



The stories children's books tell us: Motive-related imagery in children's books and their relation to academic performance and crime rates

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ABSTRACT

We reasoned that children's books mirror the current motivational orientation (Zeitgeist) of a society. Based on the work of McClelland and other motivational psychologists, we assessed the current motivational orientation via the prevalence of achievement, power, and affiliation imagery in the most popular children's books of federal states in Germany. As expected, the achievement imagery was closely and significantly related to academic performance. Our assumption that power imagery was positively and affiliation imagery negatively related to youth crime (youth suspects) could not be supported. Thus, for the achievement domain, the findings provide strong evidence that children's books tell us an important story worthy of further exploration.

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1. Introduction

When the children's book author, Astrid Lindgren, sent her manuscript "Pippi Longstocking" to the publisher in 1944, she felt the need to comment that it may offend readers, and she begged the publisher not to alarm the Swedish youth welfare office. Although the authorities were not contacted, the manuscript was initially rejected. Pippi, with her unconventional and assertive character, was not seen as a story to be told to children at that time. Other children's books have met similar fates, and it seems clear that the content children's books tell us something about the time in which they were popular or unpopular (Hunt, 1996).

Therefore, we view children's books as an indicator of the motivational orientation of a society (Zeitgeist), which should provide us with an understanding of the times. Understanding the times in which children are socialized should additionally allow us to see how society will develop as these children will shape society as grown-ups. Children's books appear to be especially suitable to assess the Zeitgeist because they closely represent what is valued and selected by parents and others to pass onto children. Additionally, children's books may also have an impact on how children see and act in the world as newcomers, and the books they are exposed to are likely to shape children's understanding of the world.

Past research assessed the achievement orientation of a society by counting the prevalence of achievement motive imagery in books. And indeed, the prevalence was related to later social economic development of this society, as presented below. Although fewer studies examining the power and affiliation motive exist, findings also show that the prevalence of this type of imagery is related to the social development of societies.

The early work on achievement motivation revealed a close relationship of the achievement motive (i.e., a habitually strong concern for excellence) with the setting of achievement goals, persistence in achievement tasks, and economic success at the individual level (cf. McClelland, 1985; cf. Brunstein & Heckhausen, 2008). Based on these findings, McClelland and others provided individual training programs to strengthen the achievement motive as a development aid (McClelland & Winter, 1969). The programs showed considerable effects, such as more business activities and a stimulation of the local economy (see Rheinberg & Engeser, 2010). On a higher level, McClelland (1961) outlined the relation between the individual achievement motive and the "protestant ethic" described by the sociologist Max Weber (1905). This ethic is characterized by the principles of discipline, hard work, and a high level of individual responsibility as well as the notion that a high level of economic achievement is a sign of possible salvation. Weber strongly argued and provided empirical evidence that this ethic fostered modern capitalism (e.g., fast rise of capitalism in the United States and the Netherlands; cf. Landes, 1998).

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In order to test the relationship between motivation and economic development on a macroeconomic level, McClelland had to measure the achievement motive of a whole society. As he was unable to rely on opinion polls, he chose an alternative path. On an individual level, the achievement motive was measured with projective tests in which imagery stories written in response to picture stimuli were coded (cf. Pang, 2010). In principle, any textual material can be scored with these coding systems, and McClelland (1961) used the content coding of representative textual materials to measure the motivational orientation of a society.

Empirical results confirm McClelland's expectations. For example, the prevalence of achievement content in children's books from 21 nations in 1925 was found to correlate with economic achievement in 1950 (McClelland, 1961). Furthermore, DeCharms and Moeller (1962) demonstrated a close relationship between achievement imagery and patents issued for the period from 1810 to 1950 in the US. More recently, Engeser, Rheinberg, and Möller (2009) provided evidence that achievement imagery in schoolbooks is related to performance in large-scale assessments. One problem of the interpretation of the results is that the time span between the prevalence of motive imagery and later social development varies considerably, with longer time lag for studies dealing with historically older societies. McClelland (1985, p. 465) argued that, "with increased communication and transportation, motive changes should translate into social changes more rapidly".

High power motivation is associated with better leadership qualities. However, it is also related to aggressive and exploitative behavior (Fodor, 2010; McClelland, 1985). High affiliation motivation is associated with activities to initiate contact with others and with friendly interpersonal manners (if a person does not feel threatened; McClelland, 1985). On a macro-level, power and affiliation imagery predicted whether countries entered into war: If power was considerably higher than affiliation, countries regularly entered into war (Winter, 2000). Affiliation motivation was negatively related to aggression against women and the violation of civil rights (McClelland, 1985).

In the present research, we took children's books from 1996 and 2006 to assess the prevalence of motive imagery for achievement, power, and affiliation for federal state regions within Germany. This motive imagery served as indicators of the motivational orientation for these federal state regions. Academic performance of the federal states regions was selected as a marker for social development for the achievement domain and rate of youth crime for the power and affiliation domain. We included archival data for the academic performance for the 9- to 10-year-old (4th grade) and the 15-year-olds (9th grade) over a time period from 2000 to 2011. Youth crime rates (14- to 18-year-old youth suspects) were taken from 1996 to 2011. Both indicators represent data for a cohort at the given years.

In contrast to the use of more global economic performance measures in former studies, our current measure of academic performance can be closely linked to an age cohort and is nevertheless constitutive for the economic development of a society later on (Hanushek & Wößmann, 2011). The close link to an age cohort also holds true for the youth crime rates. This closer link ensures higher internal validity of the results. It also addresses the problem of former studies where time patterns of the prevalence to subsequent social development varied dependent on the historical context in which the study was conducted. We also want to point out that no other indicators beside academic performance and youth crime were considered. We did this in order to avoid detecting random effects which can occur when many dependent variables are included in analyses and only the significant relationships are selected.

For the data collected, we could test whether the prevalence of the motive imagery preceded or followed the indicators of social

development for an age cohort. We expect that the prevalence of achievement imagery will be related to academic achievement and will precede social development. In other words, the prevalence of the children's books of one cohort is related to the academic performance of this cohort. We expect the same pattern of results for the prevalence of power and affiliations imagery with youth crime rates.

2. Materials and methods

2.1. Selection of children's books and federal states

As the best available index of current popularity, we used the sales rankings of the children's books from 1996 and 2006 (GfK Panel Services Deutschland, 2010).¹ For smaller federal states, the databases do not provide sufficiently reliable estimates for less frequently sold books and therefore some states were grouped according to their academic performance on the Programme for International Student Assessment (PISA; this is described in more detail below). Our analysis included the following seven states or state regions: the single states (1) Bavaria and (2) Baden-Württemberg as top ranking states in academic performance, the (3) mid-western states and (4) northwestern states, which have lower academic rankings, the (5) the eastern states, which generally have low academic rankings, with the exception of (6) Saxony and (7) Thuringia, which are at the top and were, therefore, considered separately. Due to reliability considerations, only the top 5 and 3 best-selling books were included in the analysis for Saxony and Thuringia, respectively. Otherwise, anywhere from 12 to 17 bestselling books were included for each state or state region. In total, we analyzed 57 books for 1996 and 47 books for 2006 (see Details for Children's Books in the Supplementary data available online). The mean recommended reading age ranged from 1 to 12 years with $M = 5.74$ ($SD = 2.92$) for 1996 and $M = 7.81$ ($SD = 3.56$) for 2006.

2.2. Coding procedure

The children's books were coded using Winter's (1994) *Manual for Scoring Motive Imagery*. The validity of the scoring system has been proven in studies ranging from speeches by political leaders (Winter, 2000), motive-goal congruence and well-being (Brunstein, Schultheiss, & Grässmann, 1998; Hofer & Chasiotis, 2003), to experimental studies (cf. Pang, 2010) and scoring of school books (Engeser et al., 2009). In each book, achievement imagery is scored when a concern with a standard of excellence is expressed, such as doing good, reaching an achievement goal, winning or competing, positive and negative evaluation of success and failure, and other unique accomplishments. Examples are "...she can even ride a figure-of-eight round daddy and mummy on her bike", "great idea" or "nobody could tell a lie better and quicker than him".

Power imagery is scored when a concern with having an impact is expressed, like forceful actions, controlling and regulating, persuading or convincing others, unsolicited helping, concerns for prestige, and influencing the emotions of others. Examples are "... how he might outwit his grandma", "Maya received great acclaim from her people", or "the lion frightened him". Affiliation images are scored when a concern with friendly relationships is expressed, such as the expressions of positive feelings toward other persons, negative feelings about separation and disruption, sympathetic concern, and companionate activities. Examples are "... Kaspar Löffel's best friend in the world", "...and now it was unfortunately time to say farewell", or "like every day, the mouse family had a cozy breakfast in the kitchen".

¹ Despite our strong efforts, publishers were not willing to provide sales data.

For short books (fewer than 7500 words), we coded all textual material. For longer books, we gradually reduced the percentage of coded material down to 10% of pages (7500–15,000 one half, 15,000–25,000 one quarter, 25,000–35,000 one fifth, 35,000–45,000 one sixth, and more than 45,000 one tenth). For all analyses, the absolute motive images of each book were multiplied by 1000 and divided by the total number of words of the page coded. This resulted in the amount of images per 1000 words for the achievement, power, and affiliation motives in each single book.

The first and second author coded the books while unaware of the origin regarding the federal states. Both reached more than 85% agreement for achievement, power, and affiliation with the expert scorings of the Winter (1994) manual. For 10 double-coded books (books were from different federal states, for different reading age levels, and of different lengths), the interrater reliability was 78% for achievement, 67% for power, and 79% for affiliation. Scoring disagreements were resolved by discussion. All other books were coded by the second author following the discussions which resolved the prior disagreements.

As the interrater reliability was low and well below the common standard of 85% (especially for power), we decided to estimate the interrater reliability of the final codes once again with two additionally independent raters. Two highly trained coders coded all top three ranked books from each federal (in total 15 books). Both coders were unaware of the origin regarding the federal states. The interrater reliabilities of the new coders with original scores were 92% and 84% for achievement, 79% and 82% for power, and 86% for both coders for affiliation. Thus, the reliability for achievement and affiliation was sufficient, but power scores have to be regarded as being less reliable. Disagreements between the two new coders were resolved by discussion (the interrater reliability between both new coders was 92%, 91%, and 89% for achievement, power, and affiliation, respectively). For our analysis we used the mean of these new and the original scores for the top three ranked books.

For 2006, the eight top-ranked books of each federal state were coded by one coder and the books ranked nine and higher by the second one. Both coders reached more than 85% agreement with the expert scorings of the Winter (1994) manual. Before coding the books from 2006, each coder coded 4 books from the 1996 sample in order to assess the reliability with the books scored in 1996, thus providing an assessment of the similarity of coding of the 2006 and 1996 books (books were from four different federal states, for different reading age levels, of different length but not belonging to the top three ranks). The interrater reliability was 83% and 84% for achievement, 89% and 88% for power, as well as 84% and 83% for affiliation. Of the books from 2006, four were double-coded (again, books were from four different states, for different reading age levels, and of different lengths). The interrater reliability was 92%, 93%, and 96% for achievement, power, and affiliation, respectively. Taken together, the interrater reliability was satisfactory for all motive imagery in 2006.

2.3. Academic performance and youth crime

Our performance indicators are assessments of the scholastic aptitude for the federal states of Germany from 2000 to 2009 for 15-year-olds (9th grade) and from 2001 to 2011 for 9- to 10-year-olds (4th grade). We use the results available from the Programme for International Student Assessment (PISA). This is a worldwide study by the Organization for Economic Co-operation and Development (OECD) to assess the 15-year-olds scholastic performance in language, mathematics, and science (OECD, 2010). The assessment first took place in 2000 and is repeated every 3 years. In the years 2000, 2003, and 2006, the sample size was extended in Germany in order to be able to compare the results among the

federal states of Germany. Results revealed pronounced differences between the federal states in academic performance (cf. Prenzel et al., 2008). Starting with the year 2009, the comparison of the federal states was assessed separately from PISA and repeated every 3 years with a focus on one scholastic domain (Köller, Knigge, & Tesch, 2010). In 2009, the focus was on the scholastic aptitude for language. The results for 2012 (mathematics and science) will be available at the end of 2013 and, therefore, could not be included in our analysis.

For the 4th grade (9- to 10-year-olds), there were data available for the scholastic aptitude in reading (“literacy”) for the years 2001, 2006, and 2011. For the years 2001 and 2006, the German sample of the Progress in International Reading Literacy Study (PIRLS; Mullis, Martin, Kennedy, & Foy, 2007) was extended to allow for comparisons of the federal states. Again, results showed pronounced differences between the federal states (Bos et al., 2004, 2008). In the year 2001, not all federal states of Germany participated; thus the number of state regions included in our analysis is reduced to six. For the year 2011, the comparison of federal states was conducted separately from international studies (Stanat, Pant, Böhme, & Richter, 2012).

Youth crime rates (aged 14–18 years) were taken from the official statistics for the years 1996, 2001, 2006, and 2011 (crime suspects per 1000 inhabitants; Federal Bureau of Criminal Investigation [Bundeskriminalamt], 2011).

2.4. Data analyses

Our coding provided three motive values (achievement, power, and affiliation) for each book. We averaged the motive separately for achievement, power, and affiliation within each of the 7 state regions and within the years 1996 and 2006. These scores represent the prevalence of motive imagery per state regions for these 2 years.² We averaged the motive values irrespective of the selling rank within each state region, as selling ranks do not allow for simply putting more weight on higher ranked bestselling books. To account for the selling rank, we additionally calculated the mean score of the top five bestselling books separately for each state region. The prevalence of the motive imagery for all books and for the top five books was then correlated with our dependent variables of academic performance and youth crime rates of these regions.

3. Results

3.1. Motive imagery

The mean number of images in 1996 for achievement was $M = 2.59$ ($SD = 1.88$), for power $M = 7.53$ ($SD = 5.00$), and for affiliation $M = 7.39$ ($SD = 6.57$). In 2006, the means were $M = 2.22$ ($SD = 2.96$), $M = 4.97$ ($SD = 3.51$), and $M = 4.66$ ($SD = 5.61$). The correlations between the motive imagery of 1996 and 2006 was $r = .69$ ($p = .09$) for achievement, $r = -.14$ ($p = .76$) for affiliation, and $r = .43$ ($p = .34$) for power. This indicates stability of the achievement imagery of children's books and, to a lesser degree, for power, but not for affiliation. In 1996, the correlation between achievement and power was $r = .62$ ($p = .14$), between achievement and affiliation $r = -.29$ ($p = .53$), and between power and affiliation $r = -.57$ ($p = .18$). For 2006, the correlations were $r = .24$ ($p = .60$) between achievement and power, $r = .11$ ($p = .81$) between

² The majority of the books are exclusively listed in only on state region (see Details for Children's Books in the Supplementary data available online; 44 of the 57 in 1996 and 30 of the 47 in 2006). Books listed in two or more states entered the average score for these two or more state regions. It is important to note that books listed in several states made the scores of state regions more similar and thus make it harder to detect the expected relationship with our dependent variables.

Table 1
Correlations of motive imagery with academic performance.

Achievement imagery	Academic performance												
	15-year-olds									9- to 10-year-olds			
	2000			2003			2006			2009	2001 ^b	2006	2011
	Language	Math	Science	Language	Math	Science	Language	Math	Science	Language	Language	Language	Language
1996 all books	.33	.47	.55	.56 ⁺	.71 ⁺	.70 ⁺	.68 ⁺	.77 ⁺	.88 ⁺	.67 ⁺	.92 ⁺	.64 ⁺	.80 ⁺
1996 top five ^a	.54	.51	.61 ⁺	.53	.63 ⁺	.62 ⁺	.83 ⁺	.67 ⁺	.72 ⁺	.71 ⁺	.41	.65 ⁺	.68 ⁺
2006 all books	.24	.21	.31	.33	.46	.48	.62 ⁺	.51	.62 ⁺	.50	.26	.35	.50
2006 top five ^a	.48	.46	.56 ⁺	.51	.59 ⁺	.61 ⁺	.78 ⁺	.67 ⁺	.71 ⁺	.69 ⁺	.37	.51	.64 ⁺

Note: $N = 7$.

^a For Thuringia only top three.

^b $N = 6$.

⁺ $p < .10$.

^{*} $p < .05$ (one-tailed).

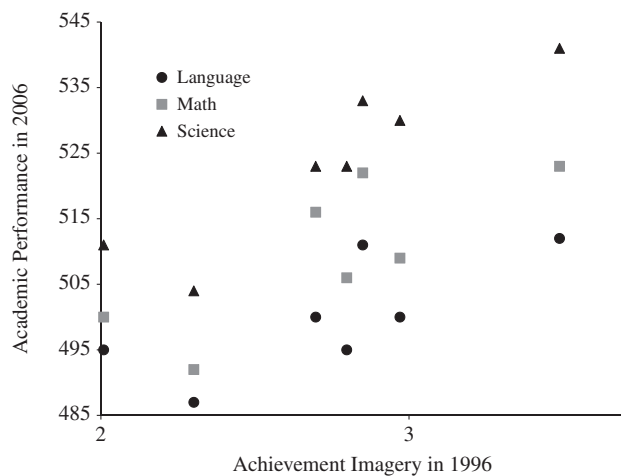


Fig. 1. Achievement images of 1996 (all books) and academic performance in 2006.

achievement and affiliation, and $r = .87$ ($p = .01$) between power and affiliation.

The recommended reading age and the imagery of each book correlated weakly with the motive imagery in 1996 ($r_s < |.21|$, $p_s > .12$) and up to moderately in 2006; $r = .38$ ($p < .01$) for achievement, $r = -.46$ ($p < .01$) for affiliation, and $r = -.04$ ($p = .71$) for power. Recommended mean reading ages did not differ between the federal states in 1996 and in 2006 ($p > .60$).

3.2. Academic performance

The correlations of motive imagery with academic performance are presented in Table 1. For the achievement imagery in all books in 1996, the correlations between achievement imagery and academic performance of the 15-year-olds were weak in 2000, medium to strong in 2003, and strong in 2006. The correlations were slightly higher for science than for mathematics and language.³ Correlation with the academic performance in language decreased for 2009, but was still of strong magnitude. Thus, the relationships between achievement imagery and performance was strongest for the cohort which was within the recommended reading age at the time of 1996 taking the academic performance test in 2006.

Although the number of cases was small, the correlations for the academic performance were (marginally) significant in 2003

Table 2
Correlations of motive imagery (1996) with youth crime.

Motive imagery 1996	Youth crime (youth suspects)			
	1996	2001	2006	2011
Power all books	.43	.45	-.03	-.61 ⁺
Power top five ^a	.20	.21	-.16	-.44
Affiliation all books	-.20	-.21	.17	.50
Affiliation top five ^a	-.71 ⁺	-.73 ⁺	-.52	.35

Note: $N = 7$.

⁺ $p < .10$.

^{*} $p < .05$ (one-tailed).

^a For Thuringia only top three.

and significant in 2006 for all three academic domains. Thus, our assumption found full support for the motive imagery of children's books in 1996 and academic performance for 15-year-olds. Looking at the motive imagery for the five bestselling books in Table 1, the findings are analogous. This is especially important, because for the states of Saxony and Thuringia only the top-selling rankings were considered. In Fig. 1, we plotted the achievement imagery with academic performance in 2006. As can be seen, the strong correlations were not attributable to outliers.

The correlation of the achievement imagery in 1996 and academic performance for the 9- to 10-year-olds is strong and (marginally) significant for 2001–2011 (see Table 1). As expected, the correlation in 2001 is higher than in the other years (the cohort which was within the recommended reading age at the time in 1996 and took the academic performance test in 2001). When the correlations for the top five selling ranks are taken into consideration, the correlation loses its significance in 2001, but remains high in 2006 and 2011. The finding that correlations remain high for the years 2006 and 2011 (and even increase for the top five books) does not speak in clear favor of a specific cohort effect.

As achievement and power imagery were substantially correlated in 1996, we conducted a multiple regression with achievement and power as predictors for academic performance in 2006. Achievement was still a strong predictor, but remained significant only for science (one-tailed); $\beta_{\text{language}} = .57$, $t_{\text{language}} = 1.25$ ($p = .14$), $\beta_{\text{math}} = .77$, $t_{\text{math}} = 1.87$ ($p = .07$), and $\beta_{\text{science}} = .79$, $t_{\text{science}} = 2.67$ ($p = .03$) (for power imagery $p_s > .64$). The same pattern was found for the academic performance of 9- to 10-year-olds in 2001; $\beta = .79$, $t_1 = 3.08$ ($p = .03$) (for power $p = .45$).

Looking at the correlations of the achievement imagery in 2006, we see a similar pattern for the 15-year-olds which especially holds for the top five books (see Table 1). We would expect stronger correlations for academic performance later than 2009. The fact that we still found positive correlations might reflect that the

³ Correlations between domains are very high for 2000, 2003, and 2006 ($r > .92$). Correlations between the years 2000–2009 are also very high ($r > .60$; language performance from 2011 correlates with $r > .89$ with the years before).

correlations for academic performance are highly correlated over the years (see footnote 3) and that achievement imagery for 1996 and 2006 are also substantially correlated. More specific to our assumptions are the correlations for the 9- to 10-year-olds. The correlations get stronger from 2001 to 2006 to 2011, but reached marginal significance only for achievement imagery for the top five ranked books.⁴ Thus, we found support for our hypotheses, but not as clear as we have found for achievement imagery in 1996.

3.3. Youth crime

Depicted in Table 2, the correlations between power (all books) in 1996 and youth crime (youth suspects) were of medium size and positive in 1996 and 2001. Most importantly, we did not find a substantial relation for 2006 as we had expected and, thus, could not support our assumption. For 2011, the correlation between youth crime and power was negative. We did not formulate any expectations in this regard because this does not relate to the age cohort of the recommended reading age of the books in 1996. For the five bestselling books, the correlations are in the same directions and do not change the pattern of results.

For affiliation, negative correlations with youth crime were found for the years 1996 and 2001. Contrary to expectations, we found a positive (albeit nonsignificant) correlation with youth crime in 2006. For 2011 the correlation was positive as well. These correlations with 1996 and 2001 were substantially stronger for the five bestselling books than for all of the books together and reached significant levels. The negative correlations found for 1996 point out that in times of high rates of youth crime, children's books with low affiliation imagery are more popular.

We had no expectations for the power and affiliation imagery of the 2006 books. Nevertheless, when looking at the correlations with crime rates in 2011, we found medium-sized negative correlations for both power and affiliation imagery (also for the top five books). For the year 2006 we found low positive correlations (also for top five books). Thus, we could not replicate the negative relationship for affiliation imagery in 1996 with the youth crime of the same year.

4. Discussion

We reasoned that children's books are a sensitive indicator for the socialization context of a society, which should provide us with an understanding of the times and how times may develop. In 57 children's books taken from the bestseller rankings in 1996 of seven state regions in Germany, we coded imagery of achievement, power, and affiliation. As expected, achievement imagery showed a strong relationship to academic performance. We replicated the findings with children's books from 2006 (47 books). We could not confirm our expectation that power imagery was positively and affiliation imagery negatively related to rates of youth crime.

In respect to former studies (McClelland, 1961; cf. Brunstein & Heckhausen, 2008), we used academic performance as a selected indicator for the achievement domain, and the indicator was more closely related to the age cohort than in former studies. With this refined approach, we minimized the risk to detect random effects due to a greater number of dependent variables and achieved higher internal validity for the relationships tested. Additionally, we conducted our analyses within one nation ruling out alternative explanations such as basic cultural or other differences. However,

differences between the federal states within Germany may hold as alternative explanations for our results. For example, differences in prosperity of the states influence achievement imagery in children's books and academic achievement (while the imagery as such is not of causal influence). The small number of units in our analyses does de facto restrict an inclusion of control variables to evaluate this alternative explanation. But such an evaluation is also limited on theoretical grounds. We used academic achievement as an indicator for economic achievement (Hanushek & Wößmann, 2011), and controlling for economic achievement would therefore diminish the relationship (and this is why we focus on the close link of the indicators to an age cohort).

Children's books are a sensitive indicator of the motivational orientation of a society as sales rates indicate what adults see as especially valuable to pass onto children. However, books are surely not the only way to transmit motivational orientations. Other behaviors such as the selection of toys, preferred TV programs, and aspects of social interaction could be used as additional indicators. We would expect that these could be used interchangeably to some degree. Moreover, all of them should also have direct effects on shaping children's understanding of the world (cf. media use and aggression; Krahe & Möller, 2010). The expected direct influence allows for experimental tests that supplement the macro-level analyses (McArthur & Eisen, 1976).

Regarding experimental work, it has been repeatedly shown that achievement primes improve performance (Custers, Aarts, Oikawa, & Elliot, 2009). Custers and Aarts (2005) further showed that textual stimuli subconsciously paired with positive and negative words can indeed influence behavior and this is what happens when children read books. In children's books, achievement contents are nearly exclusively associated with positive aspects. These positive associations influence children to approach achievement tasks more positively and enjoy acting on achievement tasks without (or despite) social pressure. Further research should take prototypical books (e.g., exclusively high achievement imagery) to directly test the effect on behavior in experimental settings.

We found support only for the achievement domain and no support for the expected relationships for power and affiliation. This raises the question of whether youth crime rates may be a good indicator of these latter motives. Academic performance was assessed in a highly standardized and valid manner even designed to compare the federal states in Germany. On the other side, the official statistics depend on aspects beyond actual criminal behavior, such as crime detection rate and readiness to file charges (Kivivuori, 2011). Additionally, the state regions were selected on the basis of differences in academic achievement. We also suggest paying attention to different types of crime (e.g. violent crimes, fraud), and hopefully future studies will find better indicators (e.g., reliable data on bullying in schools) and tailor the design of the study based on these indicators. It would be best to choose regions with recurrent violent or military conflicts between societies (or social groups), as former studies found power and affiliation imagery most relevant here (Winter, 2000).

Another limitation of the present research is the small number of only seven units for the analyses and having a considerable range in the recommend reading age. Beyond the need to additionally replicate the findings for other countries as well, it would be especially informative to determine whether adults have some insight into the motive imagery of children's books and to investigate whether the motives and values of adults correspond with deliberate choices of books for (their) children. Additionally, bestseller rankings reflect what is currently valued and provide a good indicator in this respect, but the actual use of books by children should additionally be assessed especially when thinking of a direct influence of the books on children.

⁴ Upon inspection of the scatterplots, an outlier could be detected (for all books as well as for the top five). Replacing the outlier with a value one (or two) standard deviation added to the mean does not substantially change the correlations (correlations become even slightly stronger). Thus, the outlier does not spuriously bias the correlations presented.

Our analyses provide evidence for the relationship of achievement imagery and academic performance and could replicate former findings (cf. McClelland, 1985) within a more refined research design. Moreover, we outlined a possible direct effect of the books on children's understanding of the world, namely, that reading or listening to books itself influences social development. Our data indicate that at least one mechanism is at work or both go hand in hand. To assess the actual use of children's books (in combination with experimental studies) will provide us with information to prove a direct effect of the books as outlined above. In addition, investigating parent's motives and values and how these influence their choices for what they expose their children to would deepen our understanding of how close Zeitgeist and the prevalence of motive imagery in children's book are related.

5. Conclusion

We have just begun to read the first pages of the story that children's books can tell us about predicting social development, and the story gets off to a very promising start. We were able to support our expectation that the achievement imagery in children's books is a valid indicator for social development in respect to academic performance. We hopefully encourage research on children's book from a motivational perspective.

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Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.jrp.2013.04.002>.

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