

# Parental coaching strategies for child failure resilience: Predictors and child mastery motivation

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**Abstract:** Early encounters with failure can serve as a double-edged sword for children, offering either valuable learning experiences or posing challenges to future achievement. However, a significant research gap remains regarding how parents coach their children to cope with failure. This study developed a novel survey to measure parents' coaching strategies in response to children's failure in math, reading, and extracurricular learning activities, and explored their associations with child mastery motivation and predictors. A sample of 145 primary caregivers (87% biological mothers) of children aged 4 to 7 (mean age = 6.02, and 45% boys) was recruited both locally and online in the US. Primary caregivers completed an online survey. Factor analysis was utilized to identify parents' coaching strategies, and multiple regression analysis was adopted to examine the predictors and outcomes of these strategies. We identified three distinct coaching strategies: Emotion-Coaching Strategies, Persistence Strategies, and Permissive/Minimization Strategies. Emotion-Coaching and Persistence Strategies were positively correlated with children's mastery motivation, including object-oriented persistence, mastery pleasure, and general competence. Conversely, Permissive/Minimization Strategies were linked to lower mastery pleasure and higher negative reactions to failure. Furthermore, parents' and children's personal traits predicted parents' coaching strategies. Specifically, parents' grit and children's effortful control were related to Emotion-Coaching Strategies, while parents' failure mindsets, grit, and perfectionism correlated with Persistence Strategies. Family income significantly predicted Permissive/Minimization Strategies. The findings highlight the complexities of parental coaching approaches and their implications for fostering resilience in children facing failure in their learning journeys.

## Article History

Received: 14 June 2025

Accepted: 17 November 2025

## Keywords

Parents' coaching strategies;

Failure resilience;

Mastery motivation;

Failure mindset;

Grit

## Introduction

Experiencing failure is inherently stressful and uncomfortable, yet unavoidable in the journey of learning. In children's academic and extracurricular learning, a failure experience refers to not being able to achieve the learning goals or obtain the competence that is expected either by themselves or by others. Failure can be a double-edged sword – it can be a crisis for future achievement and relate to negative health consequences (Penzel et al., 2017), but it can also be an opportunity for growth and mastery, depending on the context and individual coping strategies (Skinner & Wellborn, 1994). Indeed, researchers have found that young children present a variety of reactions to frustrating failure. Some resilient reactions include being persistent in solving the problems, adjusting strategies, and seeking help and support, while the maladapted reactions were observed as expressed emotions (e.g., annoyed, frustrated, helpless in extreme cases), giving up, or avoiding risks of failure in the future (Balk, 1983; Ziegert et al., 2001). It is more

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important for caregivers to focus on helping children become “failure resilient:” accepting failure, learning from failure, and overcoming failure to achieve their goals, rather than just trying to prevent failure or raise a child who only “succeeds.” However, how parents socialize young children’s failure resilience is largely understudied in the existing literature. The current study explored parents’ practices in helping their children deal with failure in everyday learning contexts, investigated the relations between these parental strategies and child reactions to failure and setbacks (i.e., four dimensions of mastery motivation), and examined predictors (i.e., parent failure mindsets, grit, perfectionism, child temperament) of these parental strategies. Findings might shed light on interventions and programs to enhance caregivers’ ability to support their children in learning and overall well-being.

### **Parent Coaching Strategies in Response to Children’s Failure**

Failure is an emotionally salient experience that consistently results in significant emotional distress, including frustration, shame, and sadness (Johnson et al., 2017). While emotional experiences are natural and value-neutral, children’s emotional coping skills are essential to positive behaviors such as persistence. Negative, unregulated emotional reactions to failure can lead to self-focusing attention, which hinders the implementation of effective problem-solving strategies (Krohne et al., 2002). Thus, parents’ emotion-conscious strategies may shape children’s behaviors and mindsets in dealing with failure. According to the meta-emotion philosophy, some parents view negative emotions as opportunities for intimacy or teaching (emotion coaching strategies; Gottman et al., 1996). These parents encourage children to express negative emotions and actively guide them in managing their distress. Empirical research has consistently demonstrated that parents’ emotional supportiveness enhances their children’s adaptive responses to failure and challenges, such as persistence in challenges (Mokrova et al., 2012; Wang et al., 2023). Based on Self-determination theory (SDT), emotion-coaching parenting may improve children’s motivation to overcome challenges because of the enhancement of children’s feelings of autonomy, competence, and relatedness (Ryan & Deci, 2000). Thus, children accept their feelings, feel secure, and have an appropriate recovery from failure. Conversely, emotion-dismissing parents refer to those parents who tend to minimize or feel distressed about their children’s negative emotions. Researchers have shown the profound negative effects of parents’ emotion-dismissing on children’s social-emotional adjustments, including later internalizing and externalizing behaviors and low self-regulation (Frogley et al., 2023).

In addition to emotion-conscious strategies, parents may also help their children enhance their problem-solving skills in order to battle failure. Specifically, parents may emphasize the power of persistence, provide possible solutions, and help them see the value of the learning activity. These strategies have been found to benefit children’s academic achievement (Pomerantz et al., 2005). In addition, with infants and preschoolers, parents’ cognitive stimulation (i.e., providing solution options and guidance for the next step) and encouragement of persistence and effort predicted young children’s persistence in challenging tasks (Lucca et al., 2019). Conversely, parents may view themselves as bystanders and adopt permissive strategies by letting children experience failure independently and allowing children to shift goals or explore alternative interests instead of persevering through the challenge. However, parents’ lack of involvement hasn’t been studied in the context of young children’s failure resilience. Previous studies with school-aged children showed that parents’ involvement, especially parents’ expectations of their children’s achievement, is related to children’s higher academic achievement (a meta-synthesis, Wilder, 2014). It is possible that, in the context of failure resilience socialization, parents’ messages of persistence and problem-solving strategies help young children to accept and overcome failure, and parents’ lack of involvement may be related to children’s poor adjustment to failure.

Parental coaching strategies in helping children deal with failure in daily learning experiences may shape children’s motivation development. From as early as toddlerhood and preschool years, children exhibit an intrinsic curiosity for learning and a determination to achieve their goals (Gilmore et al., 2003). This psychological trait is commonly referred to as mastery motivation in early childhood (Barrett et al., 1993) or intrinsic motivation (Ryan & Deci, 2000), and it evolves into what is known as grit during adolescence and adulthood (Duckworth et al., 2007). Children with strong mastery motivation tend to

demonstrate resilience in the face of failure and adversity, sustaining their interests and effort in learning despite challenges (Barrett & Morgan, 2018; Duckworth et al., 2007). Mastery motivation is widely recognized as a multifaceted construct. Beyond task persistence, it encompasses confidence in pursuing success, curiosity about the unknown, and a preference for challenging tasks (Barrett & Morgan, 2018). Parents' use of emotion-conscious strategies and problem-solving strategies may help children learn that failure is manageable, facilitate children to obtain intrinsic interests in learning, and foster their willingness to challenge themselves to the next level of achievement. In contrast, emotion-dismissing and permissive parents may send children a signal that failure is discouraging and that abandoning difficult tasks is an acceptable solution, ultimately undermining children's mastery motivation. This study aims to examine the associations between parents' coaching strategies and children's mastery motivation, providing deeper insight into the pivotal role of parenting in children's learning and failure resilience.

### **Individual Differences of Parents' Socialization of Young Children's Failure Resiliency**

Another goal of the current study is to understand the individual differences in parents' coaching strategies. Parenting practices can be largely shaped by their beliefs and attitudes (Bornstein et al., 2018). Thus, when responding to children's failure, parents' coaching strategies can be largely shaped by their attitudes toward their own failure and their children's failure. Based on the growth mindset theory (Dweck, 2016), when experiencing obstacles, individuals with a growth mindset tend to view failure as an opportunity for learning and development, instead of perceiving failure as an obstacle to productivity and learning. In the context of parenting, parents with a growth failure mindset might be more likely to use failure as a teaching moment, guiding their children to reflect on the experience and persist in their efforts. In contrast, parents with a debilitating failure mindset may shield their children from failure, which may result in less encouragement for persistence.

Although researchers have shown that parents' attitudes toward failure are perceptible and influence children's growth mindsets (Su & He, 2024; Tao et al., 2022), few studies have examined the effects of parents' failure mindsets on their parenting practices. Studies with adolescents suggest that parents with growth-failure mindsets exhibit greater trust in their children's academic learning (Liu et al., 2023), whereas parents with debilitating-failure mindsets tend to undervalue their children's academic performance and engage in overcontrolling behaviors (e.g., Ching et al., 2023). Haimovitz and Dweck (2016) found that, with debilitating-failure mindsets, parents were more likely to have concerns about their children's performance and less likely to support their children's learning than parents with a growth-failure mindset. Importantly, one issue that has been ignored in previous studies is that parents' beliefs about their own failure may differ from their beliefs about their children's failure. For example, while some parents with a growth-failure mindset might believe in the value of failure for personal growth, they may still perceive their children's failure as harmful, prompting protective behaviors, especially for young children.

Parents' grit is another predictor of their failure-resilience socialization approaches. Grit, the compound of passion and perseverance in achieving long-term goals despite setbacks, obstacles, and failure (Duckworth et al., 2007), is associated with resilience and a growth-failure mindset (Calo et al., 2022). Parents with high grit are more likely to embrace failure as part of the learning process and exhibit lower stress in response to setbacks (Lee, 2017). Grit may translate into parents' emotion-coaching and persistence-focused strategies.

Another personality component that is related to failure resilience is perfectionism. Although both grit and perfectionism are related to achievement striving, grit is related to adaptive attitudes to failure, whereas perfectionism may be related to toxic values regarding failure due to the unreasonably high expectations and relentless pursuit of success (Dunn et al., 2021). This mentality leads to significant self-criticism for not reaching personal goals, and the generalization of an individual setback to overall self-evaluation (Burgess et al., 2016). Parents' perfectionism is related to their children's poor psychological well-being (Lilley et al., 2020). However, a meta-analysis of 14 studies found that the linkage between parents' perfectionism and children's outcomes was small ( $r = 0.153$ ; Lilley et al., 2020), which implies

variations in the family socialization process and the importance of investigating the mechanism through which parents' perfectionism impacts their parenting. Perfectionist parents with unrealistically high expectations of children's performance may be less tolerant of children's failure, which causes parents high levels of stress (Lee et al., 2012) and, in turn, may lead them to show more criticism and distress responses to children's failure.

Other than parents' characteristics, children's characteristics are also a determinant of parenting (Belsky, 1984). In the context of children's failure resilience socialization, children's temperament might also shape parents' coaching strategies. Effortful control, which refers to the ability to regulate attention and behavior (Putnam & Rothbart, 2006), significantly contributes to parent-child interactions, which has been studied in growing research on the bidirectional relations between parenting and children's temperament (e.g., Wittig & Rodriguez, 2019). One way of understanding the impact of children's effortful control on parenting is through the evocative gene-environment effects perspective (Klahr et al., 2013). That is, children with high effortful control may elicit more warmth and positive reactions from parents, and low effortful control children may evoke parents' frustration, negative discipline, and low warmth (Tiberio et al., 2016). Similarly, parents may be more inclined to soothe and encourage children with high effortful control but feel more parental distress and generate less effective strategies toward low effortful control children. Wilson et al., (2014) found that parents of non-aggressive, socially well-adjusted children were more likely to employ emotion-coaching strategies than parents of aggressive or socially rejected children.

### **The Current Study**

The current study investigated parents' coaching strategies for socializing young children's resilience to failure in early academic and extracurricular learning during preschool and early elementary school age. Specifically, this research addressed three primary questions: 1) What coaching strategies do parents utilize to help their children cope with failure? 2) How are parents' coaching strategies associated with child mastery motivation? 3) What parent and child factors predict these strategies? Although previous studies showed the importance of parenting styles in shaping children's failure mindset, no studies assessed parents' reactions to young children's failure. Compared to adolescents and adults, it might be more challenging for young children to see the value of failure, and parents' coaching may be critical for their mastery motivation and later failure mindset development. To address this gap, we aim to develop a survey to assess parents' coaching strategies across two dimensions: emotion-conscious and strategy-focused approaches, both relevant to young children's learning. We hypothesized that effective strategies include emotion-coaching and problem-solving strategies, while dismissing and permissive strategies would be maladaptive.

According to Barrett and Morgan (1993), mastery motivation can be assessed by measuring two key components: the instrumental aspect, which motivates goal-oriented attempts and persistence in challenging tasks, and the expressive aspect, which indicates the affective reactions while an individual is working on a challenging task or just completing it. The current study adopted Morgan et al.'s, (2019) short version of Dimensions of Mastery Motivation, and evaluated four aspects of child mastery motivation, including the child's goal-oriented persistence, positive affection after completing the task (i.e., excitement and pride), negative affection and reaction toward failure (i.e., frustration and giving-up), and general competence. It is hypothesized that parents' effective strategies would be positively related to children's goal-oriented persistence, positive mastery affect, and general competence; while parents' maladaptive strategies would be negatively related to these aspects of children's mastery motivation. Notably, children's frustration toward failure may not necessarily be a negative indicator of their mastery motivation. Previous studies showed that children's frustration in goal-blocking tasks at toddlerhood was positively related to their goal-oriented attempts at school age (He et al., 2016). However, because previous studies found correlations between unregulated negative emotional reactions and less persistence in challenging tasks (e.g., Eskreis-Winkler & Fishbach, 2019), we further hypothesized that parents' effective coaching strategies were negatively related to the negative-reaction-to-failure aspect of mastery motivation. For the third question, we hypothesized that parents' positive failure mindsets (toward their

own and children's failure), grit, and children's high effortful control would be associated with parents' effective strategies, whereas parents' perfectionism would be related to maladaptive strategies.

## Method

### Participants

Participants were recruited in a Midwest U.S. city via local public libraries, public elementary school advertisements, and online parenting groups in another Midwest city, with the requirements of primary caregivers who currently have children aged 4 to 7. Eligible participants were individually emailed with an online survey link. One hundred and forty-five primary caregivers (age  $M = 35.38$ ,  $SD = 5.00$ ) with young children (45% boys; age  $M = 6.02$ ,  $SD = 1.05$ ) filled out the survey. The majority of the participants were White (83%), married (86%), biological mothers (87%), with Bachelor's degrees and above (67.4%), with some variations in family income (more demographic information in Table 1).

Parents filled out the questionnaires regarding demographics, their failure mindset, grit, and perfectionism, and were requested to refer to the oldest child between the ages of 4 and 7 when they answered their children's demographic information, temperament, parents' attitudes toward children's failure, and parent coaching strategies. This data collection was approved by North Dakota State University Institutional Review Board (No. IRB0004799), and conducted from June to September 2023. The privacy rights of participants have been observed. Informed consent was obtained from participants for conducting the survey. Participants were compensated with a \$30 gift card for completing the survey.

**Table 1**  
*Demographic Information of the Sample*

Demographic Category		Percentage
Primary caregiver	Biological mother	87.4%
	Biological father	9.1%
	Step and Adopted mother	2.1%
	Other (grandparents and other family members)	1.4%
Marital Status	Married	82.7%
	Single never married	6.7%
	Divorced	3.3%
	Separated	2.7%
	Other	.7%
Race of Primary Caregiver	White	82.6%
	Black	7.6%
	Asian	4.2%
	American Indian and Alaska Native	2.7%
	Native Hawaiian and Pacific Islander	.7%
	Other	2%
Highest Degree	Less than a high school degree	.7%
	High school degree	7.6%
	Some college, no degree	14.6%
	Associate's degree	9.7%
	Bachelor's degree	43.1%
	Master's degree	17.4%
Income	Doctoral or professional degree	6.9%
	under \$45,000	15%
	\$45,000 - \$59,999	17%
	\$60,000 - \$74,999	13%
	\$75,000 - \$99,999	21%
	\$100,000 to \$149,999	20%
above \$150,000	14%	

## Measures

### *Parent Coaching Strategies Reacting to Children's Failure*

Three scenarios and eleven strategies were designed to assess parents' coaching strategies for children's failure. Participants were requested to imagine that their children failed in three scenarios of math, reading, and extracurricular learning. And they rated how likely they would adopt each proposed strategy on a 5-point Likert scale (1 = *Not like me at all* to 5 = *Very much like me*) (see Table 2). The eleven strategies were designed to represent different aspects of parents' coaching strategies, including three items for *Emotion-Coaching Strategies* (e.g., Hug my child and be emotionally available); two items for *Emotion-Dismissing Strategies* (e.g., Feel upset that my child is more emotional than they should be), three items for *Problem-Solving Strategies* (e.g., Provide some strategies and figure out a different way together), and three items were designed for *Permissive Strategies* (e.g., Let my child experience the failure and figure it out by themselves). The eleven strategies were presented in a random order after each scenario. The score for each strategy was calculated as the average rating across the three scenarios. Due to the newly developed scale, the factor loadings of the eleven items and the reliability of each factor were presented in the results section.

**Table 2**

*Survey Developed to Measure Parent Coaching Strategies to Children's Failure and Descriptives of Each Strategy*

Questionnaire Prompts	Strategies	Mean (SD)	Min	Max
Scenario 1(Extra-curriculum): Think of an extra-curricular activity that your child is learning or is interested in enrolling in (such as music, art, sports, etc.). Your child failed to advance to a higher level after a 3rd attempt. They are very upset and don't want to continue because they are afraid that they will fail again. I will ...	Hug my child and be emotionally available	4.50 (.74)	2	5
	Let my child know it's OK to fail at this attempt	3.76 (.85)	1.33	5
	Encourage my child that they are doing great already	4.06 (.74)	1.67	5
	Tell my child that this is what it is and really not a big deal	2.00 (1.00)	1	5
	Feel upset that my child is more emotional than they should be	2.77 (1.02)	1	5
Scenario 2 (Reading): One day, your child cries to you and says they don't want to continue the school reading challenge because their best friend is much more advanced in the reading activity than them. I will...	Provide some strategies and figure out a different way together	4.14 (.73)	1.33	5
	Help my child see the value and fun of learning this activity	4.15 (.62)	2.33	5
	Educate my child that persistence is the key to success, and they cannot give up	3.80 (.88)	1.33	5
	Let my child take a break	3.21 (.84)	1	5
Scenario 3 (Math): Your child is working on a school math project and they are very frustrated because they cannot figure out the equations (or numbers).	See what else my child is good at and try something new	3.07 (.85)	1.33	5
	Let my child experience it and figure it out by themselves	2.71 (.96)	1	5

*Note.* The descriptives were the average scores across three scenarios.

### *Child Mastery Motivation*

Parents reported their children's Dimensions of Mastery Questionnaire (DMQ short version) (Morgan et al., 2019). Parents rated the 25 items on a 1 (Very Unlikely) to 6 (Very Likely) scale. DMQ constructed to measure four dimensions of children's mastery motivation: Object-Oriented Persistence (9 items; e.g., "Works for a long time trying to do something hard";  $\alpha = 0.86$  with the current sample), Mastery Pleasure (6 items; e.g., "Gets excited when he or she figures something out";  $\alpha = 0.86$ ), General Competence (5 items; e.g., "Learns new things quickly";  $\alpha = 0.74$ ), and Negative Reaction to Failure (5 items; e.g., "Gets frustrated when he or she does not do well at something";  $\alpha = 0.86$ ). This measure has been validated with preschool- and school-aged children (Morgan et al., 2019). The mean score of each subscale was calculated.

### *Parent Failure Mindset*

Parents' attitudes about failure were assessed through the Failure Mindset Scale (Haimovitz & Dweck, 2016). Participants rated 6 items on a 5-point scale (1 = *Not at all like me* to 5 = *Very much like me*),

including positive attitudes items (e.g., "I believe experiencing failure facilitates my learning and growth") and three reverse-coded debilitating failure attitudes items (e.g., "I believe the effects of failure are negative and should be avoided"). The average score across 6 items was calculated, with higher scores indicating a more growth-oriented mindset about failure ( $\alpha = .71$ ).

### ***Parents' Attitudes towards Children's Failure***

The survey of parents' attitudes toward children's failure was adapted from Haimovitz and Dweck's (2016) failure mindset measure. Each item was rewritten to describe children's failure. For example, "I believe experiencing failure facilitates my child's learning and growth." Or, "I believe the effects of failure are negative for my child and should be avoided." A higher total mean score indicated primary caregivers' positive attitudes towards children's failure ( $\alpha = .72$ ).

### ***Parent Grit***

Parents' grit was assessed using the 8-item Short Grit Scale (Grit-S) (Duckworth & Quinn, 2009), which measures trait-level perseverance and passion for long-term goals on a 5-point scale (1 = *Not at all like me* to 5 = *Very much like me*; e.g., "I often set a goal but later choose to pursue a different one," or "I finish whatever I begin"). The total score was the average score of the 8 items ( $\alpha = .85$ ). A higher score indicated higher grit.

### ***Parent Perfectionism***

Parents' perfectionism was assessed through the Frost Multidimensional Perfectionism Scale-Brief (F-MPS-Brief) (Burgess et al., 2016). Parents rated their agreement with eight statements on a 5-point scale (1 = *Strongly Disagree* to 5 = *Strongly Agree*; e.g., "If I fail at work/school, I am a failure as a person."). Higher total mean scores indicated parents' higher perfectionism ( $\alpha = .81$ ).

### ***Child Effortful Control***

Children's effortful control was assessed using the Effortful Control subscale from the Children's Behavior Questionnaire (CBQ) (Putnam & Rothbart, 2006). Parents rated how well 12 statements described their child's typical behavior over the past six months using a 7-point scale (1 = *extremely untrue of your child* to 7 = *extremely true of your child*, with an additional option for "not applicable"; e.g., "When drawing or coloring in a book, shows strong concentration,"). A higher average score indicated greater effortful control capacity ( $\alpha = .76$ ).

### ***Demographic Covariates***

The primary caregiver reported on household income, child age (calculated with the child's birthdate and the date the survey was completed), and child sex (0 = male, 1 = female).

### **Analysis Plan**

First, a factor analysis was conducted in SPSS v. 29 to assess whether there were underlying and distinct theoretical structures within the parent's Coaching Strategies reacting to Children's Failure (CSCF) measure. Then, the first multiple regression in Mplus v. 8.6 using a maximum likelihood estimator investigated associations between individual CSCF aspects and child mastery motivation. The second multiple regression examined the associations between parents' characteristics (i.e., parent attitudes towards their child's and their own failure, grit, and perfectionism), children's effortful control, and covariates (i.e., family income, child sex, and child age), with the individual CSCF aspects. The dataset and analysis scripts used in this study have been archived at the Open Science Framework: <https://doi.org/10.17605/OSF.IO/JTZ2P>.

## **Results**

Table 3 presents descriptive statistics and correlations across variables, including the later calculated three aspects of CSCF according to the following factor analysis results. All variables met normality assumptions. The bivariate correlations showed that family income was positively correlated to parental

grit, perfectionism, and child mastery pleasure. Girls showed more effortful control, mastery pleasure, and general competence than boys. Child age was not correlated with parents' coaching strategies.

**Table 3**  
Correlations and Descriptive Statistics for all Study Variables

	1	2	3	4	5	6	7	
<b>Covariates</b>								
1. Income	--							
2. Child Sex	-.01	--						
3. Child Age	.03	.15	--					
<b>Parents' Coaching Strategies</b>								
4. Emotion-Coaching Strategies	.08	-.01	.03	--				
5. Persistence Strategies	-.03	.09	.09	.49***	--			
6. Passive/Minimization Strategies	-.22*	.01	-.07	.06	.05	--		
<b>Child Mastery Motivation Dimensions</b>								
7. Object-Oriented Persistence	-.02	.13	.14	.14	.25**	-.01	--	
8. Mastery Pleasure	.19*	.18*	.10	.63***	.42***	-.25**	.31***	
9. General Competence	.13	.23*	.16	.30***	.30***	-.19*	.50***	
10. Negative Reactions to Failures	.05	-.05	.05	-.12	-.03	.24**	-.40***	
<b>Parents' and Children's Characteristics</b>								
11. Parent Attitudes toward Child's Failure	.05	.15	.12	.11	.20*	-.04	.30***	
12. Parent Failure Mindset	.05	.09	.19*	.07	.33***	-.01	.33***	
13. Parent Grit	.19*	.13	-.06	.26**	.27**	-.15*	.25**	
14. Parent Perfectionism	.19*	-.04	-.06	-.12	.05	.12	-.26**	
15. Child Effortful Control	-.08	.33***	.08	.21*	.26**	.05	.49***	
N	143	133	117	138	138	138	137	
Mean	5.44	.55	6.02	4.11	4.03	2.75	4.19	
(SD)	(1.85)	(.50)	(1.05)	(.63)	(.58)	(.63)	(.79)	
Min/Max	1/ 8	0/ 1	4/ 7.9	2/ 5	2.1/ 5	1.4/ 4.3	1.7/ 6	
Skew/	-.43/	-.20/	.04/	-.88/	-.49/	.14/	-.64/	
Kurtosis	-.65	-.20	-.91	.54	.17	-.44	.91	
<i>Continued...</i>								
	8	9	10	11	12	13	14	15
8	--							
9	.53***	--						
10	-.21*	-.40***	--					
11	.15	.31***	-.13	--				
12	.24**	.31***	-.13	.59***	--			
13	.37***	.33***	-.43***	.01	.14*	--		
14	-.01	-.015	.31***	-.16	-.17*	-.13	--	
15	.28**	.40***	-.08	.37***	.37***	.07	-.08	--
N	137	137	136	140	142	143	139	136
Mean	5.30	4.65	3.61	3.88	3.80	3.45	3.00	5.23
(SD)	(.74)	(.81)	(1.09)	(.62)	(.54)	(.68)	(.67)	(.87)
Min/Max	2.5/ 6	2/ 6	1/ 5.8	2/ 5	2.3/ 5	1.6/ 4.9	1.3/ 5	3/ 6.9
Skew/	-1.3/	-.59/	-.58/	-.22/	-.07/	-.36/	-.04/	-.58/
Kurtosis	1.58	.46	-.02	-.01	.24	-.25	.21	-.22

Note. a. Child sex (designated at birth), 0 = boy and 1 = girl; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

### Factor Analysis: Parents' Coaching Strategies

The exploratory factor analysis was conducted using Principal Axis Factoring syntax in SPSS as the extraction method and varimax rotation to aid in factor interpretation. We examined scree plots and eigenvalues greater than one to determine the number of factors to retain. The pattern matrix revealed clear factor loadings of a three-factor solution, with items loading above the conventional cutoff of 0.40 on their respective factors and minimal cross-loadings. Factor 1, labeled *Emotion-Coaching Strategies*, reflected parents' emotional availability, validated their emotional expressions, and soothing. Factor 2, labeled *Persistence Strategies*, captured parents' problem-solving-oriented approach, encouragement of persistence, and emphasis on the intrinsic value of learning this skill or activity. Factor 3 was loaded with five items

that captured parents' permissive and passive approaches, as well as their minimization of children's frustrated feelings toward failure, which were named *Passive/Minimization Strategies*. Each factor accounted for a significant proportion of the variance in the CSCF items. Eigenvalues and factor loadings were presented in Table 4. Together, these factors accounted for approximately 49% of the total variance in the CSCF items.

The reliability of each factor was evaluated using Cronbach's alpha; the reliabilities of the three factors ranged from .67 to .75, indicating good reliability within each factor. The average scores across items loaded in each CSCF factor were calculated and used in the following multiple regression analyses to explore their associations with children's mastery motivation and other parent and child traits.

**Table 4**  
Factor Analysis Results

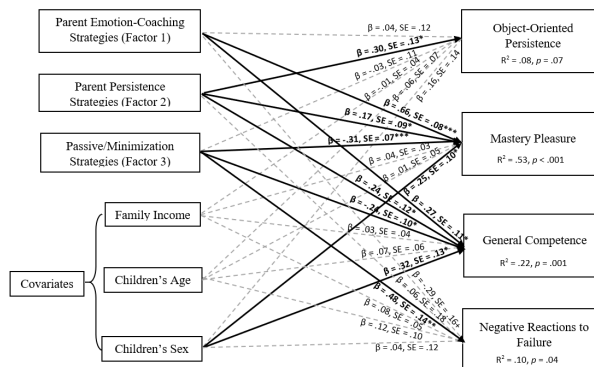
Item	Factor 1	Factor 2	Factor 3
Hug my child and be emotionally available	.746		
Let my child know it's OK to fail at this attempt	.723		
Encourage my child that they are doing great already	.624		
Provide some strategies and figure out a different way together.*	.550	.479	
Help my child to see the value and fun of learning this activity.		.557	
Educate my child that persistence is the key to success, and they cannot give up.		.619	
Let my child take a break			.520
See what else my child is good at and try something new			.684
Let my child experience it and figure it out by themselves.			.642
Tell my child that this is what it is and really not a big deal.			.721
Feel upset that my child is more emotional than they should be.			.365
Eigenvalues	3.26	2.37	1.28
Cronbach's alpha	.75	.67	.70

Note. \* The item was double-loaded but was categorized as a persistence strategy due to the theoretical conceptualization. Factor 1 = Emotion-coaching Strategies; Factor 2 = Persistence Strategies; Factor 3 = Permissive /Minimization Strategies.

**Parents' Coaching Strategies and Children's Mastery Motivation**

The first multiple regression results were presented in Figure 1. *Emotion-Coaching Strategies* were positively related to children's mastery pleasure and general competence ( $\beta$ s = .66 and .27, SE = .08 and .11,  $p$ s < .001 and = .02, respectively). *Persistence Strategies* were positively related to children's object-oriented persistence ( $\beta$  = .30, SE = .13,  $p$  = .02), mastery pleasure ( $\beta$  = .17, SE = .09,  $p$  = .05), and general competence ( $\beta$  = .24, SE = .12,  $p$  = .05). In contrast, *Permissive/Minimization Strategies* were negatively related to children's mastery pleasure ( $\beta$  = -.31, SE = .07,  $p$  < .001) and general competence ( $\beta$  = -.24, SE = .10,  $p$  = .02), but positively related to children's negative reactions to failure ( $\beta$  = .48, SE = .14,  $p$  = .001). The overall effect sizes for the three strategies ranged from .08 to .53 (Figure 1).

**Figure 1**  
Multiple Regression with CSCF Predicting Child Mastery Motivation

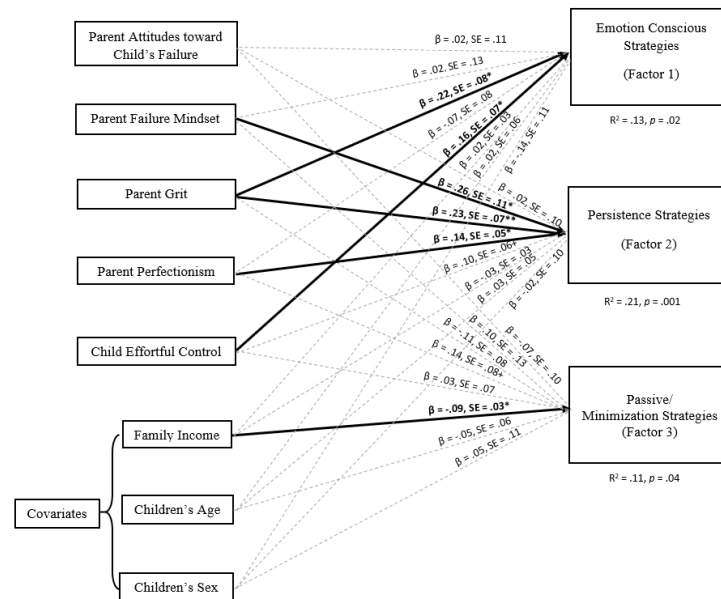


Note. Child sex, 0 = boy and 1 = girl; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ ;  $R^2$ , the overall effect size.

### Individual Differences in Predicting Parents' Strategies

The second multiple regression examined the relations between parents' and children's characteristics and parents' coaching strategies (Figure 2). Results showed significant positive relations between parent grit and child effortful control and *Emotion-Coaching Strategies* ( $\beta$ s = .22 and .16, SE = .08 and .07,  $p$ s = .01 and .02, respectively). *Persistence Strategies* were significantly and positively predicted by parent failure mindset ( $\beta = .26$ , SE = .11,  $p = .02$ ) and parent grit ( $\beta = .23$ , SE = .07,  $p = .001$ ), as well as parents' perfectionism ( $\beta = .14$ , SE = .07,  $p = .05$ ). Finally, *Passive/Minimization Strategies* were solely significantly predicted by family income in the negative direction ( $\beta = -.09$ , SE = .03,  $p = .01$ ). All other associations were non-significant at the  $p > .05$  level. The overall effect sizes for the three strategies ranged from .11 to .21 (Figure 2).

**Figure 2**  
Multiple Regression with Parent and Child Characteristics Predicting CSCF



Note. Child sex, 0 = boy and 1 = girl; +  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; R<sup>2</sup>, the overall effect size.

### Conclusion and Discussion

While failure resilience and perseverance toward goals begin to emerge during the preschool years (Sutter et al., 2022), research on these constructs hasn't garnered scholarly attention until adolescence. This study advances the existing literature on the socialization of failure resilience in young children by examining parents' various coaching strategies in helping their children handle failure in learning contexts. The factor analysis identified three types of parents' coaching strategies: *Emotion-Coaching strategies*, *Persistence Strategies*, and *Passive/Minimization Strategies*. Consistent with the hypothesis, effective parental strategies were multifaceted, encompassing both emotion-coaching and persistence-focused approaches. These strategies were positively associated with various dimensions of children's mastery motivation. However, different from our hypothesis, all five items loaded onto a single factor—Passive/Minimization Strategies—suggesting that parents who are emotion-dismissing also tend to withdraw when their children encounter failure. Parents' Passive/Minimization Strategies were associated with children's less pleasure in success and lower competence, as well as more negative reactions to failures. Given the cross-sectional nature of this study, the underlying mechanisms driving these associations remain unclear. One possibility is that parents who provide emotional support and persistence-oriented guidance perceive their children as resilient during challenges. Alternatively, children who struggle with failure may elicit more passive and minimizing responses from their parents.

Additionally, this study highlights individual differences in parental coaching strategies based on both parental and child characteristics. Notably, parental *grit* emerged as a strong predictor of positive coaching strategies. Previous studies consistently show that *grit* predicts an individual's achievements, income, and psychological well-being (Duckworth & Quinn, 2009), but few examined its linkage to parenting. Findings from this study suggest that parents with greater passion and perseverance toward their own goals are more patient with their children's failure, more likely to provide solutions, and more inclined to encourage persistence. In addition, parents' own failure mindset was also associated with parents' persistence strategies. Overall, the results suggested that parents' positive attitudes toward failure and *grit* are good indicators of their positive coaching strategies. Future research should encourage these characteristics among parents, in order to examine the potential effects on their children's failure resilience.

Surprisingly, we didn't find evidence that parents' attitudes toward *children's* failure predicted coaching strategies. It is possible that parents' own failure mindset and *grit* carry more weight than what parents "try to" deliver to their children or what they believe they "should do" in the role of parents. Some media use studies and racial socialization studies echoed this finding, showing that parents' true selves (i.e., their own implicit values) define who they are as parents more than explicit messaging, or the parent that they would "like" to be (e.g., Castelli et al., 2008). More research is needed on transmission mechanisms in this area.

Interestingly, the study suggested that parents' perfectionism plays a mixed role in children's failure-resilience socialization. First, parents' perfectionist personality was *positively* related to parents' *persistence strategies*. Perfectionist parents may be intolerant of children's failure, prompting them to promote success by encouraging children's persistence and providing children with problem-solving strategies. However, perfectionism cannot be simply viewed as an adaptive personality in child failure resilience socialization because correlational results also link perfectionism to parents' debilitating failure mindset. That is, perfectionist parents tend to see failure as an obstacle to learning and something to be avoided. Consistently, prior research showed that perfectionism, a personality of pursuing unrealistic high achievement, is a multidimensional personal trait that has both adaptive and maladaptive components to achievement and psychological well-being (e.g., Seong & Chang, 2021). Our work suggests that the positive aspects of perfectionism (seeking improvement) are embraced while negative aspects (intolerance of any mistakes) are avoided.

A key strength of multiple regression is to identify the relative strength of relations of multiple predictors. The results indicated that different parent, child, and family predictors mattered for each coaching strategy. Specifically, parents' emotion-coaching strategies were mainly predicted by the child's effortful control, which is aligned with the evocative gene-environment effects perspective (Klahr et al., 2013); that is, self-regulated children elicit positive reactions from parents. Additionally, parents' persistence strategies were mostly predicted by parents' personality traits, whereas parents' negative strategies were mostly driven by family income, possibly due to increased parenting stress from economic hardship (Conger et al., 2010). These findings highlight the importance of fostering positive parenting behaviors and improving children's failure resilience by enhancing both parents' attitudes and children's effortful control.

Although this study provides pioneering insights into measuring and identifying predictors of parents' coaching strategies in failure resilience socialization, several limitations should be noted. First, the cross-sectional data limited the ability of causal inference. Longitudinal data is needed to investigate how family predictors determine parents' coaching strategies over time and, in turn, influence children's later failure resilience. Second, our results relied on the primary caregiver's report. Future studies should provide multi-reporter, multi-method data to enhance the validity of the results. Third, the representativeness of the sample is limited. Caution is needed in generalizing the current results of the most White, married sample to other groups. Further psychometric evaluation is also necessary to strengthen the validity of this newly developed CSCF measure.

Despite these limitations, this study serves as an important first step in understanding how parents coach their children through failure. The findings suggested that parents' effective coaching strategies are associated with young children's high mastery motivation. By identifying the individual differences on the key parent and child characteristics—including parental grit, perfectionism, and children's effortful control—this research highlights the complex interplay between parental characteristics, child traits, and family context in failure resilience socialization, laying the groundwork for future research and intervention programs aimed at fostering children's failure resilience from an early age.

## Declarations

### *Authors' Declarations*

**Acknowledgements:** The authors wish to thank all the caregivers who participated in this study.

**Authors' contributions:** All authors made equal contributions to the conceptualization, methodology, and investigation. Wen Wang and Ashley Fraser took the lead in formal analysis and the first draft. All authors contributed substantially to writing and revision, and approved the final manuscript.

**Competing interests:** The authors declare that they have no competing interests.

**Funding:** The research leading to these results received funding from the National Science Foundation under Grant No. CMMI-1750316 and OIA-2119691. The findings and opinions expressed in this article are those of the authors only and do not necessarily reflect the views of the sponsors.

**Ethics approval and consent to participate:** This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Blinded Review (North Dakota State University Institutional Review Board, No. IRB0004799). Informed consent was obtained from all individual participants included in the study. All data and code supporting the findings of this study are archived and openly available at the Open Science Framework: <https://doi.org/10.17605/OSF.IO/JT22P>.

### *Publisher's Declarations*

**Editorial Acknowledgement:** The editorial process of this article was completed under the editorship of Dr. Adrijana Visnjic Jevtic through a double-blind peer review with external reviewers.

**Publisher's Note:** Journal of Childhood, Education & Society remains neutral with regard to jurisdictional claims in published maps and institutional affiliation.

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