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The Intergalactic ZEIBI: Preventing School Absenteeism through Game Based Learning and Theatre Pedagogy in an International Comparison 2020

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The Intergalactic ZEIBI: Preventing School Absenteeism through Game Based Learning and Theatre Pedagogy in an International Comparison

Petra Begic, Mustafa Bilgin & Petra Buchwald

Abstract

School absence is an important issue for middle adolescents, since the loss of education can impact their social and economic future. In the countries of the European Union (EU) the prevalence rates of school absenteeism, which indicates the importance for international cooperation. However, in order to counteract school absenteeism internationally, it needs cross-cultural assessment of factors causing school absenteeism. For this purpose, data from Turkey, Greece, Spain and Germany were analyzed. Consequently, eight factors related to school absenteeism were derived in an exploratory factor analysis. In a subsequent step, these factors were analyzed by a confirmatory factor analysis, which revealed correlated, but distinguishable factors. Altogether, these findings confirm and extend existing literature by using a different nationality and test battery. Based on these findings, a prevention programme, ZEIBI, is going to be conducted with a focus on the derived factors to school absenteeism and promoting an innovative game based learning approach.

Theoretical Introduction

Education is considered as one of the most important goods with an enormous impact on the future of young people. Since education has the power to reduce poverty, increase health and foster peace, it is of particular importance to promote school attendance (Schuller, Preston, Hammond, Brassett-Grundy & Bynner 2004; Ricking & Hagen 2016). In other words, school absenteeism, the absence from school, is a widespread and multicausal phenomenon with significantly negative consequences in economic and social terms.

Unsurprisingly, the EU has set the goal for 2020 to reduce the current rate of school absenteeism and preventing early school leaving in upper secondary education is one of the aims of the EU (European Commission 2013). Prevalence rates of school absenteeism and early school leaving vary between the states of the EU. In 2017, across the EU, according to Eurostat, on average 10.6% of young people left school prematurely. Within the EU, dropout rates vary widely from 3.1% in Croatia to 32.5% in Turkey. In 2017, according to Eurostat estimates, 10.1% of young people in Germany left school early. At these dropout rates, it should be noted that the PISA study collects 15-year-olds, while Eurostat covers 18- to 24-year-olds. To classify the prevalence rates in the participating partner countries of this research project, the participating countries and their prevalence

rates are presented. In Greece, only 6% of students dropped out early. Significantly more young people dropped out of school in Spain and Turkey with 18.3% and 32.5%. Similarly, rates of school absenteeism in the EU are subject to strong variations. According to PISA (2012), 8.6% of German pupils were missing one to two lessons in the last two weeks. Significantly more students missed individual lessons in Spain with 25.5%, in Greece with 30.3% and in Turkey with 30.5%. These prevalence rates justify why the EU has set itself the goal of reducing school absenteeism and dropout by 2020. However, this problem cannot be counteracted by countries itself; it requires international cooperation, so that countries benefit from the knowledge and experience of each other.

Research Aims

The purpose of this manuscript is to assess factors to school absenteeism and to explore the latent structure of these extracted factors on an international level. On the one hand, the desideratum for crosscultural studies on absenteeism shall be closed thereby (Haight, Kearney, Hendron & Schafer 2011; Kearney 2008). On the other hand, the empirical results shall build the data base for the focus of the ZEIBI prevention. Subsequently, the crucial findings of the analysis are going to be embedded into the concept of ZEIBI. All in all, the aim of this research is to identify factors causing school absenteeism and to derive a research-based focus of the ZEIBI prevention.

Methodology

In order to discover the structure of causes to absenteeism internationally, a dataset of 891 students in the age of 13-16 was collected in Turkey (N = 283), Greece (N = 28), Spain (N = 322) and Germany (N = 256). Participants were students at schools in the middle adolescence. This age range was set for psychodevelopmental reasons, which are related to school absenteeism and limited to the specified age (Caprara et al. 2000).

The recruitment of the participants took place via contacts, inquiries, school visits and e-mails. Since the students are under age, the parents of the participating students were informed about the experiment and are asked for confirmation of participation.

A test battery with school absenteeism related factors was conducted and school absenteeism was measured as a selfreported variable in the questionnaire, asking students how many classes they have missed in the last three months. Specifically, the following standardized and normed questionnaires were used, which partially exist in the different languages: *Krefeld Questionnaire on School Absenteeism* (Dunkake 2015), *Psychological Reactance* (Merz 1983), *Strategic Approach to Coping Scale* (Buchwald & Schwarzer 2003) and *Strengths and Difficulties Questionnaire* (Goodman 1997). In the case that items or a complete questionnaire did not exist in the desired language, a forward-backward translation method with three native speakers was used to translate the items.

Altogether, this data acquisition is planned to be the first measurement point in a prevention study programme, where the intervention will be based on the quantitative findings of the first measurement point. It is planned that half of the students are going to be assigned to a treatment group by hazard and the other half of the group to a waiting control group. In the latter, these two groups shall be evaluated regarding the effect of the ZEIBI intervention by comparing pre- and posttests from the treatment- and waiting control group.

Results

The following research questions will be quantitatively analyzed, interpreted and discussed against the existing theoretical background. Firstly, how many factors cause school absenteeism in our international sample? Secondly, how do these derived factors interact with each other?

Hence, the following hypotheses are proposed. The causes to school absenteeism shall appear on the institutional, personal and contextual level and they are going to be interdependent (Kearney 2008). Furthermore, in a confirmatory analysis, a model with correlated factors is going to be preferred regarding fit (Haight et al. 2011). This assumption is based on existing literature, which use a different sample by nationality and by the test battery. Nevertheless, the underlying structure of the factors shall be the same.

In the first step, the number of causes to school absenteeism shall be analyzed. In order to determine this, an exploratory factor analysis with orthogonal / varimax rotation, was conducted. Thereby the underlying, latent structure of a large set of variables like the *Krefeld Questionnaire on School Absenteeism* shall be derived (Dunkake 2015). More specifically, a standard principal component analysis, which provides only one solution and is based on the total variance was conducted. Moreover, the principle of simple structure was followed by successively eliminating items with factor loadings on different items. Considering Kaiser-Guttman's criterion and Cattell's screeplot eight factors for school absenteeism were indicated. These eight factors explain 66% of the total variance in school absenteeism.

Considering that there exist eight factors causing school absenteeism in this international sample, the question is, whether they interact with each other. With a confirmatory factor analysis, the nature of these eight factors was determined. For this purpose, three models: a one-factor model, a model with correlated factors and model with a factor of higher order have been constrained and tested against each other regarding model fit. In comparison to the other models, the model with correlated factors is to be statistically preferred, since it has a significantly smaller AIC than the other ones, which were also good fitting. The model with correlated factors implies correlated, but distinguishable factors without a shared factor of higher order. In statistical terms, this model has a standardized root mean square of error of .035, which is below the conventional standard

of a minimum of .08. Moreover, with a Tucker Lewis Index of .93, it is close to 1, an indicator for a good fit. This model confirms the hypothesis as well as the existing literature by Kearney (2008) or Haight et al. (2011) and confirming literature is important, because a good fit, does not necessarily mean having a valid model.

Discussion

The prevalence of school absenteeism and -dropout and moreover the economic and social consequences and costs of the latter (European Commission 2013) highlight the importance of an international assessment and analysis. Based on this, ZEIBI, a prevention method shall bring an innovation to schools that could do both: prevent school absenteeism and promote a playful game as a strong motivator to attend school. What is ZEIBI? ZEIBI is a gender neutral character and protagonist in a game based learning module. ZEIBI comes from the planet GN-Z90 and has crashed on the blue planet and needs the help of the students to come back to his birthplanet. In order to help ZEIBI, students can collect points in the online activities on the platform and the Jump and Run Game. The starting idea is that the current youths are used to be online and especially on social networks. This fact shall be used as an innovative and modern approach to youths in a prevention programme. A stimulation hypothesis by Shapiro and Margolin (2014) states that an online platform lowers the threshold to interact with each other. Since it is perceived to be easier to connect to others through a social platform than face to face, platforms can foster friendship and social integration. Therefore, an online social platform was created because of two purposes. Firstly, the platform integrates the content of the offline workshop into online world and secondly the platform is a way to foster social integration through approaching especially those students, which are not in class. On top of that, ZEIBI has a Jump and Run module. This game has three main functions: Firstly, ZEIBI shall ensure a motivational factor by addressing the incentive system of the students. Secondly, ZEIBI shall ensure the awareness on the topic of school attendance through so called futurehints, which cover the statistically derived topics of school absenteeism. And last but not least, it shall support the effect of the prevention sustainably, after the workshops have been accomplished.

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