

2-1-1997

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### Recommended Citation

Shelly, A. C., Bridwell, B., Hyder, L., Ledford, N., & Patterson, P. (1997). Revisiting the K-W-L: What we Knew; What we Wanted to Know; What we Learned. *Reading Horizons: A Journal of Literacy and Language Arts*, 37(3). Retrieved from [https://scholarworks.wmich.edu/reading\\_horizons/vol37/iss3/5](https://scholarworks.wmich.edu/reading_horizons/vol37/iss3/5)

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# Revisiting the K-W-L: What we Knew; What we Wanted to Know; What we Learned

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Good teachers are always searching for ways to enhance learning in their classrooms. Researchers and practitioners alike continue to develop and refine strategies which improve comprehension and increase retention while nourishing students' ability to learn independently. The K-W-L strategy (What-we know; what we want to know; what we learned), first described by Ogle (1986), is such a strategy. Though there is research to support the effectiveness of the K-W-L, any strategy may need to be modified and refined to improve its effectiveness in promoting learning. We five teachers collaborated to study how the implementation of the K-W-L can be varied in different classroom settings in order to ensure that it has the desired effect on the reading comprehension and learning of elementary and middle school students.

## Considering the research

Current research on learning indicates that good learners make connections between prior knowledge and new

knowledge and in the process, construct their own meanings (Anderson, 1984). Strategies that facilitate the construction of meaning therefore improve learning. The K-W-L strategy, designed in a three column format, requires students first to list what they already know about a topic (calling attention to prior knowledge); second, to write what they would like to know about a topic (tapping student interest and providing purpose for reading); and third, after reading and discussion, to list what they learned and would still like to learn (making connections between questions asked and information encountered). In a further refinement of the K-W-L, Carr and Ogle (1987) also recommend asking students to categorize and summarize the information they gathered. By design, the K-W-L requires students to make connections between prior knowledge and new knowledge thereby constructing meaning.

Writing for a content area reading text, Ogle (1992) proposes the K-W-L as a general framework for instruction and describes the use of the strategy in secondary schools in Kansas City, MO. Through extensive staff development, teachers were provided alternatives, including the K-W-L, for moving low achieving students into learning that was more strategic and interactive. Ogle notes how teachers adapted and modified the K-W-L strategy to maximize its effectiveness with their students who, in turn, became more active learners and higher achievers.

Farell (1991) describes the use of the K-W-L in her classroom and applauds its effectiveness particularly when combined with mapping and summary writing. Van Sledright (1992) found the K-W-L helpful in teaching social studies to fifth graders. Piper (1992) reports using K-W-L as one of five metacognitive strategies which successfully

enhanced the reading comprehension of sixth graders in the area of social studies.

These studies show that to simply introduce the K-W-L strategy to students is ineffective. True, students may successfully use the strategy with direct supervision during the initial introduction but unless required to use the strategy repeatedly, both in a group setting and independently, just introducing the strategy will have little lasting impact on reading comprehension and learning. The goal is for students to internalize the strategy and to transfer its use to a variety of settings. Carr and Ogle (1987) have addressed the issue of transfer of learning, noting that, "Students develop the ability to transfer, and thus to become independent learners, through instruction that gradually shifts the responsibility for initiating the strategy from the teacher to the student" (p. 630).

### **Our implementations of the K-W-L**

Linda and Becky, both elementary teachers, and Paula and Nina, a middle and junior high teacher respectively, used the K-W-L strategy once a week for eight weeks in teaching science, social studies, health, or language arts. The goal was to facilitate students' becoming independent readers and learners with increased ability to comprehend, select, and retain important information. Teachers introduced and completed the K-W-L as a whole group activity during the first week of the study. In the ensuing weeks, teachers diminished the amount of scaffolding provided, next having students complete the K-W-L activity in small groups, and finally having students use the strategy independently.

As teachers worked with the K-W-L over a period of eight weeks, they modified the strategy as needed to increase its effectiveness with their particular students. The most basic, but very helpful modifications, were for Linda's third

grade children, the youngest in the study. The standard unlined, three vertical column format of the K-W-L proved frustrating for these children.

Beginning with the second week, Linda provided her students with a lined form that allowed them to write horizontally across their papers. Since some of her students were emergent readers and writers, Linda paired developmentally delayed, learning disabled, and attention deficit disorder children with more accomplished readers and writers. She spread each K-W-L activity over two or more class days and asked students to share after each step of the K-W-L even when children completed the activity independently; responses were routinely recorded on the chalkboard.

Becky, a fourth grade teacher, found that asking children to use the K-W-L when beginning a new unit of material for which they had little or no prior knowledge was frustrating. Consequently, rather than asking children to factstorm in the "K" column, the teacher provided specific questions to focus the children's thinking. For example, when using a social studies article on "Earning A Living," the teacher asked students to list in the "K" column "some ways that people here (in the Southeastern US) make a living."

Later, when using a social studies text that incorporated graphic organizers as study guides, Becky effectively combined the use of the K-W-L and the graphic organizer, a procedure recommended by Carr and Ogle (1987). Early in the week, after students skimmed a section of material in their texts, Becky had students complete the "K" and the "W" columns of the K-W-L activity. She then collected their papers. For the following two or three days, students read and discussed the material and completed the partially constructed graphic organizer provided by the text. Finally, the K-W-L papers

were returned and students completed the "L" column of the activity.

Students' learning of the material was impressive. Becky also directly intervened in her fourth graders' construction of questions in the "W" column. Noticing that the vast majority of questions were "what" questions, Becky helped students vary these items. As a group, the class generated and Becky recorded on the board a variety of question starters such as: Why? Where? How? Does? How does? and Who?

Paula, a former math teacher, worked with a seventh grade social studies class for the duration of the study. She found the K-W-L to function well as a whole group activity. However, when making the transition to a small group setting, students were less focused. Paula noted that had she first established smoothly functioning cooperative groups, the K-W-L procedure would have been more effective.

Nina, a seventh grade language arts teacher, explored varying levels of success with the K-W-L depending on the background knowledge of her students. She found that prior knowledge affected students' ability to complete the "K" column and to generate appropriate questions in the "W" column as well as students' attitudes and enthusiasm for the activity. Using biographical passages, Nina manipulated prior knowledge in two ways. First she used as her text for two successive weeks, articles on Robert E. Lee thinking that initially students would have some limited knowledge of the Civil War general. This proved to be true, and the second week, the information gained from the previous week's lesson was very apparent as students fact stormed in the "K" column and generated questions in the "W" column.

On another occasion, Nina asked students to gather background information in preparation for a biographical piece on Louis Armstrong. This approach had an interesting result. A low-achieving student, one of the few in the class who really did the research, stepped into the spotlight as he offered facts for the "K" column during the group brainstorming activity.

### **Responses from the teachers**

Our first important finding is that the K-W-L strategy works better when students have some prior knowledge of the topic. An introductory activity, video, discussion, or brief lecture will facilitate the completion of the "K" column when students' knowledge is very limited. Nina discovered that the material studied one week can provide positive support for engaging in the K-W-L the next week. Becky found that giving students a specific question to respond to in the "K" column (What are some ways that people here earn a living?) could be an effective modification when students are unable to elaborate spontaneously on limited background knowledge.

All four teachers concluded that the K-W-L is especially effective for structuring review. Paula, the former math teacher, focused especially on using the K-W-L as a study tool. Referring to the article by Ogle (1992) which recommends using the K-W-L to structure math review, Paula mused about how she might use the K-W-L to strengthen the thinking process of her students where mathematical operations are concerned. For example, she noted, a student might write in the "K" column, "I know in adding decimals I need to start on the right side and add the column from right to left." Then as the student asked questions about adding decimals in the "W" column, Paula would be better able to focus her instruction to meet the particular needs of the student. Having students use the K-W-L format to explain their understanding of a

mathematical operation functions as a kind of assessment allowing the teacher to monitor both process and product.

Similarly, McAllister (1994) notes the usefulness of the K-W-L in keeping track of the quantity and quality of participation of primary level compensatory students. Further, having students articulate their thoughts when solving a problem using the K-W-L format emphasizes that process is as important as product.

Both Linda and Nina suggested using the K-W-L to structure the investigation of a topic. For third graders, as well as others, this might be a group project necessitating the use of multilevel materials for responding to questions proposed in the "W" column. For older students, the K-W-L might provide structure for an independent research paper particularly in the formulation of research questions. Linda, Becky, Paula, and Nina also found the K-W-L helpful in developing vocabulary as students used and reused terms related to the current topic. When formulating questions on material relating to states of matter, Linda's third grade students drew from the K-W-L of the previous week using terms such as particles, solids, liquids, and gases.

### **Responses from the students**

Students' responses were also revealing. It was not surprising that students approached the strategy more seriously when the material was relevant and interesting. Some students noted that they preferred using the K-W-L strategy to taking notes. Several testified that the strategy helped them retain information, and that they found the procedure useful in studying for tests. Paula had several students whose grades improved in social studies; they claimed, and she corroborated their claim, that their grades also improved in science as a result of applying the K-W-L process by choice. A number of



students did comment that using the strategy too often would be boring. One of Paula's colleagues, who uses the K-W-L in teaching science, echoed these students' concerns noting that using the K-W-L once every ten to fourteen days seems most effective.

A number of students improved in their ability to express complete ideas by using the K-W-L procedure. Joey, one of Paula's students, when stating what he knew about the Middle East, simply wrote "long and latt" meaning longitude and latitude. Obviously Joey had not formulated clearly in his own mind what he knew about longitude and latitude in relation to the Middle East nor did this give the teacher much insight concerning the student's prior knowledge.

After five weeks of instruction using the K-W-L, Joey wrote in the "K" column, "I know that small towns in the Middle East do not have as much money as large towns" — a decided improvement over "long and latt." Nina noted that her seventh graders, over the course of the study, asked more thoughtful and better focused questions in the "W" column. She taught her students that initially skimming the text facilitates generating questions for this column. The first week Trey asked only one question in the "W" column; during the final weeks of the study, by first skimming the material, he easily produced five or six questions for this same column.

Cameron, another of Paula's students, made positive strides in attitude as a result of experience with the K-W-L. Initially Cameron refused to read his text or participate in class discussion. He was an expert in shooting paper wads. As the class engaged in the K-W-L procedure over the course of the study, Cameron became more positive about social studies, participating willingly in the K-W-L activities and

subsequently completing one of the best projects (a shoe box diorama) in the class. The strongest testimony for the effectiveness of the K-W-L came from a high achieving student who complained initially that she didn't understand social studies when she read it; however, by the conclusion of the K-W-L project, she noted that the strategy helped her to understand social studies better.

## Conclusion

It is true that teachers today are encouraged to use a variety of materials in their classrooms in order to better accommodate the individual needs, interests, and abilities of their students. However, this trend does not negate the value of traditional textbooks. Helping our students learn to use textbooks effectively provides them with a tool for independent learning. The K-W-L is one strategy, among others, that should be taught and should be taught thoroughly. The K-W-L helps to make textbooks as well as other materials meaningful. It encourages students to make connections between prior knowledge and new information thus facilitating the construction of meaning. In this paper, we have provided some insight into the factors that may require some fine tuning of the K-W-L procedures in the classroom, particularly taking into consideration the students' sometimes limited background knowledge. Considering these and other relevant factors, any teacher can engage in effective implementation of the K-W-L.

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