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Disciplinary writing

Four empirical studies on historical and philosophical literacy

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APPENDIX A: HISTORY AND PHILOSOPHY ASSIGNMENT

History task

In his Ecclesiastical History of the English People, completed around 731, the Venerable Bede (a monk) writes about the war that broke out in 654 between the rulers of two Anglo-Saxon kingdoms, Oswiu of Bernicia and Penda of Mercia:

Text 1

About this time, King Oswiu was exposed to the ferocious and unstoppable attacks of Penda, the king of Mercia, who had killed Oswiu's brother. Ultimately, Oswiu was forced to promise him a huge portion of the royal treasury in exchange for peace. The condition was that Penda would return home and stop destroying Oswiu's kingdom. But the heathen king would not accept this offer, for he was determined to exterminate the entire nation, from high to low. Oswiu appealed to God's grace and help, seeing that nothing else could save him and his people from this barbaric and ruthless enemy. (...) Thus he prepared for battle with his small army. It is said that the Gentile army was thirty times larger. (...) The battle began and the Gentiles were put to flight and destroyed. The thirty leaders who fought alongside Penda almost all lost their lives.

Based on: Bede (Author), Collins, R. & McClure, J. (Eds.) (2008). *The Ecclesiastical History of the English People* (pp. 149-150). Oxford: Oxford University Press

Suppose you are writing a paper on the history of Anglo-Saxon England. You want to use this source in two chapters: one on the course of the power struggle between Bernicia and Mercia, and one on the world view of a monk in an Anglo-Saxon monastery.

Assignment

Referring to the source text, identify for which chapter this source text contains less useful information and for which chapter it contains more useful information.

This assignment was derived from the Dutch College voor Toetsen en Examens (2018).

Philosophy task

In evolutionary biology, human morality can be explained from the theory of evolution. According to evolutionary biologist Richard Dawkins, our genes are 'selfish', and we are 'programmed' to pass on our genes rather than look out for our own survival as individuals. The following is an excerpt from *Philosophy Magazine*, from an interview with British science journalist Matt Ridley (a supporter of Dawkins):

Text 1

"When I take care of my children, I serve the self-interest of my genes. But that does not mean that I am pursuing my individual self-interest, rather the opposite. It only costs me. If I were purely selfish, I wouldn't even start doing so. That explanation goes further than you might think. Take for example economics. Classical economics does not provide any explanation for the fact that people leave money to their children. According to economists, this is irrational because it does not serve self-interest. The selfish gene theory offers an explanation. When you leave money, the genes are selfish, not the individual."

Monfils, L. (2008). *Philosophy Magazine*, 5.

Assignment

Do you think people act solely in their own interest? Give an example that supports the statement that people act only out of self-interest and give an example that opposes this statement. Then provide a substantiated answer to the question of whether people act solely from self-interest.

This assignment was based on Le Coultre et al. (2013).

APPENDIX B: SCORING RUBRIC

Rubric for Assessment of Content Quality

		Score				
		1	2	3	4	5
Understanding of the issue	The text barely displays understanding of the main issue, or understanding is lacking completely			The text displays a simple and basic understanding of the main issue		The text displays a thorough understanding of the main issue. This understanding exceeds the specific information in the documents; in the text, own knowledge and information from the source materials are intertwined.
Multiperspectivity	The text is one-sided; the main issue is discussed, but not from different perspectives.		Opposing views are presented in the text, but not very elaboratively			Opposing views are presented in the text
Argumentation	The arguments in the text are weak and/or barely elaborated on		The different views are supported by strong and/or weaker arguments, and the arguments are only moderately elaborated on			The different views are supported by strong arguments, which are elaborated on with accurate facts, examples and details
Use of sources	Source information is presented as 'own text' (e.g. it is presented as facts, and/or references are not provided)		Source information is made explicit in the text by referencing (e.g. 'According to Eduard Douwes Dekker ...')			Source information is integrated in the text; authors of sources are not only mentioned, but also discussed (i.e., the author's position as a reporter)

Rubric for Assessment of Structure

	1	2	Score 3	4	5
Global text structure	Overall, the text has no clear structure, which makes the text difficult to understand		Overall, the text has a reasonably clear and logical structure. The text is divided into paragraphs, but those are not always logical or are not presented in the right order.		Overall, the text has a clear and logical structure. The text has a strong introduction and conclusion, and is divided into clear paragraphs.
Local text structure	The text is incoherent. The text presents paragraphs or sentences in an unclear manner, because structural elements (signal words, linking words) are lacking. Because of this, the text seems to be a series of sentences without coherence.		Paragraphs are reasonably unified. Linkages between paragraphs or between sentences are mostly implicit, e.g. because linking words or signal words are lacking.		The paragraphs are unified and coherent, both internally and from paragraph to paragraph. Transitions are clear, i.e. through the use of connectors.

APPENDIX C: QUESTIONNAIRES LEARNER VARIABLES

Writing Beliefs Questionnaire

1. Good writers include a lot of quotes from authorities in their writing.
2. The most important goal of writing is to convey information clearly to the readers.
3. Good writing involves making as few revisions as possible.
4. Writing should focus on the information in books and articles.
5. The key to successful writing is accurately reporting what authorities think.
6. The most important reason to write is to report what authorities think about a subject.
7. Writing requires constantly revising to improve what has been written.
8. Writing is a process involving a lot of emotion.
9. It is important to develop a distinctive writing style.
10. Good writers deviate from the information they need for a topic. (re-code)
11. Good writing involves frequent revising.
12. Writing is often an intense experience.
13. Writing helps me to understand better what I'm thinking about.
14. I always feel that one more revision will make my text even better.
15. Writing helps me see the complexity of ideas.
16. My thoughts and ideas become more clear to me as I write and rewrite.
17. Writers' points of view should become clear from their writing.
18. Writing is often an emotional experience.
19. Writers should immerse themselves in their writing.
20. It is important to objectively represent your sources.
21. Writing is correctly representing what the sources say.
22. Writing objectively is very important to me.
23. I write to clarify what others think.
24. I write to get a grip on a subject.
25. Writing absorbs me.
26. Writing sometimes takes the utmost out of me.

Self-Efficacy Questionnaire for Source-Based Writing in History

1. I can derive from the assignment what the main historical issue is.
2. I can purposefully read a source.
3. I can analyze sources for reliability and representativeness.
4. I can organize source information.
5. I can determine whether sources contradict each other or whether they agree.
6. I can identify different perspectives in the source information.
7. I can explain different viewpoints by when and where each text was written.
8. I can identify information that is relevant for the issue.
9. I can select information that is relevant for my text.
10. I can write a text that corresponds with the source information.
11. I can make connections between information from different sources.
12. I can synthesize information from different sources into one sentence or paragraph.
13. I can explain source information in my own words.
14. I can write a text that is comprehensible for someone who has not read the source materials.
15. I can describe an historical event as an introduction for my text.
16. I can use historical concepts in my writing.
17. I can write arguments supported by evidence.
18. I can explain and illustrate source information in my own text.
19. I can write a text with a clear main idea.
20. I can write a text where all paragraphs are useful.
21. I can write a text without redundant sentences.
22. I can use conjunctions to link sentences and paragraphs.
23. I can write a well-structured text.
24. I can write a text with coherent paragraphs.
25. I can vary my sentence structures and choice of words.
26. I can write a text without errors and typos.
27. I can identify and correct language errors.
28. I can divide my time between reading and writing well.
29. I can monitor my process while performing a reading-writing task.
30. During the process, I sometimes decide to go back to an earlier stage in the process.

APPENDIX D: MODEL COMPARISONS (CHAPTER 3)

Holistic quality

Model	χ^2	<i>df</i>	Models	Comparison		
				χ^2	<i>df</i>	<i>p</i>
0 Intercept + 2 variance components		3				
1 Plus: Time	1017.796	5	0 vs 1		2	.627
2 Plus: Condition	1017.780	6	1 vs 2	0.016	1	.901
3 Plus: Interaction Time*Condition	1013.718	8	2 vs 3	4.062	2	.133

Mean holistic quality (and standard errors), estimated under model 3:

Condition	T1	T2	T3
Group 1 (E-C)	84.1 (3.6)	81.8 (3.9)	79.4 (3.8)
Group 2 (C-E)	82.5 (3.8)	79.0 (4.3)	87.3 (4.5)

Content

Model	χ^2	<i>df</i>	Models	Comparison		
				χ^2	<i>df</i>	<i>p</i>
0 Intercept + 2 variance components		3				
1 Plus: Time	282.673	5	0 vs 1		2	.110
2 Plus: Condition	282.672	6	1 vs 2	0.001	1	.977
3 Plus: Interaction Time*Condition	276.644	8	2 vs 3	6.028	2	.050

Mean content quality (and standard errors), estimated under model 3:

	T1	T2	T3
Group 1 (E-C)	2.60 (0.17)	2.36 (0.18)	2.26 (0.18)
Group 2 (C-E)	2.50 (0.18)	2.13 (0.20)	2.69 (0.21)

Structure

Model	χ^2	df	Models	Comparison		
				χ^2	df	p
0 Intercept + 2 variance components		3				
1 Plus: Time	323.145	5	0 vs 1		2	.047
2 Plus: Condition	322.214	6	1 vs 2	0.931	1	.336
3 Plus: Interaction Time*Condition	320.308	8	2 vs 3	1.906	2	.387

Mean text structure quality (and standard errors), estimated under model 3:

Condition	T1	T2	T3
Group 1 (E-C)	2.74 (0.20)	2.29 (0.22)	2.44 (0.21)
Group 2 (C-E)	2.35 (0.21)	2.01 (0.24)	2.48 (0.25)

Text length

Model	χ^2	df	Models	Comparison		
				χ^2	df	p
0 Intercept + 2 variance components		3				
1 Plus: Time	1466.586	5	0 vs 1		2	.019
2 Plus: Condition	1466.571	6	1 vs 2	0.001	1	.903
3 Plus: Interaction Time*Condition	1464.652	8	2 vs 3	6.028	2	.384

Mean text length (and standard errors), estimated under model 3:

Condition	T1	T2	T3
Group 1 (E-C)	234 (22.8)	170 (24.9)	175 (24.2)
Group 2 (C-E)	207 (24.3)	186 (27.4)	189 (28.7)

APPENDIX E: INTERVIEW GUIDES

Explorative Interviews with Teachers (Prestudy, Chapter 3)

- A. Analysis of the writing task
1. What is the reason you chose to bring this specific task to this interview? In what way is this task relevant for your subject area?;
 2. Who developed this task?;
 3. Could this task also be a part of an assessment?;
 4. What are the characteristics of the source texts? (primary/secondary, genre, length, difficulty);
 5. What are the characteristics of the text students wrote? (length, genre, audience);
 6. What is the learning goal of the task?;
 7. To what extent have students achieved this learning goal?;
 8. Were you satisfied with students' results?
- B. Analysis of students' texts
1. What is it that makes the weak text so weak?;
 2. Although you judge the weak text as weak, is there anything good in it?;
 3. What is it that makes the good text so good?;
 4. What could be improved in the good text?;
 5. To what extent is this task discipline-specific? What is typical history in this task?
- C. Support and feedback
1. What did you and the students do prior to task performance? (instruction, support) |;
 2. What did you and the students do during the task performance? (collaboration with peers, help from the teacher or from tools, time spent, questions asked);
 3. What did you and the students do after task performance? (grading or not, oral or written feedback from teacher or peers, assessment rubric available or not);
 4. In retrospect: what would you do differently prior, during or after task performance?;
 5. What might help the student who wrote the good text improve? (prior, during, after performance);
 6. What might help the student who wrote the weak text improve? (prior, during, after performance)
- D. Cognitive processes
1. What cognitive processes are involved in the task? Please write them on sticky notes;
 2. Can you describe how a student should perform the task, subsequently, from beginning to end? Please, paste the sticky notes in the right order or way to represent the process as a whole, as a flow chart;
 3. Could the job be done any other way, different from how you have described the process until now?;
 4. What is the main thing you would like to see your students do differently in their process?;
 5. How could you take care of that?
- E. Writing beliefs
1. How important is it for your students to have good writing skills?

Reflective Interviews with Teachers (Chapter 3)

- A. Descriptive
 - a. What did you do in the regular lessons? Please, provide a description of the learning activities during these lessons;
 - b. How did you conduct the intervention lessons? Did you skip or add elements? Why?
- B. Evaluative
 - a. To what extent do you think the lesson materials are practical? What improvements do you see?;
 - b. To what extent do you think the lesson materials are useful for learning? What improvements do you see?;
 - c. Which elements would you reuse?;
 - d. How did students respond to the lessons? Do you think the learning goal of writing better historical texts was achieved?

Reflective Interviews with Students (Chapter 3)

- A. Program differentiation
 - 1. Were the history lessons any different than you were used to? What was different? Was that positive or negative?
- B. Motivation
 - 2. How motivated were you during the intervention lessons? Why?;
 - 3. How motivated were your classmates?
- C. Evaluative
 - 4. How did you experience performing evaluative tasks?;
 - 5. What did you think of the intervention lessons?;
 - 6. What did you learn from the intervention lessons?;
 - 7. What would you have wanted to learn in addition?;
 - 8. What did you think of the strategy?;
 - 9. Would you keep using the strategy in future assignments?
 - 10. Which step in the strategy was most useful for you?;
 - 11. Did you use the cheat sheet while making the assignments?;
 - 12. What did you think of the video?;
 - 13. What did you think of the modeling peer in the video?;
 - 14. What did you think of the model texts?;
 - 15. What would you tell next years' students in 11th grade who are starting the intervention lessons?;
 - 16. What improvements for the intervention lessons would you suggest?

Reflective Interviews with Teachers (Chapter 4)

1. How did you implement strategy lesson 1? Did you skip or add lesson elements? Why?*
2. How did you implement strategy lesson 2? Did you skip or add lesson elements? Why?*
3. How did the students perform task 1? Why?
4. In what way was task 1 discussed in class? Why?
5. How did the students perform task 2? Why?
6. In what way was task 2 discussed in class? Why?
7. To what extent do you think the lessons* and tasks were useful? What improvements do you see?
8. Would you re-use the writing tasks?
9. Would you re-use the strategy lessons? Which elements?*
10. To what extent do you think the strategy-instruction was beneficial for students? Could it be left out?*
11. When re-using the writing tasks, would you add strategy-instruction? Why do you think this would be worthy?***
12. How did students react to the lessons* and the tasks?
13. What do you think students have learned?
14. How did you perceive developing the writing tasks?

Reflective Interviews with Students (Chapter 4)

1. Were the lessons in the previous class period different? What was different?
2. Was this a negative or a positive difference?
3. How were the writing tasks performed? Did you need help? With what? Was help provided?
4. What did you think of the writing tasks?
5. Did you perceive the writing tasks as useful for learning?
6. Did you feel efficacious to perform the tasks?***
7. How were the writing tasks discussed in class?
8. Was that discussion useful for you?
9. What did you think of the strategy lessons?*
10. What did you think of the strategy itself?*
11. Would you re-use the strategy?*
12. Which step in the strategy was most worthy to you?*
13. What did you think of the video?*
14. What did you think of the example texts?*
15. What is the most important thing you learned from the lessons?
16. What would you have wanted to learn in addition?
17. Did you perform all the tasks? How motivated were you and your classmates to perform the tasks? Why?
18. How was the class motivation during the strategy lessons?*
19. What would you say to future students who are starting the lessons* and tasks?
20. What would you advise your teacher when he/she is about to re-use the lessons* and tasks?

* Question only for Condition WT+S

** Question only for Condition WT

APPENDIX F. FACTORIAL ANALYSIS
SELF-EFFICACY QUESTIONNAIRE

Summary of Exploratory Factor Analysis Results for the Self-Efficacy Questionnaire

Statement	Rotated Factor Loadings (N = 242)					
	1	2	3	4	5	6
1	.22	-.02	-.10	.12	.52	-.16
2	.52	.06	.13	.12	.08	.18
3	.34	.00	-.08	.01	.23	-.03
4	.24	.13	.04	-.07	.39	.14
5	.58	.06	-.14	-.08	.04	.03
6	.11	.00	-.02	-.02	.47	.18
7	.05	-.04	-.05	.11	.70	-.04
8	.75	.03	.10	.16	.07	-.02
9	.80	.04	-.02	.16	-.11	-.04
10	.54	.21	-.03	-.12	.17	.10
11	.49	-.05	-.12	-.08	.25	-.00
12	.25	.17	-.08	-.03	.19	.27
13	.38	-.14	-.21	-.02	.07	.23
14	.13	.18	-.15	-.14	.37	.16
15	-.13	-.01	-.04	.09	.79	.07
16	.17	-.04	-.04	.09	.43	.11
17	.23	-.07	-.22	.03	.20	.29
18	.15	.05	-.04	-.04	.38	.32
19	.12	-.07	-.27	-.08	.12	.46
20	-.04	.03	-.09	.20	-.00	.67
21	-.08	.31	-.07	.28	.07	.29
22	-.03	-.02	-.68	-.07	.02	.11
23	.13	.03	-.76	.11	-.19	.11
24	-.04	.04	-.82	.05	.10	-.06
25	-.07	.23	-.55	.06	.15	-.07
26	.08	.88	-.05	-.01	-.06	-.09
27	-.01	.85	-.01	.01	-.05	.02
28	.02	.07	.05	.49	.26	.06
29	.25	.01	-.09	.63	-.02	.12
30	.08	.12	-.30	.44	.09	-.02
Eigenvalues	10.95	2.35	1.69	1.32	1.17	1.05
% of variance	36.51	7.82	5.64	4.39	3.89	3.51
α	.86	.87	.83	.75	.82	.68

Note: Factor loadings over .40 are marked. Statements are elaborated in Appendix C.

The items that clustered in the same factor suggested that factor 1 represented *sourcing*, factor 2 represented *language*, factor 3 *structure*, factor 4 *monitoring*, factor 5 *historical reasoning*, and factor 6 *coherence*. Correlation analyses revealed that factors 1, 3, 5 and 6 were related. Factors 2 (language) and 4 (monitoring) appeared to be more or less independent constructs.

APPENDIX G: MODEL COMPARISONS (CHAPTER 4)

Model Comparisons for Writing Proficiency Indicators

Model	df	Holistic score		Text length		Situational understanding		Multi-perspectivity		Argumentation		Source use		Structure	
		χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>
0 Intercept + 2 Un-structured components	4	4250.471	< .001	5982.417	< .001	1318.079	< .001	1357.689	< .001	1262.091	< .001	1383.766	< .001	1381.415	< .001
1 + Time	5	4243.112	.007	5973.483	.003	1310.002	.005	1352.376	.021	1253.756	.004	1342.898	< .001	1367.023	< .001
2 + Condition	7	4167.100	.001	5903.422	.001	1244.861	.001	1282.373	.006	1190.793	.001	1284.373	< .001	1299.792	< .001
3 + Time*Condition	9	4140.144	< .001	5864.882	< .001	1229.578	< .001	1261.992	< .001	1179.706	.004	1255.911	< .001	1267.515	< .001

Model Comparisons for Epistemic Experience

Model		df	χ^2	<i>p</i>
0	Intercept + 2 Unstructured components	4	1240.415	.947
	+ Time	5	1240.415	.998
2	+ Condition	7	1231.841	.884
3	+ Time*Condition	9	1225.290	.038

Model Comparisons for Course Content Knowledge Indicators

Model		df	Number of new T-units		Mean length of new T-units	
			χ^2	<i>p</i>	χ^2	<i>p</i>
0	Intercept + 2 Unstructured components	3	1193.112	< .001	1253.346	< .001
1	+ Condition	5	1184.594	.014	1245.712	.022

Model Comparisons for Holistic Score With Covariates

Covariates		χ^2	df	<i>p</i>
Transmissional beliefs				
Model 4	+ Cov	3953.433	10	.644
Model 5	+ Time*Cov	3948.182	12	.072
Model 6	+ Condition*Cov	3948.023	13	.691
Model 7	+ Time*Condition*Cov	3947.512	15	.774
Cognitive engagement beliefs				
Model 4	+ Cov	3946.463	10	.007
Model 5	+ Time*Cov	3945.929	12	.077
Model 6	+ Condition*Cov	3945.403	13	.047
Model 7	+ Time*Condition*Cov	3944.312	15	.580
Emotional engagement beliefs				
Model 4	+ Cov	3953.366	10	.060
Model 5	+ Time*Cov	3946.383	12	.030
Model 6	+ Condition*Cov	3945.870	13	.474
Model 7	+ Time*Condition*Cov	3942.921	15	.229
Self-efficacy total score				
Model 4	+ Cov	3771.236	10	.048
Model 5	+ Time*Cov	3769.215	12	.221
Model 6	+ Condition*Cov	3768.090	13	.724
Model 7	+ Time*Condition*Cov	3767.918	15	.917

Model Comparisons for Epistemic Experience With Covariates

Covariates	χ^2	df	<i>p</i>
Transmissional beliefs			
Model 4 + Cov	1163.026	10	.471
Model 5 + Time*Cov	1159.859	12	.201
Model 6 + Condition*Cov	1159.648	13	.646
Model 7 + Time*Condition*Cov	1156.596	15	.218
Cognitive engagement beliefs			
Model 4 + Cov	1151.659	10	.001
Model 5 + Time*Cov	1150.406	12	.530
Model 6 + Condition*Cov	1147.947	13	.117
Model 7 + Time*Condition*Cov	1142.983	15	.085
Emotional engagement beliefs			
Model 4 + Cov	1159.527	10	.044
Model 5 + Time*Cov	1159.193	12	.842
Model 6 + Condition*Cov	1158.674	13	.472
Model 7 + Time*Condition*Cov	1151.094	15	.022
Self-efficacy total score			
Model 4 + Cov	1112.883	10	.160
Model 5 + Time*Cov	1108.800	12	.120
Model 6 + Condition*Cov	1108.518	13	.596
Model 7 + Time*Condition*Cov	1100.608	15	.020

SUMMARY

The aim of this dissertation was to contribute to the development of secondary school students' disciplinary literacy, with a focus on writing proficiency. Students' declining literacy levels, and at the same time, society's elevated threshold, have increased the urgency to respond. In this study, we explored how teachers could address disciplinary literacy in their classrooms without major disruptions to their regular teaching practices.

1. CHAPTER 1: INTRODUCTION

Within content areas, writing is generally used as a tool for learning content or assessing students' knowledge and reasoning. Little emphasis is placed on learning-to-write. This might be obvious: teaching students how to write a good text is generally seen as the responsibility of the language teacher. Yet, embedding literacy activities in content-classes is important, given the differences across disciplines in how knowledge is created, what strategies are used for inquiry, and which genres, which concepts, and what language are involved (Goldman, et al., 2016). It is the responsibility of the content teacher to address this disciplinary literacy.

Writing instruction has been validated as effective for writing-to-learn in content classrooms (i.e., enhancing writing quality and knowledge gain) (De La Paz, 2005; Foxworth & Mason, 2017). However, subject teachers do not always have the knowledge to provide writing instruction or support like language teachers have (Gillis, 2014; Moje, 2008). The goal of this dissertation was to design, implement and test lesson materials for content teachers, to facilitate them in the development and support of secondary school students' disciplinary writing. Since the school subjects history and philosophy both have high demands regarding literacy, we decided to focus on these two disciplines. Our main research question was:

Which instructional approach is suited to develop students' disciplinary literacy effectively and efficiently in upper secondary history and philosophy education?

We investigated this research question through design research: after an exploration of the context and the literature, we formulated design principles

for writing tasks and strategy instruction. The task principles guided teachers in the development of sound writing-to-learn tasks to integrate in their lessons. The strategy instruction principles formed the basis for an instructional unit, which was tailored to each subject (history and philosophy) and tested in ecologically valid contexts in several studies.

2. OVERVIEW OF THE STUDIES

We started with a prestudy (integrated in Chapter 3). The aim was to obtain a clear picture of history and philosophy teachers' writing practice, and their needs for improvement of teaching disciplinary writing. We conducted interviews with teachers of history ($n = 10$) and philosophy ($n = 11$) from different schools. We asked them what type(s) of writing tasks they commonly used in their subject at the upper secondary level. Teachers were asked to bring a representative example of a writing task for their subject, and we used this example task as a "hook". We asked the teachers what demands they made on the product of the task, how they supported the students' writing process, and what they thought the students' process should resemble.

The prestudy showed that teachers had difficulty with the verbalization of writing processes. Both philosophy and history teachers expressed that they found it challenging to describe what students should actually do to successfully complete their assignment. The majority of history teachers interviewed disregarded aspects of the writing process; they focused on reading and evaluating sources rather than, for example, on structuring or revising their previously written text. Philosophy teachers expressed more awareness of the role of writing processes in their assignments, implying that they recognized writing as a means of learning philosophy.

2.1 Chapter 2

The subsequent study was also a background study, yet focusing on students. We studied students' processes while they were performing writing tasks for the two concerning subjects in a think-aloud study. Fifteen high-achieving students (11th grade) who took both subjects were selected, since we aimed to explore which cognitive processes novice-experts would show when they were reading and writing in the two disciplines. For each subject, we selected a writing task based on sources, which was ought to be representative of the subjects in question, based on the prestudy results. Students performed the two tasks in random order while thinking-aloud. We analyzed their patterns,

to see if and to what extent these varied per discipline, and whether the cognitive activities could explain text and thought quality.

To identify students' cognitive processes, we employed a data-driven approach to find patterns. For the segmenting and coding of students' think-aloud protocols, we also made use of existing frameworks for reading and writing in general (e.g., Hayes & Flower, 1981), and reading and writing in the disciplines (e.g., Brante & Strømsø, 2018; Corcelles & Castelló, 2015; Hof et al., 2015). Three main categories: reading, writing, and metacognition, were subdivided into 11 process activities. All process activities were analyzed on frequency, and absolute and relative duration.

Subsequently, students' protocols were assessed on two measures of quality: (1) quality of the eventual text, and (2) quality of students' thought process. Afterwards, quantitative analyses were conducted: we researched correlations between the quality of students' texts, the quality of students' thought process, and their process activities.

Results showed that the relations between quality and activities differed per task, or, as we suggested, per discipline. In the history assignment, text quality mostly depended on planning variables. Students who spent more time on planning and planned more frequently, produced higher quality texts. By contrast, in the philosophy assignment, most of the variables affecting quality were writing variables. Students who wrote relatively high-quality texts showed characteristics of expert writers: they produced longer texts, spent more time writing, and reviewed more often.

Furthermore, the relation between text quality and thought process quality differed per subject. The history assignment mainly provoked the outcome of students' reasoning process, while the philosophy assignment invited students to write down their entire reasoning as well; the philosophy task thus stimulated thinking and writing to codevelop.

The results of this contextual study had implications for the next steps in our research: we considered the character of the philosophy assignment, which stimulated students' thought process, to be a suited task type for use in other content classrooms as well. As opposed to the history assignment, which only required an outcome, the philosophy assignment could be characterized as a writing-to-learn task; such tasks are well suited for use in content classrooms, since they fit the focus on knowledge development.

2.2 Chapter 3

In a next study, design principles and an instructional design to enhance students' historical writing were developed. The instructional unit was evaluated on validity, practicality, and effectiveness. Insights from our prestudy, think-aloud study (Chapter 2), and a literature search led us to the formulation of two design principles, which formed the foundation of the instructional units for both history and philosophy. The two design principles were:

If we want students to develop a profound understanding of content through writing, then:

Design principle #1: students should write short evaluative texts, based on multiple primary sources that represent multiple perspectives.

Design principle #2: students should be provided with discipline-specific, dual-route, reading-writing strategy instruction which is easily applicable for teachers.

Strategy instruction was included to support the construction of coherent knowledge; making the writing process manageable is likely to promote knowledge construction, and having a dual route to accommodate different writing process preferences prevents the writing process from becoming a burden.

To put design principle 2 into practice, a strategy was designed, based on the insights obtained in our think-aloud study, and previous interventions studies using writing strategy instruction in the content classroom (e.g., De La Paz et al., 2017). This resulted in the seven-step Read-Think-Write Strategy (RTW strategy), which was accustomed to historical evaluative questions, in the form of "to what extent"-questions: questions that were assumed to be writing-to-learn questions. The strategy offered two routes to accommodate different writing process preferences: "free writing", for students who prefer to write from flow and will revise thoroughly, and "pre-planning", for students who prefer to start writing from a text scheme.

In a trial study, the instructional unit was implemented and evaluated by two history teachers in a switching replications design with three measurement occasions. As measurements, three different writing tasks were designed in cooperation with the participating teachers. This procedure enhanced feasibility and encouraged teachers' engagement with the materials.

Students' texts were assessed by a jury of history teachers on three criteria: holistic quality, content quality, and quality of structure. Results showed indications of effectiveness on content quality. However, results were not fully convincing, possibly because the second principle did not stand out sufficiently. The participating teachers valued the writing tasks as described in principle 1. They doubted however some aspects of the strategy instruction as mentioned in principle 2. The main recommendation arising from this trial was to increase teachers' background knowledge of the design principles and to explain the underpinnings behind these principles more prominently. In a redesign, a teacher development session was thus included.

2.3 Chapter 4

In a third study, we tested the effectiveness of the optimized instructional design in a quasi-experimental study with three research conditions, to obtain insights into effects of two factors: (1) implementation of writing tasks, and (2) implementation of writing process instruction.

In a first experimental condition (7 groups, 119 students, 6 teachers), participating teachers designed writing tasks, which were in line with design principle 1. Next to that, they implemented an optimized version of the designed writing strategy instruction, using the RTW strategy. In a second experimental condition (3 groups, 63 students, 2 teachers), teachers also designed writing tasks, but the strategy instruction was omitted. A third condition was a non-writing control condition (4 groups, 86 students, 3 teachers).

In a quasi-experimental pretest-posttest design, with writing tasks as pretest and posttest, we aimed to measure effects on students' writing proficiency. These writing tasks were evaluative tasks on a topic which was not discussed during the history lessons. After the strategy instruction – containing direct instruction, modeling through a video showing modeling peers, and discussions of exemplars – students practiced writing through performance of two writing tasks, which were designed by their teacher and therefore fully tailored to the content of their history lessons. These writing practice tasks thus differed from group to group.

A jury team of history teachers assessed students' pre- and posttest texts on five aspects: situational understanding, multiperspectivity, source use, argumentation, and structure. Furthermore, they assessed texts holistically, by means of a text scale. These scores were indicators for students' writing proficiency in history.

Furthermore, we explored the effects of the writing tasks and strategy instruction on students' epistemic experience: to what extent students experienced writing tasks as learning tasks. Finally, we explored whether writing tasks were a proper alternative to other, more common, learning activities for learning history. Therefore, we measured students' course content knowledge in a pre-post recall test. The topic of this recall test differed from group to group, as each group followed their regular year plan.

Results showed effects on students' writing proficiency: students who had received writing strategy instruction outperformed other students: they wrote better texts. This applied to students with all self-efficacy levels and belief types. Significant effects of the additional strategy instruction were visible in all aspects of text quality, holistically and on discipline-specific criteria. Furthermore, students who received strategy instruction more often indicated they experienced the epistemic function of writing, compared to the control condition.

Recall test results showed that students who received strategy instruction performed equally well as students in the other conditions regarding course content knowledge gain: time had been devoted to writing strategy instruction, and was not wasted, so was feared by content teachers. These results imply that writing seems a promising alternative activity for history learning, however, only when attention is paid to the writing process, this results in more advanced writing proficiency.

2.4 Chapter 5

To compare different disciplines, we investigated the effects of a similar instructional design for philosophy in a fourth study. This study focused on the interaction of three philosophy teachers with writing task design and the instructional unit, which they implemented into their philosophy lessons in 10th-grade. The instructional design of the history unit was adapted to philosophical writing, and open to context modifications. Implementation was accompanied by teacher guidance activities, which were aimed to prompt teachers' contemplation of writing instruction and writing quality.

This study can be characterized as a design study, combined with a multiple-case study, to profoundly explore how philosophy teachers interacted with the designed materials and what results it yielded for students' disciplinary writing proficiency.

Three philosophy teachers were instructed to design their own writing tasks for use in their 10th grade classes and implemented the designed

instructional unit. We monitored and evaluated teachers' implementation, to explore how resilient the design would be in open, ecologically valid contexts and conducted evaluative interviews with students and teachers to research their adjustments to the design.

Furthermore, we explored student progress as perceived by teachers. Students' writing proficiency was measured with three writing tasks, two of which were designed by the group's teachers, and thus differing from group to group. Teachers then selected a benchmark text for each task: the "average" text for that task. This activity elicited reflection on quality criteria in philosophical writing.

To frame teachers' perceptions of progress, the writing tasks and students' texts written in response to these tasks were assessed by independent jury teams, with benchmark texts as references. In reflective interviews teachers explained and reflected on their students' scores.

Results indicated that philosophy teachers were able to design qualified writing-to-learn tasks, when instructed on theoretically grounded design principles. The accompanying instructional unit turned out to be feasible and instructive. With regard to students' progress, we carefully concluded that the instructional unit was a valuable contribution to students' philosophical writing proficiency. Students showed more independent philosophical thinking in their text after the intervention, whilst tasks became more complex. The teacher guidance program elicited reflection on the value of writing tasks and instruction for subject goals, and on perceptions of student progress.

In general, the results of Chapter 5 provoke discussion about what writing tasks and writing instruction can provide for philosophy education and what a high-quality philosophical text precisely entails.

3. DISCUSSION

3.1 Conceptual Issues

Three lines of development did become apparent through the four studies of this dissertation, namely, with regard to (1) disciplinary writing; (2) supporting writing; and (3) innovation of teachers' writing practice.

With this dissertation, we advocate the integration of writing tasks that can promote learning in order to work on students' disciplinary literacy. Learning is generally enhanced when students are prompted to explore different perspectives on an issue, by means of multiple sources to analyze and interpret, and to provide their own perspectives on the issue based on the sources, in an

evaluative text. Results of our studies showed that teachers valued the evaluative writing tasks as learning activities, history teachers in particular. For philosophy teachers, the recommended short length of the tasks tore into teachers' conceptions of the learning effects of writing assignments. Nevertheless, teachers recognized that short tasks can be a way of utilizing writing for learning, namely, to master the procedure of philosophical writing.

Our studies have shown that disciplines differ: writing processes as well as texts have discipline-specific elements, which should be addressed in content classes. However, our prestudy revealed that teachers have limited knowledge about writing processes, which is an obstacle for providing writing instruction and support. Therefore, we developed feasible materials, such as a video with modeling peers, to relieve teachers of the complex, knowledge-requiring components of writing instruction, which was valued. The main idea of process instruction was considered a worthy addition to the content classroom.

Implementation of the designed unit also presented challenges. Along the way, we experienced that teacher guidance was needed to successfully integrate and implement the designed materials. A remaining challenge for teachers was the discussion of exemplars. To address subject specificity in a writing task and text, a teacher will need to be aware of what a good historical or philosophical text actually entails, which was not always straightforward. However, teacher guidance focusing on the evocation of reflection seemed to be helpful.

Regarding innovation of teachers' practice, we recommend to design materials open to context modifications, as this flexibility enhances practicality and feasibility. In this way, we avoid the creation of barriers that might prevent teachers from integrating writing instruction after all.

3.2 Methodological Issues

Next, we discussed methodological issues. We concluded that the combination of different research methods illuminated different perspectives on disciplinary writing. Quantitative measurements brought us the recognition that writing instruction is effective for development of students' writing proficiency and content knowledge. Qualitative methods gave us insight into teachers' experiences in implementing the innovative materials and the benefits and difficulties for students and teachers.

A next methodological topic which can be challenging in educational research is validity. In our studies, we tried to find balance between generaliza-

bility and ecological validity. We designed instructional units which were open to context modifications, and we entrusted the design of writing tasks to teachers themselves, accompanied by guiding sessions on design principles for effective writing-to-learn tasks. This procedure enhanced the feasibility of the design, and it provided a realistic view of how implementation would work in practice. We kept track of generalizability by consistently exploiting design principles. After implementation of a unit, we evaluated to what extent the design principles behind the design had been brought to bear. We considered the intervention to be a construct and defined and operationalized it as such (Rijlaarsdam et al., 2017). Teacher involvement was discussed in more depth as a third methodological issue. Although involving teachers in research creates engagement, it might be problematic from a researchers' perspective, since it also might impede a transparent research process.

Furthermore, we discussed three variables relevant in our studies, and how these variables were measured: content learning, epistemic experience, and writing proficiency. We decided to investigate students' content learning to explore whether we can promote writing development without hindering content knowledge gain in the history study. Although a recall test might not be the best type of measurement for content learning, it did illuminate us that knowledge accumulation was not limited by the strategy instruction. Next to that, students who received strategy instruction reported they experienced the epistemic function of writing, which might be seen as a confirmation of learning effects. Most importantly, students showed greater writing proficiency after strategy instruction.

3.3 Recommendations for Future Research and Educational Practice

The results of our research provide leads for future studies. We suggest a focus on theoretical understanding of disciplinary writing processes, writing strategy preferences, nuance differences between disciplines, and the relation between writing and learning across disciplines.

Additionally, this work resulted in several implications for practice, in three areas: writing task design, writing instruction and support, and teacher aids. Regarding writing task design, we recommend content teachers to include writing-to-learn tasks into their lessons; to have students write based on sources, which are deliberately selected; and to use short writing tasks, to be able to have students write within teachers' sight. Regarding writing instruction and support, we recommend teachers to provide and model strategies; to highlight disciplinary aspects in their process support; to support students'

writing during task performance; to use exemplars to start a discussion of text quality; and to connect product feedback to the student's process. Lastly, we recommend teacher educators to develop teachers' pedagogical content knowledge of writing; and we call on textbook publishers to develop teaching aids which include writing support.

4. CONCLUSION

We conclude that secondary school teachers who include disciplinary reading-writing tasks into their curriculum, and who provide additional support to students' writing process by means of strategy instruction, support the development of students' disciplinary literacy skills. Our studies also provide insights in teachers' interaction with design principles for writing task design and show what we can achieve if we involve teachers in designing and implementing interventions in general.

SAMENVATTING

Het doel van dit proefschrift was om bij te dragen aan de ontwikkeling van vakspecifieke taalvaardigheid van middelbare scholieren, met een focus op schrijfvaardigheid. Het wordt steeds urgenter om te werken aan de geletterdheid van leerlingen; volgens internationaal vergelijkingsonderzoek neemt de taalvaardigheid van leerlingen af, terwijl we leven in een steeds taliger maatschappij. Met dit promotieonderzoek onderzochten we hoe docenten van twee vakken, geschiedenis en filosofie, binnen hun domein zouden kunnen werken aan de disciplinaire geletterdheid van hun leerlingen, zonder daarbij de dagelijkse onderwijspraktijk al te veel te verstoren.

1. INLEIDING

In verschillende schoolvakken wordt schrijven over het algemeen gebruikt als middel om inhoud te verwerken of om de kennis en redeneringen van leerlingen te beoordelen. Er wordt weinig nadruk gelegd op leren schrijven. Dit ligt misschien voor de hand: leerlingen leren hoe ze een goede tekst moeten schrijven bij het vak Nederlands. Leren schrijven wordt over het algemeen gezien als de verantwoordelijkheid van de docent Nederlands.

Toch is het belangrijk om lees- en schrijfvaardigheidsactiviteiten in te bedenken in vaklessen, omdat er verschillen zijn tussen vakgebieden in hoe kennis wordt gecreëerd, welke strategieën worden gebruikt voor onderzoek, en welke genres, welke concepten en welk taalgebruik erbij betrokken zijn (Goldman, et al., 2016). Het is de verantwoordelijkheid van de vakdocent om deze vakspecifieke aspecten van taalvaardigheid te adresseren.

Uit eerder onderzoek is gebleken dat schrijfinstructie kan bijdragen aan het verbeteren van de schrijfkwaliteit en kennisverwerving in vaklessen (De La Paz, 2005; Foxworth & Mason, 2017). Vakdocenten beschikken echter niet altijd over de kennis om schrijfinstructie of -ondersteuning te bieden zoals docenten Nederlands die hebben (Gillis, 2014; Moje, 2008). Dat staat integratie van schrijfonderwijs in de vakles in de weg.

In dit proefschrift beoogden we dan ook om docenten in de bovenbouw van het voortgezet onderwijs te faciliteren in de ontwikkeling en ondersteuning van vakspecifiek schrijven. Dit deden we door nieuw lesmateriaal te ontwerpen, implementeren en testen. Omdat de schoolvakken geschiedenis en

filosofie beide hoge eisen stellen aan geletterdheid, besloten we ons op deze twee vakken te richten. Onze belangrijkste onderzoeksvraag was:

Welke aanpak is geschikt om de vakspecifieke taalvaardigheid van leerlingen effectief en efficiënt te ontwikkelen in de bovenbouw van het geschiedenis- en filosofieonderwijs?

We onderzochten deze onderzoeksvraag door middel van ontwerponderzoek: na een exploratie van de context en de literatuur, formuleerden we ontwerpprincipes voor schrijftaken en strategie-instructie. De taakprincipes hielpen docenten op weg bij het ontwikkelen van goede schrijf-leertaken die ze in hun lessen konden integreren. De strategie-instructieprincipes vormden de basis voor een lessenreeks, die steeds werd toegespitst op het betreffende vak. De lessenreeksen werden in verschillende studies getest in de lespraktijk.

2. OVERZICHT VAN DE ONDERZOEKEN

We begonnen met een voorstudie (beschreven in hoofdstuk 3). Het doel hiervan was om een duidelijk beeld te krijgen van de schrijfpraktijk van docenten geschiedenis en filosofie, en van hun behoeften aan verbetering van het vakspecifiek schrijven. We hielden interviews met docenten geschiedenis ($n = 10$) en filosofie ($n = 11$) van verschillende scholen. We vroegen hen welk(e) type(n) schrijftaken ze vaak gebruikten in hun vak in de bovenbouw. Docenten werd gevraagd een representatief voorbeeld van een schrijftaak voor hun vak mee te nemen, en we gebruikten deze voorbeeldtaak als "kapstok". We vroegen de docenten welke eisen ze stelden aan de uiteindelijke tekst, hoe ze het schrijf-proces van de leerlingen ondersteunden en hoe ze dachten dat het proces van de leerlingen eruit zou moeten zien.

Uit het vooronderzoek bleek dat docenten moeite hadden met het verwoorden van schrijfprocessen. Zowel filosofiedocenten als geschiedenisdocenten gaven aan dat ze het een uitdaging vonden om te beschrijven wat leerlingen eigenlijk zouden moeten doen om hun opdracht met succes af te ronden. De meerderheid van de geïnterviewde geschiedenisleraren noemde geen aspecten van het schrijfproces; ze richtten zich op het lezen en evalueren van bronnen, maar niet op bijvoorbeeld het structureren of reviseren van de geschreven tekst. Docenten filosofie waren zich meer bewust van de rol van schrijfprocessen in hun opdrachten; dit impliceert dat ze schrijven zagen als een middel om filosofie te leren.

2.1 Hoofdstuk 2

De volgende studie was ook een achtergrondstudie, maar dan gericht op leerlingen. We bestudeerden de processen van leerlingen uit 5 vwo, terwijl ze schrijftaken uitvoerden voor de twee betreffende vakken in een hardop-denkstudie. We selecteerden vijftien uitblinkers die beide vakken volgden, omdat we wilden onderzoeken welke cognitieve processen "beginnende ex-perts" zouden laten zien wanneer ze in de twee vakken bronteksten lazen en een tekst schreven. Voor elk vak selecteerden we een representatieve schrijftaak op basis van bronnen. Leerlingen voerden de twee taken in willekeurige volgorde uit terwijl ze hardop nadachten. We analyseerden hun denkpatronen om te zien of en in welke mate deze per vakgebied verschilden en of de cognitieve activiteiten de tekst- en denkkwaliteit konden verklaren.

Om de cognitieve processen van leerlingen te identificeren en patronen te ontdekken, gebruikten we een datagestuurde ("bottom-up") aanpak. Voor het segmenteren en coderen van de hardopdenkprotocollen van leerlingen maakten we ook gebruik van bestaande raamwerken voor lezen en schrijven in het algemeen (bijv. Hayes & Flower, 1981), en lezen en schrijven in de disciplines (bijv. Brante & Strømsø, 2018; Corcelles & Castelló, 2015; Hof et al., 2015). Drie hoofdcategoryën: lezen, schrijven en metacognitie, werden onderverdeeld in elf procesactiviteiten. Alle procesactiviteiten werden geanalyseerd op frequentie, en absolute en relatieve duur.

Vervolgens werden de protocollen van de leerlingen beoordeeld op twee maten van kwaliteit: (1) kwaliteit van de uiteindelijke tekst en (2) kwaliteit van het denkproces van de leerlingen. Daarna werden kwantitatieve analyses uitgevoerd: we onderzochten correlaties tussen de kwaliteit van de teksten van leerlingen, de kwaliteit van het denkproces van leerlingen en hun procesactiviteiten.

De resultaten toonden aan dat de relaties tussen kwaliteit en activiteiten verschilden per taak, of, zoals we suggereerden, per vakgebied. In de geschiedenisopdracht hing de tekstkwaliteit vooral af van de planningsvariabelen. Leerlingen die meer tijd besteedden aan planning en vaker planden, produceerden teksten van hogere kwaliteit. In de filosofieopdracht daarentegen waren de meeste variabelen die de kwaliteit beïnvloedden schrijfvariabelen. Leerlingen die teksten van relatief hoge kwaliteit schreven, vertoonden kenmerken van expert-schrijvers: ze produceerden langere teksten, besteedden meer tijd aan schrijven en reviseerden vaker.

Bovendien verschilde de relatie tussen tekstkwaliteit en denkproceskwaliteit per vak. De geschiedenisopdracht lokte vooral de uitkomst van het

redeneerproces van leerlingen uit, terwijl de filosofietaak leerlingen uitnodigde om ook hun hele redenering op te schrijven; de filosofietaak stimuleerde dat denken en schrijven samen opgingen.

De resultaten van deze hardopdenkstudie hadden implicaties voor de volgende stappen in ons onderzoek: we beschouwden het karakter van de filosofietaak, die het denkproces van leerlingen stimuleerde, als een geschikt taaktype voor gebruik in andere vaklessen. In tegenstelling tot de geschiedenisopdracht, die alleen een resultaat vereiste, kon de filosofietaak worden gekarakteriseerd als een schrijven-om-te-leren taak; zulke taken zijn zeer geschikt voor gebruik in inhoudslessen, omdat ze passen bij de focus op kennisontwikkeling.

2.2 Hoofdstuk 3

In een volgende studie werden ontwerpprincipes en een lessenreeks ontwikkeld om het historisch schrijven van leerlingen te bevorderen. De lessenreeks werd geëvalueerd op validiteit, bruikbaarheid en effectiviteit. Inzichten uit onze voorstudie, de hardopdenkstudie (hoofdstuk 2) en een literatuuronderzoek leidden tot de formulering van twee ontwerpprincipes, die de basis vormden voor de lessenreeks voor zowel geschiedenis als filosofie. De twee ontwerpprincipes waren:

Als we willen dat leerlingen een diepgaand begrip van de inhoud ontwikkelen door te schrijven, dan...

Ontwerpprincipe #1: dienen leerlingen korte evaluatieve teksten te schrijven, gebaseerd op meerdere primaire bronnen die meerdere perspectieven vertegenwoordigen.

Ontwerpprincipe #2: dienen leerlingen vakspecifieke, flexibele lees-schrijfstrategie-instructie te krijgen die gemakkelijk toepasbaar is voor docenten.

Strategie-instructie werd opgenomen in de lessenreeks, omdat kennisopbouw kan worden bespoedigd als het schrijfproces hanteerbaar gemaakt wordt. Flexibiliteit was van belang om tegemoet te komen aan verschillende schrijfprocesvoorkeuren. Een keuze aanbieden in de te nemen route kan voorkomen dat het schrijfproces een last wordt.

Als uitwerking van het tweede ontwerpprincipe, ontwierpen we een strategie op basis van de inzichten uit onze hardopdenkstudie en eerdere inter-

ventiestudies met schrijfstrategie-instructie in de vakles (bijv. De La Paz et al., 2017). Dit resulteerde in de uit zeven stappen bestaande Lees-Denk-Schrijfstrategie. Deze was toegespitst op historische evaluatieve vragen, in ons onderzoek "in hoeverre"-vragen genoemd. Met dit type vragen wilden we stimuleren dat schrijven het denken bevordert.

De strategie bood twee routes om tegemoet te komen aan verschillende voorkeuren voor het schrijfproces: "vrij schrijven", voor leerlingen die liever vanuit flow schrijven, om daarna flink te schaven aan de tekst, en "vooraf plannen", voor leerlingen die liever vanuit een tekstschema schrijven.

In een eerste testronde ontwierpen twee docenten geschiedenis drie schrijftaken en implementeerden zij de taken en de strategie-instructie in hun lessen in 5 vwo. We gebruikte een "switching replications design" met drie meetmomenten, om te kunnen onderzoeken of de lessenreeks effectief leek.

De teksten van de leerlingen werden beoordeeld door een jury van geschiedenisdocenten op drie criteria: holistische kwaliteit, inhoudelijke kwaliteit en kwaliteit van de structuur. De resultaten gaven blijk van effectiviteit op de inhoudelijke kwaliteit. De resultaten waren echter niet volledig overtuigend, mogelijk omdat het tweede principe niet voldoende uit de verf was gekomen in de lessen. De deelnemende docenten waardeerden de schrijftaken zoals beschreven in het eerste principe. Ze waren echter nog niet overtuigd van het nut van de strategie-instructie; de rationale achter deze schrijfinstructie was voor hen niet voldoende duidelijk. De belangrijkste aanbeveling uit dit onderzoek was daarom om de achterliggende gedachte achter het materiaal aan docenten uit te leggen, voordat zij het gaan gebruiken. In een herontwerp werd om deze reden een scholingssessie opgenomen.

2.3 Hoofdstuk 4

In een derde onderzoek hebben we de effectiviteit van de geoptimaliseerde lessenreeks getest in een quasi-experimenteel onderzoek met drie onderzoekscondities. We beoogden inzicht te krijgen in effecten van twee factoren: (1) implementatie van schrijftaken, en (2) implementatie van schrijfprocesinstructie.

In een eerste experimentele conditie (7 groepen, 119 leerlingen, 6 docenten) ontwierpen de deelnemende docenten schrijftaken die aansloten bij ontwerp-principe 1. Vervolgens implementeerden ze de geoptimaliseerde schrijfstrategie-instructie. In een tweede experimentele conditie (3 groepen, 63 leerlingen, 2 docenten) ontwierpen docenten ook schrijftaken, maar werd de strategie-

instructie weggelaten. Een derde conditie was een controleconditie waarin niet werd geschreven (4 groepen, 86 leerlingen, 3 docenten).

In een quasi-experimenteel design, met schrijftaken als voor- en nameting, wilden we effecten meten op de schrijfvaardigheid van leerlingen. Deze schrijftaken waren evaluatieve taken over een onderwerp dat niet besproken werd tijdens de geschiedenislessen. Na de strategie-instructie – die bestond uit directe instructie, modeling door middel van een video met modeling peers, en discussies over voorbeelden – oefenden de leerlingen het schrijven door het uitvoeren van twee schrijftaken, die waren ontworpen door hun docent en daarom volledig waren afgestemd op de inhoud van hun geschiedenislessen. Deze schrijf-leertaken verschilden dus van groep tot groep.

Een juryteam van geschiedenisdocenten beoordeelde de teksten van leerlingen op vijf aspecten: situationeel begrip, multiperspectiviteit, brongebruik, argumentatie en structuur. Bovendien beoordeelden ze de teksten holistisch, door middel van een tekstschaal. Deze scores waren indicatoren voor de schrijfvaardigheid van leerlingen, specifiek bij geschiedenis.

Verder onderzochten we de effecten van de schrijftaken en strategie-instructie op de "leerervaring" van leerlingen: in hoeverre hadden leerlingen de schrijftaken ervaren als leertaken? Tot slot onderzochten we of schrijftaken een goed alternatief waren voor andere, meer gebruikelijke leeractiviteiten voor het leren van geschiedenis. Daarom hebben we de vakinhoudelijke kennis van de leerlingen gemeten in een "recall test". Het onderwerp van deze test verschilde van klas tot klas, omdat elke docent zijn eigen lesprogramma volgde.

De interventie had effect op de schrijfvaardigheid van leerlingen: leerlingen die schrijfstrategie-instructie hadden gekregen, schreven betere teksten dan leerlingen die deze instructie niet hadden gehad. De mate van zelfvertrouwen bij schrijftaken en attitude ten opzichte van schrijven deden er hierbij niet toe. Significante effecten van de strategie-instructie waren zichtbaar in alle aspecten van tekstkwaliteit, holistisch en op vakspecifieke criteria. Bovendien gaven leerlingen die strategie-instructie kregen vaker dan leerlingen in de controleconditie aan dat ze de leerfunctie van schrijven hadden ervaren.

De resultaten van de recall test toonden aan dat leerlingen die strategie-instructie kregen even goed presteerden als leerlingen in de andere condities wat betreft de toename van vakinhoudelijke kennis. Deze resultaten geven aan dat schrijven een veelbelovende alternatieve activiteit lijkt voor het leren van geschiedenis. Dit leidt echter alleen tot betere teksten, als er ook aandacht wordt besteed aan het schrijfproces.

2.4 Hoofdstuk 5

Om verschillende disciplines met elkaar te kunnen vergelijken, onderzochten we in een vierde studie de effecten van een vergelijkbaar ontwerp voor filosofie. Dit onderzoek richtte zich op de interactie van drie filosofieleraars met het schrijftaakontwerp en de strategie-instructie die ze implementeerden in hun filosofielessen in 4 vwo. Het ontwerp voor geschiedenis werd aangepast aan filosofisch schrijven. Het ontwerp was niet dichtgetimmerd: er was ruimte voor de docent om het ontwerp aan te passen aan de eigen context. Om docenten aan te zetten tot reflectie over schrijfinstructie en tekstkwaliteit, voegden we in deze studie een begeleidend programma toe.

In deze ontwerpstudie kozen we voor een kwalitatieve insteek, om diepgaand te onderzoeken hoe filosofiedocenten omgingen met de ontworpen materialen en welke resultaten dit opleverde voor de vakspecifieke schrijfvaardigheid van leerlingen.

Drie filosofieleraars ontwierpen hun eigen schrijftaken en implementeerden de ontworpen strategie-instructie. We volgden en evalueerden de implementatie om te onderzoeken hoe veerkrachtig het ontwerp zou zijn in open, ecologisch valide contexten en we hielden evaluatieve interviews met leerlingen en docenten om hun aanpassingen aan het ontwerp te onderzoeken.

Bovendien onderzochten we de vooruitgang van leerlingen. De schrijfvaardigheid van de leerlingen werd gemeten met drie schrijftaken, waarvan er twee werden ontworpen door de docenten van de klas. Deze metingen verschilden dus van klas tot klas.

Docenten selecteerden vervolgens een benchmark voor elke taak: de "gemiddelde" tekst voor die taak. Deze activiteit zette aan tot nadenken over kwaliteitscriteria in filosofisch schrijven en over vooruitgang van leerlingen.

De schrijftaken en de teksten van de leerlingen werden beoordeeld door onafhankelijke juryteams bestaande uit docenten filosofie. De jury beoordeelde de teksten holistisch, met steeds de door de docent gekozen benchmark als referentiepunt. In reflectieve interviews presenteerden we de scores aan de vakdocenten, en vroegen hen om hierop te reflecteren.

De resultaten lieten zien dat filosofiedocenten goed uit de voeten konden met de theoretisch onderbouwde ontwerpprincipes voor schrijftaken. Wel hadden ze moeite met de lengte van de taken; typische filosofietaken zijn doorgaans langer en er wordt meer tijd gegeven om te schrijven. De strategie-instructie bleek haalbaar en leerzaam voor leerlingen.

Met betrekking tot de vooruitgang van leerlingen concludeerden we voorzichtig dat de lessenreeks bijdroeg aan de filosofische schrijfvaardigheid van

leerlingen. Leerlingen lieten na de interventie meer zelfstandig filosofisch denken zien in hun tekst, terwijl de taken complexer werden.

Het begeleidingsprogramma van de docenten ontlokte reflectie op de waarde van schrijftaken en -instructie voor de vakdoelen, en op de perceptie van de vooruitgang van de leerlingen.

3. DISCUSSIE

3.1 Conceptuele kwesties

In de vier studies van dit proefschrift zijn drie ontwikkelingslijnen naar voren gekomen, namelijk met betrekking tot (1) vakspecifiek schrijven; (2) schrijfinstructie; en (3) verbetering van de lespraktijk.

In dit proefschrift pleiten we voor de integratie van schrijftaken die het leren kunnen ondersteunen, om hiermee te werken aan de vakspecifieke taalvaardigheid van leerlingen. Leren wordt over het algemeen bevorderd wanneer leerlingen worden aangemoedigd om verschillende perspectieven op een kwestie te verkennen, door meerdere bronnen te analyseren en interpreteren, en door die te verwerken in een evaluatieve tekst.

De resultaten van onze studies toonden aan dat docenten de evaluatieve schrijftaken waardeerden als leeractiviteiten, docenten geschiedenis in het bijzonder. Docenten filosofie hadden moeite met de tijdsduur die leerlingen hadden om een schrijftaak te maken: die was beperkt tot één lesuur. Hoewel deze keuze indruiste tegen hun opvatting dat filosofisch schrijven eigenlijk meer tijd vergt, erkenden de filosofiedocenten ook dat korte taken een middel kunnen zijn om de procedure van filosofisch schrijven onder de knie te krijgen.

3.2 Methodologische kwesties

We bespraken een aantal methodologische kwesties. Zo concludeerden we dat de combinatie van verschillende onderzoeksmethoden een kracht was; het heeft verschillende perspectieven belicht. Kwantitatieve metingen lieten zien dat schrijfonderwijs effectief is voor de ontwikkeling van de schrijfvaardigheid en inhoudelijke kennis van leerlingen. Kwalitatieve methoden gaven ons inzicht in de ervaringen van docenten bij het implementeren van de materialen, en de voordelen en moeilijkheden voor leerlingen en docenten.

Een methodologische kwestie die een uitdaging kan vormen in onderwijsonderzoek is validiteit. In onze studies probeerden we een balans te vinden tussen generaliseerbaarheid en ecologische validiteit. We ontwierpen instruc-

tie die open stond voor contextaanpassingen en we vertrouwden het ontwerp van schrijftaken toe aan docenten zelf. Deze procedure verbeterde de haalbaarheid van het ontwerp en gaf een realistisch beeld van hoe de implementatie in de praktijk zou werken. We hielden de generaliseerbaarheid in de gaten door consequent gebruik te maken van ontwerpprincipes. Na implementatie van een eenheid evalueerden we in hoeverre de ontwerpprincipes achter het ontwerp naar voren waren gekomen. We beschouwden de interventie als een construct en definieerden en operationaliseerden het ook als zodanig, het advies van Rijlaarsdam et al. (2017) volgend.

Een derde methodologische kwestie is de rol van docenten bij het doen van onderzoek. Voor het uiteindelijke praktijkdoel is het betrekken van docenten in het onderzoek gunstig, maar vanuit het perspectief van onderzoekers kan die betrokkenheid ook problematisch zijn, omdat het een transparant onderzoeksproces in de weg kan staan. Waar docenten hun eigen weg gaan, ontstaat immers enige ruis.

In onze studies zijn drie variabelen steeds teruggekomen: inhoudelijk leren, de mate van leerervaring, en schrijfvaardigheid van leerlingen. De belangrijkste bevinding is dat leerlingen betere vakteksten schreven na strategie-instructie; dat was ons voornaamste doel. We besloten daarnaast het inhoudelijk leren van leerlingen te onderzoeken om na te gaan of we de schrijfvaardigheid van leerlingen konden bevorderen zonder de toename van inhoudelijke kennis te belemmeren. Hoewel een recall test misschien niet het beste type meting is voor inhoudelijk leren, liet het ons zien dat de kennistoename niet beperkt werd door de strategie-instructie. Als het gaat om de leerfunctie van schrijven, rapporteerden leerlingen die strategie-instructie kregen dat ze de leerfunctie van schrijven hadden ervaren. Dat kan gezien worden als een bevestiging van leereffecten.

3.3 Aanbevelingen voor toekomstig onderzoek en onderwijspraktijk

De resultaten van ons onderzoek bieden aanknopingspunten voor toekomstig onderzoek. Te denken valt aan studies gericht op theoretisch begrip van disciplinaire schrijfprocessen, voorkeuren van leerlingen voor de ene of de schrijfstrategie, nuanceverschillen tussen vakgebieden en de relatie tussen schrijven en leren in verschillende vakgebieden.

Daarnaast resulteerde dit werk in verschillende implicaties voor de praktijk, op drie gebieden: het ontwerp van schrijfofdrachten, schrijfinstructie en -ondersteuning, en hulpmiddelen voor docenten. Wat betreft het ontwerp van schrijfofdrachten raden we vakdocenten aan om schrijf-leeropdrachten in

hun lessen op te nemen, die aansluiten bij vakinhoudelijke doelen; om leerlingen te laten schrijven op basis van goed geselecteerde bronnen; en om korte schrijftaken te gebruiken, zodat leerlingen binnen het zicht van de docent kunnen schrijven.

Wat schrijfinstructie en -ondersteuning betreft, raden we docenten aan om strategieën aan te reiken en die te modelleren; om vakspecifieke aspecten te benadrukken in hun procesondersteuning; om het schrijfproces van leerlingen te ondersteunen tijdens het uitvoeren van de taak; om voorbeeldteksten te gebruiken om een discussie over tekstkwaliteit op gang te brengen; en om productfeedback te koppelen aan het proces van de leerling.

Tot slot raden we lerarenopleiders aan om de pedagogisch-didactische kennis van schrijven bij docenten te ontwikkelen en roepen we uitgevers van studieboeken op om hulpmiddelen te ontwikkelen die docenten kunnen inzetten bij het begeleiden van schrijftaken in de les.

4. CONCLUSIE

We concluderen dat docenten in het voortgezet onderwijs die disciplinaire lees-schrijftaken opnemen in hun curriculum en die het schrijfproces van leerlingen extra ondersteunen door middel van strategie-instructie, de ontwikkeling van disciplinaire geletterdheid van leerlingen bevorderen. Onze studies geven ook inzicht in de interactie van docenten met ontwerpprincipes voor het ontwerpen van schrijftaken en laten zien wat we kunnen bereiken als we docenten betrekken bij het ontwerpen en implementeren van interventies in het algemeen.

CONTRIBUTIONS OF AUTHORS

Chapter 2

Lieke Holdinga: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Writing: original draft, Writing: review and editing.

Tanja Janssen: Conceptualization, Methodology, Supervision, Writing: review and editing.

Gert Rijlaarsdam: Conceptualization, Methodology, Supervision, Writing: review and editing.

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Gert Rijlaarsdam: Conceptualization, Methodology, Supervision, Writing: review and editing.

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Lieke Holdinga (De Bilt, 1985) obtained her master's degree in Language Development cum laude from Utrecht University in 2007. She then enrolled the teacher training program at IVLOS (Utrecht University) and obtained her teaching degree in 2008. Since 2008 she has been teaching Dutch language and literature at Vituscollege in Bussum.

In 2012 Lieke started the two-year post-master trajectory Academic Mastery. This research master's program prepares teachers to do research in education. As a thesis for this program, Lieke studied writing skills in other subjects. In 2014, she obtained the master's degree in educational science.

The aforementioned thesis resulted in a research proposal for a doctoral dissertation entitled "Learning-to-write and writing-to-learn in history and philosophy", for which Lieke was assigned a Dudoc-Alfa grant in 2018. The Dudoc-Alfa organization offers teachers the opportunity to conduct four years of research on teaching practice. This resulted in the current dissertation. In the meantime, she presented her research in international (ARLE, 2019; SIG Writing, 2022), and national settings (Levende Talen, 2022).

Together with fellow teacher-researchers, she started VONK, an online conference for teachers of Dutch language and literature. The goal of this initiative was to stimulate dissemination of valuable educational research insights into practice.

Currently Lieke works as a teacher of Dutch language and literature at Vituscollege Bussum. Furthermore, she is an active member of the Werkgroep Mondelinge Taalvaardigheid (WMT) of Levende Talen Nederlands. The WMT-group contains experts on speaking and conversation skills, who aim to compile and share knowledge, skills and attitudes related to speaking, conversation and listening with education and related organizations. Recently, Lieke became a member of the editorial team for the digital handbook of Dutch Language Teaching, which was initiated by the Werkgroep Onderzoek en Didactiek Nederlands (WODN) (<https://didactieknederlands.nl/handboek/>).

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