

Extended Theory of Planned Behavior

Subjects: Management

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First described by Ajzen in 1985, the Theory of Planned Behavior (TPB) is one of the most widely used theories to predict and explain behavioral intentions and behavior. According to the TPB, attitude, subjective norm and perceived behavioral control towards a certain behavior determine the intention to perform this behavior. In relation to our study, attitude describes the extent to which student teachers evaluate the implementation of ESD in schools as positive or negative. The subjective norm refers to the perceived social pressure that important reference people from professional or private life expect ESD implementation in their work as teachers. Perceived behavioral control describes the perceived control of actually being able to implement ESD in schools.

Keywords: Education for Sustainable Development (ESD) ; Theory of Planned Behavior ; Expectancy-Value Theory ; Predictors ; Implementation Intention ; Student Teachers ; Teacher Education

1. Introduction

Our world is at a crucial crossroads: severe challenges such as the COVID-19 pandemic, the growing economic inequality and recent extreme weather events highlight the urgency of an extensive social transformation toward sustainability. Education is an essential prerequisite for advancing sustainable development, because “Education for Sustainable Development” (ESD) aims to empower and motivate individuals to create sustainable and just societies through education [1].

In order to implement ESD as comprehensively as possible in all areas of education, ESD has been established as a guiding objective of numerous international initiatives. Examples include the UN Decade of ESD (2005–2014), the Global Action Programme (GAP) on ESD (2015–2019), the 2030 Agenda for Sustainable Development with its 17 Sustainable Development Goals (SDGs) and the ESD for 2030: Towards Achieving the SDGs (2020–2030). In Germany, too, ESD is increasingly being anchored in educational landscapes. For example, the state of Baden-Württemberg has anchored ESD as one of the guideline perspectives in the new curriculum (see **Figure 1**) as well as a cross-sectional competence into teacher education [2][3].

Education for Sustainable Development enables students to make informed decisions and act responsibly to protect the environment, for a functioning economy and a fair global society for current and future generations. This relates above all to respecting the natural limits of the Earth system's carrying capacity and dealing with growing social and global injustices. This requires responsibly applied creativity, intelligent solutions, and foresight. Sustainable development requires learning processes that promote the necessary mental and cultural change. In addition to the acquisition of knowledge about (non-) sustainable developments, the following core concerns are of particular importance: Willingness to engage and take responsibility, dealing with risks and uncertainty, empathy for other people's life situations and solid judgement on future issues.

Education for Sustainable Development empowers students to contribute to sustainable development as consumers, at work, through civic engagement and political action. It is therefore not only a matter of being able to react to existing problems, but above all dealing with the future with foresight and of participating in innovative life and society designs that make a forward-looking and responsible transition to a sustainable world possible.

The anchoring of the guiding perspective in the education plan is concretised by the following terms: Significance of and threats to sustainable development, Complexity and dynamics of sustainable development, Values and norms in decision-making situations, Criteria for actions that promote and inhibit sustainability, Participation, involvement, co-determination, Capacity for democracy, Peace strategies.

Figure 1. Guiding Perspective on Education for Sustainable Development [4].

In its formulation, the guiding perspective focuses on understanding the multiple facets and the complexity of sustainable development, and on enabling students to deal with this complexity by developing future solutions as well as engaging actively in promoting sustainable development. Furthermore, the guiding perspective is rooted in the so-called

“Beutelsbach Consensus”, which has been formulated for political education in Germany ^[5]. This consensus states that in schools, all education that contains political aspects has to adhere to three basic principles:

- No overpowering: Overpowering students in any way in order to trick them into conforming to a certain opinion is not permitted. Teachers must support students to develop their own opinion towards a topic. The goal of all political education is the education of mature and responsible citizens.
- What is controversial in science and politics, has to be presented as controversial in school: It is important to describe different options and alternatives, in order to prevent indoctrination. This might even involve developing positions that might be alien to students in more detail. This also includes presenting those topics that are not controversial in science, such as human activity being the main reason for the current rapid climate change, as not controversial. However, this request of the Beutelsbach Consensus is sometimes misunderstood, and it is falsely assumed that climate change denial needs to be presented as a valid option, too.
- Students need to be enabled to analyze a political situation and their own interest, as well as to influence a political situation in terms of their own interests. This aligns with the guiding perspective, because it includes education about participation and engagements in order to pursue sustainable development.

2. Factors Influencing the Formation of Intention

First described by Ajzen in 1985, the Theory of Planned Behavior (TPB) is one of the most widely used theories to predict and explain behavioral intentions and behavior ^{[6][7]}. According to the TPB ^[8], attitude, subjective norm and perceived behavioral control towards a certain behavior determine the intention to perform this behavior. In relation to our study, attitude describes the extent to which student teachers evaluate the implementation of ESD in schools as positive or negative. The subjective norm refers to the perceived social pressure that important reference people from professional or private life expect ESD implementation in their work as teachers. Perceived behavioral control describes the perceived control of actually being able to implement ESD in schools.

A central criticism of TPB is that the explanatory model is too narrow ^{[9][10][11][12]}. According to Ajzen ^[8], in order to increase the predictive power of the model, the influence of potentially relevant background variables (e.g., general attitudes, emotions, gender, age, income, knowledge and experience) can be additionally examined. Furthermore, the model can be supplemented by additional determinants if they explain variance beyond the determinants of the TPB ^[13]. Indeed, several studies already indicated that the TPB model can be extended by additional variables in order to increase the predictive power of the model (e.g., ^{[14][15][16][17][18]}). For example, the study by Weber and Fiebelkorn ^[18] showed that in addition to determinants of intention deducted from TPB, nature attachment and environmental concern also determine student teachers' intention to eat sustainably. Furthermore, the study by Cheung et al. ^[15] showed that beyond the TPB determinants of intention, college students' intention to recycle wastepaper was also determined by their knowledge.

Apart from TPB, the Expectancy-Value Theory (EVT) ^[19] also provides us with valuable insights on factors influencing an individual's intentions. According to the EVT, the personal expectation of success and the subjective task value influence the intention to show a certain behavior. In the context of the present research objective, the personal expectation of success describes the extent to which student teachers are convinced, on the basis of their perceived competences, that they can successfully implement ESD in everyday school life. The subjective task value indicates the value that student teachers attribute to the implementation of ESD in school. Eccles and Wigfield ^[19] specify four subcomponents of subjective task value: intrinsic value, usefulness, importance and cost ^[19]. This means that student teachers experience a high task value if they expect to have fun and/or interest in implementing ESD in school (high intrinsic value), and if they expect that the implementation of ESD in school will conform with their own self-image, such as being responsible, justice-loving and nature-loving, (subjective importance). Furthermore, subjective usefulness indicates the extent to which student teachers are convinced that they can achieve long-term or short-term goals (e.g., career, reward and recognition of school leadership) by implementing ESD in schools. Perceived costs, on the other hand, refer to the negative aspect of the value component: they describe the extent to which student teachers believe that implementing ESD in schools involves a high degree of effort and/or sacrifice (e.g., fear of failure and less free time) ^{[19][20]}.

3. Factors Influencing the Realization of Intention

Even though intention to perform a certain behavior seems to be a central prerequisite for the actual performance of this behavior, the findings of previous studies also indicate that about half of the individuals with behavioral intention do not succeed in acting according to their behavioral intention (e.g., ^{[21][22][23][24]}). In literature, such circumstances are described as intention–behavior gaps (cf. ^{[25][26]}).

The phenomenon of the intention–behavior gap raises the question why some people do not succeed in implementing their intention behaviorally. The Theory of Action Control by Kuhl ^[27] and the Rubicon Model of Action Phases by Heckhausen and Gollwitzer ^[28] offered a significant contribution to clarifying this question. These authors strongly argued

for a distinction between motivational and volitional processes of an action course, because motivational processes are important for the formation of a behavioral intention and volitional processes for the realization of this behavioral intention, while volitional processes had remained unnoticed in motivation research for many decades [29].

Accordingly, intention–behavior gaps occur when problems, such as no time, intense emotions and lack of knowledge, arise in the realization of a behavioral intention (volitional processes) (cf. [27][28][30]). Therefore, the present study also investigated what barriers and support needs student teachers perceive with regard to the actual implementation of ESD in schools.

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