

In this section, we will share your points of view on teaching and learning mathematics and your responses to anything contained in this journal. We appreciate your interest and value the views of those who write.

Some Processes for Changing Curriculum Beg Revisiting

Werner Liedtke

Over the years, I have had many opportunities to be a member of groups that were involved in updating and creating elementary mathematics reference and assessment materials for teachers and students. The settings were all similar: a large room, a large table and a group of people representing various grade levels and institutions. The goals for these settings may have differed in that they involved reviewing and reacting to newly created materials, revising existing materials or creating new materials. However, there existed common aspects that were part of the procedures associated with these tasks. The sole purpose of the ideas recorded in this article is to focus on aspects of the procedures. The intent is not to be critical in any way of the participants. The assumption is made that the question, "How do revised and new documents or reference materials come into existence?" might be of interest not only to those who use them but also to those who will work with committees of this type in the future.

A group can find itself invited to a meeting where the terms of reference are very restrictive. As a result, any forthcoming revisions and changes are limited. Members may end up asking whether calling the meeting was necessary or worth it, or whether the same results could have been reached in a more efficient manner. Would it not be advantageous to inform participants of the terms of reference and a detailed agenda prior to calling a meeting? Based on my experience, this was rarely done.

A group may be in a position of having to base all of its revision decisions on existing documents or even on one existing document. Questions making reference to content like, "Why this?" or "Where does this come from?" are answered with, "It is in the Ontario (California) Strands." or "It is in the Western Canadian Protocol (WCP)." Some assume

that, because it appears in this document, it is appropriate and good and should not be questioned. Decisions for revision or inclusion are made accordingly.

Because the WCP is viewed by some as *the* document for revision, content development or even research projects, a few comments and questions are in order. A lot of good things can be said about this document, but that is not the point of this article. On the other hand, this document does include very general statements that are difficult to interpret or are open for interpretation. Because some terms and expressions that are part of the text are undefined, they require examples. Without these, only the author or authors of these statements may know the intended meanings. Some illustrative examples do not make sense. Some are not appropriate for the listed learning outcomes. Some very important ideas lack illustrative examples. Some learning outcomes are inappropriate or do not make sense. Serious omissions exist.

Specific examples for these shortcomings could be presented, but neither is that the intent of this article. (These shortcomings will likely be addressed during upcoming revision meetings.) As far as this article is concerned, the most important question is, "Where did the entries (learning outcomes, illustrative examples) in the WCP come from?" Content from different provincial guides was used to make up the entries of the WCP, and I suggest that, for meaningful curriculum decisions related to updating, revising and especially for generating new material, this "circle may need to be unbroken." For example, an emphasis on conceptual understanding or on the development of number sense would require a brand new growth plan that then becomes a part of these new or revised documents, rather than creating something through a cut-and-paste strategy

applied to existing documents. Which procedure would be of greatest value and benefit to teachers and students?

No doubt the decision-making processes of a group has been researched and written about. Allow me to supplement such reports with a few personal anecdotal observations. The question, "Why does this appear at the Grade 3 level?" will probably elicit the response "It is in the WCP/Ontario Strand." The question, "Should it be there?" may not be entertained. If, by chance, it is, the following scenarios are plausible. Utterances directly from the affective domain, such as "I like it" or "Teachers like it," may sway a group into accepting an idea. A passionate oration by someone, which might make reference to having students "see the beauty of..." can influence decision making (especially if the speaker is an administrator). Many times, it is assumed that a member of a group, such as a primary teacher, is a spokesperson with whom all members of that group will agree, and, as a result, statements by that member are not

questioned, especially if he or she is the only member present. In instances like these, some sort of consensus is reached based on aspects of social interaction that are far removed from an examination of an overall growth plan for a given topic. Should that ever be the case?

Some revision meetings begin in a relaxed or rather open-ended way without a specific agenda. It inevitably happens that, at the end of the scheduled day(s), group members leave at different intervals (early). As a result, "legislation via exhaustion" occurs and fatigue sets in. Decisions are made rapidly and they may not be based on what was agreed on earlier. I have often wondered whether some chairs actually had this outcome in mind as part of their "hidden curriculum" when they made decisions about an agenda.

Decisions about revising, updating or creating curriculum are complex—more complex than many of the ideas in this article suggest. Perhaps some of these ideas can become part of a discussion about that complex process and procedure. That is my hope.

Why Do Numerate Students/Adults Lack Conceptual Understanding of Division?

Werner Liedtke

Division will be used as the focus of the discussion, which could be applied to other topics as well. The following questions will be addressed in this article: Are any concerns about the numeracy of our students warranted? What data exist to suggest that our students lack conceptual understanding of division? What are some possible reasons for students lacking conceptual understanding? What might be done to have students acquire conceptual understanding of division? and What are some of the key components of conceptual understanding of division?

Numeracy Concerns

There are mathematics educators who reference "rising scores on certain tests" and "results of performances on contests, nationally and internationally" to suggest that, as far as mathematics learning

is concerned, things are improving or even all is well. These types of conclusions could be countered with information released by universities that not only expresses concerns about the lack of basic literacy and numeracy skills of its graduates but also talks about intervention programs for these students (who represent the top 15 to 20 per cent of our population—so what might be said about the others?).

I have collected competency test scores from education students for more than 30 years, and have seen that these scores have not risen. In fact, the opposite is true. Some colleagues have tried to explain this trend by suggesting that top students who at one time would have enrolled in education are now attracted to other areas or professions. Even if this assumption is true, changes to the system these students went through should result in higher levels of numeracy. As far as my observations tell me, that is not the