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Who Likes to Engage in Writing? – The Role of Children’s Beliefs and Intrinsic Value
Regarding Leisure Writing

Abstract

While leisure writing may help children to acquire writing skills, it can also be considered as an inherently valuable cultural activity. This study explores how children’s beliefs may explain to what extent children are inclined to leisure writing and if there are any gender differences. Building on preliminary scale development work, we analyzed data from 963 third-graders. Variables included (a) the intrinsic value attached to leisure writing (b) preceding behavioral, normative, and control beliefs related to these activities, and (c) the level of leisure writing. In a structural equation model, the preceding beliefs were applied as explanatory variables for the intrinsic value. Intrinsic value, in turn, explained a large proportion of variance in children’s leisure-writing activities. Gender differences in leisure writing were mediated by intrinsic value. Significance of intrinsic value and preceding beliefs regarding leisure-writing activities are discussed.

Keywords: elementary school students, intrinsic value, literacy, leisure writing

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Reading and writing are essential for everyday life: While these activities contribute to literacy and occupational success, they also have a value beyond that (Neuman & Roskos, 1997). They may empower children to participate in society, especially in cultural life (United Nations Educational, Scientific and Cultural Organization, 2006). Moreover, for many people, reading and writing are purposeful and rewarding activities per se. Thus, it comes with no surprise that they are practiced not only at school but also during leisure time.

How is it that someone among all possible activities decides to pursue literacy-related leisure activities like reading and writing? This can be investigated by analyzing the explanatory value of literacy-related beliefs (see Schüller et al., 2017, for results in the reading domain). For the writing domain, there are theoretical models considering writing from a cognitive and sociocultural perspective (Graham, 2018) and there are models that focus on the writing process (J. R. Hayes, 2012). However, models with a focus on beliefs as pivotal determinants of the decision to engage in leisure writing are still lacking. Thus, we applied a broad framework, aiming to consider the full bandwidth of beliefs related to leisure writing in children (Kröner, 2013). This framework has previously been applied to other domains (e.g., musical, reading, and cultural activities; af Ursin, 2016; Penthin et al., 2017; Schüller et al., 2017). Hence, unlike theoretical approaches that are restricted to the writing domain, it provides the opportunity to compare the explanatory value of the beliefs children hold regarding leisure activities across various domains.

Leisure Writing: A Theoretical Framework

In the writing domain, there is ample research both on the products of writing activities (Pohlmann-Rother et al., 2016; Rakedzon & Baram-Tsabari, 2017; Xie, 2017) and on the cognitive processes involved in the writing process (J. R. Hayes, 2012; Lin et al., 2007; Ranalli et al., 2017). Our study, in contrast, focused on beliefs as determinants of writing activities. After all, these beliefs are directly relevant for initiating leisure-writing activities,

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and they indirectly trigger the cognitive processes involved in writing and the development of writing skills.

In our framework, we consider leisure writing as an inherently valuable cultural activity. It may be conceived as an instance of a person-environment transaction, in the course of which both domain-general basic traits like gender and domain-specific characteristic adaptations come into play (Kröner, 2013; McAdams, 2001; cf. Figure 1). The characteristic adaptations may be categorized into the three well-known explanatory constructs attitude toward the behavior, subjective norm, and perceived behavioral control along with the respective clusters of beliefs that are the building blocks of the theory of planned behavior (TPB; Ajzen, 1991, 2002):

The first cluster of beliefs is made up by the behavioral beliefs underlying the construct of attitude toward the behavior in the TPB. Attitude is understood as to how (un)favorably a person evaluates a specific behavior (Ajzen, 1991, p. 188). It can be differentiated into a cognitive, an affective, and a conative component (Ajzen, 2005; Aryadoust et al., 2016; Koballa, 1988). In turn, the “attitudes are based on [...] beliefs concerning the attitude object” (Ajzen et al., 1995, p. 1392). Within our framework, borrowing from the expectancy-value model of Eccles and Wigfield (2002; cf. Graham, 2018, for an application to writing), we further subdivided behavioral beliefs underlying attitude into three aspects: Firstly, the intrinsic value is related to an individual’s enjoyment when engaging in an activity. Secondly, beliefs concerning congruent consequences pertain to the utility value of the performed activity, and thirdly, beliefs concerning incongruent consequences are related to the alternatives a person has to waive for engaging in the activity.

The second cluster of beliefs are the normative beliefs underlying the construct of subjective norm. They provide information about perceived activities and expectations of

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significant others in the social environment. As a third cluster, control beliefs underlying the perceived behavioral control have to be mentioned. They relate to “the perceived ease or difficulty of performing the behavior” (Ajzen, 2002, p. 665). They may be differentiated into person- and environment-related control beliefs.

The aforementioned clusters of beliefs may be assumed to represent the cognitive representation of both the self and the environment: While behavioral beliefs and person-related control beliefs represent the person side of our model, normative beliefs and environmental-related control beliefs represent the environmental side. Taken together, these beliefs may explain various planned activities, including leisure writing.

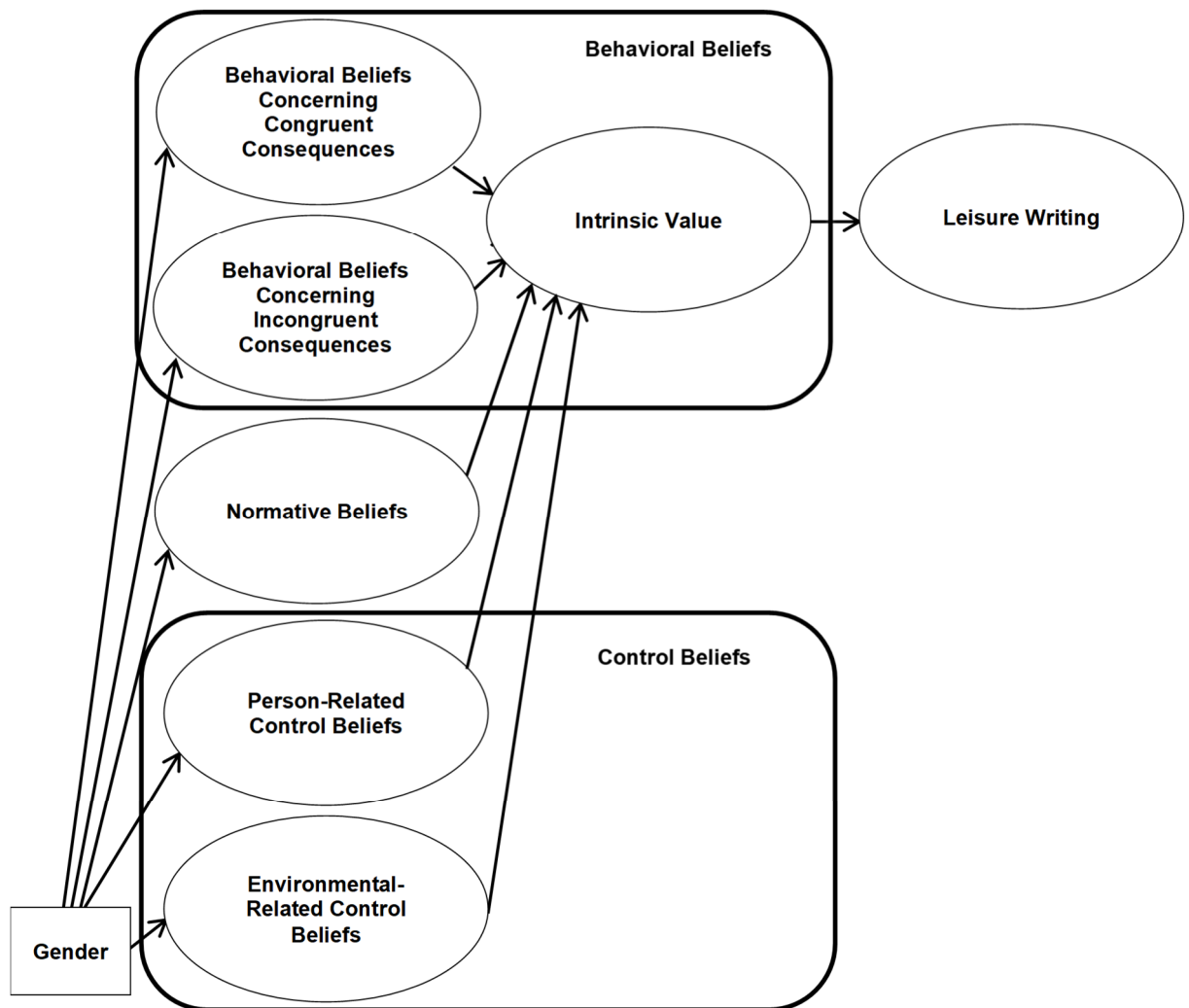


Figure 1. Theoretical and hypothesized model based on the model of person-environment transaction (Kröner, 2013) and the theory of planned behavior (Ajzen, 1991, 2002).

Aspects of Behavioral Beliefs

Among the beliefs related to writing activities, it is the intrinsic value as a subcomponent of attitude that is pivotal for explaining writing activities. Children will write more frequently (Guthrie et al., 1999; Kröner & Dickhäuser, 2009; Miesen, 2003; Rhodes & Dean, 2009; Schüller, 2014), and they will write longer texts if they believe this is fun (Steinig et al., 2009). While this comes with little surprise, other behavioral beliefs are

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relevant, too: Children also consider writing as beneficial, because it helps them to exchange information or feelings with others. This is an example of beliefs concerning congruent consequences which are, by definition, thematically linked to the activity itself. The beliefs concerning incongruent consequences come into play if an activity hampers the attainment of thematically different goals (Dietz et al., 2005; Wigfield & Eccles, 2000). For instance, children may not write and play soccer at the same time. Furthermore, perceived congruent and incongruent consequences of an activity may explain the intrinsic value attached to this activity (Ryan & Deci, 2000; Wigfield & Eccles, 2000). In turn, the intrinsic value is an important explanatory variable for leisure activities (Durik et al., 2006), thus mediating between beliefs and outcomes (cf. Figure 1; Kokkinos & Voulgaridou, 2018).

Normative and Control Beliefs

Beyond behavioral beliefs, normative beliefs constituting the subjective representation of the social environment are potentially relevant determinants of leisure writing, too. There is evidence from related domains that children consider the activities of their parents, peers, and relatives when it comes to decide for or against a leisure activity (Rhodes & Dean, 2009; Schüller et al., 2017; Schüller & Kröner, 2017). Moreover, in our framework, we consider environmental-related control beliefs regarding the availability of material, time, and a suitable location for an activity (Rhodes & Dean, 2009). Furthermore, we include person-related control beliefs as there is ample evidence regarding their importance from the writing domain (Pajares et al., 2007; Schunk & Swartz, 1993). Thus, it may be expected that they will explain the intrinsic value attached to leisure writing (Nagy et al., 2006).

Gender Differences in Leisure Writing and Domain-Specific Beliefs

Mediated via domain-specific beliefs, domain-general basic variables may indirectly affect leisure writing (Ajzen, 2011). In the current paper, we focus on gender as a domain-

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general variable. Gender is known to be predictive for children's beliefs and activities (Graham et al., 2007; Graham et al., 2012; Pajares et al., 2007; Troia et al., 2013).

Demonstrably, girls both associate a more positive intrinsic value to literacy-related activities and display a higher level of leisure-writing activities (Durik et al., 2006; Graham et al., 2007; Graham et al., 2012; Jacobs et al., 2002). Regarding literacy-related control beliefs as a criterion, girls have been shown to display more positive values than boys (Logan & Johnston, 2009; Logan & Medford, 2011; Pajares & Valiante, 2001). Likewise, girls should generally display more positive literacy-related beliefs than boys do. However, further insights on potential effects of gender on intrinsic value and the activity itself while controlling for gender differences in a broad range of beliefs are needed.

Focus of the Study, Research Questions and Hypotheses

We wanted to go beyond merely showing that intrinsically motivated children are more inclined towards leisure writing. Thus, beyond explaining leisure writing via intrinsic value, our study also aimed at in turn explaining the intrinsic value via domain-specific beliefs and gender as a domain-general variable.

First, we checked the factorial structure of the beliefs and gender-related measurement invariance of all scales. This was based on two hypotheses:

- H1a: The beliefs can be differentiated into six scales as proposed in our theoretical framework.
- H1b: All scales are measurement invariant across gender.

Second, we tested the following hypotheses related to the role of intrinsic value and preceding beliefs in predicting leisure writing:

- H2a: The intrinsic value directly explains the choice of leisure writing.

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- H2b: Domain-specific beliefs, in turn, explain the intrinsic value.
- H2c: The intrinsic value completely mediates effects of domain-specific beliefs on leisure writing.

Furthermore, we addressed the following hypotheses regarding gender differences in the variables of our framework depicted in Figure 1:

- H3a: There are higher mean levels for girls than boys in all variables.
- H3b: Gender differences in the intrinsic value completely explain the gender differences in leisure writing.
- H3c: Higher mean levels for girls than boys in intrinsic value are explained by gender differences in preceding beliefs.

Preliminary Scale Development Work

Based on our theoretical framework, we conducted an elicitation study regarding writing-related beliefs of 26 elementary school children applying semi-structured interviews. The interviews were content analyzed according to Mayring (2010). This resulted in a set of categories with the three deductive categories behavioral, normative, and control beliefs that were inductively differentiated (Ajzen, 1991; Birnbaum et al., 2019): Behavioral beliefs were subdivided into intrinsic value, beliefs concerning congruent consequences, and beliefs concerning incongruent consequences (Eccles & Wigfield, 2002). Normative beliefs represent whether children perceive significant others to be engaged in writing or whether they approve the children's writing activities. Control beliefs were differentiated into person-related and environment-related control beliefs. As the results of this interview study fall outside the scope of this paper, cf. Birnbaum et al., 2019 for further details.

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Departing from the set of categories with its anchor examples, items for the six elicited belief categories were derived. We piloted these items with 190 second- and third-graders from three urban and rural schools in Germany which differed in the percentage of students with and without migration background. After revision, we piloted them with a separate sample of 244 third-graders from the same schools in the following school year. We used data from the second pilot study to explore the factorial structure of the belief scales as well as their internal consistency and their criterion validity regarding self-reported writing activities. Evidence for the validity of the six piloted belief scales was provided by (a) a reasonable fit of the theoretical six-factorial confirmatory factor analysis (CFA) solution of the questionnaire, $\chi^2_{SB}(215) = 394.77, p < .001, RMSEA = .059 [.050-.068], CFI = .921, TLI = .907$, (b) good internal consistencies for the belief scales ($.76 \leq \alpha \leq .88$) as well as (c) statistically significant correlations of all scales with leisure writing ($.24 \leq r \leq .58$), with the lowest value for normative beliefs (Birnbaum et al., 2019). These correlations are in line with results of previous research (e.g., Armitage & Conner, 2001; Rhodes & Dean, 2009; Schüller, 2014). For the present article, we administered a revised version of the scales to a larger sample to investigate the interplay of student beliefs and gender in explaining intrinsic value and activities regarding leisure writing.

Method

Participants and Procedure

We sampled 963 third-graders (age $M = 8.67$ years, $SD = 0.60$; 478 girls, 485 boys) from 67 classes at 23 schools in Germany. Only students with parental permission took part in the pen-and-paper questionnaire study that was conducted at school by trained test administrators.

Instrument

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Beliefs

The children's beliefs were assessed using the scales resulting from the aforementioned preliminary scale development work: The behavioral beliefs were differentiated into (1) intrinsic value comprising fun, fantasy, and autonomy (e.g. "Writing is a lot of fun."; "I write because I really can imagine the story."; or "I write because I can decide by myself what I want to write."), (2) beliefs concerning congruent consequences (e.g., "I write letters because I can keep in contact with others."), and (3) beliefs concerning incongruent consequences (e.g., "I rather play outside than writing something."; as all items of this scale were reversed, we recoded them). (4) Normative beliefs were operationalized by children's perceptions of socialization agents' expectations (e.g., "My parents approve of me writing."). Control beliefs were measured as perceived personal characteristics, especially as (5) person-related control beliefs related (e.g., "Writing is easy for me.") and as (6) environmental-related control beliefs reflecting environmental conditions (e.g., "I can write in peace during my leisure time."). Table 1 summarizes descriptive statistics, bivariate correlations, the number of items, and reliability for all scales. A file with individual data is available from the first author. Internal consistencies ranged from Cronbach's $\alpha = .70$ to $.88$ and congeneric reliability was above the threshold of $\rho_c = .70$ (Hair et al., 2014, p. 619). A 4-point rating scale was used for all items ("NO" – strong rejection, coded as 1; "no" – rejection, coded as 2; "yes" – agreement, coded as 3; and "YES" – strong agreement, coded as 4). Items regarding the person-related control beliefs were adapted from the self-description questionnaire (Marsh, 1999). Items for the other scales were developed by Authors (2019).

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Table 1

Correlations, Means, Standard Deviations, Internal Consistencies, Congeneric Reliability and Number of Items for all Scales Among Boys and Girls

	1	2	3	4	5	6	7	<i>M</i>	<i>SD</i>
1. Leisure writing	--	.59	.30	.51	.25	.36	.41		
2. Intrinsic value	.65	--	.34	.55	.38	.51	.62	2.84	0.79
3. Beliefs concerning congruent consequences	.40	.52	--	.11	.20	.20	.30	2.81	0.85
4. Beliefs concerning incongruent consequences	.47	.53	.22	--	.17	.29	.38	2.13	0.81
5. Normative beliefs	.20	.31	.30	.09	--			3.40	0.53
6. Person-related control beliefs	.30	.42	.23	.15	.21	--		3.20	0.68
7. Environmental-related control beliefs	.36	.55	.33	.26	.34	.37	--	3.09	0.78
<i>M</i>		2.34	2.30	1.75	3.25	3.00	2.78		
<i>SD</i>		0.86	0.93	0.79	0.73	0.82	0.91		
Cronbach's α	.80	.88	.80	.79	.70	.74	.80		
Congeneric reliability ρ_c	.80	.85	.77	.74	.71	.73	.81		
Number of items	3	6	3	3	3	4	3		

Note. Bivariate correlations for female students ($n = 527$) are presented above the diagonal, and bivariate correlations for male students ($n = 528$) are presented below the diagonal. Means and standard deviations for female students are presented in the vertical columns, and means and standard deviations for male students are presented in the horizontal rows. $p < .05$ for all correlations; items for leisure writing were z-standardized before computing the score, all items for beliefs concerning incongruent consequences were recoded. Cronbach's α , congeneric reliability, and number of items apply to the whole sample.

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Leisure writing

As criterion, leisure writing was assessed with three items that had been adapted from a scale for leisure reading applied in PIRLS (Wendt et al., 2016): The first item assessed the frequency of writing (“How often do you write stories, letters or diary in your leisure time?”) on a 5-point scale (1 = never or almost never, 2 = up to 30 minutes a day, 3 = 30 to 60 minutes a day, 4 = one to two hours a day, 5 = more than two hours a day). The second item was related to the amount of writing including a 6-point scale (“When writing stories, letters or diary in your leisure time, approximately how many pages do you write per day?”; scale anchors: 1 = less than one page, 2 = about one page, 3 = about two pages, 4 = three to five pages, 5 = six to eight pages, 6 = more than eight pages). The third item investigated the time children spend with writing on a 5-point scale (“How much time per day do you normally spend writing stories, letters or diary in your leisure time?”; scale anchors: 1 = I hardly ever write., 2 = up to 30 minutes a day, 3 = about 30 to 60 minutes a day, 4 = about one to two hours a day, 5 = more than two hours a day). We z-standardized the items to make the response formats commensurable.

For leisure writing, as to be expected for a leisure activity, there was virtually no variance on class-level (ICC = .01). Hence, we did not apply multilevel modeling. However, we considered the hierarchical data structure by using “type = complex” in all our analyses with Mplus 7.3 (Muthén & Muthén, 1998-2015).

Data Analysis

CFA Concerning the Structure of Beliefs Regarding Leisure Writing

Regarding H1a, we conducted CFAs with the total sample to re-examine the factor structure emerging from the aforementioned preliminary scale development work. We checked for univariate and multivariate normality via skewness and kurtosis indices and applied Mardia’s multivariate skewness and kurtosis tests. Moreover, for all analyses

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throughout the paper, we used a maximum likelihood parameter estimation procedure that is robust to non-normality and non-independence of observations (MLR estimator; Brown, 2015). Standardized and unstandardized coefficients were estimated for each item. For one item per factor, the regression coefficient was fixed to 1.00. Moreover, goodness of fit was evaluated via the Satorra-Bentler χ^2 test (χ_{SB}^2) as an absolute fit index, root mean square error of approximation (RMSEA) and its 90% confidence interval as a fit index adjusting for model parsimony, and comparative fit index (CFI) as well as Tucker-Lewis index (TLI) as fit indices relative to a null model. To evaluate model fit, we used the following criteria: For the χ_{SB}^2 statistic, statistical significance of the test was used as an indicator of poor fit. As this statistic is known to be prone to false alarms with larger samples (Brown, 2015; Marsh et al., 1998), we used further model fit indices and accepted the model if RMSEA was smaller than or equal to .06 and CFI and TLI were at least .90 (Bentler, 1995; Hu & Bentler, 1999).

Within the CFA framework, the following nested models were compared using Satorra-Bentler χ^2 difference test ($\Delta\chi_{SB}^2$): (1) a general-factor model including all items as indicators; (2) a four-factor model based on the TPB comprising the factors normative beliefs, person-related control beliefs, environmental-related control beliefs, and behavioral beliefs (Ajzen, 1991, 2002); and (3) a six-factor model. In the latter, we retained the factors normative beliefs, person-related control beliefs, and environmental-related control beliefs. However, we separated the behavioral beliefs into the three factors intrinsic value, beliefs concerning congruent consequences, and beliefs concerning incongruent consequences. To compare those models, the $\Delta\chi_{SB}^2$ was used, as it corrects for non-normality of continuous indicators (Satorra & Bentler, 2010). Resulting from these comparisons, we would adopt the model with as few factors as possible while still displaying both an appropriate absolute fit and no worse fit than the next more complex model.

Multiple Group CFA Concerning Measurement Invariance of Leisure Writing, Intrinsic Value, and Preceding Beliefs Across Gender

Regarding H1b, within a multiple group CFA, we examined invariance of the measurement model across gender as suggested by Brown (2015; gender coded as 0 = female, 1 = male). In doing so, we successively set form, factor loadings, and indicator intercepts to be equal across groups. Equality in these parameters is considered necessary and sufficient precondition to subsequently decide about hypotheses regarding group differences in factor variances, factor covariances, path coefficients, or latent means (Brown, 2015; Milfont & Fischer, 2010).

The unrestricted model and the more parsimonious model with the parameters under scrutiny being restricted to equality across groups were compared using $\Delta\chi^2_{SB}$. A statistically significant result, indicating heterogeneity of factor loadings and intercepts across gender, would undesirably preclude straightforward testing of our gender-related hypotheses. Due to the χ^2_{SB} sensitivity issues mentioned above, we used the rules of thumb related to the additional fit indices suggested by Chen (2007) and Cheung & Rensvold (2002). This procedure goes in hand with the recommendation that a model should not be retained solely based on global fit testing (Kline, 2016).

Multiple Group SEM: Explanatory Value of Beliefs, Mediation, and Gender Differences

The multiple group SEM was based on the six-factor CFA model with equal form, invariant loadings and intercepts resulting from the previous step of analyses. To save parameters, moreover, equality of factor variances, factor covariances, and path coefficients was established in this model prior to all further analyses. None of these constraints led to a decline in model fit. (Mplus input and output files regarding these analyses are available from the first author.)

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To assess H2a regarding the explanatory value of the intrinsic value for leisure writing as well as H2b regarding the explanatory value of the preceding beliefs for intrinsic value we relied on latent variable R^2 and statistical significance of the path coefficients in the SEM. To assess H2c on the mediating effect of intrinsic value between preceding beliefs and leisure writing, we relied on an analysis of the direct and indirect effects in the multiple group SEM with the bootstrap approach using 99% bias-corrected bootstrap confidence intervals (BCBS CI) based on 1,000 bootstrap samples. It comes with the advantage that it “makes no assumption about the shape of the distributions of the variables or the sampling distribution of the statistic” (Preacher & Hayes, 2004, p. 722). Furthermore, bootstrapping provides superior statistical power compared to the conventional approach and generates more accurate estimates of standard errors and confidence intervals (Preacher & Hayes, 2004; Shrout & Bolger, 2002). In addition to standardized estimates, unstandardized coefficients are reported as suggested by A. F. Hayes (2013, p. 200).

Starting with the model including equal intercepts, mentioned above, we inspected whether the group means of the latent variables differed across gender. For this, we fixed the latent means for girls to zero and freely estimated them for boys (H3a; Byrne et al., 1989). A latent male mean that is significantly different from zero then indicates a gender difference.

To inspect H3b and H3c regarding effects of gender on the criterion leisure writing and on the mediator intrinsic value, we examined the intercepts of these variables when regressing them on gender: A statistically significant intercept for latent leisure writing mean is evidence of gender-related differences in this variable that are not mediated by intrinsic value. Analogously, a significant intercept in latent means of intrinsic value would indicate gender differences that are not mediated by preceding beliefs.

Results

Factorial Structure of the Beliefs and Gender-Related Measurement Invariance

Univariate normality checks resulted in only slight deviations from normal distribution ($|\text{skewness}| < 1.89$; $|\text{kurtosis}| < 3.99$). According to Mardia's coefficients, multivariate non-normality was prevailing (skewness = 4889.15, kurtosis = 8803.49). Thus, regarding H1a we conducted three different CFAs – as described in the data analysis section – with the MLR estimator to re-examine the factor structure of the six predictor-scales resulting from our preliminary studies (see Table 2 for an overview). Table 2 presents the fit statistics of these nested models. The theoretically postulated, six-factor model fitted the data best, both compared to the general-factor model and to the four-factor-model: It displayed superior values in $\Delta\chi_{SB}^2$ and in other fit indices. Moreover, it was the only model with a good absolute fit. These CFA results provided evidence for the discriminant validity of the predictor scales (H1a).

Table 2

Fit Indices and Satorra-Bentler scaled χ^2 Difference Tests of the Different CFA Models

Model	$\chi_{SB}^2 (p)$	<i>df</i>	RMSEA [90% CI]	CFI	TLI	$\Delta\chi_{SB}^2 (p)$	Δdf
General-Factor Model	2057.73 ($< .001$)	185	.104 [.100, .108]	.708	.668		
Four-Factor Model	1179.01 ($< .001$)	179	.077 [.073, .082]	.844	.817	590.67 ($< .001$)	6
Six-Factor Model	359.59 ($< .001$)	170	.035 [.030, .040]	.970	.963	942.06 ($< .001$)	9

Note. $N = 934$. χ_{SB}^2 = Satorra-Bentler scaled χ^2 test, RMSEA = root mean square error of approximation, CI = confidence interval, CFI = comparative fit index, TLI = Tucker-Lewis index, $\Delta\chi_{SB}^2$ = Satorra-Bentler scaled χ^2 difference test.

Multiple Group CFA Concerning Measurement Invariance of Leisure Writing, Intrinsic Value, and Preceding Beliefs Across Gender

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Regarding H1b, in a series of multiple group CFA models including the indicators of leisure writing, intrinsic value, and the preceding beliefs, we assessed measurement invariance across gender via sequentially computing models assuming (a) equal form, (b) equal factor loadings, and (c) equal intercepts (H1b; Brown, 2015). (a) The equal form model fitted the data well, $\chi^2_{SB}(454) = 738.64, p < .001, RMSEA = .037 [.032; .041], CFI = .963, TLI = .955$. (b) Constraining factor loadings to equality across groups lead to no substantial decline in fit compared to the equal form model, $\Delta\chi^2_{SB}(17) = 66.49, p = .18; \Delta CFI = -.001, \Delta RMSEA = -.001, \text{ and } \Delta TLI = .001$. (c) Finally, constraining the indicator intercepts to equality across groups merely resulted in a degradation in model fit according to the sensitive χ^2_{SB} statistic, $\Delta\chi^2_{SB}(17) = 47.03, p < .001$. Besides, fit diagnostics revealed no salient strains with regard to any specific parameter and alternative fit indices were within the thresholds, too, $\Delta CFI = -.004, \Delta RMSEA = .001, \text{ and } \Delta TLI = -.003$. Thus, prerequisites for analyzing gender differences could be considered (see paragraph below; Kline, 2016; Milfont & Fischer, 2010)

Multiple Group SEM: Explanatory Value of Beliefs, Mediation, and Gender Differences

To analyze the explanatory value of intrinsic value on leisure writing (H2a) and of preceding beliefs on intrinsic value (H2b), mediating effects (H2c) and gender differences (H3a-c) we proceeded computing multiple group SEM. To save free parameters, we built on the final multiple group CFA measurement model with equal form, factor loadings, and indicator intercepts. Furthermore, factor variances, factor covariances, and path coefficients were successively constrained to be equal across groups, too.

Evaluation of the measurement model

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All items provided substantial loadings on their latent variable (standardized factor loadings: $0.58 \leq \lambda \leq 0.85$ $Md = .76$). Unstandardized and standardized factor loadings of all items are provided in Table 3.

Table 3

Unstandardized and standardized factor loadings and residuals for all items

Factor item	Unstandardized factor loading (standard error)	Standardized factor loading (standard error)
<i>Leisure writing</i>		
Item01	1.000 (0.000)	.790 (.021)
Item02	0.951 (0.035)	.740 (.025)
Item03	0.889 (0.041)	.723 (.026)
<i>Intrinsic value</i>		
Item11	1.000 (0.000)	.798 (.019)
Item12	0.805 (0.035)	.674 (.030)
Item13	0.803 (0.034)	.650 (.029)
Item14	0.728 (0.043)	.579 (.035)
Item15	0.959 (0.026)	.795 (.019)
Item16	0.920 (0.029)	.727 (.019)
<i>Beliefs concerning congruent consequences</i>		
Item21	1.000 (0.000)	.797 (.031)
Item22	0.885 (0.032)	.713 (.029)
Item23	0.789 (0.045)	.672 (.030)
<i>Beliefs concerning incongruent consequences</i>		
Item31 ^a	1.000 (0.000)	.744 (.033)
Item32 ^a	1.054 (0.038)	.777 (.027)
Item33 ^a	1.091 (0.055)	.762 (.025)
<i>Normative beliefs</i>		
Item41	1.000 (0.000)	.672 (.035)
Item42	1.609 (0.141)	.835 (.037)

Table 3 (continued)

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Normative beliefs (continued)

Item43 1.385 (0.137) .577 (.036)

Person-related control beliefs

Item51 1.000 (0.000) .764 (.027)

Item52 0.848 (0.053) .633 (.039)

Item53 0.945 (0.077) .660 (.028)

Environment-related control beliefs

Item61 1.000 (0.000) .692 (.027)

Item62 1.295 (0.053) .839 (.023)

Item63 1.204 (0.063) .734 (.028)

Note. ^a reversed items that were recoded for all analyses.

Explanatory value of the preceding beliefs mediated by intrinsic value on leisure writing

Evidence for (indirect) relevance of children's preceding beliefs regarding their leisure-writing activities was provided by their explanatory value for intrinsic value (H2b; $R^2 = .77$). In turn, the preceding beliefs explained leisure writing (H2a; $R^2 = .60$; see Figure 2). Model fit was acceptable, $\chi^2_{SB}(502) = 854.450$ $p < .001$, RMSEA = .037 [.033; .042], CFI = .957, TLI = .953.

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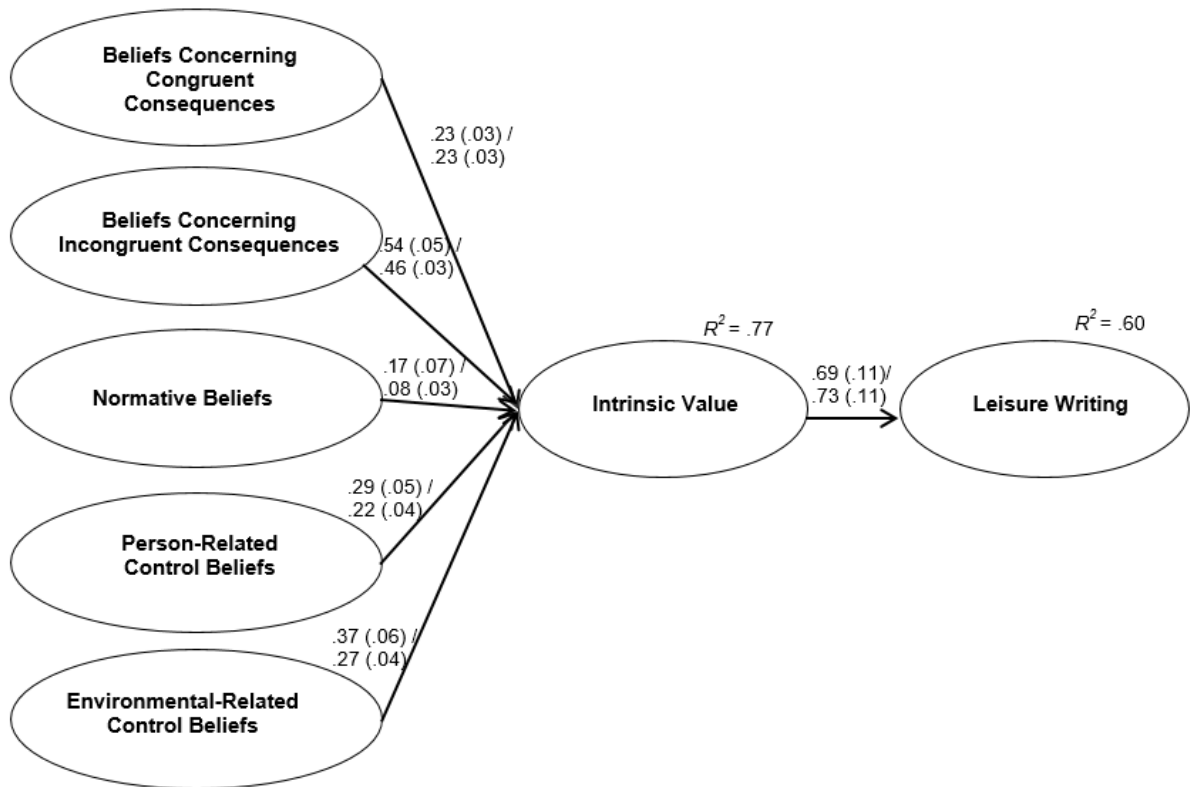


Figure 2. Structural paths of the multiple group structural equation model explaining leisure writing in children. $N = 933$; unstandardized paths (with standard errors) / standardized paths (with standard errors); paths are constrained to be equal across girls and boys. Direct effects of the preceding beliefs on leisure writing were modeled, too. None of these effects was statistically significant. To increase clarity, they are not displayed in this figure. For details, see Table 3.

To test H2c regarding the mediating role of the intrinsic value for the relationship of preceding beliefs and leisure writing, we applied bootstrap procedures. All direct effects of the preceding beliefs on leisure writing were statistically non-significant. All indirect effects of the preceding beliefs mediated by the intrinsic value on leisure writing were statistically significant. Thus, it may be concluded that effects of the preceding beliefs on leisure writing were completely mediated by the intrinsic value (cf. Table 4).

Table 4

Direct and Indirect Effects of the Beliefs on Leisure Writing

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	Unstandardized path (<i>SE</i>)	Standardized path (<i>SE</i>)	95% BCBS CI
Direct effects			
Beliefs concerning congruent consequences	0.05 (0.04)	.06 (.05)	[-.025, .141]
Beliefs concerning incongruent consequences	0.15 (0.08)	.14 (.07)	[-.008, .329]
Normative beliefs	-0.01 (0.07)	-.01 (.03)	[-.185, .113]
Person-related control beliefs	-0.01 (0.06)	-.02(.05)	[-.144, .007]
Environmental related control beliefs	-0.15 (0.08)	-.12 (.06)	[-.291, .017]
Indirect effects			
Beliefs concerning congruent consequences via intrinsic value	0.16 (0.03)	.23 (.04)	[.099, .234]
Beliefs concerning incongruent consequences via intrinsic value	0.38 (0.07)	.34 (.06)	[.265, .518]
Normative beliefs via intrinsic value	0.12 (0.05)	.06 (.02)	[.035, .233]
Person-related control beliefs via intrinsic value	0.19 (0.05)	.16 (.04)	[.120, .313]
Environmental-related control beliefs via intrinsic value	0.26 (0.06)	.20 (.05)	[.138, .394]

Note. BCBS CI is the bias-corrected bootstrap 95% confidence interval; $p < .01$ for all paths where BCBS CI does not include 0.

Gender differences in all scales and gender effects being mediated by intrinsic value and preceding beliefs

To test H3a regarding gender-related group mean differences, we used the final model to inspect the unstandardized and standardized latent gender group mean differences (and standard errors) in all variables: Girls consistently displayed higher means than boys for

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leisure writing, $-0.24 (.03) / .40 (.05)$, for the intrinsic value, $-0.18 (0.03) / .23 (.03)$, for the beliefs concerning congruent consequences, $-0.57 (0.07) / -.63 (.08)$, for the beliefs concerning incongruent consequences, $-0.38 (0.06) / -.60 (.09)$, for normative beliefs, $-0.09 (0.03) / -.20 (.06)$, for person-related control beliefs, $-0.21 (0.06) / -.28 (.07)$, and for environmental-related control beliefs, $-0.26 (0.06) / -.37 (.08)$.

To test H3b and H3c stating that preceding beliefs mediate the effects of gender in intrinsic value and the latter in turn gender effects in leisure writing, we used the model with equal path coefficients. With $\Delta\text{intercept}_{\text{leisure writing}/\text{gender}} = .05 (.06) / .07 (.07)$, $p = .37$, as expected, there were no remaining gender differences in leisure writing after controlling for gender differences in the intrinsic value. However, gender differences in the intrinsic value were not completely due to differences in the preceding beliefs, $\Delta\text{intercept}_{\text{intrinsic value}/\text{gender}} = -.09 (.04) / -.10 (.05)$, $p = .04$.

Discussion

The aim of this study was to investigate children's beliefs regarding leisure writing. Before investigating this aim, we examined the factor structure of the beliefs (H1a) and established measurement invariance across gender (H1b). The subscales of behavioral and control beliefs displayed the largest explanatory value, which is in accordance with similar results in other domains like reading (Miesen, 2003; Schüller et al., 2017) and cultural participation in general (af Ursin, 2016). The strong correlation of intrinsic value with the criterion leisure writing may seem striking but also goes in hand with the same finding in the leisure reading domain (Schiefele & Löweke, 2017; Schüller et al., 2017). It is obvious that children who are interested in writing also tend to engage in this activity during leisure time. We took care of this issue by including intrinsic value as a mediator (H2c) and analyzed why some children enjoy writing while others do not by assessing their beliefs: Results of this

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mediator analysis were in accordance with the theoretical assumptions and the pilot studies.

The various preceding beliefs included not only turned out to be distinct factors and explained a large amount of variance in intrinsic value (H2b). The intrinsic value in turn also explained leisure writing (H2a) and completely mediated effects of the preceding beliefs on the criterion leisure writing (H2c). While this finding is consistent with comparable results not only from the writing domain (e. g., Guthrie et al., 1999; Rhodes & Dean, 2009), other results of our study go beyond previous studies by including not only person-related beliefs but also those related to the environment. Our results stress the importance of including a broad range of determinants when explaining leisure writing. All belief scales – including the environmental-related beliefs – turned out to explain a considerable proportion of variance in the children's intrinsic value directly. Thus, they also affected leisure writing indirectly.

By and large, the hypotheses on gender differences were confirmed, too: The finding that girls displayed higher means than boys in all scales is congruent with H3a. Moreover, as hypothesized in H3b, gender differences in leisure writing could indeed completely be accounted for by gender differences in the intrinsic value. Regarding H3c, taking gender differences in preceding beliefs into account, minor differences in intrinsic value remained present. Admittedly, we could not completely explain in this study the gender differences in intrinsic value by the preceding beliefs. However, the 95% confidence interval for the intercept, from which this significant difference has been determined, ranged from $-.16$ to $-.01$. Thus, replication studies should be awaited before concluding that we either missed out to assess some important beliefs that determine of intrinsic value in leisure writing or that the differences in intrinsic value cannot be explained in principle by beliefs scales – whatever they may be. Taken together, our study clearly showed that intrinsic value is a pivotal variable at the intersection of leisure writing and preceding beliefs. Thus, parents and educators might

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consider offering activities that will be enjoyed by both boys and girls. In finding such activities, they should also consider the role of the preceding beliefs.

Limitations and Future Directions

Despite the promising results of our study, four main limitations remain to be addressed in future research: First, we examined only children from Germany. Therefore, our results may be affected by the specific local educational system and culture. The generalizability of our results to other countries and age groups should be scrutinized.

Second, focusing on beliefs came with the cost of not scrutinizing the relationship between the behavioral beliefs and the attitude toward the behavior as conceived by Fishbein and Ajzen (2010). This might be a promising avenue for further research. Furthermore, as a mediator between the preceding beliefs and leisure writing, we used intrinsic value as it is known to be a powerful predictor for leisure activities as writing and reading (cf. Durik et al., 2006; Schüller et al., 2017; Wang & Guthrie, 2004). This is in line with our study: Among all belief scales, it was intrinsic value that correlated highest with leisure writing (cf. Table 1). That we did not find direct effects of the other beliefs on leisure writing corroborated, on one hand, the predictive value of intrinsic value and indicates leisure writing as intrinsically motivated behavior (cf. Deci & Ryan, 1985). On the other hand, the other beliefs should not be neglected as they provide us with information on why children display a high or low intrinsic value in leisure writing. For instance, normative beliefs and beliefs concerning congruent consequences showed that writing is a social act and that the writing community constitutes the individual's intrinsic value (cf. writer(s)-within-community model of writing by Graham, 2018). Thus, relevance of intrinsic value and further potential determinants of writing should be scrutinized in experimental designs.

Third, when assessing leisure-writing activities as a whole, we did not pay special attention to the peculiarities of writing stories, letters, or diaries; we only mentioned them as

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examples in our criterion items. Analogously, the issue of using mobile devices vs. pen and paper was not explicitly mentioned in our questionnaire. Furthermore, notes and very short texts were not directly in our focus, because we wanted to explain leisure writing in children as a cultural activity and one can argue that writing a short note is not yet cultural participation. Note, however, that we (a) neither included nor excluded specific media in our criterion scale and that (b) our data were collected in 2012 via pen-and-paper questionnaires when only one-third of nine-year-old German children were owning a mobile phone (Medienpädagogischer Forschungsverbund Südwest, 2013). Of course, smartphone use has changed recently. Hence, those who are interested in answering the question what kind of texts children write should more thoroughly examine content, text length, and media as features of leisure writing activities in further studies. In contrast, our focus has been on why some children like writing in general while others do not. Furthermore, we asked how many pages the children usually write. While this is more convenient than letting them count imagined words on imagined pages, the item is admittedly somewhat vaguely formulated. Further studies should thus make the children imagine a precisely described ruler, perhaps combined with a writing sample to norm for individual children's handwriting size to increase measurement accuracy.

Fourth, we analyzed data from a single measurement point only. Thus, our results do not include data on reciprocal effects of writing activity and writing achievement. It may be assumed that writing activities support the development of writing achievement and open pathways to participation in societal and cultural life. From the reading domain, it is known that the activity level mediates between intrinsic value and skill development (Miyamoto et al., 2018). Moreover, Graham and Hebert (2011) report in their meta-analysis that the amount of students' writing can predict their reading skills. However, for the writing domain, the

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interplay of writing achievement, leisure writing, intrinsic value, and their preceding beliefs in children should be further scrutinized based on longitudinal data.

Conclusion

Obviously, the intrinsic value attached to leisure writing could be explained by the students' personal and environmental beliefs. Leisure writing, in turn, could be explained by both this intrinsic value and gender effects. As far as gender is relevant, it translated into beliefs: There were few signs for gender differences regarding intrinsic value when controlling for differences in preceding beliefs, and there were no signs for gender differences in leisure writing when controlling for differences in intrinsic value. Thus, while our results suggest a pivotal role of intrinsic value, they also indicate that domain-specific beliefs might be suited as starting points for increasing writing activities. This way, one might indirectly foster the intrinsic value attached to leisure writing, which might be particularly helpful in boys. Moreover, we would like to encourage researchers to conduct longitudinal and especially experimental studies to inform an evidence-based fostering of children's literacy-related beliefs by parents and teachers. Besides, research involving activities beyond leisure writing is warranted to provide evidence on how to integrate writing activities in interventions aiming at fostering children's cultural activities. Being compatible with the scales developed by Ursin (2016), Pentthin et al. (2017), and Schüller et al. (2017), our study provides a further building block for this endeavor.

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