

Summary

This report contains the results of the analysis of an environmental education project called Slippery litter (*Zwerfafval als uitglijder?!).* IVN Gelderland developed it within the framework of Schools for Sustainability (Scholen voor Duurzaamheid). It is aimed at children age 12-16 enrolled in the lower grades of secondary schools. Littering is considered a problem by many Dutch citizens who believe that, in addition to polluting the environment, it leads to the degradation of neighborhoods. The age group under discussion contributes considerably to the spreading of litter. Despite national campaigns, such as Keep Holland Clean (Nederland Schoon), which have been running for years, nothing much has changed in the behavior of these young people. The developers of this new educational project hope it will lead to a solution for the littering problem. The project approaches the issue of littering from a different angle than the traditional and instrumental lessons on this subject. This approach is more positive and focuses on solutions. The principal question in this research is whether or not taking part in these lessons contributes to the development of student engagement with regard to the topic, as well as, to the educational process.

Within the context of a story in which a task force is established, the students are confronted with a real request from the city council to come up with solutions for the problem of littering in their community. The design of the lessons is based on the Scottish Storyline Approach. This approach is defined by such elements as: the setting of the story (defining the actors, a place and a time) and asking key questions (questions without a single correct answer). Further teacher-orchestrated critical incidents lead to a variety of learning activities. At the end of the project the teacher and students evaluate the learning process. In theory the children participate in the creation of the story by, for example, constructing the central characters, but in reality the teacher steers them gently in the desired direction.

A model was developed for analyzing the complex concept of student engagement, which embraces both engagement with the topic and with the educational process. Four dimensions are distinguished within the model: cognitive, operational, affective and normative engagement. Factors which might influence the relationship between taking part in these lessons and student engagement are analyzed. These include both characteristics of the Storyline approach and specific elements of the lessons, previous experience of the teacher with Storyline, level of support experienced by the teacher, teacher's enthusiasm for the topic and the educational method, opinion of classmates with regard to the topic and the educational method, the degree of difficulty experienced in relation to the issue of littering and the learning activities, response-efficacy, school year, school type, gender, upbringing and environmental education in primary school.

This retrospective study employed both quantitative and qualitative methods. Approximately 500 questionnaires were distributed among three secondary schools. Two schools participated in the pilot projects in 2007. The third school did not and served as a bench mark. Seven interviews with teachers and eight group discussions were conducted in the two schools which had participated. The children were all first- or second year students at the time the lessons took place and varied in school type between vocational training and college preparatory. One of the schools participated in the spring of 2007 as well as in the fall of 2007, respectively 10 and 3 ½ months prior to the research. An international panel of Storyline experts was also consulted.

The research reveals an ambivalent outcome. The quantitative analyzes lead to the conclusion that the lessons do not contribute to student engagement. The qualitative analyzes, however, suggest that specific learning activities, such as the forum discussion and a role play about littering attitudes, do contribute to more engagement with the topic and with the educational process. The manner in which the litter projects were carried out was not pure Storyline and it is therefore not possible to draw direct conclusions as to the contribution of the Storyline method to the detected changes in student engagement. However, this research does show that there is a positive correlation between recognizing characteristics of the Storyline method in the lessons – such as organizing and creating prior knowledge by listing questions about the topic before searching for information and key questions asked by the teacher – and several forms of student engagement. Other factors which correlate with student engagement are, amongst others a 'real' assignment from a 'real' authority, the enthusiasm of class mates and teachers and anti-littering campaigns in primary school. Further it was observed that teachers encountered considerable difficulty with implementing these projects as Storylines. This

educational approach is quite different from the more instrumental approach that many teachers are used to. Teachers experienced problems with creating an effective identification process with the main characters, asking key questions and finding a balance between the more open approach of a Storyline and the directive request of the city council.

Nonetheless, this project indicates a variety of pointers for improving Slippery litter and this report therefore concludes with several suggestions for its enhancement. Amongst other things, there is a need for better teacher training in which more attention is given to matters such as asking effective key questions, teachers experiencing the project during the training from the perspective of the student, as well as from that of the teacher and dealing with the tension between Storyline on the one hand and the need to develop solutions for the city council on the other. In addition, it is recommended that teachers be provided with the opportunity to choose between a Storyline version of the project and a thematic version with a strong realistic character. In this way one avoids confronting teachers with a teaching method with which they are uncomfortable, an action which could have the effect that such potentially valuable projects are rejected out of hand in the future. City councils and businesses are advised to take the students seriously by informing them of the ways in which their ideas are being used. Experts emphasize that elements of Storyline – if properly implemented – such as identification with the main characters, students developing their own understanding of a concept before comparing it to reality, and students and teachers deciding cooperatively which criteria to use for the assessment of the student's work, can contribute to more student engagement.