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Examining science teachers' pedagogical content knowledge in the context of a professional development program

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Appendices

Appendix A: Interview outline

	Interview questions
Purpose of teaching (Hodson, 1991)	What was the purpose of your lessons: a) teach science, b) teach how to do science, or c) learn about science? Have you used this purpose before? Please explain your answers.
Science curriculum	What was the topic of your lessons? What were the objectives of your science topic? Please explain why you have these objectives.
Instructional strategies	What kinds of classroom strategies did you use to teach the content? Have you used these strategies before in your classroom? Please explain your answer.
Students' understanding	What was necessary for your students to understand your lessons? What was successful in your lessons? And what learning difficulties did you encounter during your lessons? Were you aware of these things before? Please explain.
Goals and objectives	What were the goals and objectives of your lessons? How did you create these objectives? Have you used these goals and objectives before?
Assessment	How did you assess your students, and why did you assess them in that way? Have you used these assessment methods before?

Appendix B: Spreadsheet with an overview of data of the 24 participating science teachers

Source:		Progress report	Progress report	Progress report	Progress report	Progress report	Progress report	Lesson plans
Teacher	years of experience	class	Progress report	Progress report	Progress report	Progress report	Progress report	Inquiry level
Ada	1	10th	2 classes of 18 each	community ecology	Topic	Concerns	Orientations of science teaching (purposes and goals) content driven/didactic/activity-driven	confirmation
Ali	11	4th	11 students	ecosystems		low tests scores	content driven/didactic/activity-driven	confirmation
Ben	12	5th	19 students	general ecology		lack of any hands-on activity	content driven hands-on/didactic	confirmation
Dan	16	13th	2 classes (20 and 25)	bio fuels		lack of content knowledge	content driven activity-driven/academic rigor	confirmation
Don	31	8th	25 students	chemical equations		lack of content knowledge	content driven activity-driven/academic rigor	confirmation
June	16	6th	17 students	ecology		lack of content knowledge	content driven didactic/activity-driven	confirmation
Kim	8	5th	24 students	tropical rainforest		lack of inquiry knowledge	content driven activity-driven/academic rigor	confirmation
Vicky	13	2nd	14 students	lifecycles of insects		low tests scores	content driven activity-driven/conceptual change	confirmation
Agnes	4	3rd	21 students	plant lifecycles		lack of science experience	skills driven/activity-driven	structured
Carla	10	2nd	15 students	animal habitat		lack of science experience	skills driven/activity-driven	structured
Debra	19	4th	24 students	owl habitat		lack of inquiry experience	skills driven/activity driven	structured

Deon	15	4th	7 students	ecology	low test scores and lack of inquiry experience	content driven/skills driven/process/activity-driven	structured
Kathy	4	8th	18 students	soils of prairielands	lack of inquiry experience	skills driven/activity driven	structured
Rose	26	6th	15 students	biomes	lack of inquiry experience	skills driven/activity-driven	structured
Shannon	22	6th	15 students	lifecycle of plants	low test scores	content driven activity-driven	structured
Valery	13	7th		biomes	lack of inquiry experience	skills driven/activity-driven	structured
Bertha	4	5th	24 students	ecosystems	lack of inquiry experience	content driven/skills driven/discovery/inquiry	guided inquiry
Bill	3	8th	10 students	medicinal plants	lack of science and inquiry experience	content driven/skills driven/project-based/inquiry	guided inquiry
Christy	5	7th	28 students	prairie lands	lack of real world inquiry experience	content driven/skills driven/inquiry	guided inquiry
Delia	10	8th	8 special ed students	biomes	lack of real world inquiry experience	content driven/skills driven/inquiry	guided inquiry
Jaclyn	26	5th	24 students	aquatic ponds	lack of real world inquiry experience	content driven/skills driven/inquiry	guided inquiry
Judy	7	5th	20 mixed students	aquatic ponds	lack of enthusiasm in science	content driven/skills driven/inquiry earning	guided inquiry
Brenda	3	7th	17 students	animals on prairie/land	lack of real world inquiry experience	content driven/skills driven/ inquiry/ discovery learning/projects	open inquiry
Lila	12	4th		recycling	lack of real world inquiry experience	content driven/skills driven/discovery learning	open inquiry

Curriculum Vitae

Dirk Wongsopawiro was born in Paramaribo, Suriname on November 8th, 1971. He attended the Ewald P. Meyer Lyceum, secondary school as well as the Instituut voor de Opleiding van Leraren (Advanced Teacher Training Institute), in Paramaribo, where he received his teaching degree in 1994. He worked as a biology teacher for several years before he started his master study in environmental sciences at the Wageningen University in 1999. After his graduation in 2001, he worked as a science teacher and researcher for the University of Suriname. In 2004 he started his PhD project at the school of education of the Southern University in Carbondale, IL, USA. In that year, he became interested in teachers' pedagogical content knowledge (PCK), which caused him to shift his research to that topic. Working for the Regional Office of Education in Mount Vernon as an external evaluator for several years, he collaborated with ICLON, University of Leiden to supervise him in his thesis overseas. His research focused on the pedagogical content knowledge of science teachers from secondary education to improve the understanding of how these teachers use and develop their PCK while participating in The Mathematics and Science Partnership Program, professional development program for teachers. During his PhD project he took master classes on teaching and teacher education, curriculum and instructional development, and quantitative and qualitative data analyses. He presented some of his research at the annual conference of the Netherlands Education Research Association (NERA).

Currently, Dirk works as a teacher educator and researcher for both the teacher college and the graduate school of the university of Suriname. His research interests are pedagogical content knowledge, action research, and science education.

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