

Behavioral and Developmental Effects of a School Based Media Education Program - A Longitudinal Study



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Abstract

OBJECTIVES: Considering the findings of several international studies reporting negative correlations between excessive electronic media use, poor school performance, and problematic social behavior of elementary school children, a school based media education concept was developed and systematically evaluated. **DESIGN:** Four year longitudinal control group study with 1.059 elementary school children (third- to fifth-grade; baseline, n = 113; treatment, n = 492; control, n = 454). **MAIN OUTCOME MEASURES:** Media availability and exposure, leisure time and social behavior, perceived parental education and guidance (general/media), socio demographic parameters. Students' IQ, academic self-image, classroom climate, social integration. Parents' socio demographic parameters, educational achievement, media equipment and exposure (self/child) and their children's leisure time behavior. **RESULTS:** Multivariate Analyses show significant relations between poor school performance, problematic social behavior (measured by school violence and 12-months as well as lifetime prevalence of self reported violence), personality variables (lower empathy and higher impulsiveness) and a high degree of daily media exposure (content and time). Analyses on the effectiveness of the intervention program show that children in the 20 intervention schools decreased their bedroom media ownership, media exposure, and use of violent media content compared to children in the control schools. Regarding school achievement a higher percentage of children improving their grades in the intervention group can be found.

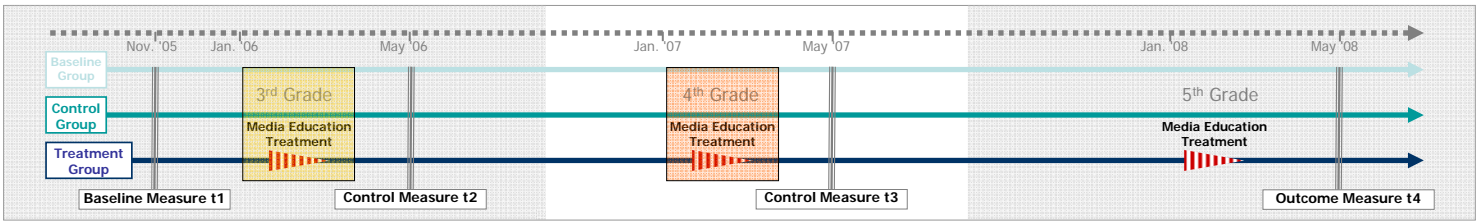
Introduction

The variety of electronic media formats and their contents are of pivotal importance in the everyday life of children and adolescents. German nine-year-old school children, for example, spend an average of 1.5 hours daily watching television, and an average of 0.5 hours playing video and computer games; 13.9 % spend more than 3 hours daily adding up both activities (KIM 2003; KFN Schools Survey 2005). The possible effects of these often excessive media habits are still controversially discussed among researchers as well as in public opinion. Apart from the omnipresent debate regarding the relationship of violent media content and violent behavior, the possible influence of media use on children's and adolescent's school achievement is at the top of the agenda. The present study was designed to address these issues. For American third- and fourth-grade students Robinson et al. (2001) could demonstrate in a similar controlled school-based trial, that an intervention program aimed at reducing media use not only significantly decreased children's time watching television and playing video games, but also reduced their aggressive behavior, and improved overall class climate.

Method

On all measurement occasions a paper-pencil interview is conducted within the class room setting concerning media availability and exposure, leisure time and social behavior, perceived parental education and guidance (general/media), as well as socio demographic parameters. Standardized psychological tests serve to assess students IQ (CFT 20), academic self-image, classroom climate and social integration (FEES 3-4). Additionally, all students' body weight and height is taken. The children's parents are questioned at the first, the third and the fourth measurement occasion regarding socio demographic parameters, educational achievement, media equipment and exposure (self/child) as well as their children's leisure time behavior. A teacher questionnaire is used to evaluate class characteristics, school performance and work habits at all measurement occasions.

Starting in February 2006, media education was conducted in the intervention classes (n = 20).



Media Education Treatment

„Vom Leichtmatrosen zum Medienlotsen“ („Media Pilot Training Program“) and „Die Eliza-Protokolle“ („The Logs of Eliza“): Two primary school teaching units.

In February 2006 and 2007, several teacher training workshops were conducted. Within a random sample of 20 primary school teachers the main results of criminological and psychological research on the effects of harmful media content (ab)use were presented and two age appropriate media education teaching units were developed.

Main learning targets

Identifying media (use patterns) in everyday life ➡ Discussing media related problems and chances ➡ Developing an appropriate media use behavior ➡ Sensitizing parents and peers

Third grade unit (app. 12 lessons) „Media Pilot Training Program“: In a small textbook the story of several third grade students and their experiences with TV and computer games is told. After a controversy between the students and their teacher about inappropriate media use on a school trip, the class and the teacher enter a media usage contract.

Fourth grade unit (app. 12 lessons) „The Logs of Eliza“: In a 44-paged textbook the story of Bela, a thirteen year old boy is told. School problems and the critical illness of his mother make him to escape from everyday life into the virtual world of an online role play computer game. After a chat with Eliza, an old fashioned chatbot with some strange new abilities, Bela gets to know some of Eliza's former chat partners: normal kids like him with similar problems. Finally Bela realizes that Eliza isn't an ordinary computer chatbot and that Eliza's method to solve it's chat partner's problems may be extremely harmful.

Both teaching units are amended by several exercises, role plays, peer interviews and behavioral trainings.

Results

First analyses on the effectiveness of the intervention program show reduced bedroom media ownership (TV, Games Console, PC) and media exposure (time and content) for children in the 20 intervention schools at t3, compared to children in the control schools. (See figure 1, figure 2 and table 1)

Regarding school achievement, a higher percentage of children improving their grades in the intervention group can be found. (See table 1)

A Structural equation analysis for t3 shows significant relations of gender (male), personality variables (lower empathy and higher impulsiveness), a high degree of daily media exposure (content and time) and problematic social behavior (measured by school violence). (See figure 3)

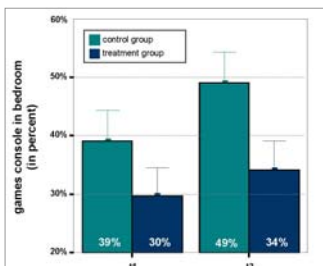


Figure 1: Bedroom Media Equipment (Games Console) by group and measurement occasion
1 Multivariate (TV/GC/PC) Analysis: Media Equipment (Repeated) * Group, $F(3/605) = 4.61, p < .01, \epsilon = .15$; Group $p < .05, \epsilon = .14$; Media Equipment, $p < .001, \epsilon = .20$.

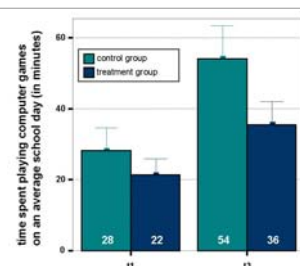


Figure 2: Media Exposure (Time spent on playing Computer Games) by group and meas.-occasion
2 Multivariate (TV/GC) Analysis: Media Exposure (Repeated) * Group, $F(2/706) = 4.26, p < .05, \epsilon = .11$; Group $p < .01, \epsilon = .13$; Media Exposure, $p < .001, \epsilon = .35$.

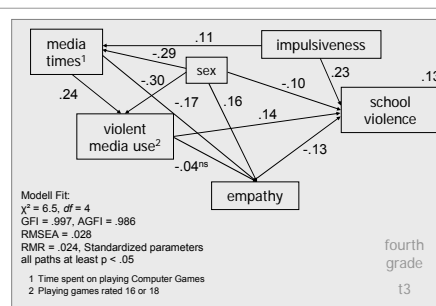


Figure 3: Structural Equation Analysis of School Violence

Table 1: Media Exposure (playing video games rated age 12, 16 or 18; in percent) and improvement in school achievement (in percent) by group

	ME _{t1}	ME _{t3}	Imp _{t12}	Imp _{t13}
TG	24 ³	32 ³	51	56
CG	29 ³	44 ³	53	48

Note. TG treatment Group; CG Control Group; ME Media Exposure; Improvement in School Achievement (Yes/No).

3 Univariate Analysis: Media Exposure (Repeated) * Group, $F(1/381) = 1.61, p = .20, \epsilon = .06$; Group $p < .05, \epsilon = .12$; Media Exposure, $p < .001, \epsilon = .21$.

Conclusion

First results of our longitudinal study show the benefits of teaching children an age appropriate media use in a school based media education program. Furthermore our longitudinal data show some serious evidence for a causal relationship between inappropriate media use and several social and developmental problems.

In order to get a deeper insight into these correlations, it is planned to extend this study for four more years and follow these students to ninth grade.

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