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Parental Attitudes and Children's Language Development: A Cross-Cultural Evaluation of the Early Parenting Attitudes Questionnaire

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The Early Parenting Attitudes Questionnaire (EPAQ; Hembacher & Frank, 2020) was developed in the U.S. to assess parents' beliefs, knowledge, ideas, and attitudes about parenting. Given the diversity of parenting practices among cultures, it is essential to establish the cross-cultural validity of the instruments used to measure them. For this reason, this study aims at (1) assessing the psychometric properties of the EPAQ in Norway, Russia, and the U.K. and (2) investigating whether the underlying structure aligns with the original one observed in the U.S. Moreover, we aimed at (3) exploring the potential relationship between parental attitudes and children's language development using MacArthur-Bates Communicative Development Inventories (CDI; Fenson et al. 2007). Our sample consisted of 3333 parents of children between 0 and 156 months from Norway (n = 1060), the U.K. (n = 656) , and Russia (n = 1617). Analyses revealed a different factor solution in the countries of our sample, as compared to the original three-factor solution found in the original American sample. Especially in Russia, the structure of parental attitudes as measured by the EPAQ differs both from the original factor solution and from the factor solution identified in Norway and the U.K. Therefore, at least in the Russian context, different culture-sensitive scales need to be developed and, generally, new items for the EPAQ should be developed for further refinement. Moreover, our analyses highlighted a significant negative association between the factor Communicative and Emotional Detachment and vocabulary scores as a function of the child's age in Russia.

Introduction

Culture, as well as ethnicity and socioeconomic status (SES), are linked to parenting practices, which can influence children's mental health through, for example, parents' expectations, the behaviors they value, and the type of care they provide (Bornstein, 2013). Parenting combines intuition and knowledge, which are often acquired by living in a culture and might differ across countries. There are differences in cultural and societal norms shaping children's upbringing, as well as in belief systems regarding, for example, socially acceptable and unacceptable behaviors or the type of support needed for children's development. For instance, in many countries, it is normative for parents to talk to infants and believe they understand speech long before they start producing speech themselves, but in certain societies, such as the Tsimane of Bolivia, parents do not engage in infant-directed speech very often (Cristia et al., 2019). Parental attitudes are also known to affect the emotional development of children (Eisenberg et al., 2005). As Morris et al. (2007) suggest, children learn about emotion regulation by observation. Moreover, they argue that emotion regulation is affected by parenting practices and by the emotional climate of the family. For instance, parental harsh responses to their children's negative emotions are linked to lower levels of emotional competence (Jones et al., 2002) and inappropriate emotion regulation strategies (Eisenberg & Fabes, 1994).

Given the cultural variation in parenting attitudes and beliefs, evaluating the cross-cultural validity of the instruments that assess them is crucial. However, disentangling the effect of culture and language is challenging, considering that the three countries of our sample differ not only in terms of culture but also in their respective languages (i.e., Russian, Norwegian, and English). It is important to note here that language is an integral part of culture and in

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most cases not distinguishable from it. The first two aims of the present research study are to assess the psychometric properties of the EPAQ (Hembacher & Frank, 2020) across three different languages and cultures and to investigate whether the underlying structure aligns with that observed in the U.S. The EPAQ was chosen among other instruments for several reasons, in particular, its recency and the diversity of domains covered by its items. For instance, compared to the Parent/Caregiver Involvement Scale – Short Form (P/CIS-SF; Taylor & Bergin, 2019) and the Survey of Parent/Provider Expectations and Knowledge (SPEAK; Suskind et al., 2018), which are supposed to measure intuitive theories of parenting related to specific domains (i.e., in high-risk environments, and related to cognitive and language development), the EPAQ is broader and assesses more dimensions of parenting. At the same time, compared to the Knowledge of Infant Development Inventory (KIDI; MacPhee, 1981), the EPAQ is less broad and more focused on psychological aspects of parenting.

Several factors contributed to the choice of the three countries of our samples, including practical reasons such as ongoing collaborative work with international teams based in Russia, Norway, and the U.K. However, these countries were primarily chosen because of the differences in their cultural backgrounds. Central and Eastern European societies are more collectivist than Western European and American ones (e.g., Hofstede, 1980; Kolman et al., 2003), potentially due to the different political situations present in these countries. Central and East Europeans experienced a Communist rule relatively recently, which "encouraged collectivist thinking and behavior and structured life in such a way that reliance on others was necessary for survival, and personal connections with others were necessary for success" (Varnum et al., 2008, p. 324). In fact, prior studies found, for instance, that Russians are more collectivist than the British (Tower et al., 1997, as cited in Varnum et al., 2008) and that, compared to West Europeans, Central and East Europeans place more importance on hierarchy and less on autonomy (Schwartz & Bardi, 1997). Despite the social and economic changes that Russia went through, a recent study by Borshchevskiy (2022) found that collectivist values are still dominant in Russian society, with some differences in the high-power distance.

Individualist and collectivist cultures also differ in some aspects of emotions. According to Tsai et al. (2007), people in Western or individualist cultures are encouraged to communicate their innermost thoughts and feelings and to exert influence over others via high-arousal emotions. On the contrary, low-arousal emotions are valued more in Eastern or collectivist cultures, as conforming to others is a desirable behavior (Tsai et al., 2007). Although individualism and collectivism are two of the most studied constructs used to describe Western and Eastern cultures, recent studies suggest that they might be too broad and end up masking some aspects of the societies they describe (Lomas et al., 2023). Moreover, individualism and collectivism might not be the only factors to take into account when considering cross-cultural differences. Indeed, a study by Lin et al. (2017) found that nations that are conventionally regarded as individualistic or collectivistic do not differ much in terms of attachment orientations and psychological outcomes, indicating that there are also other factors involved in the relationship between attachment and psychological outcomes. One of these factors could be, for instance, power distance. The latter is a cultural dimension identified by Hofstede (2011), which is defined as the degree to which the weaker members (e.g., children) of a group (e.g., a family) accept an unequal allocation of power within the group. In low power distance societies (e.g., Norway, the U.K., and the US), parents tend to treat children as equals. In high power distance societies (e.g., Russia), obedience is highly important, and elderly people are respected and feared. The different factor structures that we report later on in the present study further confirm that there are indeed substantial cross-cultural differences in Russia, Norway, and the U.K. when it comes to parenting.

The third aim of the study is to explore the potential relationship between parental attitudes and beliefs and children's language development. For the latter, we used the MacArthur-Bates Communicative Development Inventories (CDI; Fenson et al., 2007)—parent-reported measures of early language comprehension and production administered in the form of vocabulary checklists.

To achieve these goals, we recruited parents of young children in Russia, Norway, and the U.K. and assessed different aspects of intuitive parenting theories, asking parents to fill in the EPAQ (Hembacher & Frank, 2020) as well as the CDIs (Fenson et al., 2007) in their respective languages. All of the translations and adaptations were completed as part of previous studies. Additional information about the translation procedure can be found in the Methods section.

To address the first two aims, we estimated the measurement invariance of the scale (i.e., whether the same factor structure could be observed between countries – a prerequisite for cross-cultural comparisons) and compared it to that revealed in the American sample. To address the third aim, we evaluated whether parental attitudes correlated with children's vocabulary size, as indexed by the CDIs (Fenson et al., 2007). Moreover, given that previous studies found that children from lower SES environments usually have smaller vocabularies compared to those from high SES environments (e.g., Pace et al., 2017; Rowe, 2018), we collected data on maternal education that we used as a proxy for SES in all the analyses to control for its possible impact on vocabulary size.

Our reasoning was the following: If the factor structure and the psychometric properties of the EPAQ observed in the original American sample can be replicated in the U.K., Norway, and Russia, then we would conclude that the underlying phenomenon can be generalized to these countries. Conversely, if the underlying phenomenon is not generalizable, the factor structure would fail to replicate. In this case, we would conclude that implicit parenting theories differ substantially between the countries, indicating that the EPAQ, in its current form, is not suitable for use outside the North American context.

After conducting an initial factor analysis, we pre-registered a set of hypotheses (see https://osf.io/puqj9/?view_only=ffe1c74400f44a6788f51e588df838a7). Specifically, we expected that the first factor identified in Russia, named Adult Authority (i.e., based on respect for the adult, learning, and emotional control), would correlate positively with vocabulary, given that, although these parents set high expectations for their children, they still value independence, which has been shown to build confidence and, thus, get the most out of learning opportunities (Cerino, 2023). By contrast, we assumed that the second factor in Russia, named Communicative and Emotional Detachment (i.e., based on the idea that too much attention can spoil a child), and the third factor, named Confrontation Between Child and Adult (i.e., based on a strict hierarchy), would correlate with lower vocabulary scores. For the Norwegian and the U.K. data, we expected that the factor Affection and Attachment (i.e., based on emotional closeness) would correlate positively with vocabulary, given that the majority of the items that load on this factor concerned the child's safety and emotional wellbeing. In fact, a child living in a safe environment and developing a secure attachment should generally feel more comfortable speaking and interacting with others (Bowlby, 1969/1982), potentially translating into better vocabulary scores. We also expected that the factor referred to as School Preparation (i.e., based on parents' involvement in education) would associate positively with vocabulary, as parent involvement in school is associated with positive educational outcomes (e.g., Barnard, 2004; Zellman & Waterman, 1998). However, we expected that the factor Rules and Respect (i.e., based on behavioral control) would correlate with lower vocabulary, given that children living in this context may feel afraid to ask questions and engage in new activities, as they might not be sure whether their parents will approve or not.

Methods

Participants

Our initial sample consisted of 3333 parents of children from Norway (n = 1060), the U.K. (n = 656), and Russia (n = 1617). The mean age of the children was 730.35 days (range 0 to 156 months[1]), with a standard deviation of 351.71. The gender of the children was relatively well-balanced in each country. Table 1 provides an overview of the demographic variables.

Procedure

Most of the data were collected through online questionnaires. The data collection started in August 2019 in Norway, in March 2020 in the U.K., and in April 2020 in Russia. To reach out to as many people as possible, various means were used to recruit participants (e.g., contacting individuals registered in lab databases, promotion through social media, etc.). Participants were also recruited through email invitations. The data collection took place on Nettskjema (https://nettskjema.no/) in Norway, on Google Forms in the U.K., and on Testograf in Russia (https://www.testograf.ru/). The participant compensation varied across the countries, ranging from illustrated books in Russia to lotteries in the U.K. and Norway. An informed written consent was signed by the parents before participation. Each lab obtained ethical approval from their respective institutions. In Russia, the study and consent procedures were approved by the Ethics Committee of Faculty of Psychology at Lomonosov Moscow State University (approval No. 2020/61) . In Norway, the study was approved by the ethics committee of the Department of Psychology of the University of Oslo. In the U.K., the study was approved by the Oxford Brookes University.

In the first part of the survey, parents were asked to fill in their child's personal information, including the date of birth, gender, native language, and to provide their family information, such as number of siblings, and the highest level of education achieved by parents. Maternal education was used as a proxy for SES in all the analyses to account for its possible correlation with language development. Given that in the U.K. and Russia, fathers have no or very limited parental leaves, mothers usually take care of their children, and paternal education was not used as a proxy. Afterward, parents were asked to fill in the Early Parenting Attitudes Questionnaire in their respective languages. Finally, parents were provided with the language-specific CDI vocabulary checklists (described below), and they were asked to check the words that their child understands and produces (for infants between 8 and 18 months old) or produces only (for toddlers between 18 and 36 months old).

Instruments

Early Parenting Attitudes Questionnaire. The Early Parenting Attitudes Questionnaire (EPAQ) by Hembacher and Frank (2020) was used to assess aspects of intuitive parenting theories. The questionnaire includes three scales, with eight items each, that were conceptualized to cover different dimensions of parenting attitudes. It asks parents to rate their agreement or disagreement with each statement on a 7-point Likert scale from 0 *(completely disagree*), to 6 (*completely agree*). The first subscale, *Affection and Attachment*, includes statements about emotions and relationships (e.g., "Children should be comforted when they are scared or unhappy," or, "It is important for parents to help children deal with their emotions"). The second subscale, *Early Learning*, contains statements about the potential educational value attributed to activities that the

1 The CDI questionnaires were limited to parents of children from 8 to 36 months, however some parents filled in the questionnaire even though their children were older. The children that did not fall into the age range (n=301) were excluded from the vocabulary analyses.

Table 1. Participant Demographics

Variable	Norway (*n* = 1060)	U.K. (*n* = 656)	Russia (*n* = 1617)
Mean age (SD)[a]	717.8 (349.4)	573.0 (227.3)	802.3 (373.0)
Child gender %			
Girls	50.8	50.9	53.6
Boys	49.2	49.1	46.4
Mothers' education %			
Primary school (10 years or less)	1.3	0	0.1
High school	18.6	14.8	3
Some college	26.6	38.5	9.6
Bachelor's degree	40.4	34.1	23.4
Master's degree or higher	12.6	12.6	53.9
Not reported	0.4	0	10
Fathers' education %			
Primary school (10 years or less)	2.8	0.2	0.3
High school	33.1	30.3	5.2
Some college	22.2	37.2	16.8
Bachelor's degree	29.9	22	18.5
Master's degree or higher	10.8	10.4	49.1
Not reported	1.1	0	10.1

[a]Six participants did not indicate the age of their children.

child carries out on their own or with their parents (e.g., "It is good to let children explore and experiment," or, "Parents can help babies learn language by talking to them"). The third subscale, *Rules and Respect*, assesses the parents' attitudes when it comes to controlling their child's behavior (e.g., "It is very important that children learn to respect adults, such as parents and teachers," or, "It is okay if children boss around their caregivers").

The questionnaire was translated from English into Russian by a professional translator who lives in Russia and is familiar with the Russian culture, in accordance with the ITC Guidelines for Translating and Adapting Tests (Muñiz et al., 2013). When it comes to cross-cultural adaptation, there is no clear-cut recommendation about which method works best (Epstein et al., 2015). Moreover, the adaptation process of an instrument may be demanding and challenging, especially when it takes into account constructs that cannot be measured directly, like attitudes (Gjersing et al., 2010). The translation process took into account the differences between the languages while preserving all the original characteristics of the test. To ensure the consistency of the two versions of the test, the first Russian translation was finalized in collaboration with bilingual experts in the field of child development, namely Natalia Kartushina and Margarita Gavrilova. Following this, an expert discussion was held to determine whether further adjustments were necessary. As the written languages of Danish and Norwegian are nearly identical, the questionnaire was translated into Norwegian by adapting a Danish translation (Christina Dideriksen, personal communication) conducted by a professional translator. To check the translation for quality, it was further forward-back translated by a bilingual team and adjusted if needed.

Communicative Development Inventories. The MacArthur-Bates Communicative Development Inventories (CDI; Fenson et al., 2007) are parent-report measures of early language comprehension and production, administered in the form of vocabulary checklists. We asked parents to check the words that their child understands and produces (for infants between 8 and 18 months old) or produces (for toddlers between 18 and 36 months old) and we collected CDI scores to measure children's vocabulary sizes. We used adaptations of the CDIs for the relevant languages, namely the Norwegian CDIs (Simonsen et al., 2013), the Russian CDIs (Vershinina et al., 2011), and the Oxford CDI (Hamilton et al., 2000). Given that the CDIs are only appropriate to be used with infants between 8 and 36 months of age, from our initial sample of 3333 parents, we collected CDI comprehension scores for 1217 children (*n* = 315 from Norway, *n* = 559 from the U.K., and *n* = 343 from Russia), and CDI production scores for 2810 children (*n* = 795 from Norway, *n* = 559 from the U.K., and *n* = 1456 from Russia).

Data Pre-Processing

Following the procedure described in Kartushina et al. (2022), the following inclusion criteria were used to recruit participants: (a) monolingual children, defined as having a minimum of 90% exposure to their native language, according to caregivers' reports, (b) full-term babies, defined as born at 37 weeks of gestation or later, (c) no diagnosed developmental disorder, and (d) no hearing/vision impairment. Therefore, participants who did not meet these requirements were not included in the study. We excluded individuals when we were unable to match participant ID and/or date of birth across questionnaires. Moreover, given

that some parents filled in the questionnaire even though their children were older than 36 months, we excluded from the vocabulary analyses the children that did not fall into the age range (n = 301). Given that the CDIs contain different number of items across languages, in order to be able to compare infants' vocabulary within and between languages, as well as across ages, the raw CDI scores were transformed into daily percentiles using normative data available at wordbank.stanford.edu (Frank et al., 2017) and following the procedure described in Kartushina et al. (2022). They were then divided by 100 such that values were bound between 0 and 1 to satisfy the assumptions of beta regression models.

Analytic Strategy

To examine the psychometric properties of the EPAQ across the three languages and countries (U.K., Norway, Russia), a series of measurement invariance tests were conducted on the original three-factor solution proposed by Hembacher and Frank (2020). Configural, metric, and scalar invariance were assessed using the comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR), as these indexes are less affected by sample size. Chi-square tests are known to be of little interpretative value in larger samples because, as sample size increases, the model's statistical power becomes large, and the null hypothesis is more likely to be rejected, even with minimal inaccuracies (Zheng & Bentler, 2024).

As measurement invariance was not achieved, separate exploratory factor analyses (EFA) with oblique rotation were performed for each country to identify the underlying factor structure. Noninvariance is indicated by change of ⩾ -.010 in CFI along with either a change of ⩾ .015 in RMSEA or a change of ⩾ .030 SRMR (Chen, 2007). The cutoff values needed to conclude that there is a relatively good fit of the model are: a value ⩾ .95 for CFI, a value ⩽.08 for SRMR, and a value ⩽ to .06 for RMSEA (Hu & Bentler, 1999).

For the U.K. and Norway samples, which showed a relatively similar factor structure, the fit and measurement invariance of a two-factor solution based on the EFA results were estimated. Internal consistency reliability of the resulting scales was assessed using Cronbach's alpha and mean scores were calculated. For Russia, three mean scores were created based on the unique three-factor solution that emerged. Please note that these mean scores were calculated based on the EFA and CFA results, not on the original EPAQ structure, which was not supported.

To investigate the relationship between parental attitudes and beliefs and children's vocabulary development, two sets of models were tested. The first set (Models 1a and 1b) examined whether the factors identified in Norway and the U.K., and their interactions with child age, predicted children's vocabulary scores in comprehension and production. The second set (Models 2a and 2b) tested the same relationships using the factors identified in the Russian sample. Full-null model comparisons were conducted to assess the significance of the combined predictors and to control for type-I errors. Estimates from the full models were inspected to identify significant associations between specific factors, their interactions with age, and children's vocabulary scores, while controlling for gender and parental education. What follows is a detailed description of the analytic procedures.

Psychometric Properties of the EPAQ Across Three Different Languages and Countries

We first tested for the measurement invariance (e.g., Schmitt & Kuljanin, 2008; Vandenberg & Lance, 2000) of the three-factor solution proposed by Hembacher and Frank (2020) using structural equation modeling with *lavaan* in R (Rosseel, 2012). Here, we compared a model that assumed the same three-factor structure for all three countries (i.e., testing for configural invariance, the lowest level of invariance; e.g., Meredith, 1993; Vandenberg & Lance, 2000), to a model that assumed the factor loadings to be the same (i.e., as in metric invariance; e.g., Horn & Mcardle, 1992; Vandenberg & Lance, 2000), and a model in which the item intercepts are assumed to be the same in addition (as in scalar invariance, the highest level of invariance; e.g., Vandenberg & Lance, 2000). To compare covariation between countries, metric invariance needs to be met (Jiang et al., 2017). To validly compare the means of the variables, scalar invariance needs to be met. Provided that the scale does not achieve measurement invariance, we planned to test alternative factor solutions based on item inspections, modification indices and insights from exploratory factor analyses in the different countries.

Relationship Between Parental Attitudes and Beliefs and Children's Vocabulary

To estimate the extent to which the scales that were established in this step predicted the vocabulary scores (percentiles) in comprehension and production, we adopted a full-null comparison framework to avoid "cryptic multiple testing" (i.e., interpreting results from different tests as if they arose from a single test) (Forstmeier & Schielzeth, 2011, p. 47). The null model contained maternal education and gender of the child as control variables. Both of them were z-transformed with the *scale* function in R (R Core Team, 2022) to ease model convergence. In addition to the control variables, the full models included the EPAQ factors identified in each country and their interaction with the child's age (in days), given that the effect of parents' behaviors may increase or decrease with the child's age. When the full-null comparison was significant, we provided inference for individual effects by dropping them one at a time, using the *drop1* function in R. Given diverging structures of the factor solutions that emerged in the previous steps between Norway and the UK, on the one hand, and Russia on the other (see Results), we decided to run the analyses for the Norwegian and the U.K. data conjointly, while the Russian data was analyzed separately.

The first set of the pre-registered models evaluated whether the EPAQ factors identified in Norway and the U.K. and their interaction with the child's age (independent variables) predicted vocabulary scores (dependent variable)

Table 2. Measurement Invariance Test of the Original Three-Factor Solution Across the Three Countries

Model	χ^2	*df*	χ^2/df	*p*	CFI	RMSEA	RMSEA 90% CI		SRMR
Configural invariance	4512.70	747	6.04	< .001	.695	.069	.067	.071	.073
Metric invariance	5647.73	789	7.16	< .001	.607	.076	.074	.078	.095
Scalar invariance	10036.89	831	12.04	< .001	.255	.102	.100	.104	.126

in comprehension (Model 1a) and in production (Model 1b). In both models, the correlation between the random slope and the intercept was removed to allow model convergence. To account for differences in the effect of SES across both countries, we added the following random structure to the model (1+ z.edu|country), where z.edu is the z-transformed maternal education level).

> **1a.** *null: comp ~ z.edu + gender + (1+ z.edu|country)*
> *full: comp ~ z.edu + gender + (factor1_uk_no + factor2_uk_no + factor3_uk_no)*z.age+ (1+ z.edu|country)*
> **1b.** *null: prod ~ z.edu + gender + (1+ z.edu|country)*
> *full: prod ~ z.edu + gender + (factor1_uk_no + factor2_uk_no + factor3_uk_no)*z.age + (1+ z.edu/country)*

A second set of models aimed to evaluate whether the EPAQ factors identified in Russia and their interaction with the child's age (independent variables) predicted vocabulary scores (dependent variable) in comprehension (model 2a) and in production (model 2b).

> **2a**. *null: comp ~ z.edu + gender*
> *full:comp ~ z.edu + gender + (factor1_ru + factor2_ru + factor3_ru)*z.age*
> **2b.** *null: prod ~ z.edu + gender*
> *full: prod ~ z.edu + gender + (factor1_ru + factor2_ru + factor3_ru)*z.age*

Results

Psychometric Properties of the EPAQ Across Three Different Languages and Countries

The results from the measurement invariance test of the original three-factor solution are presented in Table 2. As presented, the CFI and the SRMR partly indicated an unacceptable fit already at the configural level, whereas the RMSEA indicated a relatively acceptable fit of this model. Importantly, absolute CFI and SRMR when testing for higher levels of invariance exceeded the thresholds for the metric invariance test (Chen, 2007). The absolute CFI, RMSEA as well as SRMR also exceeded the threshold for the scalar model. Thus, measurement invariance was not achieved at neither the metric nor the scalar level; in addition, the configural model showed an unsatisfactory fit to the data.

The inspection of the modification indices and consequent changes to the model did not sufficiently improve the model fit. The low CFI observed at the configural level suggested that the baseline 3-factor model did not adequately represent the factor structure across the samples. As reverse-coded items may cluster together and impair model fit, we also tested a factor solution without the reversed items. However, this fit was still unacceptable (see Table S1 in the Supplementary Materials).

Thus, we ran separate exploratory factor analyses for each country. Based on these results, it became clear that the factor solution was entirely different in Russia from that in the U.K. and Norway and that the original three-factor solution would not replicate in any country. Table S4 in the Supplementary Materials includes the factor loadings obtained in the original U.S. sample by Hembacher & Frank (2020) and the factor loadings obtained in the present analyses. The factor loadings in the U.S. sample reveal that the factor structure of the original EPAQ scale already had substantial issues. Specifically, the scale includes 11 items with cross-loadings (eight cross-loadings between AA and EL and three cross-loadings between EL and RR). We present the results from the U.K. and Norway first, as these indicated a relatively similar three-factor solution, albeit differing from the solution proposed by Hembacher and Frank (2020), see Table 3.

As displayed, in the U.K. and Norway, six items without cross-loadings (+/- .32) loaded on the same first factor that essentially represents the original Rules and Respect. These are: "It is very important that children learn to respect adults, such as parents and teachers", "it is okay if children see adults as equals rather than viewing them with respect*", "It is very important that there are consequences when a child breaks a rule, big or small", "It is okay if young children boss around their caregivers*", "It is very important for young children to do as they are told, for example, waiting when they are told to wait", and "Children should be grateful to their parents".

Six items loaded without cross-loadings on the second factor that essentially represents the original Affection and Attachment factor. These are: "Children who receive too much attention from their parents become spoiled.*", "Too much affection, as hugging and kissing, can make a child weak*", "Parents should pay attention to what their child likes and dislikes", "Children should be comforted when they are scared or unhappy.", "Children and parents do not need to feel emotionally close as long as children are kept safe.*", and "A child who has close bonds with his or her parents will have better relationships later on in life.". Two items that dealt with preparing children for school, that were included in the original Early Learning factor, loaded on the third factor referred to as School Preparation. These are: "Parents can prepare young children to succeed in school by teaching them things, such as shapes and numbers.", and "Children don't need to learn about numbers and math until they go to school".

Thus, we estimated the fit and measurement invariance of this two-factor solution in the U.K. and Norway. A third

Table 3. Factor Loadings for Exploratory Factor Analyses with Oblique Rotation in the U.K. and Norway

Item	Rules & Respect		Affect & Attachment		School Preparation	
	U.K.	NOR	U.K.	NOR	U.K.	NOR
1. It is very important that children learn to respect adults, such as parents and teachers.	**.72**	**.68**	.08	.03	-.13	-.10
2. It is okay if children see adults as equals rather than viewing them with respect.*	**.70**	**.50**	-.07	-.06	.03	.09
3. It is very important that there are consequences when a child breaks a rule, big or small.	**.53**	**.56**	-.02	-.07	-.09	-.10
4. It is okay if young children boss around their caregivers.*	**.52**	**.44**	-.01	.10	.05	.13
5. It is very important for young children to do as they are told, for example, waiting when they are told to wait.	**.49**	**.50**	-.03	-.18	-.14	-.16
6. Young children should be allowed to make their own decisions, like what to play with and when to eat.*	**.44**	.20	-.14	-.04	.05	.22
7. Children should be grateful to their parents.	**.39**	**.45**	-.07	-.06	-.04	-.06
8. Parents do not need to worry if their child misbehaves a lot.*	**.34**	.20	.08	-.04	.01	.22
9. It is important for parents to help children learn to deal with their emotions.	.08	**.45**	**.53**	-.06	-.05	-.06
10. Children who receive too much attention from their parents become spoiled.*	-.17	-.13	**.48**	**.54**	.01	.11
11. Babies can learn a lot just by playing.	-.05	-.02	**.45**	.24	.01	-.00
12. Babies can't learn about the world until they learn to speak.*	.06	-.23	**.42**	.13	.05	.01
13. Parents can help babies learn language by talking to them.	-.03	-.02	**.42**	.29	-.06	-.18
14. Too much affection, such as hugging and kissing, can make a child weak.*	-.03	-.03	**.41**	**.37**	.06	.13
15. Parents should pay attention to what their child likes and dislikes.	-.08	-.01	**.38**	**.39**	-.02	-.14
16. Children should be comforted when they are scared or unhappy.	.06	.04	**.37**	**.35**	-.03	.02
17. Children and parents do not need to feel emotionally close as long as children are kept safe.*	-.02	-.02	**.37**	**.46**	.02	.03
18. A child who has close bonds with his or her parents will have better relationships later on in life.	-.11	.01	**.37**	**.41**	-.02	-.06
19. It is good to let children explore and experiment.	-.05	-.05	**.34**	.19	.01	-.11
20. It is not helpful to explain the reasons for rules to young children because they won't understand.*	.09	.10	.29	**.39**	-.05	-.06
21. Parents should not try to calm	-.16	-.03	.28	**.40**	-.01	.11

a child who is upset, it is better to let children calm themselves.*						
22. Reading books to children is not helpful if they have not yet learned to speak.*	.06	.03	.13	**.40**	.12	.06
23. Parents can prepare young children to succeed in school by teaching them things, such as shapes and numbers.	.11	.14	.11	-.05	**-.80**	**-.74**
24. Children don't need to learn about numbers and math until they go to school.*	.15	.11	.08	.03	**-.61**	**-.57**

Note: * indicates reverse coded items. Item loadings above +/- .32 are marked in bold.

Table 4. Measurement Invariance Test of the Two-Factor Solution in the U.K. and Norway

Model	χ^2	*df*	χ^2/df	*p*	CFI	RMSEA	RMSEA 90% CI		SRMR
Configural invariance	313.70	106	2.96	< .001	.919	.048	.042	.054	.039
Metric invariance	349.32	116	3.01	< .001	.909	.048	.043	.054	.044
Scalar invariance	537.14	126	4.26	< .001	.840	.062	.056	.067	.054

factor was not included, as a measurement invariance test requires at least three items per factor. This two-factor solution showed acceptable metric invariance on all indices (see Table 4). However, the changes in the fit indices did not support scalar invariance. The reliability of the Rules and Respect scale was acceptable (U.K.: α = .74; Norway: α = .70). However, the Affect and Attachment scale had unacceptable reliability that could not be improved by omitting items with low inter-item correlations (U.K.: α = .56; Norway: α = .56). The correlation between the two school items was moderate (U.K.: r = .48, p < .001; Norway: r = .54, p < .001). As a last attempt to achieve a common factor solution, we conducted an additional invariance test of the new EFA-based 2-factor solution found in the U.K. and Norway, including the Russian sample in the analysis. However, including this sample drastically reduces model fit, as shown in Table S2, again indicating that it is unfeasible to detect the same factor solution across countries. Thus, only for the U.K. and Norway, we each created two mean scores measuring rules and respect (U.K.: α = .74; Norway: α = .70) and affection and attachment (U.K.: α = .56; Norway: α = .56).

In Russia, an entirely different 3-factor solution emerged. The first factor represented a mix of six items without cross-loadings from each of the three original dimensions and could be best described as *Adult Authority* (α = .70). This factor described parenting beliefs mainly valued in a traditional environment, based on respect, learning, and emotional control. Next, a total of eight items without cross-loadings, again representing a mix of the original three subscales, loaded on the second factor. This factor could be best described as *Communicative and Emotional Detachment* (α = .77) and characterizes parenting attitudes based on the idea of a natural learning process and a risk of spoiling the child with excessive attention. Finally, without cross-loadings, two items loaded positively and one item negatively on the third factor that could be described as *Confrontation Between Child and Adult,* but the resulting scale had unacceptable reliability (α = .32; the negative item was reversed before calculations). This third factor defines parenting beliefs that value the importance of a strict hierarchical structure and does not promote children's independence.

Thus, for Russia, we created three mean scores measuring adult authority (α = .70), communicative and emotional detachment (α = .77), and confrontation between child and adult (α = .32).

Relationship Between Parental Attitudes and Beliefs and Children's Vocabulary

Models 1a and 1b: Parental Attitudes Predicting Vocabulary Development in Norwegian and U.K. Children. The first set of models (1a and 1b) investigated whether the factors identified in Norway and the U.K. and their interaction with the child's age predicted children's vocabulary scores in comprehension and production. The full-null comparisons did not reveal any significant improvements, neither for comprehension (χ^2 = 4.33, p = .741) nor for production (χ^2 = 3.40, p = .846), suggesting that differences in parental beliefs and attitudes, as indexed by the three factors identified in Norway and the UK, did not explain children's vocabulary sizes.

Models 2a and 2b: Parental Attitudes Predicting Vocabulary Development in Russian Children. The second set of models (2a and 2b) investigated whether the factors identified in Russia and their interaction with the child's age predicted children's vocabulary scores in comprehension and production. The full-null comparison was significant in production (χ^2 = 18.87, p = .009), but not in comprehension (χ^2 = 11.25, p = .128). The former indicated that combining the three factors (*factor1_ru, factor2_ru, factor3_ru)* and their interaction with *z.age* significantly im-

Table 6. Factor Loadings for Exploratory Factor Analyses with Oblique Rotation in Russia

Item	Adult Authority	Communicative and Emotional Detachment	Confrontation Between Child and Adult
1. It is very important that children learn to respect adults, such as parents and teachers.	**.62**	-.20	-.31
2. Children should be grateful to their parents.	**.54**	**-.35**	-.22
3. It is very important for young children to do as they are told, for example, waiting when they are told to wait.	**.52**	-.26	-.12
4. Parents can prepare young children to succeed in school by teaching them things, such as shapes and numbers.	**.51**	-.10	-.14
5. Parents should pay attention to what their child likes and dislikes.	**.44**	-.04	.03
6. It is important for parents to help children learn to deal with their emotions.	**.38**	-.10	-.02
7. Children don't need to learn about numbers and math until they go to school.*	**.37**	.10	-.27
8. A child who has close bonds with his or her parents will have better relationships later on in life.	.31	.10	.25
9. It is very important that there are consequences when a child breaks a rule, big or small.	.25	.06	.01
10. Parents can help babies learn language by talking to them.	.19	-.00	.18
11. Babies can't learn about the world until they learn to speak.*	-.01	**.71**	-.03
12. Children and parents do not need to feel emotionally close as long as children are kept safe.*	-.07	**.69**	-.07
13. Reading books to children is not helpful if they have not yet learned to speak.*	.03	**.66**	-.13
14. Too much affection, such as hugging and kissing, can make a child weak.*	-.19	**.56**	.04
15. Children who receive too much attention from their parents become spoiled.*	-.18	**.56**	.17
16. Parents should not try to calm a child who is upset, it is better to let children calm themselves.*	-.11	**.48**	-.01
17. It is not helpful to explain the reasons for rules to young children because they won't understand.*	.04	**.46**	-.12
18. It is good to let children explore and experiment.	.06	**.36**	.13
19. Children should be comforted when they are scared or unhappy.	.20	.22	.12
20. It is okay if children see adults as equals rather than viewing them with respect.*	**.34**	-.08	**-.58**
21. Young children should be allowed to make their own decisions, like what to play with and when to eat.*	-.07	-.03	**-.43**
22. Babies can learn a lot just by playing.	.04	.22	**.34**
23. Parents do not need to worry if their child misbehaves a lot.*	.10	.03	**-.32**
24. It is okay if young children boss around their caregivers.*	.09	.13	-.30

Note: * indicates reverse coded items. Item loadings above +/- .32 are marked in bold.

proved the model fit for production. An inspection of the estimates in the full model for production (see Table 7) revealed that the interaction between the second factor identified in Russia, namely Communicative and Emotional Detachment, and age was significantly negatively associated with children's vocabulary scores in production.

Children whose parents held parenting beliefs described by the factor Communicative and Emotional Detachment were reported to have lower expressive vocabulary size relative to the normative (age-matched) data, with younger children being affected more than older children (Figure S1). A gender effect was also observed ($p < 0.001$) in the control predictors, suggesting that girls were better than boys regarding speech production.

Discussion

Previous research has reported that intuitive parenting theories predicted parents' actual parenting behavior

Table 7. Expressive Vocabulary of Russian Children as a Function of Reported Parental Attitudes. The Full Model was: sc.prod ~ z.edu + gender + z.age +(factor1_ru + factor2_ru + factor3_ru)*z.age Condition

Parameter	*B*	*SE*	*z*	*p*
Intercept	-.385	.318	-1.210	.226
Age	.031	.292	.105	.916
Gender	-.316	.077	-4.098	<.001
F1_authority_ru	-.001	.009	-.158	.875
F2_detachment_ru	-.012	.001	-1.199	.230
F3_confrontation_ru	.002	.015	.139	.890
Interaction (Age x F1_authority_ru)	.013	.009	1.524	.127
Interaction (Age x F2_detachment_ru)	-.021	.008	-2.495	.013
Interaction (Age x F3_confrontation_ru)	-.009	.015	-.618	.537

(Hembacher & Frank, 2020). The present study was designed (1) to cross-culturally assess the psychometric properties of the Early Parenting Attitudes Questionnaire (EPAQ) by Hembacher and Frank (2020) in Russia, Norway, and the U.K. and (2) to test pre-registered hypotheses regarding the relationship between parenting attitudes and beliefs and children's vocabulary scores.

In line with previous findings in Russia with parents to older children (Bukhalenkova et al., 2021), an exploratory factor analysis of the parental responses on EPAQ highlighted an entirely different factor solution in Russia, Norway, and the U.K., as compared to the original three-factor solution found in the American sample (see table S4 in the Supplementary Materials). The original EPAQ scale already presents structural issues, especially regarding the second factor (i.e. Early Learning). In fact, several items that the Hembacher and Frank (2020) included in the EL subscale load strongly on the AA factor, and several AA and RR items load strongly on the EL factor. The factors obtained in Norway and the U.K. only partly replicated the original EPAQ structure and differed significantly from the ones that emerged in Russia. Therefore, two alternative factor solutions were proposed. Our interpretation relies on the factor descriptions of the original authors, and we adjusted them when the factor loadings we obtained suggested otherwise. However, it is important to note that the interpretation of factor solutions is a challenging process, given that it is based on culturally grounded interpretations of items that load together on one factor. Therefore, the factor labels could change depending on the way one interprets the item loadings. In the U.K. and Norway, the first two factors seemed to represent the original *Rules and Respect* and *Affection and Attachment* subscales. A third factor, different from the original one, was identified, namely *School Preparation*. In Russia, an entirely different solution emerged: each factor included items of the three original EPAQ subscales (i.e., Affection and Attachment, Early Learning, and Rules and Respect). Following a rigorous consideration of the obtained factors, it was determined that they could be referred to as *Adult Authority*, *Communicative and Emotional Detachment*, and *Confrontation Between Child and Adult*. Adult Authority describes a parenting attitude mostly valued in a traditional environment based on respect, learning, and emotional control. Communicative and Emotional Detachment characterizes a parenting attitude based on the idea of a natural learning process and a risk of spoiling the child with excessive attention. Confrontation Between Child and Adult defines parenting beliefs that value a strict hierarchical structure and do not promote children's independence.

Given that linguistic differences often do not allow for direct translations, it is essential to use a translation approach that follows standard procedures. Language differences can be a source of invariance and potentially change the latent factor structure. However, we argue that, in this case, the lack of measurement invariance found in the analyses may also be attributed to significant cross-cultural differences in parenting rather than solely linguistic differences. Although some parenting behaviors are likely to be similar across cultures (i.e., physical caregiving), there are also considerable differences due to the influence of other factors (Lansford, 2022), such as the number of siblings in the family (Kramer & Hamilton, 2019), the expected behaviors from the parents (Lansford et al., 2018), and the type of cognitive stimulation provided (Bornstein et al., 2015). Therefore, these differences might indicate that parenting beliefs are not as generalizable as one might think and that they could be accountable for the lack of measurement invariance. However, we highlight once more that language and culture are highly related, and it is, therefore, very difficult to distinguish them in most contexts (with the exception of different cultures using the same language).

In the developmental literature, it is not unusual that scales developed in the West fail to replicate in other parts of the world. Ruchkin and colleagues (2007) tried to validate the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) in a sample of Russian adolescents and found that the Russian version of the questionnaire had unsatisfactory psychometric properties. A study by Vu and colleagues (2019) highlighted the importance of considering cross-cultural differences when measuring parenting beliefs and attitudes about feeding. They found that, consistent with previous research (Liu et al., 2014), the original structure of the Child Feeding Questionnaire (CFQ; Birch et al., 2001), developed in the U.S., failed to capture cultural-specific beliefs of immigrant Chinese families even

when they lived in Western contexts. Within the West, Gjersing and colleagues (2010) found that the original scale to measure staff attitudes towards Opioid Maintenance Treatment (OMT; Caplehorn et al., 1998), developed in Australia, failed to grasp essential concepts and beliefs in the Norwegian setting, while both Australian and Norwegian societies are considered as Western.

Contrary to our expectations, our study did not reveal any significant association between parental beliefs and vocabulary scores in Norway and the U.K., suggesting a lack of predictive validity for the scale. We expected that the factor referred to as School Preparation would associate positively with CDI scores, as parent involvement in school is usually associated with good academic achievements (e.g., Barnard, 2004; Zellman & Waterman, 1998). On the other hand, we expected that Rules and Respect would correlate with lower CDI scores, as children living in this environment could be hesitant to ask questions and try new things as they might be unsure of their parents' approval. Moreover, given that the majority of the items that loaded on Affection and Attachment are related to the child's safety and emotional well-being, we expected that this factor would correlate positively with vocabulary scores. In fact, a child living in a safe environment and developing a secure attachment feels comfortable speaking and interacting with others (Bowlby, 1969/1982). Considering the lack of measurement invariance found in the analysis and given that no significant associations have been identified between the EPAQ and CDI scores, it might be reasonable to assume that the implicit parenting theories measured by the EPAQ do not actually predict parenting behaviors or outcomes (e.g., speech comprehension and production) in Norway and the U.K.

In Russia, considering that the factor Adult Authority describes a parenting attitude based on respect, learning, and emotional control, we expected to find a positive correlation with the vocabulary scores. We assumed that Russian parents with these parenting beliefs value independence while still holding their kids to high standards, allowing them to grow confidently and maximize learning opportunities (Cerino, 2021). However, no significant association was found between Adult Authority and vocabulary scores.

Our study found a significant negative association between the factor Communicative and Emotional Detachment and vocabulary scores in Russia, as predicted. According to McCafferty (2002), Meins (1997), and Karass et al. (2003), these parents do not encourage independence and are not sensitive-responsive, a trait that attenuates the development of language and communication. Such parents share the belief that excessive attention is harmful to the child and that if a child does not speak, then they do not understand speech either. Consequently, they tend to limit their engagement in activities that prior studies found to promote language development, such as shared book reading (Kartushina et al., 2022; Shahaeian et al., 2018), speaking (Rowe, 2018), and playing (Hirsh-Pasek, 2009). Given that language develops in social interactions (Kuhl, 2007), some caregiving behaviors have been found to be responsible for linguistic development (Bruce et al., 2022). A study by Vallotton and colleagues (2017) analyzed sensitivity and cognitive stimulation to assess their effect on vocabulary development over time. Sensitivity refers to the warm and timely reactions that parents have when the child interprets and responds correctly to cues (Shin et al., 2008). In contrast, cognitive stimulation refers to parents' efforts to engage in activities that promote cognitive development (Martin et al., 2007). They found that both aspects critically influence child vocabulary development in the first three years of life; however, sensitivity has a more significant impact during early development, while stimulation becomes more important later. This also supports our finding that younger children are affected more by their parents' emotional coldness than older children. Nevertheless, despite the single association between one EPAQ factor and the CDI observed in Russia, the predictive validity of the scale was generally not substantiated. Considering the potential for false positives given the extensive number of tests conducted, we are cautious about placing significant weight on the one positive finding in Russia. A scale's utility hinges not only on its cross-cultural factorial validity but also on its capacity to predict meaningful outcomes across diverse cultures and contexts. The EPAQ currently appears ill-suited for elucidating a substantial portion of language development in children. This limitation may be attributable to the scale's deficient psychometric properties that we observed in this study or to its potential measurement of concepts of scant relevance to the outcome of interest.

Furthermore, a gender effect in expressive vocabulary was observed in the Russian sample, suggesting, in line with previous research, that girls perform better than boys when it comes to language production (e.g., Adani & Cepanec, 2019; Lange et al., 2016; Mccarthy, 1953).

Limitations

The results of the present study should be interpreted in light of some limitations. First, although the sample was gender-balanced, it mainly consisted of parents with a medium-to-high level of education. Future studies should try to administer the EPAQ to a sample with a larger proportion of parents with a low level of education. Second, our sample included two Western countries (i.e., Norway and the U.K.), and one Eastern country (i.e., Russia). In future research, additional countries could be included in the sample in order to further test the generalizability of the results. Third, the type of data collected in the present study does not allow for causal conclusions, although correlational data may inform causal conclusions in some specific cases (see Pearl, 2000; Rohrer, 2018).

Conclusions and Future Directions

On the basis of the results of the present study, we conclude that the EPAQ by Hembacher and Frank (2020), designed to measure intuitive theories of parenting, should be used with caution in its current form to measure parental attitudes and beliefs in parents living in other contexts than the North American. These findings raise the question

of whether implicit parenting theories are similar across cultures to an extent that allows for their assessment and comparison with psychometric scales. Likely, scales such as the EPAQ need to be adapted in order to comply with the cultural and societal norms of the respective countries and be generalizable across contexts. Moreover, the EPAQ's underlying structure revealed in the Norwegian and the UK samples appears to have limited predictive validity in terms of infants' language production and comprehension.

Admittedly, the EPAQ was developed in a North American context without the ambition to measure a cross-culturally valid phenomenon. As we find some evidence that parts of its structure generalize to contexts with similar Western languages (English, Norwegian) and cultures (U.K., Norway), it may be further developed to capture the same structure of parenting attitudes in this region of the world. This would require an in-depth analysis of parenting beliefs across the respective cultures and a careful testing of items. However, the structure of parenting attitudes seems too different in our third country, Russia. Thus, for such contexts, different culture-sensitive measures need to be developed.

More research is also needed to test for the consequences of implicit parenting theories for developmental markers. Surprisingly, the subscales showed little of a relationship with language abilities, as measured by the CDI. Therefore, future research is needed to establish whether the EPAQ predicts other developmental outcomes in meaningful ways. Alternatively, parental attitudes at these early ages do not relate to infants' very early language skills, which, however, would be at odds with previous research suggesting that early parent-child interactions promote language and communicative skills (e.g., Cartmill et al., 2013; Hirsh-Pasek, 2009; Kartushina et al., 2022; Vallotton et al., 2017). Yet, it is possible that the reason for why the EPAQ has low predictive power is that it only translates into specific behavioral patterns to limited degrees.

Deepening the knowledge of the implicit theories of parenting can provide significant insights into how and to what extent the environment exerts an influence on several aspects of children's development. This line of research may be useful to create effective interventions to support families in understanding and implementing the best strategies to promote healthy development for their offspring.

Competing Interests

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest, or non-financial interest in the subject matter or materials discussed in this manuscript.

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References

Adani, S., & Cepanec, M. (2019). Sex differences in early communication development: Behavioral and neurobiological indicators of more vulnerable communication system development in boys. *Croatian Medical Journal*, *60*(2), 141–149. https://doi.org/10.3325/cmj.2019.60.141

Barnard, W. M. (2004). Parent involvement in elementary school and educational attainment. *Children and Youth Services Review*, *26*(1), 39–62. https://doi.org/10.1016/j.childyouth.2003.11.002

Birch, L. L., Fisher, J. O., Grimm-Thomas, K., Markey, C. N., Sawyer, R., & Johnson, S. L. (2001). Confirmatory factor analysis of the Child Feeding Questionnaire: A measure of parental attitudes, beliefs and practices about child feeding and obesity proneness. *Appetite*, *36*(3), 201–210. https://doi.org/10.1006/appe.2001.0398

Bornstein, M. H. (2013). Parenting and child mental health: A cross-cultural perspective. *World Psychiatry*, *12*(3), 258–265. https://doi.org/10.1002/wps.20071

Bornstein, M. H., Putnick, D. L., Lansford, J. E., Deater-Deckard, K., & Bradley, R. H. (2015). A Developmental Analysis of Caregiving Modalities Across Infancy in 38 Low- and Middle-Income Countries. *Child Development*, *86*(5), 1571–1587. https://doi.org/10.1111/cdev.12402

Borshchevskiy, G. (2022). References to the Russan Society's Values in the Presidential Addresses to the Federal Assembly. *Sotsiologicheskoe Obozrenie / Russian Sociological Review*, *21*(3), 84–103. https://doi.org/10.17323/1728-192x-2022-3-84-103

Bowlby, J. (1982). *Attachment and loss: Vol. 1. Attachment*. Basic Books. (Original work published 1969)

Bruce, M., McFayden, T. C., Ollendick, T. H., & Bell, M. A. (2022). Expressive language in infancy and toddlerhood: The roles of child temperament and maternal parenting behaviors. *Developmental Psychobiology*, *64*(6), e22287. https://doi.org/10.1002/dev.22287

Cartmill, E. A., Armstrong, B. F., III, Gleitman, L. R., Goldin-Meadow, S., Medina, T. N., & Trueswell, J. C. (2013). Quality of early parent input predicts child vocabulary 3 years later. *Proceedings of the National Academy of Sciences of the United States of America*, *110*(28), 11278–11283. https://doi.org/10.1073/pnas.1309518110

Cerino, A. (2023). The importance of recognising and promoting independence in young children: The role of the environment and the Danish forest school approach. *Education 3-13*, *51*(4), 685–694. https://doi.org/10.1080/03004279.2021.2000468

Chen, F. F. (2007). Sensitivity of Goodness of Fit Indexes to Lack of Measurement Invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, *14*(3), 464–504. https://doi.org/10.1080/10705510701301834

Cristia, A., Dupoux, E., Gurven, M., & Stieglitz, J. (2019). Child-Directed Speech Is Infrequent in a Forager-Farmer Population: A Time Allocation Study. *Child Development*, *90*(3), 759–773. https://doi.org/10.1111/cdev.12974

Eisenberg, N., & Fabes, R. A. (1994). Mothers' Reactions to Children's Negative Emotions: Relations to Children's Temperament and Anger Behavior. *Merrill-Palmer Quarterly*, *40*(1), 138–156. http://www.jstor.org/stable/23087912

Eisenberg, N., Zhou, Q., Spinrad, T. L., Valiente, C., Fabes, R. A., & Liew, J. (2005). Relations Among Positive Parenting, Children's Effortful Control, and Externalizing Problems: A Three-Wave Longitudinal Study. *Child Development*, *76*(5), 1055–1071. https://doi.org/10.1111/j.1467-8624.2005.00897.x

Epstein, J., Santo, R. M., & Guillemin, F. (2015). A review of guidelines for cross-cultural adaptation of questionnaires could not bring out a consensus. *Journal of Clinical Epidemiology*, *68*(4), 435–441. https://doi.org/10.1016/j.jclinepi.2014.11.021

Fenson, L., Marchman, V. A., Thal, D. J., Dale, P. S., Reznick, J. S., & Bates, E. (2007). *MacArthur-Bates Communicative Development Inventories*. Paul H, Brookes Publishing Co.

Forstmeier, W., & Schielzeth, H. (2011). Cryptic multiple hypotheses testing in linear models: Overestimated effect sizes and the winner's curse. *Behavioral Ecology and Sociobiology*, *65*(1), 47–55. https://doi.org/10.1007/s00265-010-1038-5

Frank, M. C., Braginsky, M., Yurovsky, D., & Marchman, V. A. (2017). Wordbank: An open repository for developmental vocabulary data. *Journal of Child Language*, *44*(3), 677–694. https://doi.org/10.1017/S0305000916000209

Gjersing, L., Caplehorn, J. R., & Clausen, T. (2010). Cross-cultural adaptation of research instruments: Language, setting, time and statistical considerations. *BMC Medical Research Methodology*, *10*(1), 13. https://doi.org/10.1186/1471-2288-10-13

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A Research Note. *Journal of Child Psychology and Psychiatry*, *38*(5), 581–586. https://doi.org/10.1111/j.1469-7610.1997.tb01545.x

Hamilton, A., Plunkett, K., & Schafer, G. (2000). Infant vocabulary development assessed with a British communicative development inventory. *Journal of Child Language*, *27*(3), 689–705. https://doi.org/10.1017/S0305000900004414

Hembacher, E., & Frank, M. C. (2020). The Early Parenting Attitudes Questionnaire: Measuring Intuitive Theories of Parenting and Child Development. *Collabra: Psychology*, *6*(1), 16. https://doi.org/10.1525/collabra.190

Hirsh-Pasek, K. (Ed.). (2009). *A mandate for playful learning in preschool: Presenting the evidence*. Oxford University Press.

Hofstede, G. (1980). *Cultures' consequences*. Sage Publications.

Hofstede, G. (2011). Dimensionalizing Cultures: The Hofstede Model in Context. *Online Readings in Psychology and Culture*, *2*(1). https://doi.org/10.9707/2307-0919.1014

Horn, J. L., & Mcardle, J. J. (1992). A practical and theoretical guide to measurement invariance in aging research. *Experimental Aging Research*, *18*(3), 117–144. https://doi.org/10.1080/03610739208253916

Hu, L., & 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

Jiang, G., Mai, Y., & Yuan, K.-H. (2017). Advances in Measurement Invariance and Mean Comparison of Latent Variables: Equivalence Testing and A Projection-Based Approach. *Frontiers in Psychology*, *8*, 1823. https://doi.org/10.3389/fpsyg.2017.01823

Jones, S., Eisenberg, N., Fabes, R. A., & MacKinnon, D. P. (2002). Parents' Reactions to Elementary School Children's Negative Emotions: Relations to Social and Emotional Functioning at School. *Merrill-Palmer Quarterly*, *48*(2), 133–159. https://doi.org/10.1353/mpq.2002.0007

Karrass, J., & Braungart-Rieker, J. M. (2003). Parenting and Temperament as Interacting Agents in Early Language Development. *Parenting*, *3*(3), 235–259. https://doi.org/10.1207/S15327922PAR0303_03

Kartushina, N., Mani, N., Aktan-Erciyes, A., Alaslani, K., Aldrich, N., Almohammadi, A., Alroqi, H., Anderson, L., Andonova, E., Aussems, S., Babineau, M., Barokova, M., Bergmann, C., Cashon, C., Custode, S., de Carvalho, A., Dimitrova, N., Dynak, A., Farah, R., … Gibson, S. (2022). *COVID-19 first lockdown as a window into language acquisition: Associations between caregiver-child activities and vocabulary gains*. https://doi.org/10.34842/ABYM-XV34

Kolman, L., Noorderhaven, N. G., Hofstede, G., & Dienes, E. (2003). Cross-cultural differences in Central Europe. *Journal of Managerial Psychology*, *18*(1), 76–88. https://doi.org/10.1108/02683940310459600

Kramer, L., & Hamilton, T. N. (2019). Sibling Caregiving. In M. H. Bornstein (Ed.), *Handbook of Parenting* (3rd ed., pp. 372–408). Routledge. https://doi.org/10.4324/9780429433214-11

Kuhl, P. K. (2007). Is speech learning 'gated' by the social brain? *Developmental Science*, *10*(1), 110–120. https://doi.org/10.1111/j.1467-7687.2007.00572.x

Lange, B. P., Euler, H. A., & Zaretsky, E. (2016). Sex differences in language competence of 3- to 6-year-old children. *Applied Psycholinguistics*, *37*(6), 1417–1438. https://doi.org/10.1017/S0142716415000624

Lansford, J. E. (2022). Annual Research Review: Cross-cultural similarities and differences in parenting. *Journal of Child Psychology and Psychiatry*, *63*(4), 466–479. https://doi.org/10.1111/jcpp.13539

Lansford, J. E., Godwin, J., Al-Hassan, S. M., Bacchini, D., Bornstein, M. H., Chang, L., Chen, B.-B., Deater-Deckard, K., Di Giunta, L., Dodge, K. A., Malone, P. S., Oburu, P., Pastorelli, C., Skinner, A. T., Sorbring, E., Steinberg, L., Tapanya, S., Alampay, L. P., Uribe Tirado, L. M., & Zelli, A. (2018). Longitudinal associations between parenting and youth adjustment in twelve cultural groups: Cultural normativeness of parenting as a moderator. *Developmental Psychology*, *54*(2), 362–377. https://doi.org/10.1037/dev0000416

Lin, H., Chew, P. Y.-G., & Wilkinson, R. B. (2017). Young Adults' Attachment Orientations and Psychological Health Across Cultures: The Moderating Role of Individualism and Collectivism. *Journal of Relationships Research*, *8*, e17. https://doi.org/10.1017/jrr.2017.17

Liu, W.-H., Mallan, K. M., Mihrshahi, S., & Daniels, L. A. (2014). Feeding beliefs and practices of Chinese immigrant mothers. Validation of a modified version of the Child Feeding Questionnaire. *Appetite*, *80*, 55–60. https://doi.org/10.1016/j.appet.2014.04.030

Lomas, T., Diego-Rosell, P., Shiba, K., Standridge, P., Lee, M. T., Case, B., Lai, A. Y., & VanderWeele, T. J. (2023). Complexifying Individualism Versus Collectivism and West Versus East: Exploring Global Diversity in Perspectives on Self and Other in the Gallup World Poll. *Journal of Cross-Cultural Psychology*, *54*(1), 61–89. https://doi.org/10.1177/00220221221130978

MacPhee, D. (1981). *Knowledge of Infant Development Inventory* [Unpublished questionnaire and manual]. University of North Carolina, Department of Psychology.

Martin, A., Ryan, R. M., & Brooks-Gunn, J. (2007). The joint influence of mother and father parenting on child cognitive outcomes at age 5. *Early Childhood Research Quarterly*, *22*(4), 423–439. https://doi.org/10.1016/j.ecresq.2007.07.001

McCafferty, S. G. (2002). Gesture and creating zones of proximal development for second language learning. *The Modern Language Journal*, *86*(2), 192–203.

Mccarthy, D. (1953). Some Possible Explanations of Sex Differences in Language Development and Disorders. *The Journal of Psychology*, *35*(1), 155–160. https://doi.org/10.1080/00223980.1953.9712848

Meins, E. (1997). Security of attachment and maternal tutoring strategies: Interaction within the zone of proximal development. *British Journal of Developmental Psychology*, *15*(2), 129–144. https://doi.org/10.1111/j.2044-835X.1997.tb00730.x

Meredith, W. (1993). Measurement invariance, factor analysis and factorial invariance. *Psychometrika*, *58*(4), 525–543. https://doi.org/10.1007/BF02294825

Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The Role of the Family Context in the Development of Emotion Regulation. *Social Development*, *16*(2), 361–388. https://doi.org/10.1111/j.1467-9507.2007.00389.x

Muñiz, J., Elosua, P., & Hambleton, R. K. (2013). Directrices para la traducción y adaptación de los tests: Segunda edición. *Psicothema*, *25*(2), 151–157. https://doi.org/10.7334/psicothema2013.24

Pace, A., Luo, R., Hirsh-Pasek, K., & Golinkoff, R. M. (2017). Identifying Pathways Between Socioeconomic Status and Language Development. *Annual Review of Linguistics*, *3*(1), 285–308. https://doi.org/10.1146/annurev-linguistics-011516-034226

Pearl, J. (2000). *Causality: Models, reasoning, and inference*. Cambridge University Press.

R Core Team. (2022). *R: A language and environment for statistical computing*. Vienna, Austria. https://www.R-project.org

Rohrer, J. M. (2018). Thinking Clearly About Correlations and Causation: Graphical Causal Models for Observational Data. *Advances in Methods and Practices in Psychological Science*, *1*(1), 27–42. https://doi.org/10.1177/2515245917745629

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, *48*(2). https://doi.org/10.18637/jss.v048.i02

Rowe, M. L. (2018). Understanding Socioeconomic Differences in Parents' Speech to Children. *Child Development Perspectives*, *12*(2), 122–127. https://doi.org/10.1111/cdep.12271

Ruchkin, V., Koposov, R., & Schwab-Stone, M. (2007). The strength and difficulties questionnaire: Scale validation with Russian adolescents. *Journal of Clinical Psychology*, *63*(9), 861–869. https://doi.org/10.1002/jclp.20401

Schmitt, N., & Kuljanin, G. (2008). Measurement invariance: Review of practice and implications. *Human Resource Management Review*, *18*(4), 210–222. https://doi.org/10.1016/j.hrmr.2008.03.003

Schwartz, S. H., & Bardi, A. (1997). Influences of Adaptation to Communist Rule on Value Priorities in Eastern Europe. *Political Psychology*, *18*(2), 385–410. https://doi.org/10.1111/0162-895X.00062

Shahaeian, A., Wang, C., Tucker-Drob, E., Geiger, V., Bus, A. G., & Harrison, L. J. (2018). Early Shared Reading, Socioeconomic Status, and Children's Cognitive and School Competencies: Six Years of Longitudinal Evidence. *Scientific Studies of Reading*, *22*(6), 485–502. https://doi.org/10.1080/10888438.2018.1482901

Shin, H., Park, Y., Ryu, H., & Seomun, G. (2008). Maternal sensitivity: A concept analysis. *Journal of Advanced Nursing*, *64*(3), 304–314. https://doi.org/10.1111/j.1365-2648.2008.04814.x

Suskind, D. L., Leung, C. Y. Y., Webber, R. J., Hundertmark, A. C., Leffel, K. R., Suskind, E., Hernandez, M. W., & Graf, E. (2018). Development of the Survey of Parent/Provider Expectations and Knowledge (SPEAK). *First Language*, *38*(3), 312–331. https://doi.org/10.1177/0142723717737691

Taylor, J. M., & Bergin, C. A. (2019). The parent/caregiver involvement scale – Short form is a valid measure of parenting quality in high-risk families. *Infant Behavior and Development*, *54*, 66–79. https://doi.org/10.1016/j.infbeh.2018.11.002

Tower, R. K., Kelly, C., & Richards, A. (1997). Individualism, collectivism and reward allocation: A cross-cultural study in Russia and Britain. *British Journal of Social Psychology*, *36*(3), 331–345. https://doi.org/10.1111/j.2044-8309.1997.tb01135.x

Tsai, J. L., Miao, F. F., Seppala, E., Fung, H. H., & Yeung, D. Y. (2007). Influence and adjustment goals: Sources of cultural differences in ideal affect. *Journal of Personality and Social Psychology*, *92*(6), 1102–1117. https://doi.org/10.1037/0022-3514.92.6.1102

Vallotton, C. D., Mastergeorge, A., Foster, T., Decker, K. B., & Ayoub, C. (2017). Parenting Supports for Early Vocabulary Development: Specific Effects of Sensitivity and Stimulation through Infancy. *Infancy*, *22*(1), 78–107. https://doi.org/10.1111/infa.12147

Vandenberg, R. J., & Lance, C. E. (2000). A Review and Synthesis of the Measurement Invariance Literature: Suggestions, Practices, and Recommendations for Organizational Research. *Organizational Research Methods*, *3*(1), 4–70. https://doi.org/10.1177/109442810031002

Varnum, M., Grossmann, I., Katunar, D., Nisbett, R., & Kitayama, S. (2008). Holism in a European Cultural Context: Differences in Cognitive Style between Central and East Europeans and Westerners. *Journal of Cognition and Culture*, *8*(3–4), 321–333. https://doi.org/10.1163/156853708X358209

Vershinina, E. A., Eliseeva, M. B., Lavrova, T. C., Riskina, V. L., & Ceitlin, C. N. (2011). Norms for language development in 8 to 18 month old infants. In *Special education: traditions and innovations: Collection of scientific and methodological work with international participation*. Publishing company of RGPU Gercena.

Zellman, G. L., & Waterman, J. M. (1998). Understanding the Impact of Parent School Involvement on Children's Educational Outcomes. *The Journal of Educational Research*, *91*(6), 370–380. https://doi.org/10.1080/00220679809597566

Zheng, B. Q., & Bentler, P. M. (2024). Enhancing Model Fit Evaluation in SEM: Practical Tips for Optimizing Chi-Square Tests. *Structural Equation Modeling: A Multidisciplinary Journal*, 1–6. https://doi.org/10.1080/10705511.2024.2354802

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