Motivation Matters: The Positive Influence of Parental Involvement on Children's Writing Outcome

Bronte Kelso-Marsh[1], Anabela Abreu Malpique[1,2], Helen Davis[3], and Debora Similieana Valcan[3]

[1]School of Education· Edith Cowan University, Mount Lawley | Australia

[2]CICPSI, Faculdade de Psicologia, Universidade de Lisboa, Lisboa | Portugal

[3]School of Psychology, Murdoch University, Murdoch, | Australia

Abstract: Theoretical models and empirical evidence suggest parental involvement in general education is beneficial for children's educational outcomes and that motivational factors may contribute to explaining parental involvement in children's education. Few studies, however, have examined the role of parental involvement in children's writing outcomes and, to our knowledge, none has investigated the motivations of Parents/Carers to support their children's writing development in the first place. In this study, we aimed to address this gap by measuring Parents'/Carers' autonomous and controlled motivations for supporting their children's writing at home and their engagement in writing activities with their children, and then assessing the links between parental motivations and involvement, and children's writing quality and attitudes toward writing. Participants included 159 Year 2 children and their Parents/Carers. Structural equation modelling showed indirect effects between Parents'/Carers' autonomous motivation and children's writing quality via the mediators of parental involvement and children's attitudes towards writing. Conversely, Parents'/Carers' controlled motivation had no significant association with children's writing outcomes. Findings suggested that, when Parents/Carers are autonomously motivated ***and*** involved in writing activities with their children at home, their children show stronger positive attitudes towards writing. Educational implications include encouraging home-school initiatives that foster autonomous motivation in Parents/Carers and support Parents/Carers in engaging in a wide range of enjoyable writing activities with their children at home, creating a community where writing is valued across home and school contexts.

Keywords: parental involvement, writing, self-determination, motivation, writing quality, attitudes towards writing

journal of WRITING RESEARCH

Kelso-Marsh, B., Malpique, A.A., Davis, H., & Valcan, D.S. (2025 - accepted for publication). Motivation matters: The positive influence of parental involvement on children's writing outcome. *Journal of Writing Research*, *volume(issue)*, ##-##. DOI: xx

Contact: Bronte Kelso-Marsh, School of Education, Edith Cowan University, 2 Bradford St, Mount Lawley WA 6050 | Australia – bkelsoma@our.ecu.edu.au - Orcid: 0000-0002-8498-7839

1. Introduction

Whilst the ability to write provides individuals with many benefits and necessary skills for employment, civil participation, personal success and enjoyment, global research suggests many children lack adequate writing skills (Thomas, 2020; United Nations Children's Emergency Fund [UNESCO], 2017). With approximately 250 million children globally lacking writing abilities and an estimated of 775 million people (64% females) basic writing skills (UNESCO, 2017), it is critical to better understand factors influencing effective writing acquisition and development. The Writer(s)-Within-Community (WWC) model (Graham, 2018) builds upon previous cognitive (e.g., Hayes, 2012; Hayes & Flower, 1980; Kellogg, 1996) and sociocultural (e.g., Bazerman, 1994; Lave & Wegner, 1991) models of writing, proposing that writing is a social task, which relies on instruction and practice. Whilst teachers can provide formal writing instruction at school, parental engagement with children's writing allows children to practice writing at home and potentially develop their writing skills in a less formal fashion (Alston-Abel & Berninger, 2018).

According to the WWC model, skilful writing relies on two organising structures: ***Writing Community*** and ***Writers and their Collaborators***, and the interactions between the two (Graham, 2018). The first organising structure, the ***Writing Community***, includes the historical, social, and cultural factors that are present in the context that writing development occurs; the second organising structure, ***Writers and their Collaborators***, includes the cognitive architecture, processes and physical actions that are applied by members within the writing community. The WWC model (Graham, 2018) allocates a central role for motivation in writing, arguing that motivational aspects of writing may foster or hinder writing, reinforcing writing as a social process in which writing mentors, including parents, may shape writing acquisition and development. Theoretical models of parental involvement further emphasise the importance of active parental involvement in supporting children's educational outcomes (Hoover-Dempsey & Sandler, 1997; Walker et al., 2005), highlighting the importance of considering motivational variables influencing parental involvement (Walker et al., 2005). Little is known, however, about Parents'/Carers' motivation to support their children's writing or the extent to which Parents'/Carers' motivation contributes to children's writing outcomes.

1.1 Parental Involvement in Children's Writing

Parental involvement in children's writing can be defined as the specific behaviours of parents that help to support the development of children's writing abilities (Yang & Chen, 2023) and can include being involved in activities that support children's writing but are not necessarily mandated or required by the school (Fox & Olsen, 2014; Ringenberg et al., 2005). Furthermore, Parents/Carers and teachers serve distinctly different but equally important roles in supporting their children's education, with research suggesting that both parties need to collaborate with one another to achieve successful educational

outcomes (Fox & Olsen, 2014). Much of the existing literature on Parents'/Carers' involvement has focused, however, on literacy and reading-related outcomes (e.g., Adams et al., 2021; Arrimada et al., 2022; Crosby et al., 2015; Hemmerechts et al., 2017; Zhang et al., 2023). Research specifically exploring the relationships between Parents'/Carers' involvement in home-led writing activities and its influence on children's writing outcomes is still under-researched, especially in comparison to other literacy domains such as reading (Camacho & Alves, 2017).

Despite the scarcity of empirical research, existing studies suggest positive associations between parental involvement and students' writing abilities. Yang and Chen's (2023) meta-analysis examined whether parental involvement in children's writing had a significant influence on children's (pre-primary and primary-school; mean age not provided) writing ability (specific writing outcomes not provided). The authors were only able to locate 13 studies, however, examining relations between parental involvement and children's writing ability. It was found that the impact of parental involvement had a moderate effect size of Hodges $g = 0.613$ ($p < .01$) on children's writing. Furthermore, when separated by age, the impact of parental involvement had a large effect size of $g = 0.814$ ($p < .05$) on primary school-aged children's writing ability but a small to moderate effect size of $g = 0.455$ ($p < .01$) for pre-primary-aged children.

A close analysis of research offers more detailed information about relationship between parental involvement and children's home-led writing. For example, Puranik et al. (2018) examined the home writing practices and writing outcomes of 151 pre-school aged children. Parents completed a home literacy questionnaire regarding joint-writing activities and their child's independent writing at home. Children were assessed on letter writing, spelling, picture description writing, and spontaneous writing. It was found that joint-writing activities ($r = .14$-$.45$, $p < .05$) and independent writing activities ($r = .17$-$.31$, $p < .05$) were significantly related to children's letter writing, spelling and spontaneous writing skills (Puranik et al., 2018). Alston-Abel and Berninger (2018) examined how parental involvement influenced elementary school children's writing outcomes across five years (Years 1-5, or 3-7). Findings revealed children spent more time reading on their own than writing on their own, whereas parents were more likely to help their children with writing activities (Alston-Abel & Berninger, 2018). Parental involvement was also positively associated with children's writing outcomes (e.g., spelling, alphabet writing, written expression). However, correlational findings were mixed, as school-related writing activities (i.e., writing completed by the child for school-related reasons), parent-assisted school-related writing (i.e., writing completed by the child, with their parents' assistance, for school-related reasons), and parental involvement in reading activities were negatively associated with spelling, word reading and decoding, and written expression. Parental involvement in writing activities was also negatively associated with reading outcomes for some year groups (Years 1, 3, 5, and 6). Collectively, these studies highlight that parental involvement in children's writing is associated with a variety of children's writing outcomes across the early primary and

primary school years, but not always positively. Thus, further research is needed to better understand these relationships, including factors potentially explaining parental involvement in their children's writing (Alston-Abel & Berninger, 2018).

Research has sought to examine factors explaining relationships between parental involvement and children's writing skills in primary education. For example, Aram and Levin's (2001; 2004) longitudinal study examined the influence of maternal writing mediation (i.e., mother and child collaboratively writing a text; Aram & Levin, 2001) and children's literacy outcomes across two studies, assessing children in kindergarten (Aram & Levin, 2001) and Year 2 (Aram & Levin, 2004), with longitudinal results assessed in Aram and Levin's follow-up 2004 study. Participants consisted of 41 Israeli kindergarten children and their mothers (Aram & Levin, 2001), and 38 mother-child dyads participated in the second wave of the study when children were in Year 2 (Aram & Levin, 2004). In the initial study, children were assessed on their word writing and linguistic knowledge skills (kindergarten phase; Korat & Levin, 2001). In the second follow-up study, children were assessed on their spelling production and word recognition (Year 2 phase; Aram & Levin, 2004). Mothers were assessed on code-focused mediation, including literate (i.e., grapho-phonemic mediation and orthographic rules, Aram & Levin, 2001) and printing mediation (i.e., retrieving letter shapes and printing, Aram & Levin, 2001) in joint-writing tasks during the kindergarten phase (Aram & Levin, 2001). During the kindergarten phase, maternal literate mediation was significantly associated with children's word writing (r = .78, p < .001) and linguistic knowledge (r = .36, p < .05). Maternal printing mediation was significantly associated with children's word writing (r = .76, p < .001) and linguistic knowledge (r = .32, p < .05) in kindergarten (Aram & Levin, 2001). The 2004 follow-up study found that, after controlling for the family's socio-economic status (SES), Year 2 children's spelling abilities were still associated with their mother's code-focused mediation during kindergarten, including literate mediation (r = .54, p < .001) and printing mediation (r = .66, p < .001) (Aram & Levin, 2004). Collectively, these findings highlight the importance of early code-focused maternal involvement in children's writing within the home context, as it may be associated with children's writing outcomes longitudinally.

Similarly, other studies have highlighted the importance of maternal mediation to positively assist in children's writing outcomes (e.g., Levin et al., 2013). For example, Levin et al. (2013) examined the relations between maternal mediation and children's writing in two writing systems - the European alphabet and Semitic abjad. The study included 43 Spanish-speaking and 40 Hebrew-speaking mother-child dyads (children's $Mage$ = 68.58 months). Children were assessed on letter knowledge, phonological awareness, and spelling. In addition, mothers' word writing mediation was assessed. Maternal mediation was positively associated with children's spelling (r = .65 and .79 in Hebrew and Spanish, respectively); letter naming (r = .60 and .81 in Hebrew and Spanish, respectively), and phonological awareness (r = .41 and .50 in Hebrew and Spanish, respectively). Regression analysis also showed that children's spelling was

uniquely predicted by children's code-based skills and maternal mediation of writing (except for some phonological mediation measures in Hebrew participants). The proportion of variance in spelling explained by children's code-based skills and maternal mediation ranged from .63 to .70. This finding suggests that children whose mothers mediated their writing to a higher level tended to be better spellers. Furthermore, findings suggested that spelling was predicted similarly across both writing systems. As a whole, these findings provide evidence of the positive influence of parental involvement, including maternal mediation, in supporting the development of children's foundational writing skills and across different languages (Levin et al., 2013).

In Australian home-contexts, where the current study took place, research suggests that Parents/Carers also engage in writing activities at home to support their children's writing (Malpique et al., 2023a). In a study examining 49 Year 2 children's attitudes toward writing and home writing practices, 94% of child participants reported they engaged in at least one writing activity at home (e.g., writing stories, lists, cards, notes, diary entries). In fact, 76% of children reported that they received some assistance with their writing at home – most commonly from mothers (59%) or fathers (43%). Research suggests, however, that teachers may seldom engage parents in supporting their children's writing at home (Malpique et al., 2023b). In their national study, Malpique et al. (2023b) surveyed Australian primary-school teachers about their practices when teaching writing, with most teachers reporting they never asked children to write at home with help from a parent or guardian (64.8%). As such, whilst parents may indeed choose to support their children's writing at home (Malpique et al., 2023b), less is known about what prompts parents to choose to be involved in their children's writing.

Developing writing skills is a complex process, imposing unique motivational challenges for all the members of a writing community (Graham, 2018; Malpique & Simro, 2019; Troia et al., 2012; Wright et al., 2021). As evidenced by recent reviews examining Parents'/Carers' involvement in children's writing (e.g., Authors, 2024; Yang & Chen), however, there is a lack of studies examining Parents'/Carers' motivations to support their children's writing at home and the extent to which they are linked to children's writing outcomes. Considering that children's first experiences with writing are often at home, these experiences may shape their attitude to writing and, subsequently, their writing performance (Graham, 2018). Hence, it is critical to examine the extent to which parental involvement in home-based writing practices contributes to writing performance of beginning writers but also to investigate the motivational factors that influence parents to be involved in their children's writing in the first place.

1.2 Parental Involvement and Motivational Factors

Motivation is the underlying process and rationale that fuels behaviour (Deci & Ryan, 1985). Deci and Ryan (1985) proposed a multi-faceted model of motivation in their Self-Determination Theory (SDT), arguing that individuals may be motivated to complete tasks for different purposes or emotional benefits (Deci & Ryan, 1985). As implied by the

name, motivation may include self-determined (autonomous) forms of motivation (Hagger et al., 2014), including intrinsic motivation (enjoyment-based) and identified motivation (values-based) (Deci & Ryan, 1985). Alternatively, determinants may lie outside of the self (Deci & Ryan, 1985; Hagger et al., 2014). Controlled motivations (i.e., non-self-determined) include introjected motivation (shame- and guilt-based) and external motivation (pressures or influence outside of the individual) (Hagger et al., 2014). Theoretically, autonomous motivation is proposed to be more effective than controlled motivation in promoting behaviour as it satisfies a fundamental human need for autonomy (Deci & Ryan, 1985). The SDT theoretical framework is applicable to writing research, as it helps characterise different underlying motivational variables associated with effective writing, considering both the quantity and quality of motivation and the reasons for engaging in a specific writing task (De Smedt et al., 2020).

Research has reported some associations between parental motivation and involvement in general academic areas (Nyanamba et al., 2022). For example, Nyanamba et al. (2022) examined whether parents were more autonomous or controlled in their motivations to be involved in their child's (ages 5-8) academic learning during the COVID-19 lockdowns. Researchers found that parents reported to being more autonomous than controlled in their motivations to assist their children in their schooling at home (Nyanamba et al., 2022). However, parental motivation was influenced by other factors, such as burnout (Nyanamba et al., 2022). Similarly, Yu et al. (2023) used SDT to examine parental involvement in their children's (Year 7) home-led educational activities. They found that parents' autonomous motivation to be involved was associated with children's autonomous motivation for home-led educational activities (Yu et al., 2023). Furthermore, parents' autonomous motivation had a significant indirect effect on children's academic performance (GPA) via the mediator of children's autonomous motivation (Yu et al., 2023). Collectively, findings demonstrated that it was when parents were autonomous in their motivation for involvement that their involvement was associated with better outcomes for children (Yu et al., 2023).

Autonomous motivation is associated with greater parental involvement and improved child motivational outcomes and, consequently, academic performance (Nyanamba et al., 2022; Yu et al., 2023). As highlighted by Yu et al. (2023), it is when parents are intrinsically motivated ***and*** involved in their children's studies that children appear to have better academic outcomes. To our knowledge, no studies have examined the relationships between Parents'/Carers' autonomous and controlled motivations and their involvement in their children's writing. We argue that the SDT theoretical model may be useful in understanding what influences Parents/Carers to be involved in their children's writing, and how this may influence children's writing outcomes.

1.3 Children's Attitudes Towards Writing

Attitudes towards writing can be defined as the writer's disposition to respond favourably or unfavourably to a writing activity, and the judgements associated with the task and

final written product (Graham et al., 2007; Skar et al., 2023). Graham's WWC model theorises relations between a writer's attitude toward writing and their writing performance, stating that if an individual has a positive attitude toward writing this will consequently influence them to engage with the writing task itself (Graham, 2018). A recent systematic review examining the contributions of writing attitudes to writing achievement noted that some studies found a positive relationship between these variables (Eckholm et al., 2018). The review of children's attitudes toward writing, which included 46 studies that were published between 1990 and 2017, found only three studies that examined the relations between children's attitudes towards writing and their writing outcomes (Eckholm et al., 2018). Two studies found positive relations between children's (Years 1-3) writing attitudes and writing outcomes – namely, text quality and text length (Graham et al., 2007; 2012). The third study reported that children's (Year 2 and 4) attitudes did not predict children's written composition scores (Olinghouse & Graham, 2009). These findings provide evidence suggesting children's attitudes towards writing to be associated with their writing performance outcomes under some circumstances (Eckholm et al., 2018).

More recently, Skar et al. (2023) examined the relations between Year 2 children's self-efficacy beliefs for writing self-regulation (perceived capability to start writing, avoid distractions and focus while writing), attitudes towards writing, and writing outcomes (text quality). The authors found that, generally, the children had highly positive attitudes toward writing, which is consistent with the findings from Eckholm et al. (2018), and that children's writing attitudes made a statistically significant and unique contribution in predicting writing quality. However, once writing fluency, age, gender, language status and school-related variables were statistically controlled, results showed that children's attitudes toward writing and writing self-efficacy beliefs accounted for just 2% of the variance in the quality of their texts. Hence, since children's writing may be influenced by other individual and contextual variables (Skar et al., 2023), further consideration of the influence of other variables, such as parental involvement, may help to provide further insight into these relationships.

The relationship between children's attitudes towards writing and their writing achievement also appears to be unidirectional, at least for primary-school-aged children (Eckholm et al., 2018; Graham et al., 2007). Graham et al. (2007) examined the directionality of the relationship between Year 1 and 3 children's attitudes towards writing and writing quality. The cross-sectional study tested three models: (1) writing attitude influences writing achievement in a unidirectional manner; (2) writing achievement unidirectionally influences writing attitude, and (3) the relationship between writing attitude and achievement is bidirectional and reciprocal. The best fit was found for Model 1 with the path between attitudes towards writing and writing achievement being statistically significant (Graham et al., 2007). Therefore, this study suggests children's attitudes towards writing influences their writing quality (Graham et al., 2007). The authors also noted this relationship may be particularly important in the

early school years when children are less aware of their writing abilities, and as such their attitudes have a greater impact on writing quality outcomes (Graham et al., 2007). Given that children's writing attitudes are important for understanding the quality of their texts, it is important to consider which factors contribute to the development of children's more favourable attitudes towards writing, such as parental involvement, and the possible direct or indirect effects of parental motivation on children's attitudes toward writing.

Studies examining relationships between Parents'/Carers' involvement and children's attitudes towards writing, however, are scarce (Kelso-Marsh, 2024). A recent systematic review examining the relationships between parental involvement and children's writing motivations, including their writing attitudes, found only ten studies examining the relations between these variables (Authors, 2024). For example, ethnographic-based findings (McCarthey & Garcнa,2005) suggested that parental involvement in children's writing had a positive influence on children's attitudes toward writing. The study found children who completed more writing activities at home developed a more positive attitudes toward writing and became more enthusiastic and motivated to write throughout the school year. Conversely, the children who did not write at home were less motivated to write in their native language (McCarthey & Garcнa, 2005). Learning to write is a malleable skill that is influenced by the motivational beliefs of both the writer and others in the community (Graham, 2018). Hence, research is needed to understand motivational factors shaping the writing community, including Parents'/Carers' motivations to support their children's writing at home and potential effects on children's writing (Camacho et al. 2022; Graham, 2018).

1.4 The Current Study

While the WWC model for writing emphasises the role of the writing community, including parents, in shaping children's writing acquisition and development (Graham, 2018), few studies have set to examine underlying factors that contribute to parents being involved in supporting children's writing acquisition and development and little is known about the relations between Parents'/Carers' motivation to support children's writing at home and its relation with children's writing outcomes. The following study aimed at addressing this research gap by focusing on the following research questions:

RQ1. To what extent are Parents'/Carers' motivations associated with the frequency with which they engage in home-led writing activities with their children?
RQ2: To what extent is the frequency with which Parents'/Carers' engage in home-led writing activities associated with their child's attitudes towards writing?
RQ3: To what extent are children's attitudes towards writing associated with their writing quality?
RQ4: Are Parents'/Carers' motivations associated with children's writing quality via the mediators of involvement in writing activities and children's attitudes toward writing?

In this study, we will seek to answer these research questions using structural equation modelling (*SEM*). This option will allow us to test whether Parents'/Carers' motivations (autonomous and controlled) have a direct effect on children's attitudes toward writing and children's writing quality. In addition, *SEM* will allow us to test the ways in which Parents'/Carers' motivations may have an indirect effect on children's attitudes toward writing and writing quality via the mediator of frequency of engagement in home-led writing activities. Together, we aim to understand whether Parents'/Carers' motivations are directly linked with children's writing outcomes; or whether they indirectly influence children's writing outcomes by increasing parental engagement in writing activities at home with their children.

2. Method

2.1 Participants and Settings

Invitation letters were sent to 16 government-funded schools and one private Catholic school within the Perth metropolitan region, Western Australia, with 12 schools consenting to take part in the study. Schools represented different levels of economic advantage following the Index of Community and Socio-Economic Advantage (ICSEA) average (1000), with 6 schools within the average range (950-1050) and 6 schools above the average range (> 1050). ICSEA scores indicate the socio-economic background of children but are not an indication of school or teaching quality (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2016). Enrolment of Indigenous children ranged from 0 to 7% (M = 2.5, SD = 1.93). The percentage of children with language backgrounds other than English ranged from 7 to 47% (M = 16.92, SD = 11.71). National and state results in the Year 3 Australian NAPLAN (ACARA, 2023) were used to determine the representativeness of the schools and their respective writing quality. The Year 3 results are the earliest NAPLAN assessment. However, children are also tested in Years 5, 7, and 9. The final sample of schools included one school below the state average for the NAPLAN writing assessment (423.6) and 11 schools above the NAPLAN writing state average. Two schools were below the national average for the NAPLAN writing assessment (425.3), and 10 schools were above the NAPLAN writing national average. The current study involved 159 Year 2 children with 8 children identified as having an individualised education plan ($Mage$ = 7.00, SD = 0.31; range = 6-8 years; 51.6% boys) enrolled in 34 classrooms from the 12 participating schools (1-13 children per classroom; M = 4.68 per classroom).

Before participation in the study, written informed consent was obtained from each child and their Parent/Carer. A total of 159 parents (n = 18 fathers, n = 137 mothers, n = 4 nonidentified gender) gave consent to participate in the study. The majority (73.0%) had completed post-schooling qualifications. A small minority (3.1%) had not completed high school. The majority of Parents'/Carers' (88.1%) spoke English as the primary

language at home with their children, and 18.9% of Parents'/Carers' spoke a second language with their child at home.

2.2 Procedure

Children's data were collected across two sessions in the second semester of the school year. Session 1 was completed individually and consisted of one semi-structured interview that assessed children's attitudes toward writing (approximately 5 minutes to complete). In Session 2, children were asked to write a short story to assess writing quality (groups of three children, taking approximately 15 minutes to complete). The times and venues for each session were decided with the classroom teacher before the assessment took place to ensure the child was comfortable and able to complete the assessment. The first author and second authors, along with three trained research assistants, administered the tasks, using standardised and well-defined research protocols previously tested in a pilot study (Malpique et al., 2023a).

2.3 Children's Writing Outcome Measures

Children's Attitudes toward Writing Measures. As part of a larger research project examining Year 2 students' writing outcomes and contextual factors mediating children's paper and computer-generated texts (e.g., Malpique et al., 2023c), children's attitude toward writing were assessed via semi-structured interviews. For the current study analyses, we used three questions assessing children's attitudes toward writing paper-based texts. Children were asked to respond to the questions using a 5-point Likert scale and were instructed to circle their answers using face emojis, which ranged from awful (1) to fantastic (5). The three questions included: "*How much do you like writing?"*; "*How much do you like writing using paper and pencil?"* and *"How do you feel when you are asked to write a story using paper and pencil?"* Given the developmental stage of the cohort, the printed interview questions were read aloud to the children by the researchers.

Children's Writing Quality Measures. Children's narrative writing quality was assessed using a story writing composition task. In groups of three, children were given a writing prompt and were asked to write a story independently based on the prompt "On my way home from school I found a robot." Children were given 10 minutes to complete the narrative writing task, and all stories were completed using pencil and lined paper (see Berninger et al., 2009 for similar procedures). Previous research suggests that 10 minutes is a suitable length of time to assess Year 2 students' narrative writing performance (Berninger et al., 2009; Malpique et al., 2023b). This methodology was followed in a pilot study with Year 2 children in Australian classrooms (Malpique et al., 2023b) and 10 minutes was found to be a suitable length of time for task completion. In the study (Malpique et al. 2023b), children were prompted to write more if they wished to do so, with the majority of children still completing the task in under 10 minutes. Children's

written texts were scored using an analytical scoring procedure. Specifically, children's written work was assessed on 10 criteria, including 1) audience (i.e., an awareness and ability to engage and orient the reader), 2) ideas (i.e., an overall idea is presented in the text), 3) text structure (i.e., a start, middle and end), 4) character and setting (i.e., the development of characters and/or time and place), 5) vocabulary (i.e., the use of words to create meaning), 6) cohesion (i.e., the use of grammar to link the text), 7) paragraphs (i.e., segmenting meaningful chunks of text), 8) sentence structure (i.e., sentence-level grammar and flow), 9) punctuation and capitalisation, and 10) spelling (i.e., the correct spelling of grade-appropriate words). Scores ranged from 1 (low quality) to 5 (high quality) for each criterion. Scores for each criterion were totalled to give an overall narrative writing quality score (range 10-50). This analytical scoring system was adapted from the Australian National Assessment Program, Literacy and Numeracy (NAPLAN) narrative writing marking (ACARA, 2016) and the 6 + 1 Trait® Writing rubric for Primary Years (Northwest Regional Educational Laboratory, 2011). This assessment protocol was used since it was aligned with the current Year 2 curriculum standards (School Curriculum and Standards Authority [SCSA], 2020). To check for interrater reliability, 50% of the written compositions were marked by three markers independently. The intraclass correlation coefficient for the writing quality task was .89.

2.4 Parental Involvement Measures

Parents/Carers were asked to complete a survey that included a series of questions about their involvement in their child's writing. To our knowledge, there is no current survey instrument exclusively measuring parental involvement in children's writing. Hence, we developed a survey adapting questions from previous surveys assessing parental involvement in literacy and writing (Alston-Abel & Berninger, 2018; Krijnen et al., 2020). Specifically, home-led writing was measured using six items, which were adapted from Alston-Abel and Berninger's (2018) questionnaire to measure parental involvement in home-led writing activities, and three items adapted from Krijnen et al.'s (2020) Parent-Child Home Literacy Scale. Parents'/Carers' self-determination was measured using one scale adapted from Hagger et al. (2012). This included six items that measured Parents'/Carers' autonomous motivation to be involved in their children's writing, and examples of questions included "*I enjoy helping my child with writing activities*," and "*I am involved with my child's writing activities because I value the benefits that it has for them*." In addition, seven items that measured Parents'/Carers' controlled motivations to be involved in their child's writing, and examples of questions included "*I feel guilty when I do not take part in my child's writing activities*,' and '*I would feel bad if my child's writing performance does not improve*." All the measures being used in the Parents'/Carers' survey have demonstrated evidence of their psychometric validity and reliability when previously tested, with Cronbach's alpha ranging from .61-.91. Altogether, the parents' survey included 27 items across three sections.

In the first section, Parents/Carers were asked to provide demographic information, including their gender, education, primary and secondary languages spoken at home, and if their child had an individualised education plan (5 items). In the second section, Parents/Carers were asked nine questions about the frequency with which they engaged in home-led writing activities with their child, which were scored using a 7-point Likert scale, with higher scores reflecting a greater frequency of completing specific writing tasks with their child (see Table 2 for examples of these tasks). A Principal Axis Factoring (*PAF*) using oblimin rotation of the home-led writing items revealed all items to load onto a single factor with an eigenvalue of 3.44, which explained 38% of the overall variance. One item (*frequency to which the child wrote or texted using a computer/phone/iPad*) loaded at .42 and onto its own separate factor (.40), and therefore was dropped from the measure. Subsequent re-analysis demonstrated all items loaded onto a single factor (eigenvalue = 3.26), which explained 40.72% of the overall variance, and all items loaded at .49 or greater. Cronbach's alpha for parental involvement in home-led writing activities measure was .78. In the third section, Parents/Carers were asked 10 questions about their self-determined motivation to support their children's writing acquisition and development. Parents'/Carers' self-determination was measured using one scale adapted from Hagger et al. (2012). Items measured autonomous motivation to be involved in children's education (i.e., motivation due to enjoying, deriving satisfaction, and believing in the importance of writing with one's child) (Items 1-6); and controlled motivations (i.e., motivation due to needing to alleviate feelings of shame, guilt, and pressure if one does not help their child with their writing) (Items 7-10) (Deci & Ryan, 1985; Ryan & Deci, 2000). Parents/Carers responded to items on a 4-point Likert scale and their scores were calculated for each measure, with higher scores reflecting a greater degree of motivation to support children's writing. A *PAF* using oblimin rotation for the autonomous motivation items revealed one factor (eigenvalue = 3.56) explaining 59.38% of the overall variance, with all items loaded at .89 or greater. The *PAF* for controlled motivation revealed one factor (eigenvalues = 3.76) explaining 39.40% of the overall variance. Cronbach's alphas for the autonomous and controlled motivation measures were .86 and .83, respectively.

2.5 Data Analysis Strategy

Initially, N = 180 Parents'/Carers' returned their surveys. However, n = 20 parents returned surveys that had not been completed and one child did not wish to participate in the study. These participants were removed from the study, leaving n = 159 parents. Missing data patterns were assessed using Little's MCAR test, which was found to be non-significant, suggesting missing data was random, $X^2[212, N = 159] = 205.45$, $p = .61$. Missingness affected less than 3% of the overall data collected, and less than 4.8% of any individual scale. Maximum Likelihood Estimation was used to estimate missing data points (Allison, 2012).

In the current study, children were nested within classrooms (*k* = 34), and classrooms were nested within schools (*j* = 12). Following the procedures of Valcan et al., (2020) to account for classroom- and school-level factors, hierarchical linear modelling (*HLM*) (Raudenbush & Congdon, 2021) was conducted for children's writing quality and attitudes toward writing. We constructed an unconditional 3-level model, partitioning the variance into its components at each level. The child-level residuals in writing quality and attitudes to writing were then used in the main analysis, thus controlling for between-classroom and between-school differences (see Results section). Given that there was no clear rationale for parents and carers to be nested within classes or schools, we decided not to control for classroom and school-level factors for parents' data.

Descriptive statistics were calculated using IBM SPSS Statistics (Version 27.0). Following this, Confirmatory Factor Analysis (*CFA*) and Structural Equation Modelling (*SEM*) were the primary data analysis strategies, conducted using IBM AMOS (Version 26.0) (Arbuckle, 2019). *CFA* was conducted to evaluate the measurement model fit. Each scale's reliability was checked. Assumptions of normality, including normal skewness and kurtosis were checked. Following this, items on the same factor with high residual covariance (> 5) were co-varied within the model. Once suitable model fit was established for the measurement model, an initial *SEM* was conducted to examine the general relationship between parental motivation and children's writing outcomes (Hu & Bentler, 1999).

Direct and indirect effects of parental motivation variables on children's writing outcomes were tested via the mediator of frequency of engaging in writing activities. Indirect effects were tested using Hayes's (2017) bootstrapping procedure, which generates a 95% confidence interval (*CI*) for all indirect effects. An indirect effect is deemed statistically significant if 0 does not fall within the bias-corrected bootstrapped 95% *CI*.

Overall model fit was tested using Chi-square statistics (χ^2), relative χ^2, comparative fit index (*CFI*), the Tucker-Lewis index (*TLI*), and root mean square error of approximation (*RMSEA*). According to Kline (2011, 2016), chi-square values should be low, relative to the degrees of freedom, with a non-significant *p*-value ($p > .05$). In addition, the relative χ^2 was used, which adjusts for sample size, with values ideally being < 5 (Schumacker & Lomax, 2004). Typically, *CFI* and *TLI* values greater than (or close to) .90 are considered acceptable for model fit, and *RMSEA* values should ideally be .05 or lower (Browne & Cudeck, 1993; Kline, 2011, 2016). The *CFI* and *TLI* provide an incremental fit index, in which the model fit is compared with the baseline independence model (Xia & Yang, 2018). *RMSEA* provides an absolute fit index, which is an assessment of how far the model is from perfect model fit (Xia & Yang, 2018).

Although suggested sample sizes for *SEM* vary, researchers suggest 100-150 participants is generally sufficient (Anderson & Gerbing, 1988; Ding et al., 1995; Tinsley & Tinsley, 1987), and models with 5 or fewer latent constructs (3 items per construct) require only 100 or fewer participants (Hair et al., 2010) to achieve adequate power,

which is suggested to be 0.8 (Hair et al., 2017; Memon et al., 2020). Alternatively, some researchers (e.g., Tinsley & Tinsley, 1987) suggest no fewer than 5 participants per survey item, which would require 135 participants for the present study. Therefore, based on suggested sample size to achieve adequate power, the n = 159 participants recruited for the present study is suitable for *SEM* analysis.

3. Results

3.1 Descriptive Statistics

Descriptive statistics for all parent and child measures are presented in Table 1. Frequencies of home-led measures are shown in Table 2. Bivariate correlations between all measures are presented in Table 3. As shown in Table 1, parents reported being more highly motivated to support their child's writing by autonomous motivators than by controlled motivators. Results also show that children's mean attitude score is above the midpoint of the Likert scale suggesting that, overall, children generally had a positive attitude toward writing.

Table 1. Descriptive Statistics for Parent/Carer and Child Measures (N = 159)

Measure	M (SD)	Min-Max
Parent/Carer Measures		
Autonomous Motivation	19.16 (3.37)	9-24
Controlled Motivation	10.62 (3.21)	4-16
Frequency of Home-Led Writing Activities	24.00 (7.62)	9-48
Child Measures		
Attitudes toward Writing	11.80 (2.30)	5-15
Narrative Writing Quality	28.17 (4.81)	10-45

As shown in Table 2, the most common home-led writing activity was 'free writing,' which, on average, Parents/Carers reported engaging in almost weekly. On average, Parents/Carers engaged monthly in home-led writing activities with their children.

Table 2. Frequencies of Parents'/Carers' Engagement in Writing Activities

Home-Led Writing	1- Never	2 - Several Times a Year	3- Monthly	4 – Several Times a Month	5- Weekly	6 – Several Times a Week	7 - Daily	M (SD)
Writing a letter/greeting card	3%	45%	22%	24%	4%	1%	1%	2.88 (1.09)
Shopping list	19%	34%	16%	15%	13%	2%	1%	2.80 (1.44)
Songs/lyrics	77%	15%	4%	3%	1%	0%	0%	1.36 (0.77)
Stories	24%	40%	9%	18%	5%	2%	2%	2.52 (1.42)
Free writing	9%	19%	12%	11%	18%	20%	10%	4.11 (1.90)
Listen to stories written by child	9%	26%	13%	11%	18%	12%	11%	3.81 (1.91)
Write new words	14%	15%	14%	16%	22%	12%	6%	3.77 (1.81)
Writing games	23%	25%	23%	15%	9%	4%	1%	2.76 (1.46)

Note. Free writing refers to any writing that occurs without a prescribed purpose or outcome (Elbow, 1989).

Table 3 presents bivariate correlations between measures. The frequency of engaging in home-led writing was more strongly correlated with Parents'/Carers' autonomous motivation. Parents'/Carers' controlled motivation was not significantly correlated with parental involvement. However, it was significantly and negatively correlated with children's attitude toward writing, and negatively correlated with children's writing quality.

Table 3. Whole Sample Bivariate Correlations Between Measures (N = 159 parent-child dyads)

	Autonomous Motivation	Controlled Motivation	Home-Led Writing	Attitudes Towards Writing
Parent/Carers' Autonomous Motivation	-			
Parent/Carers' Controlled Motivation	.23**	-		
Parent/Carers' Involvement in Home-Led Writing	.40**	.15	-	
Children's Attitudes Towards Writing	.05	-.23**	.03	-
Children's Writing Quality	.16*	-.08	.02	.42**

Note. Bivariate correlations include measurement values prior to controlling for school and classroom-level variance. $p < .05$, $^{**}p < .01$.

3.2 Hierarchical Variance Structure

Hierarchical linear models (Hedeker & Gibbons, 2021; Raudenbush & Congdon, 2021), using HLM (Version 8) (Scientific Software International, 2020) were constructed to partition the total variance for each child-related variable into individual, classroom and school levels for writing quality and attitudes toward writing. School-level factors accounted for .05% of the variance in children's writing quality, and .02% of the variance in children's attitudes towards writing. Classroom-level factors accounted for 15.06% of the variance in children's writing quality, and 6.17% of the variance in children's attitudes toward writing. Individual-level factors accounted for 84.89% of the variance in children's writing quality, and 93.87% of the variance in children's attitudes towards writing. The child-level residuals are used in the following analyses.

3.3 Confirmatory Factor Analysis

Autonomous motivation, controlled motivation, and frequency of engaging in home-led writing demonstrated suitable reliability (see ***Assessment Instruments***). In addition, they

met the assumptions of normality, including normal distribution (i.e., Skewness > ± 3; Kurtosis > ± 7), and the absence of missing data (Cook et al., 2009).

A *CFA* was performed using the three latent variables (autonomous motivation, controlled motivation, and frequency of engaging in home-led writing activities) to determine whether the model was suitable for *SEM*. One item ('*I am involved with my child's writing activities because I know it will help them in the long-run*') was removed due to having a low factor loading (.38) and high cross-loadings with other items.

Following this removal, the three-factor model showed all indicators loaded onto their respective latent variables as expected. The final three-factor model was found to have excellent fit, χ^2 (109) = 125.02, p = .14, Adjusted χ^2 = 1.15, *CFI* = .98, *TLI* = .98, *RMSEA* = .03, supporting the use of the final measurement model in structural equation modelling.

3.4 Parental Involvement in Children's Writing

The mediation model predicting children's writing quality and writing attitudes from parent motivation (Figure 1) exhibited excellent fit, χ^2 (137) = 145.08, p = .30; Adjusted χ^2 = 1.01, *CFI* = .99, *TLI* = .99, *RMSEA* = .02. The overall model explained 19% of the variance in children's writing quality, and 9% of the variance in children's attitudes towards writing (see Figure 1). *SEM* findings are presented by research question below.

The *SEM* model showed a significant association between Parents'/Carers' autonomous motivation and the frequency with which they engaged in home-led writing activities with their children (path a' = .44, p < .001) (RQ1). However, whilst the path weight between Parents'/Carers' controlled motivation and Parents'/Carers' involvement in home-led writing activities was positive in direction, it was non-significant (path d' = .13, p = .14).

The *SEM* model showed a significant association between the frequency with which participants engaged in home-led writing activities and children's attitudes toward writing (path h' = .31, p < .001) (RQ2). Conversely, the model showed no significant direct association between the frequency with which they engaged in home-led writing activities with their children and children's writing quality (path g' = -.10, p = .30).

The *SEM* model showed a positive, significant association between children's attitudes towards writing and children's writing quality (path i' = .45, p < .001) (RQ3).

The *SEM* model showed positive indirect effects between autonomous motivation and writing attitudes via the mediator of frequency of home-led writing activities (path $a'h$ = 0.21, BCB CI [0.08, 0.44], p = .002); and between autonomous motivation and writing quality via the mediators of frequency of home-led writing activities and writing attitudes (path $a'h'i$ = 0.54, BCB CI [0.19, 1.29], p = .001) (RQ4).

When controlling for paths involving home-led writing, Parents'/Carers' autonomous motivation had a negative direct effect on children's attitudes towards writing (path c' = -.24, p = .02) (see Appendix for total effects). Furthermore, the *SEM* model showed a negative indirect effects between autonomous motivation and writing quality via (only) the mediator children's attitudes towards writing (path c$'i$ = -0.95, BCB CI [-2.05, -0.291]). (See the Appendix for all indirect path estimates).

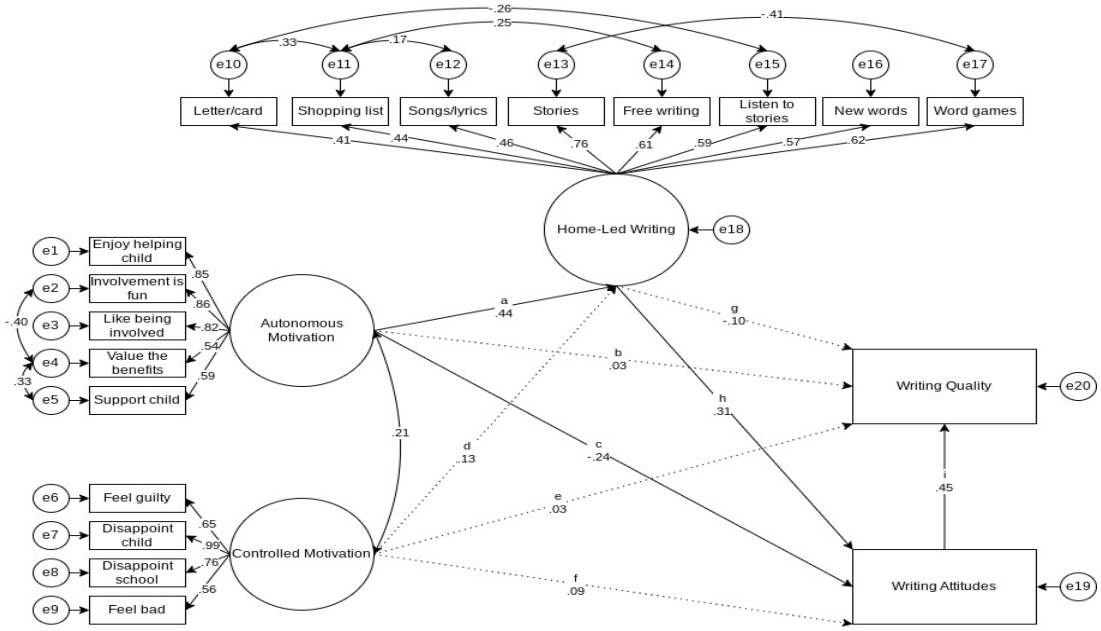

Figure 1 . Structural equation model with standardised regression coefficients for parental self-determination and children's writing outcomes

Note. Solid lines reflect significant pathways, and dotted lines reflect non-significant pathways. Path weights are standardized.

4. Discussion

The current study examined the role of Parents'/Carers' motivations to support their children in home-led writing activities and contributions of such parental involvement in explaining children's writing outcomes. In the sections that follow, the findings of this study are discussed considering these main two goals.

4.1 Parental Motivation and Engagement in Home-led Writing Activities

In this study, we first aimed to identify the extent to which Parents/Carers engaged in writing activities with their children at home. All Parents/Carers (100%) who took part in this study reported that they engaged in at least one home-led writing activity with their child several times a year. As such, findings from the current study suggest Parents/Carers of Australian Year 2 children generally support their children's writing within the home context in some capacity, and provide a wide variety of home-led writing activities. This finding is consistent with previous research examining parental involvement in home-led writing activities, including in Australia (Alston-Abel & Berninger, 2018; Adams et al., 2021; Malpique et al., 2023a). Skilful writing, however, involves the development of foundational writing skills (e.g., handwriting, spelling and keyboarding) and process writing skills (e.g., planning, goal setting, and revising) (Graham et al., 2015). Previous research provides evidence on the positive effects of code-focused mediation (e.g., foundational writing skills), (e.g. Korat & Levin, 2001, 2004). Considering children's developmental stages of literacy learning and writing development, investigating meaning-focused mediation is also warranted.

A key aim of this study was to examine the extent to which Parents'/Carers' motivation predicted the frequency with which they engaged in writing activities with their child. The Self-Determination Theory (SDT) states that humans have a basic need for autonomy, so when humans engage in tasks that are autonomously motivated, this need is fulfilled, and the person is more likely to continue to engage in this behaviour (Deci & Ryan, 1985; Hagger et al., 2014; Ryan & Deci, 2000). Initial correlational analyses and results from SEM analyses showed autonomous - but not controlled - motivation had a significant positive correlation with the frequency with which Parents/Carers engaged in home-led writing activities with their children. It is important to note that whilst a Parent/Carer may be highly motivated simultaneously by controlled and autonomous motivation, the present study indicates that autonomous motivation will be more strongly related to their behaviour. This finding is expected as autonomous motivation is believed to be more effective in promoting behaviour as it fulfills the human desire for autonomy in a way that controlled motivation does not (Deci & Ryan, 1985; Ryan & Deci, 2000). As such, when Parents/Carers want to be involved in their children's writing, either due to enjoyment or belief in its importance, they are more likely to actually ***be*** involved, and our findings suggest that that may in turn be positively linked to children's writing attitudes. Furthermore, given that writing is a complex and

productive process, controlled motivation may not be a sufficiently strong motivator for Parents/Carers to meaningfully engage in writing activities with their child. To our knowledge, this is the first study to examine the relationships between Parents'/Carers' motivations and involvement in children's writing. Given previous studies (e.g., Alston-Abel & Berninger, 2018; Yang & Chen, 2023) and findings from the present study suggesting Parents'/Carers' involvement in children's writing is beneficial for children's writing, understanding what encourages Parents/Carers to be involved is important, as this can help to promote more frequent involvement.

4.2 Parental Involvement in Home-Led Writing Activities and Children's Attitudes Toward Writing

Results from *SEM* path analysis showed that the frequency with which Parents/Carers engaged in home-led writing activities with their child was positively associated with children's attitudes toward writing. This finding supports previous research, such as McCarthey and Garcнa's (2005) study, which found children who wrote more at home throughout the school year had a more positive attitudes toward writing. There are a few reasons why this relationship may occur. For example, theory and empirical research on writing suggests that the role of Parents/Carers may include influencing by imparting their own beliefs about writing to their children (Korat & Levin, 2001). As such, when Parents/Carers are involved in their child's writing, they may also communicate positive sentiments about writing to their child and influence their attitudes toward writing.

This interpretation is aligned with the theoretical underpinnings of the WWC model for writing (Graham, 2018), which theorises writing community members, such as a Parent/Carer and child, may influence each other's writing attitudes. The relationship between Parents'/Carers' involvement and children's attitudes toward writing may be reciprocal, in which the writer and mentor (i.e., child and Parent/Carer) influence each other. Whilst findings from this study show there is a positive relationship between parental involvement and children's attitudes toward writing, as we did not employ an experimental design, we cannot specify a causal relationship between these two variables. Furthermore, due to power constraints and model identification issues (Kline, 2011), only a unidirectional relationship between parental involvement and children's attitude toward writing was tested. The current findings suggest that when Parents/Carers are involved in their children's writing, it may positively influence children's attitudes toward writing, which reinforces the need to encourage Parents/Carers to support children's writing acquisition and development at home. However, research is needed to further examine the directionality and causality of this relationship.

Previous research has suggested that the relationship between children's attitudes towards writing and writing quality is unidirectional (Graham et al., 2007). In the current study, *SEM* path analysis showed children's attitudes toward writing was significantly and positively associated with children's writing quality. Children who reported they enjoyed writing were more likely to write narrative compositions that were of better overall quality. These findings are aligned with previous research (e.g., Eckholm et al., 2018;

Graham et al., 2007) showing positive associations between children's attitudes toward writing and writing quality and offer further support for the WWC model, which states children's attitudes toward writing can positively influence writing performance (Graham, 2018). As such, consideration of children's writing attitudes whilst supporting their writing development is important (Skar et al., 2023). According to Skar et al. (2023, p. 11) "a challenge for teachers and parents, therefore, is to change children's view of writing so that it is perceived as valuable, relevant, and pertinent for both boys and girls." Parents/Carers can help support their children's writing development by encouraging their children to have more positive attitudes toward writing. This may include actively promoting writing within the household to help support and reinforce the value of writing and encouraging children to develop positive attitudes toward writing.

4.3 The Contributions of Parents' Autonomous Motivation on Children's Writing

Findings from the current study's SEM analysis suggest that Parents'/Carers' autonomous motivation was indirectly related to children's writing quality via the mediators of frequency of engagement in home-led writing activities and children's attitudes toward writing. In other words, when Parents/Carers were autonomously motivated (and statistically controlling for their level of controlled motivation), they were more likely to engage in home-led writing activities with their children, and their children were more likely to have a positive attitude toward writing. In turn, children with more positive attitudes were also more likely to write higher quality texts. This finding mirrors the results of Yu et al. (2023), which showed that parents' self-determined motivation to support their child's education was positively associated children's academic motivation and, in turn, their academic performance via the mediator of engagement in home-led academic activities.

Somewhat surprisingly, the *SEM* results indicated that, when the positive indirect effects of Parents'/Carers' autonomous motivation on children's attitudes to writing via frequency of home-led writing were statistically controlled, the remaining direct effect of Parents'/Carers' autonomous motivation on children's attitudes toward writing was significant and *negative*. Similarly, the path from Parents'/Carers' autonomous motivation through children's attitudes toward writing to children's writing quality (excluding home-led writing) was also negative. In both cases, the total effects for these paths were found not to be significant in this model (see Appendix A). This pattern of results is consistent with a suppressor effect (Lancaster, 1999), whereby an independent variable influences a dependent variable simultaneously via (at least) two different mechanisms whose effects work in opposite directions, such that their combined effects counteract each other. As such, this finding may suggest that, when Parents'/Carers' are autonomously motivated but not proportionally involved in home-led writing activities, their motivation may have no positive influence on children's writing outcomes and, indeed, may be somewhat detrimental to them.

This negative direct effect may have resulted from a mediating variable that we did not include in our study. One possible explanation for this finding may relate to the nature of parents' motivation (Yu et al., 2023). For example, Yu et al. (2023) highlight that whilst Parents/Carers may be autonomously motivated to support their child's education, it may be a self-serving motivation rather than one focused on benefiting their child. A second possibility relates to the role of the child in the dyad. For example, a parent's autonomous motivation may not translate into home-led writing activity if their child is unwilling to participate, and the resulting parent-child conflict may negatively affect the child's attitudes toward writing. As such, their child may adopt a fixed mindset regarding their writing abilities, potentially impacting writing outcomes (Dweck, 2006). More research is needed to better understand this relationship, which, to our knowledge, has not been examined in previous studies. Theories on motivation and learning suggest children's beliefs, or mindsets, about their academic outcomes may influence their academic performance (Dweck, 2006). Hence, further research should examine how writing communities and other motivational variables may influence children's mindsets and attitudes toward writing. Overall, the present study findings suggest that it is only when Parents/Carers are both intrinsically motivated ***and*** engage in home-led writing activities that parental autonomous motivation is beneficial in supporting children's writing.

4.4 Limitations and Future Research

There are several methodological limitations which should be acknowledged within this study. The present study used an analytical method that included 10 quality indicators to assess writing quality and only one writing prompt as an overall measure of writing quality. As such, future studies could aim at examining how Parents/Carers involvement variables (e.g., autonomous and controlled motivation, home-based practices) are associated with specific indicators of writing quality (e.g., spelling, ideation). Kim et al. (2014) examined the dimensionality and assessment of Year 1 students' writing performance, with findings indicating that despite aspects of writing sharing enough common variance to be scored as single dimensions (i.e., writing quality and text length), it is also important to evaluate the individual aspects of writing quality, such as syntactic complexity and macro-organization (Kim et al., 2014). However, given the number of participants within the current study, it was not possible to test these individual relationships, as it lacked the statistical power to do so (Kline, 2011, 2016). Therefore, larger-scale research using multiple samples of children's writing is needed to provide further reliability of the present study's results, and to provide more insights as to how Parents'/Carers' involvement variables may be associated with specific indicators of writing quality.

The current study aimed to examine relationships between Parents'/Carers' motivation in supporting children's writing, their involvement in writing activities, and children's writing outcomes (attitudes towards writing and writing quality). Whilst this study provides a valuable first step in understanding these relationships, it does not

provide deeper context in understanding the factors explaining them. Using both quantitative and qualitative methods to examine these relationships may provide a holistic and more nuanced understanding of parental involvement in children's writing (Roni et al., 2020). Indeed, additional factors may influence a Parents/Carer's likelihood of being involved in supporting their children's writing at home, including time availability, cultural differences (McCarthey & Garcнa, 2005; Sheldon & Turner-Vorbeck, 2019), SES background (Korat & Levin, 2001, 2004), parental beliefs about their child's ability (Korat & Levin, 2001), and parent-teacher interactions (Malpique et al., 2023b). Similarly, as highlighted by Walker et al. (2005), other motivational factors such as perceived responsibility and education levels may also influence Parents'/Carers' involvement, and the likelihood of parents engaging in supporting their children's writings at home. Therefore, additional research, including qualitative research, examining other motivational and contextual level factors that may influence Parents/Carers to engage in writing activities at home is warranted.

Whilst this study serves as a valuable first step in understanding the role of motivation within parent-child writing communities, we acknowledge the need for research examining the influence of other types of motivation on parental involvement, such as Parents'/Carers' self-efficacy beliefs. Whilst previous theoretical models have acknowledged the importance of Parents'/Carers' self-efficacy beliefs in encouraging involvement (e.g., Hoover-Dempsey & Sandler, 1997; Hoover-Dempsey et al., 2005), research is needed to better understand how this applies to writing specifically, as parents may feel more capable at supporting some aspects of their children's writing (e.g., spelling or handwriting development) over others (e.g., text composing skills). As such, more studies utilizing a longitudinal design with active intervention and control conditions are strongly recommended to better understand if parental motivation and involvement does have a causal effect on children's writing outcomes.

4.5 Educational Implications and Conclusions

The findings of the current study provide novel information about the contributions of parental involvement in children's writing. Indeed, it was found that when parents are interested in and find it meaningful to be involved in home-based writing activities with their children, they are more likely to engage in such activities, and their engagement has a positive effect on children's attitudes towards writing. Aligned with previous research (e.g., Graham et al., 2007; Eckholm et al., 2018), findings of the current study also showed that children's attitudes towards writing was positively related to the quality of the texts they were able to produce. As such, this draws attention to the need to help promote children's positive attitudes towards writing. Since skilful writing is shaped by the community in which writing development takes place (Graham, 2018), we argue for the importance of developing initiatives in which Parents/Carers, school leaders and teachers focus on promoting positive discourse and action on the importance of writing. While teachers play a critical role in creating opportunities and activities that foster motivation for writing (Young & Ferguson, 2020), Parents/Carers can promote positive

attitudes towards writing within the home-context to help reinforce what is being learnt at school, and as a mean of supporting teachers (Epstein, 2011). Since the effect of home-led writing activities on children's writing quality was almost fully mediated by children's attitudes towards writing, key findings from this present study suggest Parents/Carers can support their children's writing by serving as motivators when engaging them in writing activities at home.

It is important to note, however, that parental involvement itself is not always encouraged or facilitated by schools or required by educational bodies. As previously reviewed, research suggests that primary teachers in Australia develop strategies to extend writing to the home environment quite sparingly (Malpique et al., 2023b). After interviewing United Kingdom-based teachers about their school policy on parental involvement, Hornby and Blackwell (2018) also found that, while schools had begun to recognise the importance of parental involvement, barriers still existed, limiting the extent to which parents could be involved.

Findings from the current study suggest that Parents/Carers who are involved in their child's writing may serve as valuable assets in promoting children's positive attitudes toward writing, which in turn may indirectly influence the quality of children's writings. As such, we argue for the importance of developing home-school partnerships to support children's writing acquisition and development. Such initiatives include encouraging Parents/Carers to get children involved in fun, meaningful and enjoyable writing activities at home, such as writing songs, playing word games, writing cards and shopping lists. Fostering motivation for writing is of key importance (Graham, 2018), so Parents/Carers should foster a home-based environment where writing is seen as a critical life skill, showing interest in children's written works, recognising progress in their writing efforts, and modelling positive attitudes towards writing (Young & Ferguson, 2020).

Finally, autonomous motivation is, in part, based on understanding the value of a specific behaviour (Deci & Ryan, 1985; Ryan & Deci, 2000). As such, if a Parent/Carer understands the importance of their involvement, they are more likely to be autonomously motivated to be involved in their child's writing, and therefore more likely to take steps to support their child's writing at home. Hence, it is critical to empower families with knowledge to support their children in affective aspects of writing. Teachers and schools, alongside other educational bodies, should promote the importance of parental involvement in their children's writing, offering guidance to Parents/Carers about the benefits of their involvement, as well as fostering Parents/Carers autonomous motivation and involvement in supporting their children's writing development.

Statements and Declarations

The authors have no conflicts of interest to declare that are relevant to the contents of this article.

References

Adams, A. M., Soto-Calvo, E., Francis, H. N., Patel, H., Hartley, C., Giofrи, D., & Simmons, F. R. (2021). Characteristics of the preschool home literacy environment which predict writing skills at school. *Reading and Writing*, *34*, 2203-2225. https://doi.org/10.1007/s11145-021-10133

Allison, P. D. (2012). Handling missing data by maximum likelihood. *SAS Global Forum*, *2012*(312), 1-21. https://statisticalhorizons.com/wp-content/uploads/MissingDataByML.pdf

Alston-Abel, N. L., & Berninger, V. W. (2018). Relationships between home literacy practices and school achievement: Implications for consultation and home–school collaboration. *Journal of Educational and Psychological Consultation*, *28*(2), 164-189. https://doi.org/10.1080/10474412.2017.1323222

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411-423. https://doi.org/10.1037/0033-2909.103.3.411

Aram, D., & Levin, I. (2001). Mother–child joint writing in low SES: Sociocultural factors, maternal mediation, and emergent literacy. *Cognitive Development*, *16*(3), 831-852. https://doi.org/10.1016/S0885-2014(01)00067-3

Aram, D., & Levin, I. (2004). The role of maternal mediation of writing to kindergartners in promoting literacy in school: A longitudinal perspective. *Reading and Writing*, *17*, 387-409. https://doi.org/10.1023/B:READ.0000032665.14437.e0

Arbuckle, J. L. (2019). Amos (Version 26.0) [Computer Program]. Chicago: IBM SPSS.

Arrimada, M., Torrance, M., & Fidalgo, R. (2022). Response to Intervention in first-grade writing instruction: a large-scale feasibility study. *Reading and Writing*, *35*(4), 943-969. https://doi.org/10.1007/s11145-021-10211-z

Australian Curriculum, Assessment and Reporting Authority. (2016). *About ICSEA*. Australian Curriculum, Assessment and Reporting Authority. https://docs.acara.edu.au/resources/About_icsea_2014.pdf

Australian Curriculum, Assessment and Reporting Authority. (2023). *NAPLAN Results*. Australian Curriculum, Assessment and Reporting Authority. https://www.acara.edu.au/reporting/national-report-on-schooling-in-australia/naplan-national-report

Bazerman, C. (1994). Systems of genres and the enactment of social intentions. In A. Freedman & P. Medway (Eds.), *Genre and the new rhetoric* (pp. 67–86). Taylor & Francis

Berninger, V. W., Abbott, R. D., Augsburger, A., & Garcia, N. (2009). Comparison of pen and keyboard transcription modes in children with and without learning disabilities. *Learning Disability Quarterly*, *32*(3), 123-141. https://doi.org/10.2307/27740364

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research*, *21*(2), 230-258. https://doi.org/10.1177/0049124192021002005

Camacho, A., & Alves, R. A. (2017). Fostering parental involvement in writing: Development and testing of the program Cultivating Writing. *Reading and Writing*, *30*(2), 253-277. https://doi.org/10.1007/s11145-016-9672-6

Camacho, A., Alves, R. A., Daniel, J. R., De Smedt, F., & Van Keer, H. (2022). Structural relations among implicit theories, achievement goals, and performance in writing. *Learning and Individual Differences*, *100*, 102223. https://doi.org/10.1016/j.lindif.2022.102223

Cook, K. F., Kallen, M. A., & Amtmann, D. (2009). Having a fit: impact of number of items and distribution of data on traditional criteria for assessing IRT's unidimensionality assumption. *Quality of Life Research*, *18*, 447-460. https://doi.org/10.1007/s11136-009-9464-4

Crosby, S. A., Rasinski, T., Padak, N., & Yildirim, K. (2015). A 3-year study of a school-based parental involvement program in early literacy. *The Journal of Educational Research*, *108*(2), 165-172. https://doi.org/10.1080/00220671.2013.867472

De Smedt, F., Rogiers, A., Heirweg, S., Merchie, E., & Van Keer, H. (2020). Assessing and mapping reading and writing motivation in third to eight graders: A self-determination theory perspective. *Frontiers in Psychology*, *11(*1678), 1-17. https://doi.org/10.3389/fpsyg.2020.01678

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Springer Science & Business Media.

Ding, L., Velicer, W. F., & Harlow, L. L. (1995). Effects of estimation methods, number of indicators per factor, and improper solutions on structural equation modeling fit indices. *Structural Equation Modeling: A Multidisciplinary Journal*, *2*(2), 119-143. https://doi.org/10.1080/10705519509540000

Dweck, C.S. (2006). *Mindset: The new psychology of success*. Random House.

Eckholm, E., Zumbrunn, S., & DeBusk-Lane, M. (2018). Clarifying an elusive construct: A systematic review of writing attitudes. *Educational Psychology Review*, *30*, 827-856. https://doi.org/10.1007/s10648-017-9423-5

Elbow, P. (1989). Toward a phenomenology of freewriting. *Journal of Basic Writing*, *8*(2), 42-71. https://doi.org/10.37514/JBW-J.1989.8.2.04

Epstein, J. L. 2011. *School, Family, and Community Partnerships: Preparing Educators and Improving Schools (*2nd ed.). Westview.

Fox, S., & Olsen, D. (2014). *Education Capital: Our evidence base defining parental engagement.* Australian Research Alliance for Children and Youth. http://www.det.act.gov.au/__data/assets/pdf_file/0011/687476/52828-DET-Defining-Parental-Engagement-A4-Report_AccPDF_01.pdf

Gцzen, G. (2019). The effect of creative writing activities on elementary school students' creative writing achievement, writing attitude and motivation. *Journal of Language and Linguistic Studies*, *15*(3), 1032-1044. https://doi.org/10.17263/jlls.631547

Graham, S. (2018). A revised writer (s)-within-community model of writing. *Educational Psychologist*, *53*(4), 258-279. https://doi.org/10.1080/00461520.2018.1481406

Graham, S. (2019). Changing how writing is taught. *Review of Research in Education*, *43*(1), 277-303. https://doi.org/10.3102/0091732X1882

Graham, S., Berninger, V., & Fan, W. (2007). The structural relationship between writing attitude and writing achievement in first and third grade students. *Contemporary Educational Psychology*, *32*(3), 516-536. https://doi.org/10.1016/j.cedpsych.2007.01.002

Graham, S., Harris, K. R., & Santangelo, T. (2015). based writing practices and the common core: Meta-analysis and meta-synthesis. *The Elementary School Journal*, *115*(4), 498-522. https://doi.org/10.1086/681964

Hagger, M. S., Hardcastle, S. J., Chater, A., Mallett, C., Pal, S., & Chatzisarantis, N. L. D. (2014). Autonomous and controlled motivational regulations for multiple health-related behaviors: between-and within-participants analyses. *Health Psychology and Behavioral Medicine: An Open Access Journal*, *2*(1), 565-601. https://doi.org/10.1080/21642850.2014.912945

Hair, J.F. Jr, Black, W.C., Babin, B.J. and Anderson, R.E. (2010), *Multivariate data analysis: A global perspective (*7th ed.). Prentice-Hall International.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Sage.

Hayes, J. R. (2012). Modeling and remodeling writing. *Written Communication*, *29*(3), 369-388. https://doi.org/10.1177/0741088312451260

Hayes, J., & Flower, L. (1980). Identifying the organization of writing processes. In L. Gregg & E. Steinberg (Eds.), *Cognitive processes in writing* (pp. 3–30). Erlbaum

Hemmerechts, K., Agirdag, O., & Kavadias, D. (2017). The relationship between parental literacy involvement, socio-economic status and reading literacy. *Educational Review*, *69*(1), 85-101. https://doi.org/10.1080/00131911.2016.1164667

Hoover-Dempsey, K. V., & Sandler, H. M. (1997). Why do parents become involved in their children's education?. *Review of Educational Research*, *67*(1), 3-42. https://doi.org/10.3102/00346543067001003

Hoover-Dempsey, K. V., Walker, J. M., Sandler, H. M., Whetsel, D., Green, C. L., Wilkins, A. S., & Closson, K. (2005). Why do parents become involved? Research findings and implications. *The elementary school journal*, *106*(2), 105-130. https://doi.org/10.1086/499194

Hornby, G., & Blackwell, I. (2018). Barriers to parental involvement in education: An update. *Educational Review*, *70*(1), 109-119. https://doi.org/10.1080/00131911.2018.1388612

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Kellogg, R. T. (1996). A model of working memory in writing. In M. Levy & S. Ransdell (Eds.), *The science of writing: Theories, methods, individual differences, and applications* (pp. 57–71). Erbaum.

Kelso-Marsh, B. (2024). *Parental involvement in children's writing* [Doctoral thesis]. Edith Cowan University. https://doi.org/10.25958/nxgz-6m49

Kim, Y. S., Al Otaiba, S., Folsom, J. S., Greulich, L., & Puranik, C. (2014). Evaluating the dimensionality of first-grade written composition. *Journal of Speech, Language, and Hearing Research*, *57*(1), 199–211. https://doi.org/10.1044/1092-4388(2013/12-0152)

Klimova, B. F. (2012). The importance of writing. *Paripex-Indian Journal of Research*, *2*(1), 9-11. https://doi.org/1 0.15373/22501991/JAN2013/4

Kline, R. B. (2011). *Convergence of structural equation modeling and multilevel modeling.* Sage Publications.

Kline, R. B. (2016). *Principals and practice of structural equation modeling.* Guilford Press.

Korat, O., & Levin, I. (2001). Maternal beliefs, mother-child interaction, and child's literacy: Comparison of independent and collaborative text writing between two social groups. *Journal of Applied Developmental Psychology*, *22*(4), 397-420. https://doi.org/10.1016/S0193-3973(01)00080-6

Krijnen, E., van Steensel, R., Meeuwisse, M., Jongerling, J., & Severiens, S. (2020). Exploring a refined model of home literacy activities and associations with children's emergent literacy skills. *Reading and Writing*, *33*, 207-238. https://doi.org/10.1007/s11145-019-09957-4

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

Lancaster, B. P. (1999). Defining and Interpreting Suppressor Effects: Advantages and Limitations (ED426097). ERIC. https://files.eric.ed.gov/fulltext/ED426097.pdf

Levin, I., Aram, D., Tolchinsky, L., & McBride, C. (2013). Maternal mediation of writing and children's early spelling and reading: The Semitic abjad versus the European alphabet. Writing Systems Research, 5(2), 134-155. https://doi.org/ 10.1080/17586801.2013.797335

Malpique, A. A., & Simro, A. V. (2019). 'Does it work?' Adapting evidence-based practices to teach argumentative writing. *Journal of Writing Research*, *10*(3), 527-567. https://doi.org/10.17239/jowr-2019.10.03.05

Malpique, A.A., Valcan, D., Pino-Pasternak, D., Ledger, S., & Kelso-Marsh, B. (2023a). Shaping young children's handwriting and keyboarding performance: Individual and contextual-level factors. *Issues in Educational Research*, *33*(4), 1141-1160. https://www.iier.org.au/iier33/malpique.pdf

Malpique, A. A., Valcan, D., Pino-Pasternak, D., & Ledger, S. (2023b). Teaching writing in primary education (Years 1–6) in Australia: A national survey. *Reading and Writing*, *36*(1), 119-145. https://doi.org/10.1177/00222194231211946

Malpique, A. A., Valcan, D., Pino-Pasternak, D., Ledger, S., Asil, M., & Teo, T. (2023c). The keys of keyboard-based writing: Student and classroom-level predictors of keyboard-based writing in early primary. *Contemporary Educational Psychology*, *75*, 102227. https://doi.org/10.1016/j.cedpsych.2023.102227

McCarthey, S. J., & Garcнa, G. E. (2005). English language learners' writing practices and attitudes. *Written Communication*, *22*(1), 36-75. https://doi.org/10.1177/0741088304271830

Memon, M. A., Ting, H., Cheah, J. H., Thurasamy, R., Chuah, F., & Cham, T. H. (2020). Sample size for survey research: Review and recommendations. *Journal of Applied Structural Equation Modeling*, *4*(2), 1-20. https://doi.org/10.47263/JASEM.4(2)01

Northwest Regional Educational Laboratory. (2011). *6+1 Trait® Model of Instruction & Assessment.* https://educationnorthwest.org/resources/61-trait-rubrics

Nyanamba, J. M., Liew, J., & Li, D. (2022). Parental burnout and remote learning at home during the COVID-19 pandemic: Parents' motivations for involvement. *School Psychology*, *37*(2), 160–172. https://doi.org/10.1037/spq0000483

Olinghouse, N. G., & Graham, S. (2009). The relationship between the discourse knowledge and the writing performance of elementary-grade students. *Journal of Educational Psychology*, *101*(1), 37-50. https://doi.org/10.1037/a0013248

Puranik, C. S., Phillips, B. M., Lonigan, C. J., & Gibson, E. (2018). Home literacy practices and preschool children's emergent writing skills: An initial investigation. *Early Childhood Research Quarterly*, *42*, 228-238. https://doi.org/10.1016/j.ecresq.2017.10.004

Raudenbush, S. W., & Congdon, R. T. (2021). HLM 8: Hierarchical Linear and Nonlinear Modeling. Scientific Software International.

Ringenberg, M. C., Funk, V., Mullen, K., Wilford, A., & Kramer, J. (2005). The test-retest reliability of the parent and school survey (PASS). *School Community Journal*, *15*(2), 121-134. https://files.eric.ed.gov/fulltext/EJ794812.pdf

Roni, S. M., Merga, M. K., & Morris, J. E. (2020). *Conducting quantitative research in education*. Springer.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68-78. https://doi.org/10.1037/0003-066X.55.1.68

Schumacker, R. E., & Lomax, R. G. (2004). *A beginner's guide to structural equation modeling*. Lawrence Erlbaum Associates.

School Curriculum and Standards Authority. (2020). *Judging Standards.* Government of Western Australia. www.scsa.wa.edu.au

Scientific Software International. (2020). *HLM* (Version 8) [Software]. https://ssicentral.com/

Sheldon, S. B., & Turner-Vorbeck, T. A. (Eds.). (2019). *The Wiley handbook of family, school, and community relationships in education*. John Wiley & Sons.

Skar, G. B., Graham, S., & Huebner, A. R. (2023). Efficacy for writing self-regulation, attitude toward writing, and quality of second grade students' writing. *Frontiers in Psychology*, *14*, 1265785. https://doi.org/10.3389/fpsyg.2023.1265785

Thomas, D. P. (2020). Rapid decline and gender disparities in the NAPLAN writing data. *The Australian Educational Researcher*, *47*(5), 777-796. https://doi.org/10.1007/s13384-019-00366-8

Tinsley, H. E., & Tinsley, D. J. (1987). Uses of factor analysis in counseling psychology research. *Journal of Counseling Psychology*, *34*(4), 414-424. https://doi.org/10.1037/0022-0167.34.4.414

Valcan, D. S., Davis, H., Pino-Pasternak, D., & Malpique, A.A. (2020). Executive functioning as a predictor of children's mathematics, reading and writing. *Journal of Applied Developmental Psychology*, 70, 101196. https://doi.org/10.1016/j.appdev.2020.101196.

Walker, J. M., Wilkins, A. S., Dallaire, J. R., Sandler, H. M., & Hoover-Dempsey, K. V. (2005). Parental involvement: Model revision through scale development. *The Elementary School Journal*, *106*(2), 85-104. https://doi.org/10.1086/499193

Wise, K. (2005). The importance of writing skills. *Public Relations Quarterly*, *50*(2), 37-40. https://www.proquest.com/scholarly-journals/importance-writing-skills/docview/222396754/se-2?accountid=12629

Wright, K. L., Hodges, T. S., Enright, E., & Abbott, J. (2021). The relationship between middle and high school students' motivation to write, value of writing, writer self-beliefs, and writing outcomes. *Journal of Writing Research*, *12*(3), 601-623. https://doi.org/10.17239/jowr-2021.12.03.03

UNESCO (2017). *The Global learning crisis: Why every child deserves a quality education.* https://unesdoc.unesco.org/ark:/48223/pf0000223826

Xia, Y., & Yang, Y. (2018). RMSEA, CFI, and TLI in structural equation modelling with ordered categorical data: The story they tell depends on the estimation methods. *Behaviour Research Methods*, *51*, 409-428. https://doi.org/10.3758/s13428-018-1055-2

Yang, H., & Chen, Y. (2023). The impact of parental involvement on student writing ability: A meta-analysis. *Education Sciences*, *13*(7), 718. https://doi.org/10.3390/educsci13070718

Young, R., & Ferguson, F. (2020). Real-world writers: A handbook for teaching writing with 7-11 year olds. Routledge.

Yu, S., Gong, Z., Shen, Y., & Wei, J. (2023). A motivational perspective on the educational arms race in China: self-determination in out-of-school educational training among Chinese students and their parents. *Current Psychology*, 1-14. https://doi.org/10.1007/s12144-023-05034

Zhang, S. Z., Inoue, T., & Georgiou, G. K. (2023). Examining the relations between mothers' reading skills, home literacy environment, and Chinese children's word reading across contexts. *Reading and Writing*, 1-26. https://doi.org/10.1007/s11145-023-10475-7

Appendix A. Indirect and Direct Path Estimates

Table A1. Unstandardised Indirect Effects for Parental Motivation and Children's Writing Outcomes

Path		Estimate	Lower BCB CI 95%	Upper BCB CI 95%	*p*
Autonomous Motivation – Home-Led Writing – Attitudes to Writing	*a'h*	0.21	.075	0.44	.002*
Autonomous Motivation – Home Led Writing – Attitudes to Writing – Writing Quality	*a'h'i*	0.54	0.19	1.29	.001*
Autonomous Motivation – Home Led Writing- Writing Quality	*a'g*	-0.95	-2.05	-0.29	.003*
Autonomous Motivation – Attitudes to Writing – Writing Quality	*c'i*	-0.40	-1.24	0.20	.181
Controlled Motivation – Home Led Writing – Attitudes to Writing	*d'h*	0.06	-0.02	0.20	.118
Controlled Motivation – Home Led Writing – Attitudes to Writing – Writing Quality	*d'h'i*	0.16	-0.04	0.60	.106
Controlled Motivation – Home Led Writing – Writing Quality	*d'g*	0.38	-0.32	1.22	.279
Controlled Motivation – Attitudes to Writing – Writing Quality	*f'i*	-0.40	-1.24	0.20	.180

*$p < .05$. **$p < .001$.

Table A2. Unstandardised Total Effects for Parental Motivation and Children's Writing Outcomes

Path	Estimate	*p*
Autonomous Motivation – Attitudes to Writing	-16	.18
Autonomous Motivation – Writing Quality	-54	.44
Controlled Motivation – Attitudes to Writing	.20	.13
Controlled Motivation – Writing Quality	.71	.39

*$p < .05$. **$p < .001$.