Title: Family climate and the quality of parental support for children's information-related Internet searches: Longitudinal associations within children's digital home learning environments

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Abstract

Most information-related Internet searches (e.g., for information) take place at home, which is why parents play a crucial role in supporting their children's Internet use. Research on parental homework involvement has determined that the ways in which parents support their children are more important than the frequency of support. Due to the crucial role of the quality of parental support in children's academic achievement and interested in how parents can support their children's Internet searches in a need-oriented way, the quality of parental support (autonomy, structure, and emotional support) have been derived considering the homework context. In addition, studies on the quantity of parental support have found that family climate (emotional cohesion, adaptability, and open communication) is associated with parental support, but the direction of action is still disputed. Therefore, the aim of this study was to examine associations between family climate and the quality of parental support for information-related Internet searches across two waves. Paper-and-pencil questionnaires were answered by 524 German children (~11 years) at Wave 1 and by 419 of these children two years later at Wave 2. The results of a cross-lagged panel analysis showed that family climate and the quality of parental support for children's information-related Internet searches are interdependent, with family climate emerging more strongly as a predictor of parental support. This indicates that the unconscious and less intentional aspects of a family (i.e., family climate) have an impact on the way parents support their children's information-related Internet searches.

Keywords

Family relationships – Internet searches – instructions – active use – longitudinal

Statements and declarations

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1. Introduction

The ability to use the Internet is a key competence in the current digital world, and it contributes to one's participation in society (Eickelmann et al., 2014). Although Internet use for learning-related activities (e.g., searching for information) is of high priority, the competencies of children at the secondary school level are not sufficient for complex Internet searches (Gerhardts et al., 2020; Rummler et al., 2021). Since many schools have inadequate digital resources, most Internet searches still take place at home (Senkbeil, 2018). Parents play a crucial role in promoting information and computer literacy, which means the individual's ability to use information and computer-related technologies (ICT) in order to participate at home, school or other societies (e.g., to investigate, create, and communicate; Fraillon et al., 2013). Thus, children grow up in digital home learning environments (HLEs; Bradley & Corwyn, 2002; Bradley et al., 2019) that involve parents' support of their children's learning-related Internet activities in various ways as well as familial aspects that predict or are predicted by parental support.

Studies on parental support for children's information-related Internet searches have revealed that frequency of parental support for information-related Internet searches is important for children's school-related Internet use (Gruchel et al., 2022a, 2022b) and ICT self-efficacy (Bonanati & Buhl, 2022). Additionally, family climate (open communication, emotional cohesion, adaptability) is an important predictor of the quantity of parental support for an information-related Internet use (Kurock et al., 2022b). Other researchers have argued that family climate is influenced by parental support (Festl & Gniewosz, 2019). However, having conducted cross-sectional studies highlighting the importance of family climate and parental support in digital HLE, they called for longitudinal studies in this context due to the interdependence of family climate and parental support (Festl & Gniewosz, 2019; Kurock et al., 2022b). Research on parental homework involvement has shown that it is not only the quantity of parental support that matters for children's academic achievement but also, and more importantly, the quality (Moroni et al., 2015; Trautwein et al., 2006, 2009). The ways in which parents support their children with homework can be described by three quality dimensions: autonomy, structure, and emotional support (Wild et al., 2006). To date, no research has focused on the quality of parental support for information-related Internet searches, which is why we derive systematics from the homework context.

Thus, the aim of the present study was to examine associations between family climate and the quality of parental support for information-related Internet searches across two waves. The following research questions were addressed: How is family climate associated with the quality of parental support across two waves, and which construct influences the other more? To answer the research questions, a cross-lagged panel analysis was conducted. The study focuses on fifth and seventh graders, since parents are important sources of reference and support for these students, especially during the transition from elementary to secondary school (Festl & Langmeyer, 2018; Knoppick et al., 2018), and previous studies on this topic focused primarily on younger children (e.g., Herper, 2013) or adolescents (e.g., Eickelmann et al., 2014). Past studies on parental support and family climate as well as gender-based effects on both variables are described in detail below.

2. Family climate and parental support

Family climate is characterized by emotional cohesion, conflict, and support among family members, and it includes family structures, behaviors, and attitudes (e.g., open communication; Björnberg & Nicholson, 2007; Hantel-Quitmann, 2015). A positive family climate is often described by high cohesion, open communication, adaptability, and organization and low control and conflict, whereas a negative family climate involves the opposite (Kurock et al., 2022a). While no gender differences in the assessment of family climate were found in some studies (Xia et al., 2016), other studies showed that boys reported family climate more positively than girls (Margalit & Eyseneck, 1990; Mishra, 2019). Research on parent-child relationships during the COVID-19 pandemic found that parents who reported a positive relationship with their children before the pandemic also reported a positive relationship afterward (Vaterlaus et al., 2021). In the context of Internet use, family climate has often been studied as a predictor of problematic Internet use by adolescents and highlighted as a risk or protective factor for excessive Internet use (Braun, 2014; Kammerl et al., 2020). While it is clear that family climate protects children from increased risks online, there is little research on family climate as a condition for the success of parental support. However, family climate is an important familial aspect that is modifiable according to the structural characteristics of a family (e.g., parents' education) and tends to have an unconscious, less purposeful influence on child development (Kluczniok et al., 2013). Thus, it is useful to consider such familial aspects with regard to interventions for parents and children (e.g., for children's Internet Use).

Studies on family climate and parental support have highlighted positive associations between the variables but with different directions of action. On the one hand, children from families with high emotional cohesion were more likely to use the Internet with their parents than children from families with low emotional cohesion (Cho & Cheon, 2005). Further, children who reported a positive family climate (open communication, emotional cohesion, adaptability) also perceived frequent parental support (Kurock et al., 2022b). Studies have also discussed the positive impacts of joint Internet use by parents and children (Festl & Gniewosz, 2019) and parents' emotional and affective support (Henry et al., 2006) on family climate. Studies on daily autonomy support for adolescents have discussed the impact of autonomy on cohesion (Neubauer et al., 2021). However, the direction of action between these constructs is not yet clear. We postulated that family climate influences specific parental support situations, since it is a more global family aspect than parental support (Schrader & Helmke, 2008), but we investigated both directions in this study.

3. Quality of parental support for learning-related activities

Parents try to handle their children's Internet use through restrictive strategies (e.g., technical control or monitoring) and/or enabling strategies (e.g., instruction or interaction). Enabling support strategies are characterized by high levels of activity and participation on the part of both the parents and children (Nikken & De Haan, 2015) and provide children with more collaborative opportunities while using the Internet than restrictive strategies that tend to inhibit children's Internet use (Livingstone et al., 2017). In the context of parental media education strategies, interaction has often been studied as "active use" or "co-use" (Livingstone et al., 2017, p. 83) and described as accompanied and/or actively shared Internet use by parents and children, with the parents guiding their children, for example, through conversations (Hatlevik et al., 2018; Livingstone & Helsper, 2008). Parental instruction involves a more individualized support for the child (e.g., instructions, food for thought, assistance) and is characterized by a high orientation toward the child's needs (Bonanati & Buhl, 2022). In the following, we focus on active forms of parental support and understand parental support as parent-child interactions, in which parental instructions can take place.

To describe the quality of parental support, we have derived systematics from the field of parental homework involvement, since there is no research on the quality of parental support for information-related Internet searches and since parental support for homework

and parental support for children's information-related Internet use intersect. Similar to the homework context, we have examined parental support for learning-related activities so that the findings are transferable to information-related Internet searches even though Internet searches can also take place outside the homework context. The quality of parental support for children's homework is often described in terms of the Self-Determination Theory (SDT; Ryan & Deci, 2000) and covers three dimensions that are positively related to children's learning motivation (Dumont et al., 2014): autonomy, structure, and emotional support. Supportive parental involvement, which is henceforth referred to as need-oriented support, is characterized by autonomy support, emotional support, and structure and fulfills the three basic human needs specified by the SDT: competence, autonomy, and psychological relatedness (Deci & Ryan, 1987). Parental support that is perceived as supportive was positively related to children's academic achievement (Moroni et al., 2015).

Parents' promotion of children's volitional functioning, which can be described as the feeling that one's actions originate from and belong to oneself (Deci & Ryan, 1987), is covered by the autonomy dimension (Bülow et al., 2021). As children grow older, they become more independent and this also applies to their learning activities (Sooter, 2013). Therefore, autonomy support becomes more important the older they become. To support children's competences, parents can provide a framework (e.g. by communicating clear and consistent expectations), which is captured by the structure dimension (Grolnick & Pomerantz, 2009). Structure covers parents' positive controlling behaviors, such as giving instructions, setting communication rules, and organizing the child's learning environment, while the emotional support dimension covers parents' awareness and handling of the child's emotional states and work behaviors, such as providing positive feedback about the child's engagement in homework (Walker et al., 2004). Parental warmth and responsiveness, which are aspects of emotional support, are positively associated with the quality of parent-child relationships (McRae et al., 2021). With regard to gender, strong correlations have been found between parental support and Internet use among boys compared to girls (Vekiri & Chronaki, 2008). Notably, children in particular have been surveyed in research on parental support because children's perspectives are crucial in assessing the associations between different aspects of their learning environments (Dumont et al., 2014).

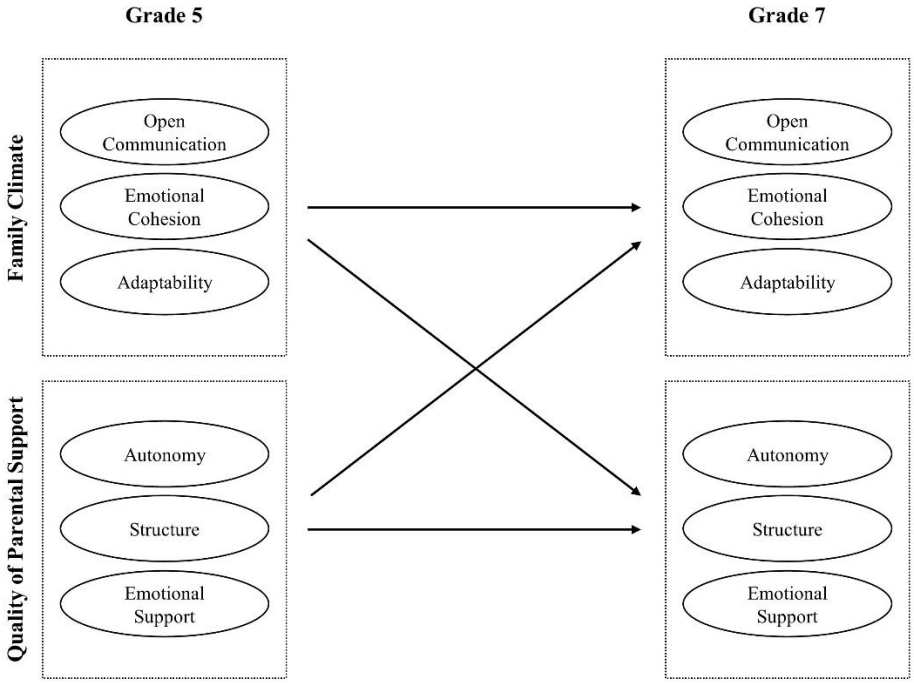
4. Study Aims and Research Model

The aim of this study was to uncover how family climate and parental support influence each other and develop across time. The following research questions were addressed:

How is family climate associated with the quality of parental support across two waves, and which construct influences the other more?

While previous research has focused on family climate as a predictor for problematic Internet use (Braun, 2014; Kammerl et al., 2020) and for parental support (Henry et al., 2006; Kurock et al., 2022b), the opposite – that is, parental support leading to a positive family climate (Festl & Gniewosz, 2019; McRae et al., 2021) – may also be true. The cross-lagged panel design was chosen to compare the two possible influences between both constructs (cross-lagged paths) and the association of the individual constructs over time (autoregressive paths; see Fig. 1).

Fig. 1 Conceptual diagram of the cross-lagged panel model.



Previous research on parental support and family climate showed heterogenous results regarding gender differences, which is why all variables were controlled for gender in the present study. In addition, the correlations between the respective constructs were considered across both measurement time points.

5. Methods

5.1. Procedure and participants

As part of the project „Digital Home Learning Environment“ (short: DigHomE), children in the fifth (from November 2019 to March 2020) and seventh grades (from November 2021 to March 2022) from secondary schools in North Rhine-Westphalia and their parents were surveyed to test the research hypotheses and identify the conditions for success in a digital HLE. The variables collected in the longitudinal study were then used in a larger questionnaire study: N = 756 children and N = 432 parents (response rate 57 %) participated in the first measurement and N = 498 children and N = 266 parents (response rate 53 %) in the second measurement, after signing informed consent forms. Only data from the schools and participants involved in both measurements were included in the analyses. Further, the data from one school was excluded due to a essentially shorter time frame during the survey.

All calculations were based on data of 524 students from 13 secondary schools (51 % Gymnasien, 11 % Gesamtschulen, 32 % Realschulen, 7 % Sekundarschulen) and a total of 38 classes at Wave 1, of which 419 students also participated at Wave 2 (W2; response rate 80 %). The indicator for children’s education levels was the number of books in the household (1 = 0-10 books, 2 = 11-25 books, 3 = 26-100 books, 4 = 101-200 books, and 5 = more than 200 books) (Senkbeil & Ihme, 2017). The educational levels of the children who participated at W2 were not significantly higher (M = 3.31, SD = 1.20) than those who did not participate at W2 (M = 3.11, SD = 1.30; t (489) = -1.326, p = .185). In terms of gender, the sample of children was balanced (50% girls). Children from Grade 5 were 10–11 years old, and those from Grade 7 were 12–13 years. In 32 % of the families, at least one parent was not born in Germany, and 4 % of all children were not born in Germany (based on the parents’ reports). The migration proportion among the families in the present study was the same as that of families in across Germany (migration background of 32 %, Federal Statistical Office, 2021). All children had Internet access at home (100 %), and most children reported that German was their family’s main language (88 %).

5.2. Instruments

The children’s perceptions of family climate were assessed using a scale that consisted of three subscales: Emotional Cohesion, Adaptability, and Open Communication

(Björnberg & Nicholson, 2007, translated into German and adapted for children). The Emotional Cohesion subscale consists of five items designed to capture one's sense of belonging in the family, such as "In our family, we all love each other very much." Flexibility within the family is measured by the Adaptability subscale, which involves five items, including "In our family, we work well together when we have problems." The way family members express their feelings is captured by the Open Communication subscale using five items, such as "In our family, we speak our minds openly." The five-point Likert scale ranges from 1 (strongly disagree) to 5 (strongly agree). Due to a high correlation between the three subdimensions, family climate was considered a second-order construct in this study (see Data analysis). An overview of all the measuring instruments, including their means and reliabilities, is given in Table 1.

The quality of parental support was assessed using a scale that consists of three subscales: Autonomy, Structure, and Emotional Support, and was adapted from the context of parental homework involvement (Wild et al., 2006). The Autonomy subscale captures parents' encouragement of children's formation of self-will, and it consists of four items, including "When I have problems searching the Internet, my parents ask me how they can help me." Positive controlling parental behavior is measured by the Structure subscale using four items, such as "When I search for something on the Internet for school, I know exactly how much care my parents expect of me." The Emotional Support subscale covers parental responsiveness with regard to children's emotional states during Internet searches and is assessed by four items, such as "My parents cheer me up and help me when I don't find good search results." The five-point Likert scale ranges from 1 (strongly disagree) to 5 (strongly agree).

Tab. 1 Overview of the measuring instruments

	α [a]		ω [a]		*M* [b]		*SD* [b]	
	W1 [c]	W2 [c]	W1 [c]	W2 [c]	W1 [c]	W2 [c]	W1 [c]	W2 [c]
Family Climate	.93	.94	.94	.94	4.24	4.21	0.64	0.63
Emotional Cohesion	.84	.87	.85	.88	4.45	4.43	0.64	0.66
Adaptability	.84	.87	.86	.88	4.17	4.15	0.69	0.70
Open Communication	.81	.81	.82	.83	4.11	4.06	0.76	0.71
Quality of Parental Support								
Autonomy	.78	.86	.81	.88	3.61	3.48	0.92	1.07

Structure	.65	.70	.67	.71	3.18	3.09	0.90	0.95
Emotional Support	.83	.84	.86	.87	3.72	3.40	1.00	1.07

[a] Cronbach's alpha (α) and McDonald's omega (ω) coefficients were calculated for the latent constructs.

[b] Means (*M*) and standard derivations (*SD*) were calculated for the manifest constructs.

[c] W1(Wave 1:Nov 2019 - Mar 2020); W2 = (Wave 2: Nov 2021 - Mar 2022)

As a control variable, gender was assessed with a dichotomous item (boy = 1; girl = 0).

5.3. Data analysis

Scale reliabilities (α) were calculated using the psych (Revelle, 2021) and GPArotation (Bernaards et al., 2015) packages on R software (version 3.6.3, R Core Team, 2020). As the participating children were from different school classes, a nested data structure was present and accounted for by class membership in the analyses. The family climate and parental support constructs were initially tested using confirmatory factor analyses (CFA) with the lavaan package (Rosseel, 2012) and showed good model fits. With regard to the analyses for the measurement invariance of the single constructs across two waves, configural measurement invariance could be confirmed for the whole construct as well as for the three subdimensions of family climate. Thus, the same factors and pattern of factor loadings could explain the variance–covariance matrices for both measurement times (Schmitt & Kuljanin, 2008). For emotional cohesion, metric measurement invariance and scalar measurement invariance were also confirmed. In terms of parental support, configural invariance could be confirmed for the aspects of autonomy and structure, and metric and scalar invariance could be further confirmed for emotional support. This means that the reports of both constructs at the first and second measurement times were comparable (Sass, 2011).

To test the relationships between family climate and parental support in the context of information searches on the Internet, a structural equation model (SEM) in a cross-lagged panel design (CLP) was structurally performed using the R software program with the lavaan package. Family climate was considered a second-order construct due to multicollinearity between all three subscales (Albers & Götz, 2006). Little's Missing Completely at Random (MCAR) test was conducted using SPSS (version 27.0), revealing that the missing values of all constructs were completely at random for W1 (χ^2 = 1873.369, *df* = 1848, *p* = .335) and

W2 (χ^2 =1568.731, *df* = 1595, *p* = . 676), as well as for both time intervals (χ^2 = 7318.786, *df* = 7160, *p*. = .093) and for all single constructs, so the missing data were replaced using the full maximum likelihood (FIML) procedure. To determine whether the adopted model fit the data, the following goodness-of-fit-indices were used using common cutoff criteria (Hu & Bentler, 1999): χ^2 (chi-square/df, CFI (comparative fit index), TLI (the Tucker–Lewis index), RMSEA (root mean square error of approximation), and SRMR (standardized-root-mean residual).

6. Results

The cross-lagged panel model (see Fig. 2) showed a good model fit: χ^2 (1389) = 2143.395, *p* < .001, CFI = .927, TLI = .922, RMSEA = 0.034 [CI (0.031; 0.037)], SRMR = 0.052. All variables were controlled for gender. Table 2 presents all the associations between family climate, parental support, and gender.

Tab. 2 Covariance matrix extracted from the latent CLP model without directed paths

	FC1	AU1	ST1	ES1	FC2	AU2	ST2	ES2	Gender [c]
FC1	-	.401**	.285**	.456***	.479***	.322***	.174*	.316***	-.122**
AU1		-	.587***	.757***	.262***	.332***	.186***	.306***	-.115*
ST1			-	.638***	.308**	.314**	.473***	.241*	-.129
ES1				-	.290**	.386***	.256**	.377***	-.114
FC2					-	.485***	.432***	.567***	-.039
AU2						-	.528***	.784***	-.171**
ST2							-	.580***	.019
ES2								-	-.136*
Gender [c]									-

[a] FC = family climate, AU = autonomy, ST = structure, ES = emotional support

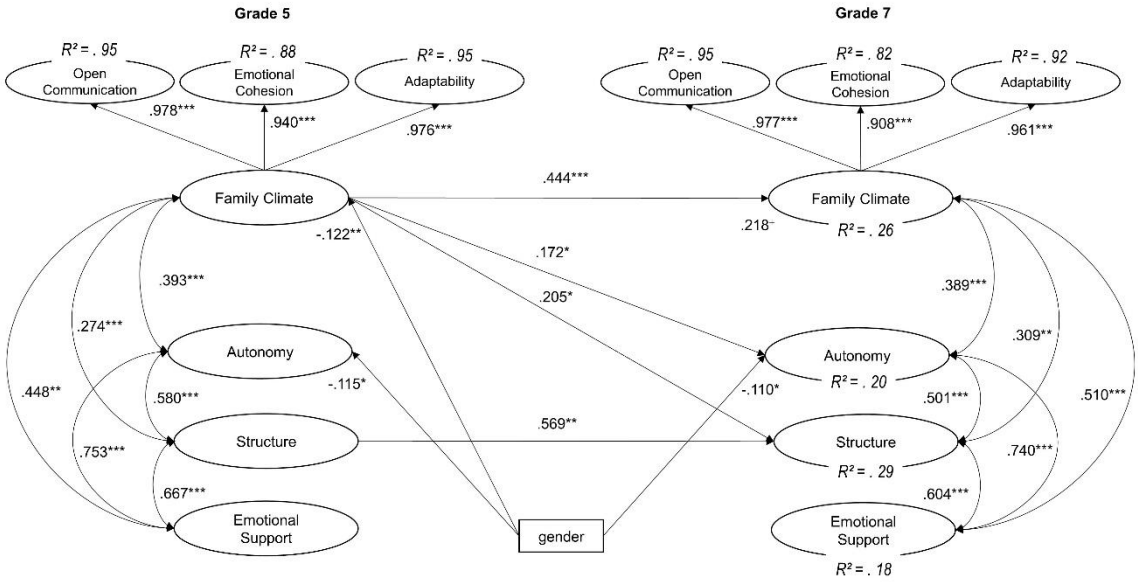
[b] 1 = Wave 1 (2019/2020), 2 = Wave 2 (2021/2022)

[c] gender: boy (1), girl (0)

[d] ***p < .001. **p < .01. *p < .05.

The research questions addressed associations between family climate and the three qualities of parental support (autonomy, structure, and emotional support) across two measurement time points. For W1, family climate showed significant positive associations with all qualities of parental support; family climate and structure showed the lowest correlation, and family climate and emotional support showed the highest correlation. Similar findings were obtained for W2, indicating that children who positively rated the family climate also report a need-oriented support.

Fig. 2 Structural equation model in the cross-lagged panel design



Only significant paths are shown.

[a] $N = 524$, $\chi^2 (1389) = 2143.395$, $p < .001$, CFI = .927, TLI = .922, RMSEA = 0.034 [CI (0.031; 0.037)], SRMR = 0.052

[b] Correlation and regression coefficients of the CLP; ***$p < .001$. **$p < .01$. *$p < .05$

[c] Controlled for gender: boy (1), girl (0)

[d] Grade 5 (W1, 2019-2020), Grade 7 (W2, 2021-2022)

Regarding associations between family climate and parental support over the two time intervals, children who positively rated family climate at W1 reported obtaining need-based support at W2. The results indicate that family climate at t1 was positively associated with autonomy and structure at W2. No significant associations were found between family climate and emotional support. Regarding associations between parental support at W1 and

family climate at W2, no significant associations were found for all three qualities of parental support, and positive covariances were found between the three qualities of parental support at W1 and family climate at W2 (see Tab. 2). However, these were lower than those between family climate at W1 and parental support at W2, thus only confirming the impact of family climate on parental support.

Regarding gender differences at W1, girls provided higher ratings for family climate and parental autonomy support than boys did. For W2, the same difference could only be confirmed for autonomy. Autoregressive paths showed that the results for family climate at W1 and W2 were positively related to each other. With regard to parental support, significant positive autoregression paths were found only for structure.

7. Discussion

The aim of this study was to investigate the associations between two different process variables of digital HLEs by addressing the following research questions: How is family climate associated with the quality of parental support across two waves, and which construct influences the other more? To answer these questions, the results regarding the impact of family climate on the quality of parental support are first discussed, followed by the results regarding the influence of the quality of parental support on family climate. The results related to gender differences for both constructs are then discussed. Implications for further research are integrated into the respective sections, and the discussion ends with the limitations of the present study and implications for practice.

The results showed that family climate was positively related to all three qualities for each wave (lowest correlation with structure and highest correlation with emotional support). With regard to the direction of effects, the structural equation analyses showed significant positive correlations between family climate at W1 and autonomy and structure at W2 but no significant correlations with emotional support at W2. Thus, the study results are in agreement with previous research on the quantity of parental support in children's digital HLEs (Kurock et al., 2022b), highlighting the positive impact of family climate on two of the three qualities of parental support for information-related Internet searches. This means that children who perceived a positive family climate at W1 also reported the presence of need-oriented support at W2. The results further showed that the correlations between family climate and emotional support were strong at each wave, which confirms the findings of other studies (McRae et al., 2021). The lack of a significant correlation between family

climate at W1 and emotional support at W2 could be explained by the fact that emotional support might depend more on the current family climate than on the family climate two years ago, whereas autonomy depends more on long-term family routines. Studies on daily autonomy support for adolescents have found that autonomy support impacts family cohesion (Neubauer et al., 2021). This could mean that autonomy support on specific occasions (such as joint information-related Internet searches) is more influenced by family climate, while daily autonomy support has an influence on family climate. Further the measurement invariance analyses showed, that children's reports of emotional support and emotional cohesion hardly showed any differences between the waves. Emotional support during joint Internet searches as well as the emotional cohesion within the family didn't seem to change over time, which is similar to other research findings on the quality of parent-child relationships during the COVID-19 pandemic (Vaterlaus et al., 2021). Family climate was also captured via adaptability and open communication and was included in the analyses as a second-order construct, so the results need to be confirmed through further longitudinal studies. Nevertheless, a more detailed investigation of the correlations between the individual dimensions of both constructs as well as on the change over time in both constructs would be interesting for future research (e.g., growth curve models).

With regard to the impact of the three quality dimensions of parental support on family climate, a significant positive association was found only between structure at W1 and family climate at W2. This means that if parents and children discuss rules and expectations together, this will have a positive effect on the development of the family climate (cohesion, adaptability, and open communication). It is known that parental homework support can be an important stressor, potentially resulting in family conflicts (Knollmann & Wild, 2007). This and the lack of any association between autonomy and emotional support at W1 and family climate at W2 can be explained by the present study's focus on the positive aspects of parental support and family climate. The negative aspects of parental support (e.g., control) or family climate (e.g., conflict) may reveal other results, as previous research has highlighted (Dumont et al., 2012; Hoover-Dempsey & Sandler, 1997; Moroni et al., 2016). Past studies have shown that a lack of parental support leads to more negative emotions in children (Huber & Helm, 2020). However, the covariance results in the present study suggest that the influence is also present in the other direction, albeit lesser than that of family climate on autonomy and structure; this way of thinking aligns with that of other researchers (Festl & Gniewosz, 2019; Henry et al., 2006). Finally, this study's

results highlight that parental support for children's information-related Internet use, especially autonomy and structure, is more effective when embedded in a positive family climate (Schrader & Helmke, 2008).

In the current study, gender differences in reports of family climate and parental support were more prominent among fifth graders. For the first wave, girls rated family climate more positively than boys, which was different from previous findings (Mishra, 2019). For further research, we recommend investigating gender differences in the individual subscales of family climate, since other studies have reported that boys in particular rated adaptability and openness in the family more positively than girls, with no differences found for cohesion (Margalit & Eyseneck, 1990). The results of the present study showed that girls rated family climate more positively than boys. Further, reports on family climate at the second wave didn't differ with regard to gender, which was similar to other research findings (Xia et al., 2016). In addition, the girls in this study perceived parental support as being more need oriented than boys did, especially at the first wave. A closer look at whether boys just perceive this to be the case, or whether parents truly are supporting boys in a less need-oriented way would be profitable, since previous studies found stronger correlations between parental support and Internet use among boys than girls (Vekiri & Chronaki, 2008). It is possible that boys need a different type of parental support compared to girls, especially if they are younger. Autonomy was the only dimension with gender differences, with boys reporting less autonomy compared to girls. Since independencies become more important as children grow older (Sooter, 2013), the participating children were probably more aware of autonomy support during joint Internet searches.

However, future research should investigate the digital HLEs of fifth to seventh graders, as associations between the age groups seem to differ. It would be interesting to look at the changes within each construct during the COVID-19 period as well as across the age group of fifth to seventh graders. So far, studies have shown that children's perspectives are highly relevant, but parents' reports could provide more crucial insights into associations within children's digital HLEs. Further, the time span between the two measurements was two years due to the COVID-19 pandemic, and children as well as their families would have changed a lot during this period. Therefore, it is possible that the associations shown are not only due to the change in time but also to other factors, such as changes during the pandemic, even if research during the COVID-19 pandemic showed that parental support of

secondary school children was only a little higher than before the pandemic (Kirsch et al., 2021) and parent-child-relationships didn't change over time (Vaterlaus et al., 2021).

9. Practical Implications and Conclusion

When designing interventions to assist parents in their approach to supporting their children during information-related Internet searches, it would be useful to consider the strengthening of family climate. Family climate can be strengthened through communication training and activities that improve intrafamily relationships (e.g., family discussions to reflect on the distribution of tasks and roles; Braun, 2014; Wiegand-Grefe et al., 2016). When developing interventions to promote parental support, interventions such as family literacy programs can provide guidance (Bonanati & Buhl, 2022). In family literacy interventions, parents and children learn together at the school and parents receive important inputs on providing support through their involvement in children's educational processes. Thus, parents can not only receive recommendations for qualitatively valuable support but also have the opportunity to apply these recommendations directly when learning together with their child and to discuss them with other parents or experts. Parents should understand what it means to provide a framework for their child by setting rules together and communicating expectations (i.e., structure) and how to support their child emotionally (i.e., emotional support by taking time, talking, and providing encouragement). Interventions can also help them learn to give children the feeling that they can make decisions independently and perform actions on their own (autonomy).

This study ultimately showed that family climate and parental support are interrelated, with a positive family climate emerging as a predictor of parental support. This means that the fundamental structures and behaviors of a family must first be changed to enable parents to profitably implement supportive actions. In the context of information-related Internet searches, it is important to take children's perceptions into account and to support parents in addressing the unconsciously occurring processes within the family – that is, family climate.

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