

This is a post-print.

Please cite as Schüller, E., Birnbaum, L., & Kröner, S. (2017). What makes elementary students read in their leisure time? Development of a comprehensive questionnaire. *Reading Research Quarterly*, 52(2), 161-175. <https://doi.org/10.1002/rrq.164>

What Makes Elementary School Students Read in Their Leisure Time? Development of a Comprehensive Questionnaire

Elisabeth M. Schüller

Lisa Birnbaum

Stephan Kröner

Friedrich-Alexander-Universität Erlangen-Nürnberg, Nuremberg, Germany

ABSTRACT

Why should children read in their leisure time? Reading may contribute to the acquisition of reading literacy and may foster integral human development. However, there has been a scarcity of research on determinants of leisure time reading among elementary school students, especially regarding environmental aspects. In this article, the authors report on the development of a differentiated questionnaire regarding these determinants. Based on a previous series of qualitative and quantitative pilot studies, a study with 980 elementary school students was conducted, applying scales based on behavioral beliefs (motivation in action, thematically congruent consequences, and thematically incongruent costs and benefits), normative beliefs (subjective norm), and control beliefs (self-efficacy and controllability) as predictors of leisure time reading. After excluding motivation in action from analysis because of multicollinearity problems, the variables thematically incongruent costs and benefits, self-efficacy, and controllability explained 50% of variance in the criterion reading frequency. Analyses of covariance indicated that children, especially daughters, of mothers with high educational attainment showed significantly more leisure time reading. The benefits of focusing on students' beliefs and of including environmental aspects in research on leisure time reading are discussed.

Theoretical Background

What induces children to read in their leisure time or to avoid this activity? Why does reading rank among the favorite leisure time activities for some children, whereas others read only if they have to? This is an important question for several reasons: Reading fosters the

development of reading literacy, it opens the doors to a unique form of aesthetic experience, and it is an integral part of cultural participation.

The Significance of Leisure Time Reading

From the instrumental perspective, reading literacy is a widespread topic in public and scientific discourse. Issues of reading literacy are investigated by international large-scale achievement studies such as the International Adult Literacy Survey (Murray, Kirsch, & Jenkins, 1998) or, for children, the Progress in International Reading Literacy Study (PIRLS; Mullis, Martin, Gonzalez, & Kennedy, 2003). It is well known that reading during leisure time is an important way to improve reading literacy: Cipielewski and Stanovich (1992) found that elementary school students who engaged more intensively in recreational reading outperformed their peers in reading achievement tests when controlling for cognitive abilities. Similarly, a meta-analysis of print exposure revealed that poor readers appear to benefit from deliberate leisure time reading (Mol & Bus, 2011). Beyond that, other studies have shown that the time children spend on leisure time reading is the best predictor of progress in school reading achievement between second and fifth grades (Anderson, Wilson, & Fielding, 1988; see also Cunningham & Stanovich, 1997; Morrow, 1996). Moreover, instrumental aspects such as reading literacy and the mastery of written language are prerequisites for text comprehension and the retrieval of written information in everyday life.

However, besides the instrumental value of reading, there is a second argument for the significance of leisure time reading that is often neglected in the educational discourse as compared with the literacy aspect: Reading may provide a unique aesthetic experience, making it an important part of cultural and aesthetic education. Referring to Spinner (2008), the aesthetic experience associated with reading activities is related to aspects such as experiencing language from a unique, not merely instrumental, point of view or forgetting time while reading. Moreover, Spinner indicated that reading may be associated with

imagining or experiencing alterity, such as by empathizing with characters in a novel (Rosenblatt, 2005). While providing an opportunity to take different perspectives, reading also stimulates reflection on one's own behavior and personality. At other times, it may simply free readers from reality and allow them to dip into a fantasy world. Thus, reading offers an opportunity for aesthetic experiences and for satisfying the need for entertainment, and it may go hand in hand with a quest for meaning and personality development (Hurrelmann, 1994; Spinner, 1989). Similarly, reading may contribute to the development of creativity, divergent thinking, and personality and may foster active, deliberative, and responsible participation in political, social, and cultural life (cf. Enquete-Kommission Kultur in Deutschland, 2007; Liebau, 2007).

Elementary schools may be regarded as crucial promoters of reading habits by initiating the development of reading literacy. However, to ensure that children benefit from the full range of advantages that are associated with intensive leisure time reading, research on efforts to promote this kind of activity as soon as children are able to read on their own is warranted. Unfortunately, evidence regarding the success of our schools in these efforts is somewhat mixed: According to the results of the large-scale assessment study PIRLS, on average, more than one third of all students from the various participating countries declared that they read stories and novels only once or twice a month or less outside of school. For Germany, where we recruited the participants of our study, the figures are even more disappointing: 47% of the participating students stated that they only read once or twice a month or less outside of school (Mullis, Martin, Kennedy, & Foy, 2007).

Given this low level of reading activity, the following question arises: What are the starting points for promoting reading in school and the home environment among elementary school children? To explore this, a systematic investigation of the following questions must first be conducted: What makes elementary school students read in their leisure time, and are

there differences that depend on family background and gender? Consulting the literature, it is no surprise that children who are highly motivated to read do so more frequently (Guthrie, Wigfield, Metsala, & Cox, 1999; Wigfield & Guthrie, 1997). Regarding family background and gender, it is well known that children of more educated parents (Becker & Schubert, 2006) and girls (Stutz, Schaffner, & Schiefele, 2016) are often more frequent leisure time readers.

In the context of reading research, the question of the determinants of reading has been one of the most thoroughly researched. However, as the subsequent review of current reading research will show, many studies in this area of research have concentrated mainly on the personal side, largely ignoring possible environmental effects (for a comprehensive overview of reading motivation literature, see Schiefele, Schaffner, Möller, & Wigfield, 2012). Thus, the studies probably did not consider the whole range of possible determinants for reading activities.

Personal Versus Environmental Determinants of Reading: A Plea for Additional Studies on Student Reading

Among existing research instruments on reading, especially on reading motivation, which is one of the most investigated variables, the Motivation for Reading Questionnaire (MRQ), developed by Wigfield and Guthrie (1995, 1997), is one of the most frequently cited instruments. The MRQ assesses children's reading motivation as a multifaceted construct including self-efficacy, intrinsic motivation, extrinsic motivation, goals, and social aspects. In MRQ studies, intrinsic motivation has been found to be a stronger predictor of reading amount and breadth than extrinsic motivation. The questionnaire or modified versions of it have been applied in many studies (e.g., Baker & Wigfield, 1999; Taboada, Tonks, Wigfield, & Guthrie, 2009; Wang & Guthrie, 2004) and used as a basis for further questionnaire

development (Möller & Bonerad, 2007; Schaffner & Schiefele, 2007; see Table 1 for an overview of existing scales of different instruments of reading motivation).

TABLE 1

Comparison of Scales of Different Questionnaires Concerning Reading Motivation

Wigfield and Guthrie^{a,b}: Motivation for Reading Questionnaire	Möller and Bonerad^c	Schaffner and Schiefele^d	Schiefele and Schaffner^e	Greaney and Neuman^f
<i>Scales that correspond to the Motivation for Reading Questionnaire</i>				
Curiosity	Reading because of interest	Object-related reading motivation	Curiosity	
Involvement		Experience-related reading motivation	Involvement	Enjoyment
Competition	Competition	Competition-related reading motivation	Competition	
Recognition		Social reading motivation	Social recognition	Utility
Grades		Performance-related reading motivation	Grades	Utility
Compliance				
Work avoidance				
Challenge				
Social				
Importance				
Efficacy	Self-concept			
<i>Scales that do not correspond to the Motivation for Reading Questionnaire</i>				
	Reading pleasure			
			Emotional regulation	
			Relief from boredom	
				Escape

Note. Adapted from “Dimensions of Reading Motivation and Their Relation to Reading Behavior and Competence,” by U. Schiefele, E. Schaffner, J. Möller, and A. Wigfield, 2012, *Reading Research Quarterly*, 47(4), p. 436. Copyright 2012.

^aWigfield, A., & Guthrie, J.T. (1995). *Dimensions of children's motivations for reading: An initial study* (Research Report No. 34). Athens, GA: National Reading Research Center. ^bWigfield, A., & Guthrie, J.T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology, 89*(3), 420–432. ^cMöller, J., & Bonerad, E.-M. (2007). Fragebogen zur Habituellen Lesemotivation [Habitual reading motivation questionnaire]. *Psychologie in Erziehung und Unterricht, 54*(4), 259–267. ^dSchaffner, E., & Schiefele, U. (2007). Auswirkungen habitueller Lesemotivation auf die situative Textrepräsentation [Effects of habitual reading motivation on the situational representation of text]. *Psychologie in Erziehung und Unterricht, 54*(4), 268–286. ^eSchiefele, U., & Schaffner, E. (2016). Factorial and construct validity of a new instrument for the assessment of reading motivation. *Reading Research Quarterly, 51*(2), 221–237. ^fGreaney, V., & Neuman, S.B. (1990). The functions of reading: A cross-cultural perspective. *Reading Research Quarterly, 25*(3), 172–195.

Taking a closer look at the existing questionnaires on determinants of student reading including the MRQ (Möller & Bonerad, 2007; Schaffner & Schiefele, 2007; Schiefele & Schaffner, 2016; Wigfield & Guthrie, 1995, 1997), it becomes obvious that they tend to stress the importance of intrapersonal aspects while paying less attention to the subjective evaluation of environmental circumstances, such as the availability of books, the availability of time, or cost–benefit considerations. However, research on various leisure time activities has shown that such environmental factors also affect the conscious decision on whether to engage in a behavior or to avoid it (e.g., Murnaghan et al., 2010; Rhodes & Dean, 2009; van Schooten, de Glopper, & Stoel, 2004).

To mention just one example of the importance of cost–benefit considerations, the study by Nippold, Duthie, and Larsen (2005) provided evidence that if distraction through alternative leisure time activities is present, people may prefer them over reading. These alternative leisure time options can be assigned to costs, which “refers to how the decision to engage in one activity (e.g., [reading in leisure time]) limits access to other activities (e.g., calling friends)” (Wigfield & Eccles, 2000, p. 72). Dietz, Schmid, and Fries (2005) called these costs indirect. In their study on learning motivation, they found that mood and performance during learning and leisure activities suffer if these activities are incompatible with attractive alternatives (Dietz et al., 2005).

With regard to children, Schiefele and Schaffner (2013, 2016) also found evidence of the relevance of environmental circumstances: To investigate the content validity of their own reading motivation questionnaire based on the MRQ, they recently conducted a qualitative interview study with students in sixth grade, asking them about their reading activities (for the quantitative scale development work, see Schaffner & Schiefele, 2007). Most notably, it emerged that the dimension reading because of boredom or lack of alternatives had been missing (Schiefele & Schaffner, 2013); in their revised instrument, they added this dimension as a new factor, relief from boredom (Schiefele & Schaffner, 2016).

Nowadays, against the background of multiple leisure time options, it is important to consider competitive relationships among various leisure time activities. This can be expected to be a relevant aspect for leisure time reading and for any other leisure time activity. Regarding the relevance of environmental circumstances as evaluated by students, comprehensive research regarding this fact is still missing in the domain of reading. However, research on leisure time reading conducted with adults (e.g., Miesen, 2003; van Schooten et al., 2004) has given reasons to expect such influences.

Context-Specific Determinants of Reading

Beyond the aforementioned qualitative study by Schiefele and Schaffner (2013), there have been only a relatively small number of other qualitative studies exploring determinants of children's leisure time reading (Greaney & Neuman, 1990; Guthrie et al., 1996; Nolen, 2007). Usually, these studies aimed at reading determinants in a quite general way (the overall question in the study by Greaney and Neuman, for example, was "Why I like to read", p. 175). An explicit focus either on reading in leisure time (by choice) or on school-related reading activities was usually not present in these studies (cf. Nolen, 2007; Schiefele & Schaffner, 2013).

Such a differentiation has been missing in most quantitative studies, too. This is astonishing, as findings from McKenna and Kear (1990; McKenna, Kear, & Ellsworth, 1995) and De Naeghel, Van Keer, Vansteenkiste, and Rosseel (2012) have suggested that it is important to differentiate between these two contexts. In these studies, the researchers showed that determinants of reading activities differ between recreational and academic reading. For example, autonomous motivation was found to be a better predictor of reading frequency in the recreational context than in the academic context (De Naeghel et al., 2012). With regard to these motivational differences across settings, it becomes evident that further research needs to explicitly focus on a particular setting.

To sum up, there has been an abundance of studies examining intrapersonal determinants of reading, especially among older students. However, and as the study by Schiefele and Schaffner (2013) showed, existing instruments most probably exclude environmental aspects that might well determine children's reading activities. Therefore, there is a need for additional studies that include the whole range of children's reading determinants, including children's beliefs regarding both personal characteristics and environmental aspects that might influence their decisions. Moreover, to consider context-specific motivational differences, an explicit focus on one context is necessary. Such studies may provide the basis for the development of more comprehensive questionnaires regarding determinants of children's reading activities.

The Theory of Planned Behavior and Existing Studies in the Reading Domain

To ensure that children's beliefs regarding both personal characteristics and environmental aspects are included, a comprehensive theory is needed that considers both aspects. Thus, we decided to base our study on the theory of planned behavior (TPB; Ajzen, 1985, 1991), with its differentiated view of determinants of intentional behavior. The TPB distinguishes among behavioral beliefs (positive and negative evaluations of the behavior in question, resulting in

“attitude”), normative beliefs (perceived social pressure to perform or not to perform the behavior, resulting in “subjective norm”), and control beliefs (perceived capability to perform the behavior divided into “controllability” [the subjective evaluation of environmental circumstances] and “self-efficacy” [the subjective evaluation of one’s own competences], resulting in “perceived behavioral control”).

With these components, the theory claims to specify all immediate determinants of planned behavior. This claim is supported by the excellent criterion validity of many questionnaires resulting from the TPB framework (Armitage & Conner, 2001; Hagger, Chatzisarantis, & Biddle, 2002; Hausenblas, Carron, & Mack, 1997). There is ample evidence that the more favorable the behavioral, normative, and control beliefs, the stronger the individual’s intention to perform the behavior and, finally, the higher the probability of displaying the behavior in question (cf. Ajzen, 2012). Moreover, the TPB focuses on a clearly defined criterion and includes clear instructions on how to conduct studies comprising future scale development work (cf. Francis et al., 2004).

In the reading domain, the TPB has already been applied successfully in some studies with adolescents and adults (Miesen, 2003; Rhodes & Dean, 2009; Stokmans, 1999; van Schooten & de Glopper, 2002; van Schooten et al., 2004). However, reasons for and against leisure time reading may vary across the life span. Thus, using questionnaires developed for other age groups for elementary school students is questionable. Unfortunately, there has been a scarcity of TPB-based studies on the determinants of reading among children. Among the rare exceptions is the study by Sideridis and Padeliadu (2001), who surveyed Greek elementary school students regarding reading difficulties.

In spite of the usefulness of the TPB paradigm, many quantitative studies in that paradigm, including the TPB study on reading determinants of elementary school students

mentioned previously, have shared one drawback: They lacked a thorough qualitative elicitation study (for one of the rare exceptions within the reading domain, see Miesen, 2003).

Focus of the Present Study and Preparatory Work

From the considerations mentioned so far, it becomes obvious that three points need to be taken into account in future research on determinants of reading among elementary school children: First, a clear focus regarding the context of reading is necessary. To avoid confounding leisure time and school-related reading activities, the present study focused on the question, What makes children read in their leisure time? This focus on leisure time reading corresponds to our particular interest in reading as a self-selected activity that is more strongly related to aesthetic experience than to school obligations. Second, the TPB includes both individual aspects and environmental factors (cf. Kröner, 2013). Building on this distinction, the whole range of students' beliefs specific to the leisure time reading domain can be taken into consideration. Finally, to ensure content validity of the scales, we started from scratch with a qualitative elicitation study exploring and systematizing children's salient reasons for and against engaging in leisure time reading.

Next, a questionnaire based on the children's statements in the qualitative study was developed and investigated in two quantitative pilot studies to validate the qualitative results with factor analyses before we conducted our main study (see Schüller, 2014). The revised instrument was then used in the present study, in which we determined the significant predictors for reading activities and relevant background variables. Moreover, we compared the developed questionnaire and its results with existing questionnaires assessing determinants of reading, with the scope of providing implications for the further development of instruments in reading research. These findings may be used as a starting point for determining perspectives for future research.

Previous Scale Development Work

In a qualitative preliminary study, guided interviews based on the TPB framework (see Francis et al., 2004) were conducted with 26¹ elementary school children.² The data were collected in three schools that differentiated in terms of both reading-related extracurricular activities and student characteristics (migration background and number of students). Parallel to the generation of the set of categories, comprehensive guidelines³ containing the definitions of the categories, suitable example statements, and (where necessary) exact delineations of the categories were developed. These guidelines were continuously reviewed and edited. Subsequent to the initial rating of 17 randomly chosen interviews, a colleague who had so far not been involved in the generation of the set of categories and the discussion of the categories within the project team did the follow-up rating of these interviews by referring to the developed guidelines.

The inter-rater agreement calculated for 260 statements based on the 17 randomly chosen interviews amounted to Cohen's Kappa of .93. According to the criteria of Fleiss and Cohen (1973), it can be considered very good (Wirtz & Caspar, 2002). The remaining nine interviews could be easily assigned to the set of categories that had been generated. Thus, there is no evidence that crucial aspects were missing in the set of categories or that the sample size should have been extended. In total, 386 statements were excerpted from the interviews. Thus, a fine-grained picture of the reasons for and against recreational reading emerged, resulting in three deductively derived main categories. These categories were inductively differentiated into six subcategories (see the Appendix), which are in accordance with results from the literature and other studies (for more details concerning the qualitative study, see Schüller, 2014).

Departing from the set of categories, questionnaire scales for the three aspects of beliefs mentioned in the TPB (behavioral, normative, and control) were developed and tested

in two quantitative pilot studies with 198 and 230 elementary school students, respectively. Regarding the behavioral beliefs, three subscales were developed: motivation in action, thematically congruent consequences, and thematically incongruent costs and benefits. The general scale subjective norm is based on the normative beliefs. With regard to the control beliefs, the following two scales were developed: self-efficacy and controllability. The internal consistencies of almost all scales in the second pilot study had Cronbach's alphas between .72 and .86, with the sole exception of the subjective norm scale (Cronbach's $\alpha = .54$). This, however, can be traced back to the notorious heterogeneity of this scale that is known from the literature (for a detailed discussion, see Schüller, 2014).

The validation of the theoretically postulated factor structure in the second pilot study was successful: The structure of the questionnaire was in line with the theoretical assumptions, as proven by a reasonable model fit of the confirmatory factor analysis, $\chi^2 = 400.21$, $df = 237$, $p \leq .01$, root mean square error of approximation (RMSEA) = 0.05, comparative fit index (CFI) = 0.92, Tucker–Lewis index (TLI) = 0.91. Moreover, in linear multiple regression analyses, 27% of the criterion variance could be explained, $F(6,189) = 11.83$, $p \leq .01$. Almost all predictor scales showed statistically significant correlation with the criterion reading frequency ($.32 \leq r \leq .48$), with the exception of the subjective norm scale. Limitations of the pilot studies were the small sample size for factor analyses and problems with the subjective norm scale. Furthermore, some items were linguistically revised with the aim of both making them easier for children to understand and avoiding ceiling effects in some items and hence to prevent restrictions of range in these items.

The Present Study

After optimizing the instrument, we applied it to a larger sample in the present study. In this study, we wanted to check for further predictor constructs with significant effects. Moreover,

we wanted to generate evidence for the construct validity of the scales. Regarding validity of the criterion scale, we explored the effects of mothers' educational attainment and children's gender. According to the literature, there should be more leisure time reading activities among children of more educated mothers and among girls: A few studies have already observed an effect of family background on reading (Becker & Schubert, 2006; Retelsdorf, Köller, & Möller, 2011). PIRLS 2011 revealed that parents' educational level and profession have a greater effect on reading literacy than parents' migration background (Mullis, Martin, Foy, & Drucker, 2012). Furthermore, Anderson et al. (1988) found a significant effect of gender on out-of-school reading time.

Concerning the predictor scales, we explored whether their explanatory value regarding the criterion changed when including mothers' educational attainment and children's gender. In our view, children should be likely to read if their mothers' educational attainment is high. According to the TPB, these predictor variables should be immediate predictors, which in turn may be explained by the further, more distal, explanatory variables.

Method

Sample

For the present study, 980 elementary school students (487 females and 492 males; mean [*M*] age = 8.67 years, standard deviation [*SD*] = 0.60 year) were surveyed via paper-based questionnaires. Only students with a declaration of consent signed by the parents participated in the study. These students came from 67 classes at 23 different elementary schools in the metropolitan area of Nuremberg, Germany.

Procedure and Instrument

The students completed the questionnaires at school, and trained test administrators instructed the children. The questionnaire covered items concerning children's leisure time reading activities and the predictor variables of the TPB (see the Appendix).

Predictor Scales

Based on the previous studies, the following predictor scales were applied (for internal consistencies and number of items, see Table 2): The beliefs regarding the behavior of recreational reading were operationalized as thematically congruent consequences (e.g., “I read because I can learn more about some things”), thematically incongruent costs and benefits (e.g., “I prefer doing something else instead of reading”), and motivation in action (three items comprising enjoyment: “Reading is a lot of fun”; fantasy: “I read because I really can imagine the story”; and autonomy: “I read because I can decide by myself what I want to read”). Measuring normative beliefs related to relevant socialization agents, the subjective norm scale contained items related to the children’s parents, relatives, friends, and teachers (e.g., “My friends approve of me reading in my leisure time”). The control beliefs were differentiated into the scales self-efficacy (e.g., “Reading is difficult for me”) and controllability (e.g., “I can read in peace during leisure time”).

TABLE 2
Descriptive Statistics, Internal Consistencies, and Bivariate Correlations of the Theory of Planned Behavior Scales With the Criterion

Theory of planned behavior scales	Mean	Standard deviation	Cronbach's α	<i>r</i>
<i>Behavioral beliefs</i>				
Thematically congruent consequences (four items)	2.93	0.82	.82	.20
Thematically incongruent costs and benefits (four items)	2.37	0.81	.82	.47
Motivation in action (three items)	3.16	0.77	.70	.54
<i>Normative beliefs</i>				
Subjective norm (four items)	3.38	0.53	.61	.19
<i>Control beliefs</i>				
Self-efficacy (three items)	3.32	0.78	.75	.35
Controllability (three items)	3.27	0.77	.79	.40

Note. $N = 959$ (listwise deletion). All correlations are statistically significant ($p \leq .01$).

A great majority of the items were developed by the authors, and the remaining items were adapted from existing questionnaires. Responses to the items were scored on a 4-point rating scale. In addition to the predictor scales, mothers' educational attainment (0 = *no higher education entrance qualification*; 1 = *higher education entrance qualification*) and gender (0 = *male*; 1 = *female*) were included as predictors in the present study.

Criterion

As criterion, we assessed the frequency of recreational reading with three items (Cronbach's $\alpha = .79$). One item ("How much time per day do you normally spend reading in your leisure time?") referred to IGLU (*Internationale Grundschul-Lese-Untersuchung* [International Primary School Reading Literacy Study]; Bos et al., 2005), with an adopted 6-point scale scored as 1 (*almost never*), 2 (*up to 15 minutes a day*), 3 (*15–30 minutes a day*), 4 (*30–60 minutes a day*), 5 (*one to two hours a day*), or 6 (*more than two hours a day*). The other two items were self-developed with 5-point rating scales: "How many pages do you read per day?" (scale anchors: 1 = *less than one page*; 2 = *1–10 pages*; 3 = *11–20 pages*; 4 = *21–30 pages*; 5 = *more than 30 pages*) and "How often do you read in your leisure time?" (scale anchors: 1 = *never or almost never*; 2 = *once or twice a month*; 3 = *once a week*; 4 = *two or three times a week*; 5 = *more than three times a week*).

To make the response formats commensurable, items were *z*-standardized before computing their mean. Moreover, to ease the interpretation of analyses of covariance (ANCOVAs), we also *z*-standardized the resulting mean.

Results

Descriptive Statistics

The descriptive statistics, internal consistencies, and bivariate correlations of the TPB scales with the criterion are depicted in Table 2. All correlations of the TPB predictor scales with the criterion are statistically significant.

Testing the Factor Structure

First of all, we wanted to test whether the differentiation of the two TPB predictor constructs attitude (three subfactors) and perceived behavioral control (two subfactors) in their subscales could be justified. Thus, for attitude and for perceived behavioral control, we specified two alternative submodels. For each of these constructs, we either modeled only one comprehensive factor (for attitude: model 1a; for perceived behavioral control, model 2a) or alternatively split the constructs into their subfactors (for attitude: three subfactors, model 1b; for perceived behavioral control: two subfactors, model 2b). As can be seen from Table 3, in both cases, the more differentiated models showed a better model fit than the models with only one comprehensive factor.

TABLE 3

Fit Indexes and Satorra–Bentler Scaled χ^2 Difference Tests of the Different Factor Models for Attitude and Perceived Behavioral Control, and Fit Indexes of the Resulting Model

Model	Root mean square error of approximation and 90% confidence interval	Comparative fit index	Tucker–Lewis index	χ^2 (<i>p</i>)	<i>df</i>	Satorra–Bentler $\Delta\chi^2$ (<i>p</i>)	Δdf
1a: Submodel for attitude (one factor)	0.14 [0.13, 0.14]	0.74	0.65	862.40 ($\leq .01$)	42	1632.38 ($\leq .01$)	3
1b: Submodel for attitude (three factors)	0.04 [0.03, 0.05]	0.97	0.96	113.41 ($\leq .01$)	39		
2a: Submodel for perceived behavioral control (one factor)	0.19 [0.17, 0.21]	0.67	0.45	343.28 ($\leq .01$)	9	261.94 ($\leq .01$)	1
2b: Submodel for perceived behavioral control (two factors)	0.02 [0.00, 0.04]	0.99	0.99	12.97 ($= .11$)	8		
3: Complete model (six factors)	0.03 [0.02, 0.03]	0.97	0.96	332.43 ($\leq .01$)	171		

Note. *Mplus* files are available upon request.

Therefore, a differentiated confirmatory factor analysis with the six predictor (sub)scales (thematically congruent consequences, thematically incongruent costs and benefits, motivation in action, subjective norm, self-efficacy, and controllability) was calculated to test the theoretically postulated factor structure (model 3). The fit of this model was very good; the factor loading of the indicators on the latent variables was statistically significant ($p \leq .01$) and of substantial value (median = 0.72) in each case. Almost all correlations between the latent predictor variables were statistically significant but low enough to justify the number of factors chosen. However, it was observed that correlations between the predictor scale motivation in action and the predictor scales controllability and thematically incongruent costs and benefits were quite high (above $r = .70$). This might lead to problems with multicollinearity when using all scales as predictors of recreational reading in structural equation models.

Criterion Validity

Criterion validity of the predictor scales was investigated via correlations of all predictor scales with the reading frequency criterion. All predictor scales showed statistically significant correlation with the criterion ($.19 \leq r \leq .54$). Motivation in action was the predictor scale that showed the highest correlation with the criterion.

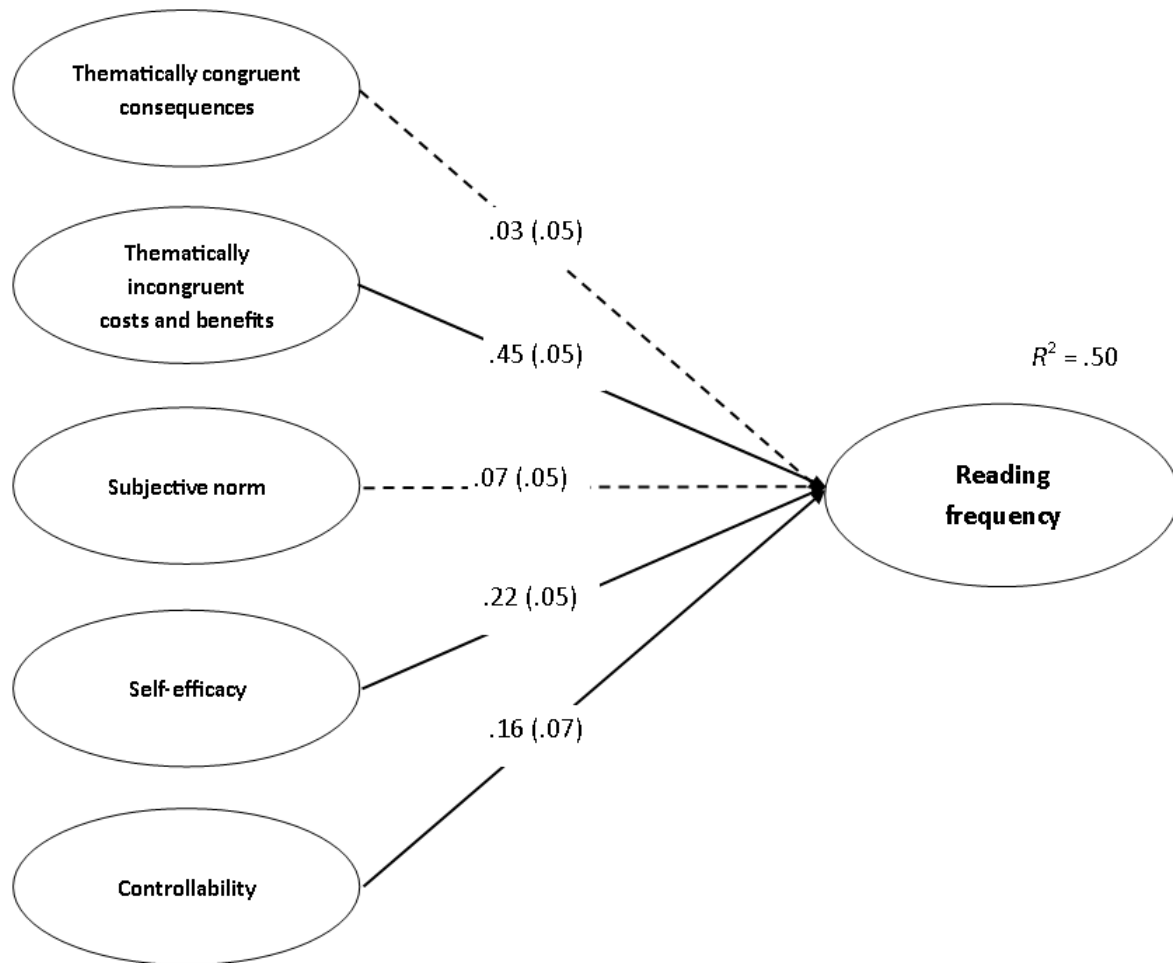
Structural Equation Models for the Explanation of Leisure Time Reading

First, a model for the prediction of leisure time reading activities with all predictor scales was calculated. However, and as expected because of the high correlation between motivation in action and the other predictor variables, suppression effects emerged. As a consequence, beta weights for the predictor scales controllability and thematically incongruent costs and benefits were negative, and the beta weight for the predictor scale motivation in action was greater than 1. Thus, a straightforward interpretation of this model was not possible. By computing regression analyses of each independent variable on the remaining independent

variables, the latent variable causing multicollinearity was identified (Backhaus, Erichson, Plinke, & Weiber, 2011).

One way to deal with multicollinearity is to exclude the variable that causes it. Thus, a further model including all predictors except the problematic predictor motivation in action was specified. The calculated model is shown in Figure 1. It resulted in a very good fit, $\chi^2 = 251.98$, $df = 170$, $p \leq .01$; RMSEA = 0.02; CFI = 0.98; TLI = 0.98. This time, correlations between the predictor scales were all below .50, and no problems with multicollinearity occurred. All predictors except the predictor motivation concerning thematically congruent consequences and the predictor subjective norm had a statistically significant effect on the leisure time reading activities of elementary school students, explaining 50% of variance in the criterion.

FIGURE 1
Structural Model for the Prediction of Children’s Leisure Time Reading, Using All Predictors Except Motivation in Action (N = 980)



Note. Standardized solutions (and standard errors) are shown; $p \leq .05$ for all indicated beta weights. Dotted lines represent nonsignificant paths.

ANCOVAs and Follow-Up Analyses

To explore whether background factors have incremental value in explaining reading frequency, we conducted an ANCOVA that included reading frequency as the criterion. The analyses consisted of the background variables gender (female vs. male) and mothers’ educational attainment (qualified to enter higher education: yes vs. no), as well as the TPB variables (cf. Ajzen, 2011) that had been demonstrated to be statistically significant in the previous model. The predictor motivation in action was again excluded from these analyses. In the first ANCOVA, we focused on the background variables (see Table 4). The results

showed that mothers' educational attainment had a statistically significant main effect on reading frequency, but children's gender did not have a significant effect.

TABLE 4
Analyses of Covariance (ANCOVAs), With Reading Frequency as the Dependent Variable

Model	Reading frequency		
	ANCOVA 1: Background variables	ANCOVA 2: TPB scales	ANCOVA 3: TPB scales and background variables
TPB scales		$F(1, 735) = 455.50 (p < .001)$	$F(7, 729) = 465.47 (p < .001)$
Children's gender	$F(3, 733) = 1.72 (p = .19)$		$F(7, 729) = 2.29 (p = .13)$
Mothers' educational attainment	$F(3,733) = 29.11 (p < .01)$		$F(7, 729) = 10.87 (p < .01)$
Children's gender × Mothers' educational attainment	$F(3, 733) = 8.11 (p < .01)$		$F(7, 729) = 4.02 (p < .05)$
TPB scales × Children's gender			$F(7, 729) = 0.19 (p = .66)$
TPB scales × Mothers' educational attainment			$F(7, 729) = 2.77 (p = .10)$
R^2	.05	.38	.40

Note. TPB = theory of planned behavior.

The interaction effect of mothers' educational attainment and gender was also statistically significant. Thus, we continued with simple effects analyses in which we compared the leisure time reading of boys versus girls at different levels of mothers' educational attainment. These analyses revealed that the interaction was mainly driven by gender differences among children of less formally educated mothers; within this group, boys

showed lower reading frequency ($M = -0.32$, $SD = 1.01$; $N = 185$) than girls ($M = -0.01$, $SD = 0.99$; $N = 200$), $F(1, 741) = 9.91$, $p < .05$. Analogue-significant gender differences for boys ($M = 0.27$, $SD = 0.95$; $N = 192$) versus girls ($M = 0.18$, $SD = 0.98$; $N = 168$) of mothers with high educational attainment could not be found, $F(1, 741) = 0.84$, $p = .36$. Likewise, when the effects of mothers' education on boys and girls were compared separately, there was no significant effect for girls, $F(1, 741) = 3.07$, $p = .08$; but there was a significant effect for boys, $F(1, 741) = 34.06$, $p < .001$.

In the second ANCOVA, we focused on the TPB scales as predictors. As to be expected from the structural equation model, they displayed a statistically significant effect on reading frequency (see Table 4). In the third ANCOVA, we entered both the background variables and the TPB scales (see Table 4). Comparing the results of the first and third ANCOVAs, the pattern of effects for children's gender and mothers' educational attainment did not change. Comparing the results of the second and third ANCOVAs, the effect of the TPB scales also did not change. Additionally, the third ANCOVA did not reveal any statistically significant interaction effects of the TPB scales and the background variables.

Discussion

Main Results

The objective of the present study was to explore the determinants of leisure time reading among elementary school students and to develop a multifactorial questionnaire that provides scales for a comprehensive prediction of recreational reading among elementary school students. Thus, we collected the salient beliefs about reasons for and against leisure time reading from the children via a qualitative interview study. After deriving predictor scales based on their beliefs, we piloted these scales twice. When excluding the predictor motivation in action to cope with multicollinearity, in our main study, a combination of all other predictor scales provided both a fine-grained picture of the determinants and a high amount

of explained variance. In that model, the following predictors proved to be statistically significant: self-efficacy, thematically incongruent costs and benefits, and controllability (see Figure 1). The effects of motivation concerning thematically congruent consequences and subjective norm were found to be nonsignificant (for a detailed discussion of the predictor scales, see the next section).

One might argue that it is not a good idea to exclude the most important single predictor from the analyses. However, this seems justified when the focus is on the effects of the other predictors that may contribute to motivation in action. However, if one is merely interested in predicting reading activities with a short scale, one might refer to the items from the predictor scale motivation in action. This is a problem that related studies also had to deal with (cf. Miesen, 2003; Schiefele & Schaffner, 2016).

Regarding the effects of gender and mothers' educational attainment on reading frequency, our results are congruent with those of other studies showing that girls read more frequently than boys (Stutz et al., 2016) and that family background—operationalized as parental educational attainment in our study—influences reading activities (Becker & Schubert, 2006; Retelsdorf et al., 2011).

The question that arises now is how our instrument relates to other existing questionnaires for the investigation of reading activities. The answer to this question is discussed in the next section.

Implications for the Theoretical Differentiation of Existing and Future Instruments Assessing Determinants of (Leisure Time) Reading Activities

As mentioned previously, there is an abundance of instruments regarding the determinants of reading. However, no previous instruments focused on students' beliefs specific to leisure time reading (cf. Greaney & Neuman, 1990; Guthrie & Wigfield, 1997; Möller & Bonerad, 2007; Schaffner & Schiefele, 2007). In the following, we will compare the structure of our

newly developed questionnaire with that of the MRQ and other instruments. We will begin with a discussion about which of the determinants in our questionnaire are also considered in existing questionnaires and which go beyond the content of established instruments. This also includes a discussion of the nonsignificant predictors in the structural equation model (for the detailed discussion, see Schüller, 2014). We will then investigate whether our questionnaire is really comprehensive regarding determinants of leisure time reading among elementary school students.

Congruencies With Other Instruments and New Aspects

As to be expected from a valid instrument, there are noteworthy congruencies between our questionnaire and the structure of the MRQ and other established reading motivation questionnaires. Scales for reading-related self-efficacy or self-concept (cf. Guthrie et al., 1996; Malloy, Marinak, Gambrell, & Mazzoni, 2013; Möller & Bonerad, 2007; Nolen, 2007; Schaffner & Schiefele, 2007; Wigfield & Guthrie, 1997) and scales referring to aspects of our predictor scale motivation in action (e.g., Greaney & Neuman, 1990; Nolen, 2007; Schiefele & Schaffner, 2016; Wigfield & Guthrie, 1997) are already well established in other instruments. Scales based on normative beliefs (for TPB-based studies, see Miesen, 2003; for non-TPB-based studies, see Schiefele & Schaffner, 2013; van Schooten & de Glopper, 2002; Wigfield & Guthrie, 1997) and scales on motivation regarding thematically congruent consequences (e.g., Möller & Bonerad, 2007) are also part of other questionnaires. However, for both scales, we found no significant impact on recreational reading activities.

Regarding the subjective norm scale, Armitage and Conner (2001) and Hausenblas et al. (1997) reported that in most studies, scales concerning the subjective norm are the weakest predictors. This is often due to an insufficient operationalization. Thus, in future studies more than one item per group of socialization agents should be used, making it possible to split it up into homogenous subscales. Moreover, one might also include descriptive aspects of

normative beliefs (i.e., what the socialization agents are perceived to do), which were found to be a better predictor than the injunctive aspects (i.e., what socialization agents are expected to value) in some previous studies (see Manning, 2009; Ravis & Sheeran, 2003). With regard to the predictor scale motivation regarding thematically congruent consequences, it is no surprise that this factor showed no explanatory value: As this scale includes the aspect reading for learning, it might be more relevant when predicting reading for school than when predicting recreational reading (cf. the weak effects regarding this predictor on leisure time reading in Möller & Bonerad, 2007).

Beyond the congruencies between our scales and existing questionnaires, there are also two aspects covered by our questionnaire that do not seem to be included in the MRQ and many other instruments. The first of these scales is related to thematically incongruent costs and benefits; the second of these scales is controllability (for rare exceptions, see the few TPB-based studies on leisure time reading, such as Miesen, 2003; van Schooten & de Glopper, 2002). Thus, our results stress the importance of including environmental aspects in questionnaires on determinants of recreational reading (for previous evidence regarding thematically incongruent costs and benefits, see Dietz et al., 2005; Nippold et al., 2005; Schiefele & Schaffner, 2013, 2016; for the relevance of controllability, see Armitage & Conner, 2001; Hagger et al., 2002; Miesen, 2003; van Schooten & de Glopper, 2002).

Comprehensiveness of the Developed Questionnaire

When discussing the issue of the comprehensiveness of the developed questionnaire, one crucial distinction between the present study and existing studies on reading motivation has to be taken into account: As already mentioned, beliefs pertinent to leisure time reading and beliefs regarding school-related reading may differ (cf. De Naeghel et al., 2012). As we were interested primarily in leisure time reading as a self-selected activity, we focused on this facet in the present study. Thus, beliefs that are specific to school-related reading cannot be

expected to emerge from our results. Also, it is unsurprising that typical school-related dimensions such as those contained in the MRQ (e.g., grades, competition)⁴ did not appear at all in our study. Thus, no items related to this aspect are included in our questionnaire.

Supporting our results, in the qualitative interview study by Schiefele and Schaffner (2013), few children named competition as an answer on the open-ended question. Obviously, aspects related to achievement and social comparison are not salient in a leisure time context (cf. Klauda & Wigfield, 2012). This is in accordance with the notion of leisure time reading as intrinsically fostering creativity and active, deliberative, and responsible participation in cultural life, independently of external pressures resulting from competition and grades. Thus, taken together, regarding step 2 in our discussion, our instrument proved to be fairly comprehensive.

Practical Implications for School and Home Environments

Although our study is on leisure time reading activities, it nevertheless has some implications for teachers and classrooms. For example, our results show that parental education and children's gender interact when explaining leisure time reading. Thus, teachers should focus on promoting functional leisure time reading habits, especially when confronted with boys with less formally educated parents. However, due to the notorious instability of interaction effects, replications of these effects should be awaited.

Moreover, our results show that the TPB predictor scales have explanatory power above and beyond variables such as gender and parental education. Thus, teachers and parents as socialization agents should support the development of children's behavioral beliefs and aim to create a nurturing reading environment, which will in turn be reflected in positive control beliefs. Thus, both in schools and in home environments, books that may catch and hold the interest of both boys and girls should be provided. Furthermore, until the intrinsic value of reading has developed in children, establishing fixed reading time slots both

at school and at home may decrease thematically incongruent costs associated with a planned individual decision to spend time on reading.

Limitations and Avenues for Further Research

Our results are based on students from the metropolitan area of Nuremberg, Germany. Thus, further studies should check generalizability across countries and school systems.

Nevertheless, although such studies may result in some refinements regarding the effect size of one determinant or another, we are confident that we have extracted the general pattern of salient determinants of leisure time reading among elementary school students.

As mentioned previously, the predictor scale related to normative beliefs might be expanded by including descriptive beliefs and differentiated according to groups of socialization agents in further studies. This might avoid an underestimation of its explanatory value. Furthermore, differences in explanatory value for recreational reading activities among the different reference groups could be explored.

As already discussed, multicollinearity problems with the predictor motivation in action occurred in our study. We can imagine two possible explanations: One reason could be that the rather young children in our study had some difficulties in differentiating among the various predictors of recreational reading. However, the results might indicate that intrinsic value is simply at the core of leisure time activities. This would be in accordance with the findings of Kröner and Dickhäuser (2009), who saw a similarly high correlation of intrinsic value and subjective norm for cultural leisure time activities in their work with adolescents, who should be easily able to cognitively differentiate between these constructs. Finally, one might argue that very early in one's reading career, the investigated constructs influence one another reciprocally, resulting in high correlations between them. To check for this, longitudinal analyses of such reciprocal effects should be conducted.

Conclusion

The aim of the present study was to systematically develop comprehensive, reliable, and valid scales for the determinants of leisure time reading from the perspective of elementary school students. With the resulting questionnaire, both personal characteristics and perceived environmental factors explained leisure time reading activities above and beyond background variables such as parental educational attainment and children's gender. Although the results were in accordance with evidence from existing reading questionnaires, new or rarely considered aspects, especially from the environmental side, were also identified as relevant determinants of recreational reading. Thus, the aim of the present study may be considered to have been achieved. In future research, our questionnaire might be applied to the investigation of an aspect that is often neglected in studies tied to the discourse of the instrumental and economical significance of reading literacy (cf. OECD & Statistics Canada, 2011): reading as an avenue to aesthetic experience, which has a value of its own (cf. Spinner, 2008).

Notes

The data collection for this research was supported by a grant from the Staedtler Foundation (DS/eh S22-S26/10) to Stephan Kröner.

¹ Regarding the number of participants, this is in accordance with the recommended number of approximately 25 participants, as outlined by Francis et al. (2004).

² Regarding the age of the children, one might argue that it is difficult for children to verbalize their thoughts and feelings or the specific reasons why they read or do not read in their leisure time. Generally, however, guided interviews with children between 8 and 10 years old are considered an adequate research method as long as the questions asked are adjusted to the language register and the cognitive abilities of the children (cf. Emde &

Fuchs, 2012; Heinzl, 2012). With regard to the qualitative study, the questions were worded quite simply, and difficulties in understanding the questions on the part of the children could not be identified. Finally, the number of statements coded in our study (on average, five statements per person and question) can be interpreted as evidence that the children did not have any difficulties answering the questions (cf. Curtis, Weiler, & Ham, 2010; Sutton et al., 2003).

³ Coding guidelines are available upon request.

⁴ The grade dimension of the MRQ is operationalized as “I read to improve my grades,” and the competition dimension, for example, as “I like being the best in reading.” (see Wigfield & Guthrie, 1997, p. 432)

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Submitted April 24, 2016

Final revision received August 7, 2016

Accepted August 11, 2016

ELISABETH M. SCHÜLLER (corresponding author) is a postdoctoral researcher at the Leibniz Institute for Educational Trajectories in Bamberg, Germany. This article originates from her previous work as a research scientist at the Chair in Empirical Educational Sciences in the Department of Education at Friedrich-Alexander-Universität Erlangen-Nürnberg, Nuremberg, Germany; e-mail elisabeth.schueller@fau.de.

LISA BIRNBAUM is a research scientist at the Chair in Empirical Educational Sciences in the Department of Education at Friedrich-Alexander-Universität Erlangen-Nürnberg, Nuremberg, Germany; e-mail lisa.birnbaum@fau.de.

STEPHAN KRÖNER is professor at the Chair in Empirical Educational Sciences in the Department of Education at Friedrich-Alexander-Universität Erlangen-Nürnberg, Nuremberg, Germany; e-mail stephan.kroener@fau.de.

APPENDIX

Elements of the Set of Categories for and Against Reading as a Leisure Time Activity and Extracted Predictor Scales

Elements of the set of categories	Number of coded statements	Number of interviewees in each category	Main study, with extracted predictor scales
1. Behavioral beliefs	162	26	Attitude
1.1. Behavioral beliefs related to motivation in action (e.g., "Because it's fun")	106	26	Motivation in action: Three items (e.g., "Reading is a lot of fun," representing enjoyment; "I read because I really can imagine the story," representing fantasy; "I read because I can decide by myself what I want to read," representing autonomy); Cronbach's $\alpha = .70$
1.2. Behavioral beliefs related to thematically congruent consequences (<i>acquisition vs. no acquisition of knowledge and reading/writing competencies</i>) (e.g., "You said books about plants. Why are you reading those?" "Because my mum and I got a vegetable patch last year, and I want to learn more about planting")	30	15	Thematically congruent consequences: Four items (e.g., "I read because I can learn more about some things"); Cronbach's $\alpha = .82$

Pilot studies 1 and 2

1.3. Behavioral beliefs related to thematically incongruent costs and benefits (e.g., “What is keeping you from reading?” “At the moment, the weather is nice. That’s why I don’t read so often. I prefer playing outside”)	31	19	Thematically incongruent costs and benefits: Four items (e.g., “I prefer doing something else instead of reading”); Cronbach’s $\alpha = .82$
2. Normative beliefs (e.g., “My mum and my dad, because he also reads a lot”)	103	26	Subjective norm: Four items (e.g., “My friends approve of me reading in my leisure time”); Cronbach’s $\alpha = .61$
3. Control beliefs	121	26	Perceived behavioral control
3.1. Control beliefs related to self-efficacy (e.g., “Why is it easy for you to read [in your leisure time]?” “Because I am good at it”)	40	24	Self-efficacy: Three items (e.g., “Reading is difficult for me”); Cronbach’s $\alpha = .75$
3.2. Control beliefs related to controllability (e.g., “I take piano lessons, violin lessons. I play football....There isn’t much time left”)	76	24	Controllability: Three items (e.g., “I can read in peace during leisure time”); Cronbach’s $\alpha = .79$
In total	386	26	

Note. For each element of the set of categories, the number of coded statements is given, along with the number of interviews from which these statements were derived. Attention should be paid to the calculation of the number of interviewees commenting on each category: Here, interviewees with codings in more than one lower level category were counted only once for the respective higher level category. Thus, the number of interviewees at higher level categories is often less than the sum of the respective lower level categories. Further anchor examples of the single categories are illustrated in Schüller (2014).^a

^aSchüller, E.M. (2014). *Lesen als Freizeitbeschäftigung von Grundschulkindern: Entwicklung von Skalen auf Grundlage der Theorie des geplanten Verhaltens* [Reading as leisure time activity of primary school students: Development of scales based on the theory of planned behavior] (Doctoral dissertation). Retrieved from <https://opus4.kobv.de/opus4-fau/frontdoor/index/index/docId/5488>.