been greatly influenced by programmed instruction practitioners, such as Markle, as well as by the writings of Eva Baker and Marvin Alkin.[5,6] The process described here is similar to that described by Dick and Carey[7,8] in the second edition of their text on instructional design.

The emphasis in formative evaluation methodologi s has been on prepublication improvement of the instructional package. This takes place through the use of evaluation procedures at three stages in the development process. The three stages, which occur after an early draft or prototype of the instruction has been developed, are referred to as the one-to-one stage, the small group stage, and the fi l trial. Each has a special purpose which is reflected in the procedures u .

One-to-one-stage. The initial step in the typical formative evaluation process is to use a draft version of the instruction with several learners who are representative of the students for whom the text is intended. The learners are carefully selected to represent high, average, and low-ability

learners. The developer works with the students individually as they go through the materials.

The students are told that the materials are under development and that their help is needed in finding out what is wrong with them. Rapport is developed with the learners before the process is started in order to reassure them that their input is really wanted.

The developer and the learner sit side-by-side as the student begins to go through the instruction. If appropriate, the student may be asked to read aloud for awhile to provide a sense of the readability of the instruction. The developer may stop the student at prespecified locations and ask questions about the information that has just been presented. If the student has not understood a concept, the developer will often try to restate it in more understandable terms. This process is continued until the learner completes 30 to 90 minutes of instruction. Then a posttest covering the objectives taught in the instruction is administered to the student. Each item is read, answered, and descussed. Following the test, the developer has a general discussion with the learner about the materials.

The major purpose of the one-to-one stage is to identify the significant problems with the instruction and to try out alternative instructional strategies on-the-spot. The problems identified may be as trivial as typographical errors or missing illustrations, and as important as missing pieces of instruction or activities that just don't work. This may be the first encounter the developer has with the actual learners, and thus their various interests and characteristics may be noted for the first time.

It should be pointed out that it is the developer who typically conducts the one-to-one evaluation, rather than an evaluator who may not be familiar enough with the content to interact effectively with the learners.

Small group stage. The second stage in the process is referred to as the small group stage. After revisions have been made on the basis of one-to-one evaluations, the instruction is reproduced for use with a large number of learners, usually 8 to 20. These numbers are arbitrary, but an attempt is made to get a large enough sample so that a sense of group rather individual performance can be obtained.

The term small group does not mean that all the learners must take the instruction at one time, but they may. The term simply refers to the general number of participants involved at this stage. The major purpose of this second stage is to determine the effectiveness of the revision made following the one-to-one stage, and to see how the instruction works when learners proceed on their own.

Learners who participate at this stage are told the purpose of their participation and are asked to go through the instruction while the developer observes the group. If significant problems arise, the developer can step in, but otherwise the learners proceed through it on their own.

After finishing the instruction, they take the posttest and complete an attitude questionnaire which probes their reactions to the instruction they have just completed. They may also have a debriefing session with the developer to discuss the instruction.

This second stage gives the developer the first real indication of the effectiveness of the instruction as noted by student posttest performance. It also is the first indication of how well the student can get through the instruction without an instructor at their side. The data from this stage is extremely valuable for identifying the remaining problems with the instruction both in terms of the content and the directions to the learners. It is not

unusual to discover that there are still some problems with the tests. Revisions which take into account test performance, student attitudes, and developer observations are made following the small group stage.

Field trial stage.

The third and final stage of formative evaluation is usually referred to as a field trial. There are two purposes for this stage, namely, to determine the effectiveness of the changes made as a result of the small group evaluation, and to determine if the instruction can be used by learners and teachers in the normal instructional setting.

As is implied by the purpose for this stage, the developer has almost no role to play other than perhaps as an unobtrusive observer. The instruction is tried out by one or more regular teachers with typical students in normal classrooms or in other appropriate instructional settings. It is not unusual for the teachers to be provided inservice training on the use of the instruction prior to the field trial.

During the field trial the teachers and students use the materials in the manner intended by the developer. Note is taken of any problems which may affect the usefulness of the materials. As before, the students are tested at the conclusion of the instruction, and are asked their views about the instruction through an attitude questionnaire or a discussion with the teacher.

The data from one or more sites (seldom are more than five or six classrooms necessary) is summarized and given to the developer for use in the final round of revisions prior to the first official publication of the instructional materials.

There are a number of important features of the total formative evaluation process that should be noted. First and foremost, the entire process is driven by data from learners. Student data is the primary source of information about what works and what doesn't. While subject matter experts must certify to the accuracy and currentness of the instruction, it is the students from whom the key data for additional revisions must be obtained.

It also should be noted that the developer (which in fact, may be a team rather than a single individual) is heavily involved in much of the process. The lack of objectivity of the developer in the evaluation setting is offset by the value of the input received and the ability to immediately translate it into revision strategies.

The final point to be made is that throughout the process, the summative question about how good are these materials is never asked. The emphasis is continually on the question of how can the instructional materials be made more effective. The question of "Are they any good?", must be delayed. And, as instructional designers know, summative evaluation data presented by the developer of the materials is likely to be suspect anyway. Typically, someone else must do the summative evaluation.

Legislative Initiatives

The enthusiasm for an empirical process of curriculum development in the form of a systems approach not only reached developers and researchers, but legislators as well. They were convinced that the formative evaluation process, which would take on a new name, should become a required part of the commerical textbook development process. The impetus for this enthusiasm can be largely attributed to Kenneth Komoski, Executive Director of Educational Products Information Exchange (EPIE).

In research conducted by Komoski from 1967 to 1971, he learned that of the approximate 200,000 then catalogued commercially produced instructional materials on the market, less than 1 percent had ever been tried out with learners prior to publication [8,9]. The obvious conclusion was that commercial publishers were disregarding the use of formative evaluation procedures in their development process. To distinquish the process recommended for commerically produced materials from that of the traditional formative evaluation process, Komoski coined the phrase "learner verfication and revision" (LVR). Not only was data to be collected from learners prior to publication, but the process was to be ongoing. During the entire market life of the product efforts were to be made to continually revise the materials through learner feedback.

Although most researchers agreed with Komoski's basic concept, some had difficulty with his terminology. They found it confusing and even misleading. Some authors accused Komoski of throwing out summative evaluation, replacing it with a kind of perpetual formative evaluation.

Komoski attracted the attention of several state legislatures. California enacted legislation in 1972 requiring publishers to provide evidence of "learner verification" prior to their books being considered for use in elementary classrooms. Unfortunatly, the requirement of publishers was interpreted to mean that publishers had to provide proof that the materials worked with intended learners. This amounted to a validation of the products. As a result, California legislation went fairly well unnoticed and has had little or no impact on how publishers collect data to improve textbooks.

Florida fared somewhat better. In 1974, with input from Komoski, the legislature passed Chapter 233.25, Florida Statutes:

"Publishers and Manufacturers of instructional materials, or their representatives, shall: (3) Submit, at a time designated in Section 233.14, Florida Statutes, the following information: (b) Written proof of the use of the learner verification and revision process during prepublication development and postpublication revision of the material in question. For purposes of this section, "learner verification" is defined as the empirical process of data gathering and analysis by which a publisher of curriculum materials has improved the instructional effectiveness of that product before it reaches the market and then continues to gather data from learners in order to improve the quality and reliability of that material during its full market life. Failing such proof, if the publisher wishes to submit material for adoption, he must satisfy the state instructional materials selection council that he will systematically gather and utilize learner verification data to revise the materials in question to better meet the needs of learners throughout the state[10]. Such text revision should be interpeted as including specific revision of the materials themselves, revision of the teachers' materials, and revision of teachers' skills through retraining, it being the intent of the legislature that learner verification and revision data shall include data gathered directly from learners; may include the results of criterion referenced and group normed tests, direct learner comments, or information gathered from written questionnaires; and may not preclude the use of secondary data gathered from teachers, supervisors, parents, and all appropriate participants and observers of the teaching learning process".

Florida's requirements were much more specific than those of California. An effort was made to define the process and to list the types of data expected. Also, the law required written proof of the process rather than a simple statement that the process had been used.

LVR Guidelines

But due to confusion as to the meaning of the LVR process, lack of commitment by state department administrators to the LVR process, as well as opposition to the basic concept by publishers, the impact of LVR legislation was minor. The guidelines used by the state lacked specificity and the law had an escape clause which allowed publishers to submit a post publication LVR plan if they had not done LVR on the product. Some publishers took advantage of this clause and submitted one planned LVR after another.

This was the case in Florida until 1983. At that time it was decided to strengthen and enforce the LVR legislation. To acccomplish this, the guidelines for publishers' reports were made more specific and enforceable. The plan approach clause was take out of the law in 1984. Now publishers must have completed an LVR on materials prior to submitting them for adoption. To improve the guidelines the Department of Education collaborated with council members and publishers to clarify the LVR instructions and to properly interpret LVR reports. Everything was removed from the original guidelines except those items which were considered to be essential to providing evidence that LVR had indeed been carried out.

The current 1985 Florida LVR Guidelines for publishers' reports are divided into four Sections:

I. Product Background Information

In this section the publisher provides descriptive information, such as the publisher's name and address, title of textbook, author, copyright date and a signed statement certifying as to the accuracy of the content of the LVR report. This one page short description does little more than identify the materials that underwent LVR. It should be noted that publishers are required to submit an LVR report only on products which constitute the major tool for instruction. This typically applies to a textbook and not to student workbooks, teacher manuals, or other supplementary materials. However, it could also apply to computer software if the software is considered to be the "textbook" for the course.

II. Intended Learner Outcomes

The purpose of section two in the LVR Guidlelines is to determine if the developer used a systematic approach in development of the product. As mentioned earlier, LVR is part of a systems approach to improving instruction. This approach first starts with broad goals from which specific student-based measurable objectives are derived. Assessment items are then developed to make sure that the objectives are indeed measurable and also to serve as instruments to determine if the student has mastered the objective. Only after these two tasks are completed does the developer construct the instructional activities which comprise the lesson. If there is conguency between goals, objectives, and assessment items the developer is able to pinpoint problems in the instruction. Without these matching elements, improvement of instruction becomes a hit and miss proposition.

In this section the Publisher provides information indicating that the materials were constructed in a way that would allow for identification of problem areas for revision purposes. To help accomplish this, the publisher provides a sample of three goals, two objectives derived from each goal, and two test items which directly assess each objective. The expectation is that this information will provide a basis for revisions made in later sections of the report.

III. **Prepublication LVR**

This section is divided into four parts: 1. An overview of the LVR process used; 2. How the data was collected and used; 3. A listing of the instruments used; and 3. Selected samples of revisions.

The overview is straightforward. The publisher describes on one page where, how, and by whom the process was carried out. There is no requirement that it be done in Florida. Since research shows on the one hand that information gathered from only one learner can make a difference and that information gathered from hundreds of learners is probably unusable for revision purposes, the guidelines suggest that the LVR be used with between 25 and 150 students of different academic abilities and socioeconomic conditions. One to six classrooms of students are sufficient.

In collecting the data, publishers are required to use one or more of the following: observations, interviews, questionnaires/surveys, assessments. The only stipulation is that students form the primary sources for the data. The publisher must report the type of person collecting the data, the characteristics of the students used, and most especially how the data was used to make specific revisions. It

should be obvious that if a systems approach was used in developing the instruction the identification of trouble spots becomes more meaningful by directing the types of data to be collected and by showing the relationship between the data collected and the improvement decision.

The publisher then lists the types of instruments used to collect the data and identifies those used directly with students.

Finally, the publisher attaches three samples of revisions made by including a copy of the revised and unrevised versions. These samples are expected to be those of high priority and not trivial corrections of typos or content inaccuracies.

IV. **Post Publication LVR**

LVR differs from the traditional formative evaluation process in that data from learners is collected during the entire lifetime of the product. In this section of the report, publishers are required to describe how data will be collected on the product while it is on the state adoption list which may be as long as six year. Publishers are not required to make any revisions during this interim period.

Training and Implementation

Not only have the guidelines been improved, but training for publishers in how to carry out the process and prepare the report has been provided. State council members are also trained in evaluating LVR reports. In this training, special attention is called to the fact that the LVR process and the validation process are quite distinct. Validation is a summative and not a formative process. Therefore, it usually requires a large number of students with strict control on how the materials are used. The confusion between

these two forms of evaluation has caused many problems in understanding and implementing the LVR process.

Training of publishers consists of a one day workshop in which the LVR is the major component. Publishers are introduced to the concept of LVR and how it became a requirement in Florida Statutes. The statutes are analyzed and the responsibilities of publishers are highlighted. Publishers then proceed through a series of hands-on activities in which they go through the guidelines component by component. Examples of good and bad reports are exhibited and discussed. The final activity involves the publisher critiquing one of their own reports associated with a previous submission. Feedback is provided as to how well they have performed.

State council training in evaluating LVR reports forms part of a day and a half training program. One of the training modules explains the LVR process, the responsibilities of publishers and state council members, and an indepth study of the LVR guidelines. Council members are then trained through hands-on activities how to evaluate the components of the report. They are cautioned about being swayed with the use of large numbers of students as well as by the size of the report. Quality is more important than quantity. A check list is used to determine if all the components are included in an acceptable manner. The training concludes with the participants evaluating a simulated report.

Publishers are required to provide a copy of the LVR report to each council member by August 1. This provides the members with several weeks, or in some cases months, to review the reports individually. They are encouraged to complete a check list for each report. When the councils assemble to make their final evaluation of the materials as a group, one of their first

activities is to arrive at a consensus on the acceptability of the LVR report. Before a set of materials is eligible for further consideration it must pass this scrutiny.

Prior to 1983 it was almost unheard of to have a book declared ineligible due to an unacceptble LVR report. Since 1983 the number of rejections have risen. In 1984 there were 17% of the submissions rejected because of unacceptable LVR reports. That figure rose to 19% in 1985. Most of the rejections were due to incomplete items within the report or due to the fact that publishers had not done an LVR. Publishers of advanced or college texts have had special problems in that college divisions of publishing houses generally don't do LVR. Some have even been so bold as to state in their reports that they don't intend to have their materials go through the process. This attitude has resulted in several advanced texts being rejected.

Implications

Publishers are certainly not oblivious to the problems associated with fulfilling the requirements of the Florida LVR process. They have their own realworld concerns. Here are some of the issues raised as barriers to the use of the LVR process:

1. Florida requires testing of the entire textbook rather than selected portions of it prior to publication. It is unrealistic and in fact impossible for publishers to try out an entire book in its final draft form for an entire school year. This is expensive, provides unrealiable data, and most of all does a disservice to those students being used as "guinea pigs."

2. Students do not buy books. Teachers buy books. Therefore, it is necessary to get feedback only from teachers. Besides, the best test of a book is the marketplace. If it is a good book, it will sell. Ineffective books will be gradually weeded out.

3. Data gathered from students is highly unreliable. It is hardly useful for making informed judgments about revisions.

4. Paperwork and more paperwork. All LVR seems to do is to raise the cost of the textbook. Who do you think will pay for the extra cost of LVR? Florida is doing a disservice to the rest of the schools in the country.

5. Evidence is lacking that proves that LVR makes any difference in the effectiveness of the final product. Besides, no two so-called expects can agree as to an acceptable methodology. Exactly how many students are necessary? Are questionnaires alone sufficient? Do students have to be tested? Why?

Individual state instructional materials council members vary in their acceptance of the LVR process. Some take their responsibilities very seriously. They scrutinize every LVR report and look carefully at the quality of what is in the report. Others are less concerned about LVR and interest themselves only with the quality of the books themselves. If the LVR report stands in the way of what they consider to be a "good" book from being adopted, they will disregard the LVR report. Still others, although having undergone training, misunderstand the process and either require too little or too much of publishers.

The Department of Education is committed to the process. The statutes very clearly require that publishers use LVR in developing their materials. Although the statutes do not clearly indicate that an unacceptable report is grounds for rejection, the Department has always understood this to be the case and in recent years has seen to it that some submissions are rejected based on the LVR reports.

Summary and Recommendations

Learner verification and revision has been part of the Florida instructional materials state adoption process since 1974. Since that year Florida statutes require publishers to provide written proof that their materials were revised based on student feedback prior to publication. The statutes further require publishers to collect student data and to make revisions during the entire market life of the product.

Up until 1983 Florida did not take LVR very seriously. Although LVR reports were required and given to state councils for their approval, no report was found unacceptable. This was largely due to the guidelines which were very generic. In 1983 the guidelines were made much more specific and it became easier to separate the acceptable from the non-acceptable reports. Council members were trained on how to review the reports. As a result, some reports were rejected in 1984 and again in 1985.

The council reviews, however, are far from being consistent. There is much variablility within and between\councils. Some councils reject many more submissions than other councils. As a result, publishers are left confused and have grounds for further negative feelings about the process.

In light of what is happening in Florida with an attempt to improve the quality of instructional materials through the LVR process the following recommendations are made:

1. The guidelines should be continually reviewed to ensure that the integity of the LVR process is maintained within the bounds of the Florida Statutes. The guidelines should be reviewed for their clarity, consistency, and preciseness.

2. Publishers should cooperatively work with author-developers in planning and implementing the LVR process. In this way it is more likely that a systematic approach to developing materials will be used and that the LVR process will be used with integrity.

3. To provide for consistency in applying the LVR guidelines to publishers' reports, a committee of specially trained council members, elected from each council, should meet to review all LVR reports prior to the evaluation of the materials. Besides providing for consistency and fairness this would streamline the evaluation process.

Use of the LVR process does not guarantee quality textbooks. It may not even be in first place among all the methods suggested for improving books used in schools. But if the research literature is to be taken seriously use of the LVR process, when done properly, is way ahead of whatever is in second place. At least Florida thinks so.