

INTERDISCIPLINARY LEARNING ACTIVITIES

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Amsterdam
University
Press

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Volume 4 of the Series Perspectives on Interdisciplinarity

Cover design and lay-out: Matterhorn Amsterdam

Amsterdam University Press English-language titles are distributed in the US and Canada by the University of Chicago Press.

ISBN 978 94 6298 808 8
e-ISBN 978 90 4854 012 9 (pdf)
DOI 10.5117/9789462988088
NUR 143

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1 Acknowledgements

The handbook *Interdisciplinary Learning Activities* is based on almost twenty years of experience with interdisciplinary teaching and learning. The materials and practices of the Institute of Interdisciplinary Studies at the University of Amsterdam contributed significantly to the framework of competencies and learning activities presented in this handbook. We are also grateful for the contributions from the bachelor programme Social Sciences at the University of Amsterdam and the US-based Association for Interdisciplinary Studies.

We would like to acknowledge the help provided by Noor Christoph, Linda de Greef, Christianne Vink, and Bregje Swart. Their suggestions, feedback and advice have been of great value. We would also like to acknowledge the valuable work provided by the editors of the previous edition: Tonja van Gorp, Mieke de Roo, Elke Stokker, Morten Strømme and Mirthe Hayes.

We are thankful for the support of all the other contributors who generously shared their experiences and provided us with useful information:

Shirley Berends, Sylvia Blad, Joris Buis, Tjard de Cock Buning, Karel van Dam, Steven Dijkstra, Jerome van Dongen, Esther van Duin, Merel van Goch, Andrea Haker, Anique Henderson, Miriam Janssen, Machiel Keestra, Wanda Konijn, Dominique Kunst, Frank Kupper, Marion van Lierop, Mieke Lopes Cardozo, Albine Moser, Fraser Nelson, Sietze Norder, Jessica Rodermans, Jaap Rothuizen, Lucas Rutting, Germaine Sanders, Jacintha Scheerder, Jasper ter Schegget, Joeri Scholtens, Hester Smeets, Vincent Tijms, Coyan Tromp, Iris van der Tuin, Matthijs Vlaar, Hylke de Vries, David Zetland and Cor Zonneveld.

2 Introduction

What would be the best way to have students acquire certain knowledge or learn specific skills? As a teacher you are faced with this question on a daily basis. What activity will motivate students to deepen their knowledge on a specific topic? How can students learn how to cooperate in groups? How can I promote integrative thinking?

These last questions have become more important in higher education, as the need for an interdisciplinary approach is increasingly felt. Professors and chancellors, for example, underscored the need to teach students how to integrate and apply their learning across multiple levels of schooling and across disparate fields of study (Association of American Colleges, 2007). The skills for integrative or interdisciplinary thinking tap into the 21st-century skills that have been identified as essential for a modern workforce dealing with demands of the knowledge economy (Voogt & Roblin, 2012).

Two main societal developments increasingly stress the need for teaching interdisciplinary skills. First, there is an expectation that scientists and professionals contribute to solving important societal issues. Second, the number of complex issues that are faced by society have increased because of technological advancements and globalization. Complex problems such as mental disorders, financial crises and climate change lie at the heart of interdisciplinary studies, as these problems cannot be comprehended from one disciplinary perspective alone. Climate change, for example, cannot be understood comprehensively ‘without considering the influence of the oceans, rivers, sea ice, atmospheric constituents, solar radiation, transport processes, land use, land cover and other anthropogenic practices and feedback mechanisms that link this “system of subsystems” across scales of space and time’ (National Academy of Sciences, 2004).

Does this need for interdisciplinary skills mean the end of teaching disciplinary knowledge and skills? On the contrary, we think that disciplinary and interdisciplinary approaches are complementary. In the disciplinary or reductionist approach laws and regularities become most apparent when scientists or experts in a field devote themselves to study a specific feature of a research object (Menken & Keestra, 2016). This information forms the basis for the interdisciplinary approach, where these disciplinary insights are integrated in order to come to a more

comprehensive understanding of a complex problem (see for characteristics of a complex problem page 77).

Since the interdisciplinary approach is relatively young compared to the disciplinary approach, few practical resources are available that teachers in higher education can rely on. In a previous publication, authors of the Institute of Interdisciplinary Studies addressed several topics regarding designing interdisciplinary education, such as formulating and assessing interdisciplinary learning outcomes, embedding integration in the programme design, and didactic methods that nurture interdisciplinary understanding (De Greef, Post, Vink & Wenting, 2017). The current handbook builds on this work, in that it contains concrete suggestions in the form of examples of learning activities that you can use to teach and foster interdisciplinary skills in graduate and undergraduate students. The collection of interdisciplinary learning activities (ILAs) is not exhaustive. Our intention is to provide an initial series of inspiring learning activities that cover the most important aspects of interdisciplinary thinking. The ILAs in this handbook have been developed and tested by various teachers at different universities. We are confident that the incorporation of these ILAs into your courses will contribute to creating a successful, challenging and engaging learning environment.

Before we describe the different ILAs to enhance interdisciplinary thinking, we discuss in the next chapter what can be considered interdisciplinary understanding. Based on a literature review and the experiences of teachers and programme developers at the Institute of Interdisciplinary Studies, skills that constitute interdisciplinary understanding are discussed. The ILAs are then mapped onto these different skills (see the table on page 19).