

Wonderwise Participant Teachers' Feedback on the Kits

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Wonderwise Learning Kits

**Funded by the Howard Hughes Medical Institute
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Evaluation Report



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Introduction and Description of Project

Wonderwise, a program funded by the Howard Hughes Medical Institute, is a series of five learning kits produced by the University of Nebraska State Museum in Lincoln, Nebraska. Each Wonderwise kit portrays a woman scientist through three mediums: a video, a written biography, and five classroom activities related to the scientist's field of study. Three of the kits also include a CD-ROM. The five kits are targeted toward fourth to sixth grade students, and are intended to be a versatile element that can be readily incorporated into existing classroom curricula in elementary classrooms.

To disseminate these kits throughout the state of Nebraska and encourage their use, nineteen individuals from around the state of Nebraska, one from each Educational Service Unit (ESU), were selected by the Wonderwise staff to participate in a Wonderwise Mentors Workshop during Summer, 1996. Each ESU serves a different geographic region of the state and serves its regional school districts in a variety of ways, including providing professional development and materials to the teachers in their ESU region. Selecting these teachers by ESU region helped to ensure that dissemination would be statewide, because the 19 ESU's collectively cover the entire state. When these individuals agreed to participate in the workshop and become "Wonderwise Mentor Teachers" they agreed to return to their ESU's and conduct workshops for their peers about the Wonderwise kits. Each mentor teacher is expected to conduct three workshops of at least 10 teachers each.

The purpose of this evaluation was to find out what the teachers' reactions were to the kits following the Wonderwise workshops they attended. This evaluation will help inform the production of future kits and implementation of their use in Nebraska.

Methods

Data for this evaluation was based on surveys completed by 381 teachers, each of whom participated in one of 24 Wonderwise workshops conducted by the mentor teachers during the 1996-97 school year and following summer. At the conclusion of the workshops they attended, teachers completed a brief questionnaire about the kit(s) they experienced at the workshop. The purpose of the questionnaire was to assess teachers' reactions to the kits and the various components of the kits (see Appendix A for a copy of the survey). The majority (224) of the participating teachers were currently teaching grades four, five, and/or six. Table 1 shows the number of teachers teaching at each level from grade 2 to 8. The multi-grade teachers were included more than once in this table and thus the numbers do not sum to 381. Table 2 shows the number of participating teachers from each ESU represented in this summary.

Table 1. Number of participating teachers by grade level.*

Grade Level	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th
Number of teachers	54	62	122	100	105	66	69

*Multi-level teachers are included in each grade level they teach.

Table 2. Number of participating teachers by ESU.

ESU	Number of teachers	ESU	Number of teachers	ESU	Number of teachers

1	3	7	64	13	27
2	2	8	0	14	41
3	35	9	3	15	6
4	15	10	16	16	29
5	1	11	9	17	61
6	5	12	11	18	16
				not given	37

A general summary of the results from all 381 teachers across all the kits and workshops is presented below in the Results section. Table 3 shows the number of teachers who experienced each of the Wonderwise kits at the workshops. As Table 3 shows, 230 of the participants were exposed to just one kit, while 124 teachers were exposed to more than one kit at their workshop. Twenty-seven of the participants did not identify which kits they experienced at the workshops. The results summary is also presented in Appendix B in a tabular format with exact percentages about kits presented. More specific data on individual kits were drawn from the subset of teachers who experienced one particular kit during a workshop (n=230). That is, responses from teachers who experienced multiple kits at a single workshop were not included in the individual kit summaries because their responses could not be attributed to a particular kit. Appendix B includes these detailed results from respondents for each specific kit except the African Plant Explorer for which there were only two workshop participants (the African Plant Explorer kit was not completed till summer, 1997, so few teachers were exposed to this kit in the workshops).

Table 3. Number of participating teachers experiencing each kit(s) in the workshops.

All Workshops (n=381 participants)*				
Single Kit Workshops (n=230 participants)				
Sea Otter Biologist (n=54)	Pollen Detective (n=90)	Parasite Sleuth (n=47)	Rainforest Ecologist (n=37)	African Plant Explorer (n=2)
Multiple Kit Workshops (n=124 participants)				
Sea Otter, Pollen, & Parasite (n=57)	Sea Otter & Pollen (n=13)	Sea Otter, Pollen, Parasite, & Rainforest (n=33)	Other kit combinations each with <7 participants (n=21)	

*27 participants did not specify which kit(s) they experienced at the workshops

Results

Before examining the teachers' responses to individual kits, the data were aggregated across all 24 workshops. This information gives us a broad view of teachers' reactions to the Wonderwise kits and provides some information about the workshop activities but is not intended to provide details about the specific format of the workshops. Eighty-one percent of participating teachers reported that they experienced the video during their workshop, and 81% also reported that they experienced at least one activity from the activity book. Overall, 67% of the participating teachers reported that they experienced the biography, and 27% reported that they experienced the CD-ROM. Teachers who experienced multiple kits were just as likely to be exposed to several components of the kits as teachers who attended workshops in which only one kit was presented.

Video

Responses to the videos were very positive. When asked if they anticipated being able to use the video in their classroom teaching, 53% of the teachers responding said that they definitely

would use the video and 32% said they probably would. Ninety-five percent of the teachers said that the video was about right for the grade level they taught and 97% said that the video was about the right length for the topic presented. Forty-three percent of the teachers said the video would fit very well into their science units and another 54% said that the video could be worked into the science units they teach.

Activity Book

Responses to the activities were very positive as well. Eighty-eight percent of the teachers said they thought the activities would be very engaging to their students and the remaining 12% said they would be somewhat engaging. Eighty-one percent of teachers thought the activities would fit very well into the state science framework, 8% thought they would somewhat fit, and 11% said they were not familiar with the framework. Eighty-nine percent of the teachers thought the activities would very much impart a general theme of scientific inquiry and 11% thought that the activities somewhat imparted a general theme of scientific inquiry. Sixty-three percent of teachers thought that the activities would fit very well into their existing units and 34% of the teachers thought that the activities would fit somewhat well into their existing units. Seventy-two percent of the teachers thought the activities would be very useful to them in their classroom and 27% thought they would be somewhat useful. Eighty-four percent of teachers thought the activities would with normal preparation, be easy to use, while 14% thought that with considerable work, the activities could be used.

Biography

Responses to the biographies were less positive than the other components of the kits. However, when asked if they anticipate being able to use the biography in their classroom teaching, 25% of teachers said they definitely would use it, 47% said they probably would use it, and another 25% said they might use it. Participants were also asked how they anticipated using the biography. Forty-eight percent of teachers said they would use it as part of science class, 31% said as part of reading/literature class, and 60% said they would use it to help integrate reading and science class.

CD-ROM

Although teachers were not exposed to the CD-ROM's during the workshops, they were asked how they anticipate using the CD-ROM's with their students. Thirty-three percent of teachers said they would use it as a follow-up activity for students to pursue on their own, 28% of teachers said they would use it as part of a unit that engages the whole class, 23% said they would use the CD-ROM for students to view the video individually, and 22% said they would use it for students to use as an optional resource. Only 11% said they did not have access to a CD-ROM machine.

Overall

When teachers were asked how effective they thought the kits would be in getting their students more interested in science 82% said they thought the kits would be very effective and 18% said they would be somewhat effective. When asked how effected they thought the kits would be in getting girls more interested in science 72% said they thought the kits would be very effective and 27% said they would be somewhat effective.

Differences between the Kits

A higher percentage of teachers who were exposed to the Sea Otter Biologist kit said they definitely would use the video compared to the other kits. This is not surprising given that the Sea Otter Biologist video is used for one of the kit activities. A lower percentage of teachers said they definitely would use the Parasite Sleuth kit video compared to the other kit videos.

Almost all the teachers who experienced the Sea Otter Biologist and Pollen Detective kits thought the activities would be very useful to them in their teaching compared to about half the

teachers who experienced the Parasite Sleuth and Rainforest Ecologist kits. Higher percentages of teachers thought the Sea Otter Biologist and Pollen Detective kit activities fit very well into their existing units compared to the Parasite Sleuth and Rainforest Ecologist kit activities. More teachers also thought the Sea Otter Biologist and Rainforest Ecologist activities were easy to use with normal preparation compared to the Pollen Detective and Parasite Sleuth activities.

In terms of the biography, more teachers thought they would probably or definitely use the Sea Otter Biologist biography compared to the other kit biographies.

Differences by Grade Level

Very few differences were seen in the teachers' responses across grade levels 3 through 7. This may be due in part to the fact that multi-level teachers were included in the results of each grade level they taught. This was done because the number of single-level teachers were relatively small for most of the grade levels between 3 and 7.

A slightly higher percentage of third grade teachers said the videos were "too complex" for their grade level. Compared to other grade levels, slightly more fifth grade teachers thought the kit activities would fit very well into the units of study they already taught. Slightly higher percentages of third and fourth grade teachers thought the kit activities would require considerable work on their part. Third grade teachers were also less likely to say they would definitely or probably use the written biographies. Finally, third grade teachers were more likely to say the kits would be somewhat effective, rather than very effective, in getting their students more interested in science.

**Appendix B: Results from Survey
Wonderwise Kits in the Classroom:
All Workshops (n=381 participants)***

1) Please circle the components of each kit(s) that you learned about today:

All Workshops (n=381 participants)			
Video	Activity Book	Biography	CD-ROM
81%	81%	67%	27%

Video

2) Do you anticipate being able to use the video(s) in your classroom teaching? (Circle one)	Definitely WOULD NOT use	Probably not	Maybe	Probably	Definitely WOULD use
3) If not, why not? <ul style="list-style-type: none"> • “Math teacher only.” • “I teach math only.” • “Time.” • “Does not fit into the subjects that I teach [in 8th grade].” 	1%	4%	11%	32%	53%
4) Was the video on target for the grade level you teach?	Too simplistic 1%		About right 95%		Too complex 5%
5) Was the video about the right length for the topic presented?	Too short 1%		About the right length 97%		Too long 2%
6) How well would the video fit into the science units you teach?	Would be difficult to include 3%		Could be worked into units 54%		Would fit into units very well 43%

Activity Book

7) Will these activities be useful to you in your classroom? (Circle one)	Not at all useful 1%		Somewhat useful 27%		Very useful 72%	
8) Do you think these activities will engage your students?	Not at all engaging 0%		Somewhat engaging 12%		Very engaging 88%	
9) How well do you think these activities fit into the state science framework?	Not at all well 0%		Somewhat 8%		Very well 81%	Not familiar with framework 11%
10) How well would these activities fit in with the units of study you are already teaching?	Not at all well 2		Somewhat 34%		Very well 63%	

* Percentages may not add to exactly 100% because of rounding.

11) To what extent do you think these activities impart a general theme of scientific inquiry?	Not at all 0%		Somewhat 11%		Very much 89%
12) How easy do you think the activities will be for you to use? (circle one)	Difficult to use 2%		With considerable work, could use 14%		With normal preparation, easy to use 84%

Biography

13) Do you anticipate being able to use this written biography in your classroom teaching? (Circle one)	Definitely WOULD NOT use 0%	Probably not 3%	Maybe 25%	Probably 47%	Definitely WOULD use 25%
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14) If not, why not?

- “I teach math only.”
- “Does not fit into the subjects that I teach [in 8th grade].”

15) If yes, how do you anticipate using this biography? (Check all that apply)

48% As part of science class

31% As part of reading/literature class

60% To help integrate reading and science

8% Other (please describe) _____

CD-ROM

16) How do you anticipate using the CD-ROM with your students? (check all that apply)

11% I do not have access to a CD-ROM machine, so I will not use the CD-ROM

33% As a follow-up activity for students to pursue on their own

28% As part of a unit that engages the whole class

23% For students to view the video individually

22% For students to use an optional resource

4% Other (please explain) _____

The Wonderwise Kits

17) How effective do you think these kits will be in getting your students more interested in science? (Circle one)	Not at all effective 0%		Somewhat effective 18%		Very effective 82%
18) Why?					
19) How effective do you think these kits will be in getting girls more interested in science?	Not at all effective 1%		Somewhat effective 27%		Very effective 72%
20) Why?					

**Wonderwise Kits in the Classroom:
Sea Otter Biologist Kit (n=54 participants)***

1) Please circle the components of each kit that you learned about today:

Sea Otter Biologist Kit (n=54 participants)			
Video	Activity Book	Biography	CD-ROM
91%	85%	72%	19%

Video

2) Do you anticipate being able to use the video(s) in your classroom teaching? (Circle one)	Definitely WOULD NOT use	Probably not	Maybe	Probably	Definitely WOULD use
3) If not, why not?	0%	0%	6%	22%	72%
4) Was the video on target for the grade level you teach?	Too simplistic		About right		Too complex
	2%		96%		2%
5) Was the video about the right length for the topic presented?	Too short		About the right length		Too long
	0%		98%		2%
6) How well would the video fit into the science units you teach?	Would be difficult to include		Could be worked into units		Would fit into units very well
	2%		49%		49%

Activity Book

7) Will these activities be useful to you in your classroom? (Circle one)	Not at all useful		Somewhat useful		Very useful	
	0%		20%		80%	
8) Do you think these activities will engage your students?	Not at all engaging		Somewhat engaging		Very engaging	
	0%		11%		89%	
9) How well do you think these activities fit into the state science framework?	Not at all well		Somewhat		Very well	Not familiar with framework
	0%		8%		85%	8%
10) How well would these activities fit in with the units of study you are already teaching?	Not at all well		Somewhat		Very well	
	2%		30%		68%	
11) To what extent do you think these activities impart a general theme of scientific inquiry?	Not at all		Somewhat		Very much	
	0%		11%		89%	
12) How easy do you think the activities will be for you to use? (circle one)	Difficult to use		With considerable work, could use		With normal preparation, easy to use	
	0%		7%		93%	

* Percentages may not add to exactly 100% because of rounding.

Biography

13) Do you anticipate being able to use this written biography in your classroom teaching? (Circle one)	Definitely WOULD NOT use	Probably not	Maybe	Probably	Definitely WOULD use
	0%	0%	16%	47%	37%

14) If not, why not?

15) If yes, how do you anticipate using this biography? (Check all that apply)

50% As part of science class

37% As part of reading/literature class

69% To help integrate reading and science

7% Other (please describe) _____

CD-ROM

16) How do you anticipate using the CD-ROM with your students? (check all that apply)

2% I do not have access to a CD-ROM machine, so I will not use the CD-ROM

33% As a follow-up activity for students to pursue on their own

39% As part of a unit that engages the whole class

19% For students to view the video individually

13% For students to use an optional resource

4% Other (please explain) _____

The Wonderwise Kits

17) How effective do you think these kits will be in getting your students more interested in science? (Circle one)	Not at all effective		Somewhat effective		Very effective
	0%		17%		83%
18) Why?					
19) How effective do you think these kits will be in getting girls more interested in science?	Not at all effective		Somewhat effective		Very effective
	0%		30%		70%
20) Why?					

**Wonderwise Kits in the Classroom:
Pollen Detective Kit (n=90 participants)***

1) Please circle the components of each kit that you learned about today:

Pollen Detective Kit (n=90 participants)			
Video	Activity Book	Biography	CD-ROM
81%	83%	66%	N/A

Video

2) Do you anticipate being able to use the video(s) in your classroom teaching? (Circle one)	Definitely WOULD NOT use	Probably not	Maybe	Probably	Definitely WOULD use
3) If not, why not? <ul style="list-style-type: none"> “K-3 students would have a hard time attending. I can see it being a great resource for high school.” “Do not teach science.” 	0%	3%	10%	32%	55%
4) Was the video on target for the grade level you teach?	Too simplistic		About right		Too complex
	0%		93%		7%
5) Was the video about the right length for the topic presented?	Too short		About the right length		Too long
	0%		95%		5%
6) How well would the video fit into the science units you teach?	Would be difficult to include		Could be worked into units		Would fit into units very well
	5%		55%		40%

Activity Book

7) Will these activities be useful to you in your classroom? (Circle one)	Not at all useful		Somewhat useful		Very useful	
	0%		21%		80%	
8) Do you think these activities will engage your students?	Not at all engaging		Somewhat engaging		Very engaging	
	0%		9%		91%	
9) How well do you think these activities fit into the state science framework?	Not at all well		Somewhat		Very well	Not familiar with framework
	0%		5%		87%	8%
10) How well would these activities fit in with the units of study you are already teaching?	Not at all well		Somewhat		Very well	
	1%		27%		72%	
11) To what extent do you think these activities impart a general theme of scientific inquiry?	Not at all		Somewhat		Very much	
	0%		10%		90%	

* Percentages may not add to exactly 100% because of rounding.

12) How easy do you think the activities will be for you to use? (circle one)	Difficult to use		With considerable work, could use		With normal preparation, easy to use	
	0%		24%		76%	

Biography

13) Do you anticipate being able to use this written biography in your classroom teaching? (Circle one)	Definitely WOULD NOT use	Probably not	Maybe	Probably	Definitely WOULD use
	0%	1%	30%	38%	31%

14) If not, why not?

- “I would have to read to them [K-3].”
- “Maybe better suited to science than social studies (I teach social studies, not science).”

15) If yes, how do you anticipate using this biography? (Check all that apply)

41% As part of science class

29% As part of reading/literature class

59% To help integrate reading and science

7% Other (please describe) _____

CD-ROM

16) How do you anticipate using the CD-ROM with your students? (check all that apply)

7% I do not have access to a CD-ROM machine, so I will not use the CD-ROM

31% As a follow-up activity for students to pursue on their own

21% As part of a unit that engages the whole class

20% For students to view the video individually

17% For students to use an optional resource

3% Other (please explain) _____

The Wonderwise Kits

17) How effective do you think these kits will be in getting your students more interested in science? (Circle one)	Not at all effective		Somewhat effective		Very effective
	0%		15%		86%
18) Why?					
19) How effective do you think these kits will be in getting girls more interested in science?	Not at all effective		Somewhat effective		Very effective
	0%		27%		73%
20) Why?					

**Wonderwise Kits in the Classroom:
Parasite Sleuth Kit (n=47 participants)***

1) Please circle the components of each kit that you learned about today:

Parasite Sleuth Kit (n=47 participants)			
Video	Activity Book	Biography	CD-ROM
94%	98%	85%	40%

Video

2) Do you anticipate being able to use the video(s) in your classroom teaching? (Circle one)	Definitely WOULD NOT use	Probably not	Maybe	Probably	Definitely WOULD use
1) If not, why not? • “Not my field (high school chemistry and physics).”	0%	2%	16%	42%	40%
4) Was the video on target for the grade level you teach?	Too simplistic		About right		Too complex
	3%		95%		2%
5) Was the video about the right length for the topic presented?	Too short		About the right length		Too long
	0%		100%		0%
6) How well would the video fit into the science units you teach?	Would be difficult to include		Could be worked into units		Would fit into units very well
	5%		49%		57%

Activity Book

7) Will these activities be useful to you in your classroom? (Circle one)	Not at all useful		Somewhat useful		Very useful	
	4%		44%		51%	
8) Do you think these activities will engage your students?	Not at all engaging		Somewhat engaging		Very engaging	
	0%		15%		85%	
9) How well do you think these activities fit into the state science framework?	Not at all well		Somewhat		Very well	Not familiar with framework
	0%		4%		74%	22%
10) How well would these activities fit in with the units of study you are already teaching?	Not at all well		Somewhat		Very well	
	9%		44%		47%	
11) To what extent do you think these activities impart a general theme of scientific inquiry?	Not at all		Somewhat		Very much	
	0%		11%		89%	
12) How easy do you think the activities will be for you to use? (circle one)	Difficult to use		With considerable work, could use		With normal preparation, easy to use	
	11%		15%		74%	

* Percentages may not add to exactly 100% because of rounding.

Biography

13) Do you anticipate being able to use this written biography in your classroom teaching? (Circle one)	Definitely WOULD NOT use	Probably not	Maybe	Probably	Definitely WOULD use
	0%	5%	21%	54%	21%

14) If not, why not?

- “I teach grades 9-12 chemistry and physics.”
- “Does not fit into our curriculum [at District 10].”

15) If yes, how do you anticipate using this biography? (Check all that apply)

43% As part of science class

34% As part of reading/literature class

53% To help integrate reading and science

9% Other (please describe) _____

CD-ROM

16) How do you anticipate using the CD-ROM with your students? (check all that apply)

4% I do not have access to a CD-ROM machine, so I will not use the CD-ROM

43% As a follow-up activity for students to pursue on their own

26% As part of a unit that engages the whole class

26% For students to view the video individually

30% For students to use an optional resource

11% Other (please explain) _____

The Wonderwise Kits

17) How effective do you think these kits will be in getting your students more interested in science? (Circle one)	Not at all effective		Somewhat effective		Very effective
	0%		23%		77%
18) Why?					
19) How effective do you think these kits will be in getting girls more interested in science?	Not at all effective		Somewhat effective		Very effective
	4%		28%		68%
20) Why?					

**Wonderwise Kits in the Classroom:
Rainforest Ecologist Kit (n=37 participants)***

1) Please circle the components of each kit that you learned about today:

Rainforest Ecologist Kit (n=37 participants)			
Video	Activity Book	Biography	CD-ROM
62%	68%	43%	24%

Video

2) Do you anticipate being able to use the video(s) in your classroom teaching? (Circle one)	Definitely WOULD NOT use	Probably not	Maybe	Probably	Definitely WOULD use
1) If not, why not? • “Don’t teach this.”	3%	0%	14%	29%	54%
4) Was the video on target for the grade level you teach?	Too simplistic		About right		Too complex
	3%		97%		0%
5) Was the video about the right length for the topic presented?	Too short		About the right length		Too long
	3%		97%		0%
6) How well would the video fit into the science units you teach?	Would be difficult to include		Could be worked into units		Would fit into units very well
	4%		72%		24%

Activity Book

7) Will these activities be useful to you in your classroom? (Circle one)	Not at all useful		Somewhat useful		Very useful	
	3%		41%		56%	
8) Do you think these activities will engage your students?	Not at all engaging		Somewhat engaging		Very engaging	
	3%		12%		85%	
9) How well do you think these activities fit into the state science framework?	Not at all well		Somewhat		Very well	Not familiar with framework
	0%		10%		77%	13%
10) How well would these activities fit in with the units of study you are already teaching?	Not at all well		Somewhat		Very well	
	3%		52%		46%	
11) To what extent do you think these activities impart a general theme of scientific inquiry?	Not at all		Somewhat		Very much	
	0%		13%		88%	
12) How easy do you think the activities will be for you to use? (circle one)	Difficult to use		With considerable work, could use		With normal preparation, easy to use	
	3%		6%		91%	

* Percentages may not add to exactly 100% because of rounding.

Biography

13) Do you anticipate being able to use this written biography in your classroom teaching? (Circle one)	Definitely WOULD NOT use	Probably not	Maybe	Probably	Definitely WOULD use
	3%	7%	33%	33%	23%

14) If not, why not?

- “I teach children with reading difficulties—but video is great—I may shorten written biography.”

15) If yes, how do you anticipate using this biography? (Check all that apply)

32% As part of science class

16% As part of reading/literature class

43% To help integrate reading and science

8% Other (please describe) _____

CD-ROM

16) How do you anticipate using the CD-ROM with your students? (check all that apply)

8% I do not have access to a CD-ROM machine, so I will not use the CD-ROM

24% As a follow-up activity for students to pursue on their own

11% As part of a unit that engages the whole class

14% For students to view the video individually

22% For students to use an optional resource

3% Other (please explain) _____

The Wonderwise Kits

17) How effective do you think these kits will be in getting your students more interested in science? (Circle one)	Not at all effective		Somewhat effective		Very effective
	0%		17%		83%
18) Why?					
19) How effective do you think these kits will be in getting girls more interested in science?	Not at all effective		Somewhat effective		Very effective
	0%		25%		75%
20) Why?					