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Contact
Press:

Karolin Timm-Wachter Siemens Stiftung Tel.: +49 / 89 / 54 04 87-1 11 karolin.timm-wachter@siemensstiftung.org

Project Management:

Christa Mühlbauer Siemens Stiftung Tel.: +49 / 89 / 54 04 87-305 christa.mühlbauer@siemensstiftung.org

"STEM and Values" in Bavaria: Creating and sharing a sense of responsibility

Democracy, teamwork, responsibility: More than ever, these values are needed to form the foundation for sustainable coexistance in the future. Encouraging young people to consider, discuss, and act on their values for the greater good is driving a collaborative project between partners in the Wertebündnis Bayern alliance: TUM School of Education (TUMSoE), Akademie für Lehrerfortbildung und Personalführung Dillingen (ALP), Landesnetzwerk Bürgerschaftliches Engagement Bayern (LBE), Ludwig-Maximilians-Universität München (LMU), Staatsinstitut für Schulqualität und Bildungsforschung (ISB), and Siemens Stiftung. The "STEM and Values" project fosters value formation into STEM lessons at primary and secondary schools in Bavaria and equips teachers and educators with the necessary training to conduct these lessons.

School is an important setting for children and adolescents to develop and learn about values, with lessons in all subjects – including science and technology – playing a key role. Particularly in addressing issues, actions, and decisions in science and technology fields, value formation in these disciplines often takes a back seat to traditional subject matter. However, by confronting with values, young people learn the skills they need to become conscientiously-contributing members of society.

The Wertebündnis "STEM and Values" project is currently set to run for three years and will focus on incorporating value formation into science lessons across Bavaria. The project will make use of the methods Service-Learning and research-based learning implemented by the program Experimento to provide students with opportunities for considering, questioning, and building upon their values. Teachers will receive additional training on the methods for dialog-based lessons and value formation for STEM subjects.

Combining science and technology subject matter with an exploration of values and their role in actions and decisions

The first "STEM and Values" Service-Learning seminars are scheduled for March 2020 for teachers and educators from selected schools in Bavaria. These will be followed by training seminars focusing on Experimento. Both methods will be rolled out to students in classroom lessons for the 2020/21 school year.

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Young people need opportunities in both the scholastic and extracurricular environments to apply their knowledge. The Wertebündnis "STEM and Values" project provides these opportunities while encouraging civic engagement and an increased sense of responsibility for one's own actions.

The partners of Wertebündnis are planning to implement these methods in leadership classes during the 2021/22 school year.

About the methods

Service-Learning

By linking scholastic learning in the classroom with civic engagement – service-learning – students can put what they learn in science class toward making a valuable contribution to their communities. For example, lessons about the function of forests and local ecosystems can be applied toward building nature trails for use by the community and schools.

Comprehensive handouts and interactive web-based training provide teachers with basic knowledge of the methods, content suggestions, and tips for implementation.

Experimento

Guidance on values was developed for the education program Experimento by Siemens Stiftung in collaboration with Ludwig-Maximilians-Universität München (LMU). Together, they developed a multi-tiered, age-appropriate concept based on practical teaching materials for value formation in STEM lessons. The lessons involve personal reflection on values and decision-making in addition to learning about science and technology.

Wertebündnis Bayern

TUM School of Education (TUMSoE), Siemens Stiftung, Akademie für Lehrerfortbildung und Personalführung Dillingen (ALP), Landesnetzwerk Bürgerschaftliches Engagement Bayern (LBE), Ludwig-Maximilians-Universität München (LMU) and Staatsinstitut für Schulqualität und Bildungsforschung (ISB) are all members of Wertebündnis Bayern. Some 190 organizations, associations, civic groups, and foundations that focus on value formation in children, adolescents, and young adults are part of the alliance. Wertebündnis Bayern encourages these partners to embark on collaborative projects. In 2015, the Bavarian state government cemented the alliance's future by establishing Wertebündnis Bayern as an official foundation. The foundation is tasked with supporting partners in the alliance by calling attention to the values that foster cohesiveness in a society.

Cooperation partners

TUM School of Education (TUMSoE) www.edu.tum.de

Siemens Stiftung www.siemens-stiftung.org

Akademie für Lehrerfortbildung und Personalführung Dillingen (ALP) <u>alp.dillingen.de</u>

Landesnetzwerk Bürgerschaftliches Engagement Bayern (LBE) in cooperation with Foundation for Learning through Civic Engagement. www.lbe.bayern.de

Ludwig-Maximilians-Universität München (LMU) www.uni-muenchen.de

Staatsinstitut für Schulqualität und Bildungsforschung (ISB) www.isb.bayern.de

This is a Wertebündnis Bayern project www.wertebuendnis-bayern.de