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Editors

George A. Morgan, Hua-Fang Liao and Krisztián Józsa

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Editors
George A. Morgan, Hua-Fang Liao and Krisztián Józsa

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Foreword

Nancy Busch Rossnagel

When George Morgan first worked with Leon Yarrow in the intramural research labs at the National Institutes of Health, focusing on mastery motivation, did he have any inkling of the impact that interaction would have on his career—and in turn on the careers of an international cadre of scientists and practitioners? Not a typical academic, George inspired generations of established professionals as well as students and younger colleagues. Those inspired by him, include me and his primary co-authors, Hua-Fang (Lily) Liao and Krisztián Józsa as well as the authors of the chapters here. Thus, I suggest that a reader consider this book as a festschrift for George himself as it articulates the status of the research that dominated his efforts during the last three decades and outlines the foundation of that work in his earlier research.

It is unusual for the honoree to be the principal writer of the festschrift, which, being a communal academic effort, is likely to be a special issue of a journal or chapters in a scholarly volume. While organized around a coherent idea, the multiple authors of such papers or chapters will each present that concept in their writing style, sometimes leading to a symphony, too often to a cacophony, of voices. In contrast, what you are reading is a paradox, a single-authored text, written by many. With his typical approach to thinking outside the box, George conceived of a strategy to let many voices become one. Working with Krisztián and Lily, he developed an outline of multiple topics that present the status of measurement in mastery motivation and the global scope of the current work. George turned then to seven

first-authors and their co-authors for elaboration. The result, in my opinion, is a festschrift in a coherent voice that builds on past definitions, delineates current expansions in age and to diverse populations, and points to the future in both research and practice.

Many forewords provide a historical review of the subject matter in question; in this book, that would be redundant with the first chapter. Much of the early writings on mastery motivation focused, as scholars are want to do, on definitions. More precisely, that work struggled to refine the idea of mastery motivation, striving for clarity in the conceptual definition. In contrast, **Chapter 1** organizes the historical review around operational definitions. By focusing on measures, this volume moves quickly to put theory to the test of practice by outlining the tools available to researchers and clinicians, focusing on the Dimensions of Mastery Questionnaire (DMQ), which yields parent-, teacher-, or self-ratings of mastery motivation (**Chapter 2**). The availability, ease of use, and, most importantly, reliability and validity of this measure, as outlined in **Chapters 3**, **4**, and **5**, resulted in the explosion of research presented here.

Early work on mastery motivation focused on the infancy and preschool period, so the expansion of the age range to adulthood may surprise some readers. This volume outlines the numerous research studies that have contributed to this expansion through adolescence. Notably, the research across age periods described here includes an examination of both interindividual differences through cross-sectional studies and intraindividual changes through longitudinal studies. These studies are not yet balanced across the globe: Reflecting the interests of the primary researchers, for example, there are more preschool studies from Asia and school-age and adolescence work in Hungary.

I expect that picture will change quickly as the research on mastery motivation continues its international expansion to include more diverse participants. In 1992, I emphasized that research with new populations, both subcultural and cross-cultural could provide excellent opportunities for enhancing our interpretations of behavior (Busch-Rossnagel, 1992). With the efforts described in this volume, those opportunities have become a reality as the cross-cultural studies in **Chapter 6** demonstrate. And such research is continuing and expanding: Analyses are currently in progress that will add to the list of languages with approved versions of DMQ. In that same 1992 chapter, I also noted that adaptation, not just simple translation, is required for work to be reliable and valid beyond the predominant Euro-American samples. A vital contribution of this volume is distilling the experience of enlarging the diversity of the participants: The process described in **Chapter 9** outlines a path to expand DMQ research to additional languages and cultures. Capturing the spirit of the guidelines from the International Test Commission, the model suggested for the adaptation process

that is yielding the Southeast Asian DMQ should be adopted in other international research efforts.

I suggest that mastery motivation work continue refining its operational definitions, not only through adaptation but also through revisiting the conceptual ideas. One area of agreement in conceptual definitions is the need to separate mastery motivation from competence, and the operational definition that first provided such a separation was the Individualized Moderately Challenging Tasks (Morgan et al., 1992). McCall (1995) noted that individualizing the difficulty level of mastery motivation tasks to create uncertainty about goal achievement was a significant advance in methodology. Twenty-five years later, the separation of competence from motivation is an unresolved issue for rating measures like DMQ, and research with atypically developing children is providing the ideas in **Chapters 7** and **8**. For example, the lower competence of children developing atypically may have unduly influenced perceptions of mastery motivation. Parents of such children rated their children's mastery motivation as low, yet these children do not show less motivation on the individualized tasks when compared to typically developing children who are matched on mental-age (see **Chapters 7** and **8**). Changes between DMQ 17 and DMQ 18 addressed this by wording changes to help raters to think about persistence separately from competence, especially when rating children developing atypically. Further work is possible: Understanding the effect of parent perceptions on influencing children's motivation might be enhanced by considering the meaning of the DMQ competence scale. For example, would using the DMQ general competence scale (which is correlated with several behavioral measures of the child's competence, **Chapter 5**) as an anchor or covariate help to separate motivation from competence, at least for very young children?

Another area for future endeavors will be the application of our knowledge about mastery motivation. The expansion of research with multiple samples has allowed the creation of a first set of norms, as presented in **Chapter 3**, and there are more to come. The authors plan to update the on-line appendices to include additional studies. The norms and the research with atypically developing samples (**Chapters 7** and **8**) provide new tools to inform intervention efforts, and **Chapter 8** offers clear guidance about using empirical information to inform these efforts. The importance of reliable change is operationalized in the use of minimal detectable change (MDC). Thus, DMQ 18 can be used in rigorous evaluations of the effectiveness of clinical work and other practice related to mastery motivation.

The two ideas of intervention and diverse samples provide potent tools for researchers interested in understanding behavior, so mastery motivation is at an exciting crossroads. Interventions are often stated at the level of the individual, and the model described in **Chapter 8** will be of enormous practical use to clinicians. Researchers should take note as well, as

intervention efforts must focus on the key processes underlying behavior to effect change. If the manipulation of an independent variable produces reliable change, you can be more confident in making causal statements. Likewise, the inclusion of diverse samples increases the likelihood of identifying the role of other processes in influencing the development and expression of mastery motivation. The reader should be impressed by the scope and quality of this long-term research program and challenged by the opportunities it has created.

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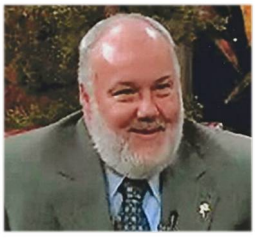
Dedication

We would like to dedicate this book to three pioneers in the study of children's development who were important in encouraging the study of mastery motivation. Leon Yarrow was the director of the behavioral science research laboratory at the National Institute of Child Health and Human Development. In the early 1970s, Leon became interested in the motivational aspects of young children's behavior when he found that what looked like 5-month-old infants' motivation predicted their preschool IQ measures better than infant development tests. This led Leon's research group to develop structured behavioral tasks to assess what became known as mastery motivation in infants and young children. Thus, we dedicate this book to **Leon J. Yarrow** (1921–1982). for his key role in the line of research on mastery motivation that led a few years later to the development of the Dimensions of Mastery Questionnaire (DMQ) and eventually to this book.

Robert (Bob) J. Harmon (1946–2006) and I, George A. Morgan, were two of the researchers in Leon's group who participated in that early mastery motivation research. Bob was a child psychiatrist, who spent his all too short career at the University of Colorado School of Medicine. Bob was involved in the early development of the DMQ and research on the mastery motivation of very small preterm babies as well as children who were abused or neglected. He was a personal and financial supporter of the development of the DMQ; before his death from a heart attack at age 59, he was trying to help arrange for the publication of a book about the DMQ. Thus,



we also dedicate this book to Robert J. Harmon, MD for his key role in helping to develop and promote its use in applied and clinical settings.

Finally, we want to dedicate this book to **József Nagy** (1930–), professor emeritus of education at University of Szeged in Hungary. Without his encouragement, Krisztián Józsa would not be an editor of this book and have done so many studies with the DMQ. When Krisztián was a PhD student and thinking about a topic for his dissertation, professor Nagy gave him the 1995 MacTurk and Morgan edited book about mastery motivation and suggested that he (Krisztián) do his dissertation in that area, which he did. Nagy was a pioneer in empirical research and educational assessment in Hungary. Nagy was the key developer of the widely used Hungarian preschool assessment (DIFER) to predict readiness for school and to assess children's performance in the primary grades. Krisztián used the DMQ and DIFER to predict school success better than with other measures. Thus, we also dedicate this book to József Nagy who was instrumental in encouraging the use of the DMQ in Hungary.

Acknowledgements

We want to acknowledge the important contribution to the book of Nancy Busch Rossnagel, our reviewer. Because of her comments, suggestions, and even editing of text, the book is much better than it would have been without her vital assistance. She spent many more hours than could have been expected helping shape the logical flow and English of the chapters, especially since only three of the nine chapters had first authors who were native English speakers. Nancy's experience training clinical psychologists and with translating and adapting questionnaires was very helpful in making revisions and additions to, especially chapters 7-9. They now should be very useful and practical for clinicians and for persons wanting to translate and adapt the DMQ for use in other languages and cultures. We appreciate her extra efforts and thank her a lot.

We also especially want to acknowledge the work of the other five "first authors" of chapters: Jun Wang, Su-Ying Huang, Karen Barrett, Pei-Jung Wang, and Fajrianthi. They not only greatly improved and expanded what had been included in the DMQ 18 Manual, but in several cases added important new material and concepts. We also appreciate that they helped maintained the consistency of the tone and style so that the book presents a unified and integrated picture of research and application of the DMQ.

We also want to thank the 13 coauthors who helped check and expand selected chapters: Stephen Amukune, Marcela Calchei, Jessica Gerton, Masoud Gharib, Linda Gilmore, Shazia Hashmi, Ai-Wen Hwang, Ágnes Nyitrai, Saide Özbey, Judit Podráczky, Anayanti Rahmawati, Jyothi Ramakrishnan and Beáta Szenczi. They are researchers who had special expertise and usually published data that were used in the chapter to which they had been assigned.

Other researchers whose publications or presentations about DMQ 18 made important contributions to the body of research reported in this book include P. M. Blasco, C-Y. Chang, A. Gözübüyük, A. Hines, M. Köyceğiz, Y.-I. Peng, M. Salavati, S. Saxton, S. S. Shaoli, and S. Türkman.

We give special thanks to Jessica Gerton who made many of the tables and did much of the word processing of the text of this book and the DMQ 18 Manual on which the book is based. Jessica also was a big help with English editing and checking that the chapters followed our Guidelines; Stephen Amukune and Marcela Calchei also helped check chapters for consistency with the Guidelines. We are grateful to Viktor Vida and Gabriella Józsa for the demanding work of technical editing, and for the nice appearance of the book.

In addition to Morgan, Harmon, and Busch-Rossnagel, several other researchers should be recognized for their contributions to the development of early versions of the DMQ: Karen Barrett, Lois Brockman, Rex and Anne Culp, Penny Hauser-Cram, Kay Jennings, Diana Knauf, Christine Maslin-Cole, and Sandra Pipp. Several other researchers, who are not separately recognized above, provided important raw DMQ 17 data; they include Sheridan Bartholomew, Monica Cuskelly, Tobi Delong-Hamilton, Tammy Dichter-Blancher, Sharon Hunter, Annette Majnemer, and Randal Ross. The developers and authors of the DMQ 18 Manual are all first authors of a chapter in this book. The editors also want to thank the researchers who recently translated DMQ 18 into French-Canadian, German, Portuguese and Spanish-Argentinian. These translations along with the other 11 language versions cited in the book will be available in the online appendix.

Financial Support for this DMQ book. The National Research, Development and Innovation Office, Hungary, NKFI K124839 supported technical editing and printing of this book. Colorado State University foundation and the School of Education, provided support for early drafts and word processing of chapters.

Chapter 1

Overview of Mastery Motivation, Assessment, and This Book

George A. Morgan, Krisztián Józsa and Hua-Fang Liao

Introduction

This chapter provides a broad overview of the current research about the concept of mastery motivation, which is shown most clearly by a child's instrumental behaviors, especially persistent attempts to master skills, solve problems, and by expressive or affective behaviors, especially pleasure when solving problems (Barrett & Morgan, 2018; Morgan et al., 2017a). The chapter begins with an introduction on mastery motivation and its importance for children's development and competence. Then the chapter describes several methods for assessing mastery motivation, including some newer methods, and covers a broad age span from infants to young adults. Next, the chapter describes the historical development of the current Dimensions of Mastery Questionnaire, namely DMQ 18. Finally, the chapter includes an overview of each chapter in the book, as well as a conclusion. The book includes research and co-authors from six continents (Africa, Asia and the Middle East, Europe, North and South America, and Oceania/Australia) and covers a wide range of topics related to the Dimensions of Mastery Questionnaire, which is the focus of the book.

The U.S. National Academy of Science report *From Neurons to Neighborhoods* (Shonkoff & Phillips, 2000) identified mastery motivation as a key developmental concept, which should be included as part of a child's assessment. Thus, mastery motivation is an important topic, in part because there is evidence that better mastery motivation at an early age leads to better competence and achievement later. That is, children become more competent because of their early persistence at tasks, even if early on they are not highly competent. This tenant of mastery motivation traces back to the early research by Yarrow et al. (1975), who reported that cognitive-motivational behaviors in infancy, such as reaching for and manipulating novel objects, predicted preschool children's Stanford-Binet intelligence quotient (IQ); whereas, the whole Bayley Mental Developmental Index did not. Similarly, Józsa and Molnár (2013) found that the DMQ was more predictive of school grades than IQ and tests of basic skills. More recently, Józsa and Barrett (2018) found that mastery motivation in preschool children predicted school success in grades 1 and 2. Huang and Lay (2017) reported that DMQ total persistence predicted competence across three different 16-month periods in infancy and early childhood, even after controlling for earlier competence. Thus, measuring mastery motivation has implications for education and for early childhood intervention.

Definition of Mastery Motivation and Key Measures

Morgan et al. (1990) proposed that mastery motivation stimulates a child to attempt to master a skill or task that is at least moderately challenging for him or her. Mastery motivation has two major aspects: instrumental and expressive (Barrett & Morgan, 1995). The *instrumental aspect* motivates a child to attempt, in a focused and persistent manner, to solve a problem or master a skill or task. The *expressive aspect* of mastery motivation produces affective reactions while the child is working at such a task or just after completing it. This affect may or may not be overtly expressed and may assume different forms in different children as they develop.

There are three main types of measures for assessing mastery motivation. Busch-Rossnagel and Morgan (2013) described the strengths and weaknesses of these measurement techniques: free play measures, behavioral mastery motivation tasks, and the Dimensions of Mastery Questionnaires (DMQ). Early versions of these three types of measures were discussed in several of the chapters in two important edited books about mastery motivation: Messer (1993) and MacTurk and Morgan (1995).

Free Play Measures

Over the years, there have been many studies that have observed children's play in preschool, home, and laboratory play room settings, but most have not been focused on the child's persistence at trying to solve problems; i.e. mastery motivation as we've defined it. During the first Yarrow study of mastery motivation, Jennings et al. (1979) examined the relationship between one-year-old typically developing children's free play and their behavior in structured mastery tasks. They also reported on environmental antecedents of children's free play. Their measures of continuity of play and amount of appropriately mature play were somewhat similar to task directedness or persistence used in the behavioral mastery tasks. Continuity and amount of mature free play had more significant relationships with the child's persistence at mastery tasks than did measures of total exploration or the "production of effects." Thus, they seemed to be better measures of mastery motivation than the sheer amount of play.

Morgan and Harmon (1984) conducted a small longitudinal study of 9-, 12-, and 24-month-old infants using measures of play similar to those used by Jennings et al. (1979). They found that the amount of mature free play was positively correlated with persistence at moderately challenging structured mastery tasks, while the amount of simple exploration during free play was negatively correlated with persistence at such tasks.

Belsky et al. (1984) developed what they considered to be a mastery motivation measure called "executive capacity," partially from free play. Hrncir et al. (1985) extended this method in their studies related to mastery motivation. However, their measure was highly correlated with the Bayley Scales of Infant Development and other measures of early cognitive competence. Thus, there was some question about whether this measure is really a measure of mastery motivation as we define it.

Maslin-Cole et al. (1993) used a measure of free play engrossment to study toddlers at 18 and 25 months. Unfortunately, this measure was not significantly related to the mastery task measures or the Dimensions of Mastery Questionnaire. McCall (1995) stated that the problem with free play measures is that it's difficult to know if they represent mastery motivation or some other characteristics, especially competence, in part because persistence in some free play situations was inversely correlated with subsequent measures of competence. McCall stated, "the construct validity of most measures derived from free play assessments as indices of mastery motivation, in my opinion, is ambiguous at best and in serious doubt at worst."

In free play situations, the child is free to express his or her motivation without implicit or explicit social demands from the tester and is able to choose an activity that he or she finds interesting and natural; thus, enhancing ecological validity or the naturalness of the situation. However, fewer mastery attempts and less persistence have been found in short-duration observations of free play with toddlers and preschool children (Busch-Rossnagel & Morgan, 2013). Although free play measures may have the greatest ecological validity, observing an adequate sample of mastery behaviors and interpreting results is problematic. Therefore, the types of free play measures mentioned above have not been used frequently in mastery motivation research in recent years. Undoubtedly, a number of environmental, family, and cultural factors influence the amount and type of play that would be shown.

Behavioral Mastery Motivation Tasks

In early mastery motivation research, the general procedure for administering behavioral mastery tasks was to begin the tasks with the tester demonstrating how to use a problem-posing toy. Then the toy, such as a puzzle, was given to the infant who had the opportunity to try to complete it with little encouragement and no help from the experimenter. The duration of task-directed behaviors, called persistence, was the primary measure of independent mastery motivation. In the Yarrow et al. studies (1982, 1983) all children of a certain age were given the same tasks or problems. These tasks were intended to be challenging for the average child, but due to individual differences in children's abilities, the same task could be very hard for some children and easy for others. This problem led to the development of the individualized moderately challenging task method.

Individualized Moderately Challenging Mastery Tasks

Morgan et al. (1992) described procedures that attempted to deal with the problem of controlling for cognitive differences among young children and also made longitudinal analysis more meaningful. This strategy involved the use of sets of similar tasks/toys, such as puzzles, which had several levels of difficulty. The child's motivation was assessed with one level of each set of tasks that was found to be moderately difficult for that individual child. Specifically, a task was selected because the child had successfully completed at least part of it, but had not finished all parts of the task too quickly. Thus, the level chosen for a given child was moderately challenging but not so hard that partial completion was not achieved. The child's persistence and emotional behaviors during those moderately difficult tasks were the main measures of mastery motivation. McCall (1995) called this individualized

approach, with its identification and use of moderately difficult tasks "one of the most important measurement advances" (p. 288), in part because it facilitates the separation of ability or competence from motivation. This individualized method has been used by a number of researchers and led to an increasing understanding of mastery motivation in young children developing typically and, especially, atypically (e.g., Gilmore & Cuskelly, 2011; Young & Hauser-Cram, 2006; Wang et al., 2013). Green and Morgan (2017) expanded the age range of the individualized tasks to be suitable for school-age children 7 to 10 years old. At least two studies have followed young children with disabilities into adulthood and have found significant relationships with adult measures related to mastery motivation. Hauser-Cram et al. (2014) found that early mastery motivation measured with the individualized tasks predicted executive function in young adults with developmental disabilities. Gilmore and Cuskelly (2017) found strong associations between child and adolescent mastery motivation in children with Down syndrome and their self-regulation as young adults.

Hashmi et al. (2017) used these individualized mastery tasks as the outcome variables to test the efficacy of their "I can" mastery motivation classroom program with young preschool children in Malaysia. They described and evaluated their intervention designed to enhance children's persistence and pleasure when trying to complete challenging tasks using a randomized pretest-posttest experimental design. They believed that the "I can" intervention program should lead to better school performance later.

Revised Individualized Moderately Challenging Tasks

Wang et al. (2016b) reported evidence for reliability and validity of this improved individualized task method. One improvement of these revised Individualized Moderately Challenging Tasks (IMoT) allowed for the possibility of identifying several moderately difficult tasks for a given child. Wang et al. (2016a) provided an example of how this revised individualized task procedure was used to assess one child with developmental delays. Wang et al. (2017) described this individualized challenging task method in detail for use with 15 to 48 month-old children, and they included information on reliability, validity, and descriptive statistics. Wang (2016) used these revised tasks to assess young preschool children who had global developmental delays and found that there were bidirectional relationships between mothers' interactive teaching behavior and the child's mastery motivation over a 6-month time period. More importantly, she found that mastery motivation mediated the relationship between mother's teaching behaviors and the child's later cognitive and also fine motor ability (Wang et al., 2019).

The FOCUS Computer Tablet Tasks

Barrett et al. (2017), Józsa et al. (2017a; 2017b), and Józsa et al. (2020) described in detail a new computer-tablet procedure for assessing pre-academic knowledge, mastery motivation, and executive functions in 3 to 8 year-old American and Hungarian children as a school readiness predictor. The FOCUS procedure described by Barrett et al. (2017) was designed to be an assessment that could become a complement to the nationally used Hungarian school-readiness test, DIFER, or, in English, the Diagnostic Assessment Systems for Development (Nagy et al., 2016). Józsa et al. (2017a) focused on the results from testing Hungarian children with the computer tablet mastery motivation tasks. Józsa et al. (2020) reported an evaluation of these tablet tasks based on a computed measure of persistence at tasks that were *actually* moderately challenging for each individual child. Future plans for the assessment are that it become available for parents and teachers who would receive feedback about their child's "approaches to learning" and suggestions for enhancing them.

All of these behavioral mastery task methods require the tester to provide very little feedback to the child other than basic instructions and some prompts. Thus, the child must work relatively independently on trying to solve the problem posed by the task. This lack of feedback undoubtedly effects the child's behavior, to some extent, and is a reason why the free play measures are said to have greater ecological validity. Researchers could study, but haven't so far, the effects of different kinds and amounts of feedback on the child's persistence and pleasure during the tasks.

Three Mastery Motivation Questionnaires

The Dimensions of Mastery Questionnaire (DMQ)

The DMQ assesses mastery motivation by having a parent or teacher rate their perceptions of the child's mastery motivation (and/or school-aged students rate their own behavior). The DMQ is the measure described in detail in this book. The development of the DMQ beginning in the early 1980s is described later in this chapter. The DMQ was the basis for two related questionnaires: the (School) Subject Specific Mastery Motivation Questionnaire (SSMMQ) and the Dimensions of Adult Mastery Motivation Questionnaire (DAMMQ), which will be discussed before turning to the historical development of the DMQ.

Subject Specific Mastery Motivation Questionnaire (SSMMQ)

Józsa (2014) developed a questionnaire, based on the DMQ, to examine age differences in student's motivation for school subjects in Hungary. This

(School) Subject Specific Mastery Motivation Questionnaire (SSMMQ) has subscales to assess the student's motivation to try hard and to express pleasure in school subjects such as reading, math, science, and English as a foreign language. Józsa used Likert-type items similar to those in the DMQ. A pilot study supported the validity and reliability of the scales for the Hungarian students studying English and German in school. The correlations of the mastery scales for foreign-language with overall language achievement varied from medium to strong. In addition, there were declines from middle to high school in the student's self-ratings of their mastery motivation in other school subjects, but not in English as a foreign language (Józsa, 2014).

Using DMQ 17, Józsa et al. (2014) had found that mastery motivation decreased from grade 2 to 10. Similarly, using the SSMMQ, Józsa et al. (2017c) found decreases in motivation for most school subjects in both Hungary and Taiwan from grades 4 to 8 using the SSMMQ. In general, Hungarian students rated themselves higher than did the students from Taiwan. However, there were fewer differences at grade 10 between the Hungarian students and the Taiwanese students. In both Hungary and Taiwan, the mastery motivation for English as a foreign language did not decline from grade 6 to grade 10, leading to speculation about why middle and high school students remained motivated to learn English. Implications for further research and school practices were discussed by Józsa et al. (2017c); school practices are discussed in more detail in **Chapter 6** of this book.

Dimensions of Adult Mastery Motivation Questionnaire (DAMMQ)

Doherty-Bigara and Gilmore (2015) used the DMQ as the basis for a new instrument, the Dimensions of Adult Mastery Motivation Questionnaire (DAMMQ), used to collect data from Australian adults aged 18-90. They found that the DAMMQ had acceptable psychometric properties and produced some interesting differences. Next, Gilmore et al. (2017) used the DAMMQ to compare university students in Hungary, Australia, Bangladesh, and Iran. Gilmore et al. (2017) translated the DAMMQ into Hungarian and Persian; the students in Australia and Bangladesh used the English version of the DAMMQ. This questionnaire measured levels of persistence, preference for challenge, task absorption, and task pleasure. Gilmore et al. (2017) examined the psychometric properties of the DAMMQ in the four cultures, which were acceptable to good for most of the scales. There were no differences in mastery motivation among the four countries, but significant gender differences were found. In each of the countries except Hungary, male students reported higher levels of mastery motivation. The DAMMQ seems to be a useful measure of mastery motivation for college students across diverse cultures. The findings provide some support for the universality of the theoretical construct of mastery motivation, and they suggest the potential need for universities to encourage female students'

strivings for mastery. Given the importance of university education for every country's prosperity, understanding the motivational factors that underlie academic success is key to informing policies and programs to increase student retention and wellbeing.

The Development of the Dimensions of Mastery Questionnaire

The MOMM: An Early Version of the DMQ

When development of the Mother's Observation of Mastery Motivation (MOMM) questionnaire began in the early 1980s, there were no parental report questionnaires designed to assess the motivation of infants and preschool children. Infant temperament questionnaires did assess perceptions of some aspects of persistence (e.g., Carey & McDevitt, 1978), but none of them provided adequate coverage of the *motivational* aspects of toddlers' or preschoolers' attempted problem solving and mastery play. Two questionnaires for school-aged children, Gottfried's (1986), Academic Intrinsic Motivation Inventory and Harter's (1981) Intrinsic versus Extrinsic Orientation in the Classroom Scale, came closer conceptually to measuring the aspects of behavior in which we were interested. However, these scales focused on intrinsic versus extrinsic motivation in school, which is only partially applicable to our definition of mastery motivation. In developing items for the MOMM questionnaire, we drew upon several of Harter's scales and some themes from the persistence scales of infant temperament measures.

In its initial form, the MOMM was intended for 1- to 5-year old children. Items were written to fit seven a priori conceptual scales. The first four scales were intended to assess high versus low mastery motivation as it had been measured behaviorally in early mastery motivation studies (e.g., Jennings et al., 1979; Jennings et al., 1984; Yarrow et al., 1982).

Pilot work led to a 36-item questionnaire which was completed by approximately 140 mothers of children developing typically and 60 mothers of children who were at-risk or developing atypically aged 9 months to 5 years, some of whom participated in intervention programs. These data were collected as part of several different studies; e.g., Butterfield and Miller (1984); Harmon et al. (1984); and Jennings et al. (1985). Morgan et al. (1983) compiled the data about the use of the MOMM.

Principal components analyses of the mothers' ratings were done for the several samples studied with the MOMM. The first two factors, general mastery motivation and dependence in mastery situations, were used as the basis for two scales in the first version of the Dimensions of Mastery Questionnaire – General Scales (DMQ-G).

Support for the validity of the MOMM questionnaire was obtained in part through comparisons of mothers' perceptions of children developing typically versus children at risk (see Morgan et al., 1983). Another method used to assess the validity of the MOMM questionnaire was based in part of the effects of an intervention program on maternal perceptions of mastery motivation. Butterfield and Miller's (1984) intervention raised the children's mastery motivation on the behavioral tasks and raised the mothers' perceptions of their children's mastery motivation as measured by the MOMM (see Harmon et al., 1984).

Another method used to provide evidence for the validity of the MOMM was to correlate individual differences in maternal ratings on the questionnaire with behavioral mastery scores. As predicted, the MOMM general mastery motivation score was significantly correlated with infants' actual persistence at tasks (Morgan et al., 1983). In another study, preschool teachers rated the usual behavior of 18 children who had also been tested with the mastery tasks. There was a significant correlation between teacher ratings of the child's persistence and independently obtained tester ratings of the child's task orientation or persistence (Morgan et al., 1983).

These results supported the usefulness of the MOMM questionnaire, but it was felt that the psychometric properties and age appropriateness of the questionnaire could be improved without losing the strengths just described. Thus, a major revision was undertaken. Some items were dropped because they implied abilities that children under three or four years do not appear to have. Other questions about intrinsic versus extrinsic motivation were deleted because they did not seem to be as appropriate for our definition of mastery motivation or for young children as for school-aged children.

The Dimensions of Mastery Questionnaire – General Scales (DMQ-G)

The DMQ-G included 21 items written to be age-appropriate for toddlers and preschool children. The questions were written in descriptive, behavioral language similar to that used by mothers. The DMQ-G was designed to tap four dimensions of child behaviors that we had observed during the mastery tasks. These dimensions were: 1) General Persistence at Tasks, 2) Mastery Pleasure, 3) Independent Mastery Attempts, and 4) General Competence for one's age.

The first and third dimensions were based on the first two factors from the MOMM. The second and fourth dimensions were added to represent two important aspects of the young child's behavior in mastery situations that had not been included in the MOMM. The general persistence scale was intended to correspond to the typical instrumental mastery motivation measure, which was persistence at behavioral mastery tasks.

The second dimension, mastery pleasure, was added because Harmon and Morgan (i.e., Harmon et al., 1984) realized its importance to a conceptually complete view of mastery motivation in early childhood. Mastery pleasure is defined as smiling, laughing or other behavioral indicators of positive affect *during* task-directed behavior or immediately following the solution of a task. It is viewed as a measure of the expressive aspect of mastery motivation.

The fourth dimension, competence, is not considered to be a measure of mastery motivation, but it is an important aspect of mastery-related behavior. Furthermore, there was an analogous score derived from the mastery tasks, and competence is of general interest to investigators of young children's behavior. The competence items provide an index of a rater's perceptions of the child's abilities, relative to other children the same age, which may be similar to those assessed by the Bayley Scales of Infant Development (Bayley, 1969).

The DMQ-G was used by over 300 mothers of children developing typically and those with developmental delays. The DMQ-G items, with minor modifications, have continued to be used with the more recent versions of the DMQ. Thus, findings from the general persistence, mastery pleasure, and competence scales of the DMQ-G were relevant to the validity of DMQ 17 and are discussed in **Chapter 5** of this book.

The Expanded Dimensions of Mastery Questionnaire (DMQ-E)

Research with the infant mastery tasks made it clear that persistence is quite specific to the type of task (Yarrow et al., 1982, 1983). For example, even relatively similar mastery tasks such as those using puzzle-like tasks and those using cause and effect toys did not have very highly correlated persistence scores. In addition, mastery motivation researchers had shown in the early 1980's a growing interest in the expression of persistence during social and symbolic play of toddlers (Maslin-Cole et al., 1993) and in social behavior during tasks (e.g. Combs & Wachs, 1993; MacTurk et al., 1985; Morgan et al., 1991). Thus, there seemed to be clear value in developing ways to assess the instrumental or persistence aspects of mastery motivation that were not tapped by the scales of DMQ-G.

In response to these results and concerns, the DMQ was expanded. Five new scales, of three items each, were added to the general items of the DMQ-G. These scales measured persistence during five specific types of task or play: gross motor, combinatorial, means-end, social, and symbolic. This DMQ-E was used with over 20 samples to rate over 1500 1- to 5-year-old children who were mostly singletons or twins developing typically, but included substantial numbers of developmentally delayed and other at-risk children.

The DMQ-G items also were modified, mostly in minor ways, to make the DMQ easier to answer. The equivalence of the initial general scale scores with this revised and expanded DMQ-E was tested by asking mothers of 35 children, 29- to 59-months old, to answer both versions about three weeks apart (Morgan et al., 2018). Half answered the revised version first, and half answered it second. These correlations (General Persistence at Tasks, .85; overall Mastery Pleasure, .70; Independent Mastery Attempts, .83; and General Competence, .58) indicated that the scale scores of the two versions were quite highly related. For Persistence at Tasks and Independent Mastery Attempts the correlations indicated good alternate forms reliability. As expected, the correlation was somewhat lower for General Competence because several items had been changed to improve the psychometric properties of the scale and to try to differentiate competence more clearly from persistence. The overall Mastery Pleasure scale correlation was somewhat lower because we attempted to differentiate two related but somewhat distinct concepts: pleasure during the process of goal-directed behavior and pleasure at causing something to happen.

The Rescored, Five-factor DMQ-E

In the early 1990's, for both psychometric and conceptual reasons, we deleted 5 of the 36 items and reanalyzed the DMQ-E data. This resulted in five scales which were conceptually meaningful and psychometrically stronger than previous formulations. This revised conceptualization included one expressive facet or component of mastery motivation, mastery pleasure, and three instrumental components of mastery motivation, which were: persistence during object play, persistence in social/symbolic play, and persistence in gross motor play of young children. These instrumental components roughly paralleled Harter's (1982) three aspects of perceived competence (academic, social, and athletic) in school-aged children. This new conceptualization also included the overall perceived General Competence factor, which was of interest, but not viewed as an aspect of mastery motivation.

Thus, the rescored DMQ-E for toddlers and preschoolers had five scales: 1) Object-oriented Persistence, 2) Social/Symbolic Persistence, 3) Gross Motor Persistence, 4) Mastery Pleasure, and 5) General Competence. As the conceptualization of mastery motivation evolved, we made minor modifications in items to improve the internal consistency of the scales and the readability and translatability of the items (see Busch-Rossnagel et al., 1993).

The DMQ scales of Object-oriented Persistence (earlier called General Persistence at Tasks), Mastery Pleasure, and General Competence were considered to be essentially equivalent across all the earlier versions of the DMQ and DMQ 17 because item wording and content differed at most moderately and because parallel forms reliability was adequately high.

In summary, as our conceptualization of mastery motivation evolved, the MOMM became the DMQ-G, which provided measures of both the expressive and instrumental aspects of mastery motivation. The DMQ-E was a further expansion to include other potential domains (e.g., social and gross motor) of an instrumental aspect (i.e., persistence) of mastery motivation. The Rescored, Five-factor DMQ-E produced a conceptually and psychometrically stronger questionnaire for toddlers and preschoolers. The evolution of the DMQ up to DMQ-E and a summary of findings about reliability, validity, and correlates of mastery motivation, as measured by the DMQ, were presented in review chapters by Morgan et al. (1993) and MacTurk et al. (1995).

The DMQ with Expanded Social Scales (DMQ-ES)

In 1995 and 1996 the DMQ social persistence (i.e., social mastery motivation) items were revised, expanded and split into two scales: Social Persistence with Children and Social Persistence with Adults. In addition, a second expressive aspect of mastery motivation, Negative Reactions to Failure, was added. Other items and scales remained essentially the same as in the DMQ-E.

The new social scales were intended to assess the young child's attempt at social mastery of the peer environment and of interactions with adults. Social interactions are critical to social and cognitive development, so the motivation to interact with other human beings is a critical component of current notions of mastery motivation (Busch-Rossnagel, 1997; Combs & Wachs, 1993; MacTurk et al, 1985). Research has shown that social mastery (designed to begin, continue and shape social interactions) is distinguished from social interactions initiated and maintained by distress (Wachs & Combs, 1995). Likewise social mastery motivation is distinct from the temperamental dimension of sociability (Combs & Wachs, 1993; Dichter-Blancher, 1999). The DMQ also distinguishes between social interactions of individuals of unequal status (children with adults) and of individuals of equal status (interactions among peers).

Negative reactions to failure was added in view of the literature indicating that even toddlers can have negative reactions when they fail at a mastery task. These negative reactions seemed important to be included in the DMQ because both classic and more recent theory suggested that such negative reactions to failure, especially if severe or frequent, could undermine individuals' motivation to master new tasks. Such a variable might make a separate contribution to the overall degree to which children are motivated to master tasks with which they are faced.

In addition to a preschool version, which had been the predominant age range for the DMQ-G and DMQ-E, new versions of the DMQ were developed and pilot tested for infants, elementary school children, and teens. The ele-

mentary school-aged and teen versions had forms for children to rate themselves and a form for adults (parent or teacher) to rate the child. All the age versions of the DMQ had common items that were thought to be appropriate across ages. The remaining items varied somewhat by age version but roughly paralleled the items in the preschool version. For the DMQ-ES, more than 400 children from 6 months to 19 years (including children experiencing abuse, those with Down syndrome, children whose mothers had clinical depression, and those from low-income families) were rated by mothers, teachers, or by the teens themselves.

Thus, there were many refinements to the mastery motivation questionnaire from the MOMM to DMQ 17, which we describe briefly in the next section. However, from the beginning (i.e., the MOMM), persistence at difficult or challenging tasks has been a central measure of this mastery motivation questionnaire. Many of the changes, especially since the DMQ-G, have been refinements of items, expansion of the dimensions covered, and expansion of the ages included.

DMQ 17

In January 1997, the DMQ 17 version was finalized based on examining the data obtained from the DMQ-ES. This penultimate version of the questionnaire was called DMQ 17. It was used for almost two decades to assess the mastery motivation of many children in Hungary and in English- and Chinese-speaking countries (Józsa & Molnár, 2013; Morgan et al, 2013). The scales and most of the items remained the same, so the DMQ-ES and DMQ 17 are essentially equivalent. However, the wording of some items was simplified to make them easier for young school-age children to rate themselves and lower reading-level adults to understand. As much as possible, we used words with reading levels in the primary school grades (1-3). Several negatively worded (reversed) items were eliminated or reworded because they seemed to have been miscoded by a number of raters who either did not read them carefully or were confused by the wording. These items had lowered the alphas in several previous samples.

DMQ 18

Both statistical and conceptual reasons were used for modifying or deleting a number of DMQ 17 items. The scales and many items remained the same, except that the Negative Reactions to Challenge scale was intended to have two subscales: Negative Reactions Anger/Frustration and Negative Reactions Sadness/Shame; however, as mentioned in **Chapter 3**, the internal consistency reliability of these scales, especially Negative Reactions Sadness/Shame, were sometimes unacceptable. Thus, in this book, we have seldom referred to these intended subscales.

In addition to English, Hungarian, and Chinese versions of DMQ 18, there are now translations into several other languages, including Spanish; these language versions have been used to assess children from at least Iran, Turkey, Bangladesh, Indonesia, Israel, Kenya, and Moldova. The book describes and discusses research related to the use of DMQ 18 in these several countries, as well as DMQ 17 and 18 research in the US, Hungary, China, and Taiwan.

Overview of Each Chapter and Its Focus

Chapter 2 provides empirical and conceptual evidence used to revise and strengthen the DMQ. The measurement invariance of DMQ 17 was assessed for parent ratings of preschool children (Hwang et al., 2017) and separately for ratings of school-age students themselves (Wang et al., 2014). These analyses of Hungarian, Chinese, and English speakers' data were conducted in order to find out which items did and did not work well in all three cultures. These two studies are summarized in **Chapter 2** and lead to the development of DMQ 18.

Chapter 3 describes the seven scales for the four age versions of DMQ 18 and shows how the items are similar or different across the age versions. In addition, the chapter includes an overview of the current studies on DMQ 18 and provides tables listing the main characteristics of the DMQ 18 samples for each country. One such study using this version of the DMQ is Morgan, et al. (2017b). They used DMQ 18 to describe and compare five samples of infants, toddlers, and preschool children with and without risks or delays from Hungary, Taiwan, and the US. Based on available data from 11 languages and 10 countries, this chapter provides preliminary norms for typically developing children. There are norms for the preschool and school age versions rated separately by parents, teachers, and by school-age children themselves.

Chapter 4 describes evidence for the measurement reliability of DMQ data. The chapter summarizes evidence for reliability of DMQ 17 and then presents tables and text summarizing the evidence for internal consistency, test-retest, interrater, and parallel-forms reliability of DMQ 18. There is evidence for reliability from 12 languages and 33 samples of preschool and school-age children, both children developing typically and atypically.

Chapter 5 describes evidence for the measurement validity of DMQ data. The chapter discusses content, criterion, convergent, response processes, factorial, and discriminant evidence for validity from both DMQ 18 and DMQ 17 of various countries and languages around the world, and includes evidence for the validity of the DMQ for children developing typically and also children developing atypically.

Chapter 6 compares DMQ ratings from several countries and also discusses age and cultural differences in the DMQ. Using the DMQ, Józsa et al. (2014) found age-related cross-sectional declines in several aspects of mastery motivation in Hungarian-, English-, and Chinese-speaking school-age children and teens. These declines have been found in both cross-sectional and longitudinal studies, across several cultures, and in the ratings of parents and teachers as well as school children's self-ratings. This chapter discusses mastery motivation in preschools and schools and includes a discussion of the relationship between mastery motivation and the development of skills that are crucial to school success, including social and cognitive skills and school achievement.

Chapter 7 describes mastery motivation using the DMQ in children developing atypically or at risk and provides comparisons with children developing typically. In some DMQ research (e.g., Morgan et al., 2013), parent ratings of English-speaking children with and without various delays were compared; children with delays were rated lower on the DMQ persistence scales and on competence than children of similar mental ages developing typically. Child and family factors related to DMQ scales also are described. This chapter uses the preliminary norms from **Chapter 3** to produce tables showing what ranges of DMQ 18 scale scores are considered "atypical." We also show how to use tables of dichotomized DMQ and mastery task data to help clinicians make decisions about the use of DMQ ratings. These tables should be helpful to clinicians.

Chapter 8 describes using the DMQ in early interventions and for school-age children with special needs. Authors propose a 5-step model for enhancing mastery motivation in children with special needs. The 5-step model includes: problem identification of mastery motivation and assessment (step 1); problem-explanation with parent/child (step 2); goals selected by parent/child (step 3); motivation-enhancing strategies proposed and collaborative consultation with parent/child (step 4); and shared outcome evaluation (step 5). The steps may at times be bidirectional. DMQ 18 can be used for assessment, problem-explanation and outcome evaluation in a variety of applied settings and with clinical populations. **Chapter 8** also discusses the use of the minimum actually detectable change given the measurement error of the instrument and the use of DMQ 18 scores judged to be in the "typical" range to determine the effectiveness of interventions, which should prove useful to clinicians.

Chapter 9 discusses issues about translation, describing how the International Test Commission (ITC) guidelines for translating and adapting a questionnaire could be used as a model. We used these guidelines to provide a detailed hypothetical example of what we consider best current practices for translating and adapting DMQ 18 into a language and culture quite dif-

ferent from the original English version. This chapter also provides an example of how realistic but hypothetical data used confirmatory factor analysis to provide evidence for the goodness of model fit with mastery motivation theory related to the dimensions of mastery motivation and how to provide evidence for the reliability and validity of the translated and adapted DMQ.

Conclusion

This chapter provides evidence for the importance of the concept of mastery motivation and summarizes how it has been measured. The focus of the chapter and this book is on the Dimensions of Mastery Questionnaire (DMQ) including a detailed historical description of its development over the last four decades. Mastery motivation is a fundamental developmental construct that should be included as part of a comprehensive evaluation of children; the DMQ provides easily obtainable, reliable and valid information about mastery motivation. Researchers and clinicians have used the DMQ to rate the mastery motivation of children from 6 months to 19 years, both those developing typically and those developing atypically, in the home, in school, and in a variety of languages and cultures. These are major advantages.

The value of the DMQ for measuring mastery motivation in children at risk and those developing atypically is indicated by interest among special educators and clinicians (e.g., Blasco et al., 2020; Gilmore & Cuskelly, 2011; Hauser-Cram et al., 1997; Hines, 2018; Hwang et al., 2020; Majnemer et al., 2013; Miller et al., 2014; Pipp-Siegel et al., 2003; Salavati et al., 2018; Szenczi et al., 2018; Wang et al., 2013). Miller at al. (2014) conducted a systematic review of the properties of instruments designed to assess motivation in school-age children with a physical disability or motor delay; they concluded that the DMQ provides evidence of good clinical utility. Research with the DMQ provides important implications for clinical practice and early intervention as indicated **Chapter 7** and **8** in this book.

There are, of course some limitations of any questionnaire, including the Dimensions of Mastery Questionnaire. Ratings, especially when one person is asked to rate another (e.g., a mother rates her child) are based the rater's frame of reference and biases. Some raters may have difficulty understanding the items or making self-evaluations, which seems to be the problem for young (5-8 year old) school children rating their own mastery motivation.

When children with delays were tested with individualized, moderately challenging mastery tasks (that were not too hard for them personally), there were few significant differences in motivation between the children

with delays and typically developing children matched on mental age. However, in these studies, children with delays were rated significantly lower on the DMQ persistence scales than the matched children developing typically (Gilmore and Cuskelly, 2011; Wang et al. 2013). This indicates that the parents perceived their delayed children to be lower on mastery motivation than the children's behavior on the moderately challenging tasks would indicate. Józsa and Molnár (2013) reported that the combined DMQ ratings of teachers, parents, and children themselves provided more comprehensive measures and added value for research and clinical use.

The behavioral mastery motivation task measures are less filtered through the perception or bias of the rater, but they are more time consuming and expensive to obtain. We think that data from good individualized mastery tasks can complement the DMQ data, so we suggest that, when feasible, practitioners and investigators interested in mastery motivation should use individualized moderately challenging mastery tasks as well as the DMQ. This combination of methods should prove even more helpful in providing implications for education and clinical practice.

An additional advantage of the DMQ completed by parents, teachers, or the child/teen themselves is that it provides information that the usually short behavioral task measures of mastery motivation do not because DMQ raters have the opportunity to observe the child in other contexts for longer periods and over time. The evidence to support the validity of the DMQ measures presented in this book reinforces this advantage.

This book describes current research with DMQ 18, its reliability, validity and usefulness in examining children's mastery motivation in other cultures, in schools, and for predicting school success. We also describe how the DMQ has been used to examine the mastery motivation of children developing atypically, how it could be used in interventions, and how to interpret and apply the preliminary world-wide norms. We also provide guidelines for best practices about how to adapt and evaluate the reliability and validity of a translation. The next chapter discusses the transition from the DMQ 17 to the current DMQ 18 based on invariance analyses of DMQ 17 data from preschool children and school-aged students in Hungarian-, Chinese- and English-speaking countries.

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Chapter 2

Translation, Use, and Examination of DMQ 17: Informing the Development of DMQ 18

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Introduction

Chapter 1 discussed the early development of the mastery motivation questionnaire and briefly mentioned DMQ 17 and 18. DMQ 17 was developed over a period of more than 20 years and a number of evolutions, which included the translation of the English version of the DMQ into Spanish in collaboration with Nancy Busch-Rossnagel and then using a procedure called decentering to modify not only the Spanish items, but also to some extent the English items, based on discrepancies in meaning between the two versions. There were also a number of other modifications made between DMQ-ES and DMQ 17, which included simplifying the wording of a number of items to make them easier for low-reading adults and school-age children to answer. In the development of DMQ 17, several negatively worded items were eliminated or reworded because participants in the preceding version had mistakenly rated them. DMQ 17 was then carefully translated into Hungarian and Chinese, back-translated and corrected, as de-

scribed in this chapter, and then used in the statistical analyses in this chapter. DMQ 17 was widely used in English-, Chinese-, and Hungarian-speaking countries, which has generated rich conceptual and empirical discussions about its application and potential revisions.

This chapter first discusses the broad use, examination, and adaptation of DMQ 17. Then, two cross-national measurement invariance studies are described in detail, as they helped form the statistical basis for the transition to DMQ 18. Finally, this chapter describes how these analyses and other considerations led to the elimination and modification of DMQ 17 items for use in DMQ 18.

Description of DMQ 17

Many of the data analyzed in this chapter are from DMQ 17, the penultimate version of the questionnaire. DMQ 17 had four age versions: infant, preschool, elementary school, and teen. The latter two age versions provided both adult ratings of the school-age child and forms for student-self ratings. There were 45 Likert-type items each rated 1-5 (from not at all typical to very typical) and seven scales as follows:
Four scales for the **instrumental** or **persistence** aspects of mastery motivations were:

1) **Object-Oriented Persistence** scale (called persistence at cognitive tasks for school-age children and teens; 9 items)
2) **Gross Motor Persistence** scale (8 items)
3) **Social Persistence**/Mastery Motivation **with Adults** scale (6 items)
4) **Social Persistence**/Mastery Motivation **with Children** scale (6 items)

Two scales for the **affective** aspects of mastery motivation were:

1) **Mastery Pleasure** scale, positive affect after finishing a task and/or while working on a task (6 items)
2) **Negative Reactions to Failure** in Mastery Situations scale (5 items)

One scale to assess **competence** or the a*bility to master* in contrast to the motivation to master tasks was: **General Competence** Compared to Peers scale (5 items)

Each of the first five scales included one negatively worded item that was reverse coded when computing the scale scores. The Negative Reaction to Failure items were all worded in the same direction, and negative reactions

(upset, avoid etc.) were scored as 5. The competence scale had 2 out of 5 items worded negatively and reverse coded.

More than 20,000 children from 6-month to 19-years of age were rated with DMQ 17. These include more than 1000 atypically developing children with a variety of delays and more than 500 children at risk for lower academic achievement due to low socioeconomic status (SES). Geographically and linguistically, the children were very diverse. Participants included English speakers from the United States, Canada, the UK, and Australia. Chinese speakers were from mainland China and Taiwan. In Hungary, more than 10,000, mostly typically developing, school-age children rated themselves and/or were rated by their parents and teachers.

The Chinese version of DMQ 17 was translated by Ai-Wen Hwang in Taiwan to use with infants and young preschoolers and by Jun Wang in mainland China to use with school-aged children. The Chinese-speaking researchers and the original developers of DMQ 17 – George A. Morgan, Karen Caplovitz Barrett, and Nancy Busch Rossnagel – went through multiple iterations of translation, back-translation, pilot testing, and revisions to ensure better the conceptual equivalence of the questionnaire items and the cultural and linguistic appropriateness of the Chinese version. Feedback from Chinese-speaking parent and child respondents was also solicited and incorporated during the development of the Chinese versions. For example, "cause and effect activities" in English DMQ 17 did not have readily available Chinese translations and was hard for Chinese-speaking populations to understand. The English-speaking and Chinese-speaking researchers discussed the "cause and effect" phrase intensely, in order to reach mutual understanding about the activities and to come up with appropriate translations and clarifying examples for Chinese-speaking respondents. Similarly, gross motor persistence items concerning throwing and catching objects were easily relatable for English-speaking American respondents, considering their familiarity with ball games like baseball and basketball. However, such ball games and corresponding physical skills were not as popular for Chinese-speaking respondents as for their English-speaking counterparts. Thus, clarifying examples specifying the ball games were needed for Chinese-speaking respondents to make sense of the throwing and catching skills mentioned in the questionnaire items.

The Hungarian language version of DMQ 17 also went through similar processes of carefully translating and calibrating the expressions of both the questionnaire instructions and items. The first Hungarian versions of the Dimensions of Mastery Questionnaires were developed in the spring of 1999. Since then, the leading Hungarian-speaking researcher, Krisztián Józsa, and the DMQ's original developer, George A. Morgan, have been collaborating closely for decades to continuously refine the Hungarian versions and to conduct a plethora of empirical studies to examine the psychometric

qualities, cross-national adaptation, and longitudinal application of DMQ 17.

As mentioned in **Chapter 1**, a number of journal articles, dissertations, and presentations included DMQ 17; several are noted in the reference list and many are cited in other chapters. These papers summarized evidence for reliability and validity, relationships to other variables, and also compared the three main cultures at similar ages and across ages. Although many theoretical and empirical studies were conducted on mastery motivation using DMQ 17, the psychometric qualities of DMQ 17 were not fully evaluated in the initial studies. In particular, confirmatory factor analysis to carefully examine factorial validity and measurement invariance was only used with DMQ 17 in a few more recent studies. Confirmatory factor analysis (CFA) is a statistical technique to test the fit between hypothesized models and empirical data; it allows estimation of measurement errors to achieve a more precise estimation of factor loadings. Use of CFA informed the revision of DMQ 17 by enabling deletion of items with lower loadings. In addition, CFA conducted with multiple samples simultaneously can be used to check measurement invariance, the establishment of which ensures that comparisons across groups with the same measure are meaningful (Schumacker & Lomax, 2004). Only three studies to date have used CFA with DMQ 17, one was with preschool children (Hwang et al., 2017) and two were with school-age children (Józsa & Kis, 2016; Wang et al., 2014).

Structural Validity of a School-age Sample in Hungary

One of these studies, Józsa and Kis (2016), analyzed students' self-ratings with CFA in a Hungarian school-age sample. The study verified the structural validity of DMQ 17. However, the authors pointed out that the model fit indexes and the scale reliabilities could be improved by omitting some reversed items. However, the study did not cross-validate the equivalence of the DMQ across different age groups or cultural groups. The other two studies both used samples from Hungarian-, English- and Chinese-speaking samples, thus are described in detail in this chapter.

Measurement Invariance in Chinese, Hungarian, and English Preschool Samples

Measurement invariance is an important issue when different groups are compared using the same measurement, as individuals of different cultural backgrounds and developmental periods might respond to or interpret the same questionnaire items in quite different ways. Measurement invariance helps distinguish "true" between-group differences in the latent constructs from measurement artifacts. Hwang et al. (2017) conducted measurement

invariance study for the preschool version of DMQ 17. As DMQ was initially developed for mothers or caregivers to rate preschool children (Morgan et al., 1993), the preschool version of DMQ has the longest history and has influenced the development of DMQ versions for other age groups and respondents. Psychometrically sophisticated examination like the Hwang et al. study (2017) is necessary to justify whether the scale items and underlying mastery constructs can be interpreted in a conceptually similar manner and be quantified and compared meaningfully across different groups of respondents. Specifically, the goals of the Hwang et al. study (2017) included 1) validating the hypothesized 5-factor structure (the four persistence scales and the mastery pleasure scale expected to underlie the items of DMQ 17 that were analyzed); 2) examining measurement invariance of parental ratings across English-speaking, Chinese-speaking, and Hungarian-speaking preschoolers; and 3) providing empirical support for revisions leading to DMQ 18.

A total of 1,582 English-speaking, Chinese-speaking, and Hungarian-speaking preschoolers children aged 24–72 months were rated by their parents with DMQ-17 preschool version. Chinese-speaking children (n = 389) were from Taiwan (the Taipei birth panel study, 2008; Hsieh et al., 2011). English-speaking children (n = 353) were from the U.S. and Australia. The Hungarian-speaking children (n = 840) were from Hungary, providing a much larger sample size than the other two samples.

The four persistence and the mastery pleasure scales were used as indexes of mastery motivation in this preschool study. The General Competence dimension was not included because it was not considered to be a measure of mastery motivation. The Negative Reactions to Failure scale was not included either, because this scale had inadequate internal consistency in DMQ 17, as noted above. Therefore, thirty-five items from DMQ 17 were used for the preschool measurement invariance study. The five dimensions examined include Object-Oriented Persistence (COP, 9 items), Gross Motor Persistence (GMP, 8 items), Social Persistence with Adults (SPA, 6 items), Social Persistence with Children (SPC, 6 items), and Mastery Pleasure (MP, 6 items).

To examine measurement invariance of the preschool data, the data from all the 1,582 children were randomly separated into two subsets: sample 1 (n = 791) and sample 2 (n = 791). The initial CFA model was explored with sample 1 to examine the factorial validity of a five factor model of DMQ 17 (i.e., COP, GMP, SPA, SPC, and MP) and to compare the goodness of fit between a first order model and a second order model. The first-order CFA was estimated by allowing the five latent variables to be freely correlated. The second–order CFA was a more parsimonious model with the five latent variables loaded onto one second-order factor. After identifying the best fit-

ting 5-factor structure model, the researchers used sample 2 to cross-validate the final model (Bollen, 1989). Then, samples 1 and 2 were merged for the examination of measurement invariance between samples 1 and 2, and among Chinese-, English-, and Hungarian-speaking groups.

First, based on lower loadings and poor fit with predicted factor structure (see also **Chapter 5**), 5 items with loadings lower than .45 were deleted, which included three COP items, one SPA item, and one MP item. Two out of these 5 items were negatively worded items that needed to be reverse-coded. Factor loadings, Cronbach's alphas, and composite reliabilities were all acceptable for each of the five scales. However, only three reversed items remained, across the 5 scales. Because of known problems in other samples with the reversed items (Józsa et al., 2014; Józsa & Morgan, 2017), these three items were omitted despite having loadings >.45. Thus, these items, together with the 5 items with low loadings were deleted, leaving 27 items to be used in testing the final confirmatory model with sample 2. The eight omitted items are presented in Table 2.1. Discriminant validity with bootstrapping suggested that the five factors were discriminative between each other.

The second order model, which modeled the 5 domain-specific mastery dimensions under a broader mastery motivation construct, fit the data as well as the first order model. Because the second order factor structure is more closely aligned with the theoretical conceptualization of mastery motivation, it was selected for the remaining analyses. Mastery motivation was modelled as a latent variable which is not observable directly but can be inferred from the shared variance (the conceptual and empirical overlap) of the five mastery motivation dimensions, COP, GMP, SPA, SPC, and MP. Each of these five dimensions of mastery are also latent variables themselves which cannot be observed directly but can be inferred from the shared variance of a subset of the 27 items. Besides the shared variances, each of the 27 items and the five mastery dimensions were allowed to have measurement errors (e), which were also modeled in the CFA. Such a modeling technique allows for a more accurate estimation of the latent constructs.

Table 2.1. DMQ 17 Preschool Items Deleted Based on Fit with Expected Structure Using Confirmatory Factor Analysis

DMQ scales/items		Standardized loading
Object Oriented Persistence (COP)		
7	Likes to try hard things instead of easy ones.	.435[L]
9	If a toy or task is hard to do, stops trying after a short time.	.460[R]
17	Explores all parts of an object or toy with many parts.	.316[L]
24	Tries hard to do cause and effect toys such as a busy box.	.440[L]
Gross Motor Persistence (GMP)		
3	Gives up if he or she cannot do physical skills well.	.566[R]
Social Persistence with Adults (SPA)		
33	Gives up quickly when playing with adults.	.319[LR]
Social Persistence with Children (SPC)		
39	Avoids getting involved with other children.	.555[R]
Mastery Pleasure (MP)		
11	Does not smile after he or she makes something happen.	.322[LR]

Note. [L:] *Loadings < 0.45;* [R:] *Reversed item.*

With the second order CFA model, measurement invariance was examined between samples 1 and 2 and among the Chinese-, English-, and Hungarian-speaking groups. The factor loadings, structure weights, and structural covariances of the same items or constructs were progressively constrained, enabling them to be invariant across the English, Chinese, and Hungarian language samples. In other words, each successive model included the previous model's restrictions plus additional constraints and served as the comparison standard for the subsequent model until an invariant structure fits data from all samples. Based on this established measurement invariance in structure, latent mean differences could be and were examined across the three groups. There were no differences between the three language groups except that the Chinese-speaking preschool children were rated lower than the other two groups on gross motor persistence by their parents.

Measurement Invariance Across School-age Children in US, China, and Hungary

With the same interest in cross-group measurement invariance of DMQ, Wang et al. (2014) pooled self-ratings from schoolchildren across the U. S., China, and Hungary to examine measurement invariance of the self-rated version of DMQ 17. The goals of the Wang et al. (2014) study included: 1) validating the factor structure of DMQ 17 in schoolchildren in each of the three cultural groups; 2) investigating item performance within and across samples to enable refinement of DMQ to accurately represent the intended structure using the fewest possible items; 3) examining measurement invariance of self-rated DMQ 17 across English-speaking, Chinese-speaking, and Hungarian-speaking children; and 4) examining measurement invariance of self-rated DMQ 17 across elementary, middle, and high school students.

Data for the children's self-ratings were obtained from children and adolescents (aged from 8 to 19 years old) from the U.S. (N = 186), China (N = 1,582), and Hungary (N = 8,125). Given the concern expressed earlier about the problems of negatively worded items and the negative reactions scale from DMQ 17, only thirty positively worded items from DMQ 17 were used to assess the four persistence aspects of mastery motivation (i.e., COP, GMP, SPA, and SPC) and one affective aspect of mastery pleasure (MP). Both exploratory factor analyses (EFA) and CFAs were conducted in each of the three samples to examine the five factor structure among the items and to evaluate the item performance in the five factor model. Six items were removed through these steps with 24 items retained for further measurement invariance examination. Table 2.2 presents the items removed from the further analyses and the reasons for their removal.

Among the remaining 24 items, there were 6 COP items, 4 GMP items, 5 SPA items, 4 SPC items, and 5 MP items. Single-group CFAs were conducted to evaluate the factorial validity for the 5-factor model in each of the three samples. All model fit indices were satisfactory.

Table 2.2. Items Removed from Measurement Invariance Examination and Reasons for Their Removal

No.	Item	Reasons for removal
24	I try to do well on cause and effect activities like video games.	Low factor loading in the American sample and problematic cross-loadings in the Chinese and Hungarian samples.
25	I get very involved in pretend play with friends.	Low factor loading and problematic cross-loading in the Chinese sample.
27	I try hard to throw balls so I can do it well.	Problematic cross-loadings in both the Chinese and Hungarian samples.
31	I try to complete games like puzzles even if they are hard.	Low factor loading in the Hungarian sample and problematic cross-loadings in all three samples.
36	I repeat motor skills such as climbing and gymnastics, so I can do them well.	Problematic cross-loading in the American sample.
45	I try hard to get better at catching things.	Problematic cross-loading in the American sample.

Then, multiple-group CFAs were conducted to examine the measurement invariance of children's self-reported DMQ among (1) the U. S., Chinese, and Hungarian samples; (2) elementary, middle school, and high school children from the Chinese sample; and (3) elementary, middle school, and high school children from the Hungarian sample. Measurement invariance was not examined across different age groups in the U.S. sample because the sample size was too small and the age groups among the American participants were not as clear-cut as in the Chinese and Hungarian samples. Configural, metric, and scalar invariances were examined progressively, following the same steps as in the preschool measurement invariance study described above (Hwang et al., 2017). Measurement invariance was established in each of the analyses. These findings suggest that the abbreviated version of DMQ 17 with 24 items operated in a similar fashion among schoolchildren from the U.S., China, and Hungary, as well as among elementary, middle, and high school students in both China and Hungary. Therefore, these results provided evidence that it was reasonable to compare children's self-rated mastery motivation on corresponding persistence and affective aspects in these populations.

In turn, latent mean differences in the four persistence and one affective aspect of mastery motivation were compared across the analytical groups. Table 2.3 presents these between-group differences in the latent means. U.S. and Chinese children showed higher ratings on cognitive/object persistence than Hungarian children. Both social persistence with adults and with children did not differ between American and Chinese children or between American and Hungarian children. However, Hungarian children reported greater social persistence than Chinese children. As discovered in the above-noted preschool study (Hwang et al., 2017), Chinese children's gross motor persistence was significantly lower than that of American and Hungarian children, the two of which did not differ from each other. The levels of mastery pleasure were similar across the three cultural groups of children.

When Chinese and Hungarian children were compared across the three age groups of elementary, middle, and high school stages, the trend was largely the same, namely that younger children generally reported greater persistence than older children in all four instrumental aspects. However, Hungarian middle and high school students reported similar levels of persistence for both cognitive/object mastery activities and social activities with adults. For both Chinese and Hungarian children, social persistence with children was similar between elementary and middle school students. Persistence with motor activities was the highest among the youngest elementary school children and the lowest among the oldest high school children. Interestingly, while mastery pleasure was similar for Chinese children across the elementary, middle, and high school groups, Hungarian children's mastery pleasure was the greatest among the elementary students and the lowest among the high school students.

Table 2.3. Latent Mean Differences in DMQ Scales among Different Subsamples of Children

DMQ dimensions	Cross-national comparison	Cross-sectional comparison in Chinese children	Cross-sectional comparison in Hungarian children
Cognitive Persistence	US = CN > HU	Elem> Mid > High	Elem > Mid = High
Social Persistence with Adults	HU > CN (HU = US; US = CN)	Elem > Mid > High	Elem > Mid = High
Social Persistence with Children	HU > CN (HU = US; US = CN)	Elem = Mid > High	Elem = Mid > High
Gross Motor Persistence	US = HU > CN	Elem > Mid > High	Elem > Mid > High
Mastery Pleasure	US = CN = HU	Elem = Mid = High	Elem > High > Mid

Note. CN = Chinese children; Elem: elementary school students; High = high school students; HU = Hungarian children; Mid = middle school students; US = United States.

General Discussion of the Measurement Properties of DMQ 17

Confirmatory Factor Analysis is an essential step in measurement development, through which the structure of the measure is tested against a prior theoretical conceptualization of the construct. DMQ was developed to measure different dimensions of mastery motivation and has been used widely among different groups of participants. The two studies described above both tested a 5-factor model across three different cultures, with the Hwang et al. (2017) study focusing on the parent ratings of the preschool version of DMQ 17 and the Wang et al. (2014) study focusing on the self-ratings of the school-aged version. Both studies excluded the negatively worded items, the negative reaction scale items, and the competence scale items, to focus on the four instrumental aspects and mastery pleasure. Both studies went through a series of diagnostic tests to drop problematic items and retain consistently good performing items. Findings from both studies lent support to the factorial validity of these five scales of DMQ, suggesting that the modified questionnaire appropriately represents the underlying factor structure of cognitive/object persistence, gross motor persistence, social persistence with adults, social persistence with children, and mastery pleasure. These findings helped inform the revision of DMQ by documenting "problematic" items that showed low factor loadings or inappropriate cross-loadings.

Measurement invariance is also a key quality that needs to be examined during measurement development to ensure that items and constructs are perceived in the same way and that relationships between the indicators and the underlying constructs are the same across different groups. Otherwise, between-group comparison using the same measure is not meaningful. In both the Hwang et al. (2017) and Wang et al. (2014) studies, measurement invariance was comprehensively examined across three different language-speaking groups (i.e., Chinese-speaking, English-speaking, and Hungarian-speaking samples). Measurement invariance across language groups was established for both the preschool and the school-aged versions of DMQ 17, supporting meaningful cross-cultural comparisons with the questionnaire. In addition, the Wang et al. (2014) study established measurement invariance across elementary, middle, and high school students in the large Chinese and Hungarian samples, respectively. These findings also gave researchers and practitioners confidence in using DMQ to compare mastery motivation across children of different age groups.

Implications for Comparisons Across Cultures and Age Groups

Between the Hwang et al. (2017) and Wang et al. (2014) studies, more cross-cultural differences were found with the school-aged population than with the preschool population. This observation may suggest more differentiated culturally sensitive motivational processes with development, differences between adult-report and child self-report, and/or differences between children in Taiwan versus China. Further research is needed to better understand these findings. However, it was consistently found, in parent ratings of preschoolers and in self-ratings of the school-aged children, that Chinese-speaking children showed significantly lower gross motor persistence than English- and Hungarian-speaking children. Such findings are consistent with other DMQ studies (e.g., Józsa et al., 2014) and research concerning children's physical development (Singer et al, 2009). Generally speaking, East Asian cultures like the Chinese culture do not emphasize or promote physical fitness and gross motor skills as much as many Western cultures. Hence Asian children might get fewer opportunities to practice and improve their persistence in mastering gross motor activities than their Western peers.

Age differences were also identified in the Chinese and Hungarian school-aged samples in the Wang et al. (2014) study on DMQ's multi-group measurement invariance. Consistent with other DMQ studies (e.g., Józsa et al., 2014) and motivational research in general (Eccles, 1999, 2005; Wigfield & Wagner, 2005), older children generally reported lower motivation than

younger children. However, such across-age differences also vary by mastery dimensions and cultural groups. For example, Chinese children's levels of mastery pleasure were relatively equivalent across age groups, but Hungarian children's mastery pleasure kept declining from younger to older age groups. Thus, both culture-specific and age-specific developmental experiences are relevant to children's mastery motivation.

Children's age and cultural background jointly impact the context in which children learn and develop. It is therefore crucial to consider these factors when establishing norms for the mastery motivation scores across child populations. With such normative data, professionals can be culturally and developmentally sensitive when tracking children's mastery motivation across development, better enabling such scores to inform appropriate strategies to promote positive development. To better serve these purposes of obtaining normative data and maintaining cultural and developmental sensitivity, **Chapter 3** elaborates on the norms derived for different groups of children using DMQ 18; whereas, **Chapter 6** discusses comparisons across cultures and age groups in more detail.

Revision of DMQ 17 and the Development of DMQ 18

Although a number of studies provided evidence for reliability and validity of DMQ 17 persistence and mastery pleasure scores and useful results in a number of studies, some feedback from researchers, practitioners, and questionnaire respondents indicated that the overall instructions, scale anchors, and certain items could benefit from recommended revisions to increase clarity. The measurement invariance studies also provided empirical evidence favoring deletion of some DMQ 17 items and revision of other items. Moreover, as mentioned, the negative reactions scale was not even included in the measurement invariance studies because it had been found to have lower than desirable reliability in several studies. Based on cumulative sources of information, the progressively growing and globalized DMQ research team decided to revise DMQ 17 and develop DMQ 18.

A major issue with DMQ 17 was that the reverse coded items clearly caused problems for 10 - 20% of the raters, who did not seem to rate them accurately. This accuracy problem was inferred based on the assumption that raters' scores on the negatively worded item in each scale should (after it was recoded) be similar to the average of the positively worded items. If the discrepancy was large, the rater must not have been reading carefully (perhaps reading too fast), have developed a response bias to use one end of the scale, or have been confused because of low reading ability. Józsa and Morgan (2017) reanalyzed a large sample of Hungarian DMQs to examine

the effect on the Cronbach alphas of DMQ 17 scales from filtering out respondents who seemed to misread the negatively worded items. As expected, the alphas increased. Thus, we decided to omit the negatively worded items from the last few DMQ 17 publications; i.e., Wang et al. (2014); Józsa et al. (2014), and also delete them from DMQ 18.

In addition, the negative reaction to failure scale frequently produced relatively low alphas and results that were difficult to interpret. Part of the problem seemed to be that the some of the items were related to frustration and anger while others were more related to sadness, shame, and avoidance. Because shame is not easily identified in infants, we did not include sadness or shame items in the infant version of DMQ 18. In DMQ 18 preschool and school-age versions, the scale is called Negative Reactions to Challenge with two subscales, labeled frustration/anger and sadness/shame. Unfortunately, although the reliability of the overall negative reactions scale has been usually acceptable (see **Chapter 4**), that of the shame/sadness subscale has still been problematic in DMQ 18 studies. Józsa and Barrett (2018) argued that some of DMQ 17 reversed persistence items might actually be measuring withdrawal when challenged, and thus, similar reversed items might help to improve future versions of the shame/sadness/withdrawal negative reactions to challenge subscale. Their study supported this conclusion (Józsa & Barrett, 2018).

In addition, validity findings for the DMQ 17 social mastery motivation scales, especially persistence with children, were less consistently satisfactory (see **Chapter 5**), and some items did not seem age appropriate, especially for school-age children. Even the preschool items seemed to focus more on persistence related to play than seemed desirable for a broad measure of social mastery motivation. Therefore, we developed several new items that were pilot tested in Taiwan and the US, which included trying to get others to understand them, finding out what others like and dislike, and trying to understand the feelings of others.

Finally, we wanted to be as certain as possible that there was not only linguistic equivalence of the revised items across cultures but that the items were age and culturally appropriate. As mentioned earlier, several of the new items had successfully been pilot tested in Taiwan and the US. All the new items were translated into Chinese and Hungarian, examined by the authors and checked with some parents and professionals to ensure that the words and phrases were clear and appropriate. Questions and concerns led to several changes, not only in the Chinese and Hungarian versions, but also in the English versions. Thus, the process was similar to back translation plus decentering. The Spanish DMQ 18 was professionally translated from the English DMQ 18 to be appropriate for Spanish speakers from Central America and the Western US. It was then independently back translated

into English by several bilingual Americans, and minor discrepancies were resolved.

Because the DMQ 17 elementary school and teen items were almost the same, for DMQ 18 we decided to merge those two age versions. Note that in DMQ 17 all the age versions had 45 items, and although some of the items varied somewhat by age version, each DMQ scale was the same across ages. This was less true in DMQ 18 where the infant version has 38 items, the preschool version has 39, and school-age version has 41. Also, the same item number occasionally relates to different scales in different age versions.

Table 2.4 summarizes how the DMQ 17 items changed or were similar in DMQ 18. The left-hand column lists the item numbers. The second column includes the abbreviation of the scale name in DMQ 17, followed with "- R" if the item was negatively worded and needed to be reverse-coded when scoring the DMQ. The third column shows the specific changes from DMQ 17 to DMQ 18, based on the above-mentioned empirical evidence from the use, translation, and psychometric investigations of DMQ 17. The three right-hand columns relate to the three age versions of DMQ 18: infant, preschool, and school-age. These columns show the DMQ 18 scale abbreviation. If the DMQ 18 item is different from the DMQ 17 item, that is shown by stating either that the item is new or that its location was moved.

For example:

Item 1 in DMQ 17 was a COP (Cognitive-Object Persistence) item that has similar DMQ 18 infant, preschool, and school-age items, so they are each shown as COP.

Item 3 in DMQ 17 was a negatively worded GMP (Gross Motor Persistence) item, so it was deleted. However, we moved item 40 in DMQ 17 to item 3 in each of the DMQ 18 age versions (see the last 3 columns). See also the DMQ 17 change column for item 40 near the bottom of Table 2.4).

Item 6 in DMQ 17 was a negatively worded Competence (COM-R) item that was revised to be positively worded and used as item 31 in DMQ 18 (see the three right-hand columns opposite item 31). In addition, on the line opposite item 6, are listed SPC (New) under each of the three DMQ 18 age versions; this means that DMQ 18 item 6 is a Social Persistence with Children (SPC) item that is new in DMQ 18.

Item 43 in DMQ 17 was a Mastery Pleasure item that was moved to item 11 in each of the three DMQ 18 age versions (see the last 3 columns opposite item 11). As there is no item 43 for DMQ 18, the last 3 columns are left blank opposite item 43.

Table 2.4. Changes from DMQ 17 to DMQ 18 Items

No.	DMQ 17 Scale	DMQ 17 Change	DMQ 18 Infant Version	DMQ 18 Preschool Version	DMQ 18 School-age Version
1	COP		COP	COP	COP
2	MP		MP	MP	MP
3	GMP-R	Deleted	GMP (was 40)	GMP (was 40)	GMP (was 40)
4	COM		COM	COM	COM
5	NR	Deleted	NRA (New)	NRS (New)	NRS (New)
6	COM-R	Revised to be positively worded	SPC (New)	SPC (New)	SPC (New)
7	COP	Deleted for infant & preschool, moved to 40 for school-aged DMQ 18	SPC (New)	SPC (New)	SPC (New)
8	SPA		SPA	SPA	SPA
9	COP-R	Deleted	NRA (was 44)	NRA (was 44)	NRA (was 44)
10	COM		COM	COM	COM
11	MP-R	Deleted	MP (was 43)	MP (was 43)	MP (was 43)
12	GMP		GMP	GMP	GMP
13	COM-R	Revised to be positively worded & moved to 27	NRA (was 38)	NRA (was 38)	NRA (was 38)
14	COP		COP	COP	COP
15	SPA		SPA	SPA	SPA
16	GMP	Deleted	NRA (was 42)	NRA (was 42)	NRA (was 42)
17	COP		COP	COP	COP
18	MP		MP	MP	MP
19	SPA		SPA	NRA (New)	SPA
20	COM		COM	COM	COM
21	MP		MP	MP	MP
22	SPA		SPA	SPA	SPA
23	COP		COP	COP	COP
24	COP	Deleted for pre-school & school aged versions	COP (New)	NRS (New)	NRS (New)
25	SPC	Deleted	SPC (New)	SPC (New)	SPC (New)
26	GMP		GMP	GMP	GMP
27	GMP	Deleted	COM (was 11-R)	COM (was 11-R)	COM (was 11-R)
28	SPC		SPC	SPC	SPC
29	COP		COP	COP	COP
30	SPC	Deleted	MP	MP	MP
31	COP	Deleted	COM (was 6-R)	COM (was 6-R)	COM (was 6-R)
32	SPC		SPC	SPC	SPC
33	SPA-R	Deleted	SPA (New)	SPA (New)	SPA (New)

No.	DMQ 17 Scale	DMQ 17 Change	DMQ 18 Infant Version	DMQ 18 Preschool Version	DMQ 18 School-age Version
34	NR	Revised	NRA (New)	NRS	NRS
35	SPC		SPC	SPC	SPC
36	GMP	Revised	GMP	GMP	GMP
37	SPA		SPA (New)	SPA (New)	SPA (New)
38	NR	Moved to NRA 13	GMP (was 45)	GMP (was 27)	GMP (was 27)
39	SPC-R	Deleted		NRS (New)	NRS (New)
40	GMP	Moved to GMP 3 in DMQ 18			COP (was 7)
41	MP	Moved to MP 30			NRA (New)
42	NR	Revised & moved to NRA 16			
43	MP	Moved to MP 11			
44	NR	Revised & moved to NRA 9			
45	GMP	Reversed & moved to 38			

Abbreviations: COM = Competence; COP = Object Oriented Persistence; GMP = Gross Motor Persistence; MP = Mastery pleasure; New = Newly developed item for DMQ 18; NR = Negative reaction scale in DMQ 17; NRA = Negative reaction anger/frustration; NRS = Negative Reaction sadness/shame; R = Is an item whose wording was deleted or changed from negative to positive wording in DMQ 18; SPA = Social persistence with adults; SPC = Social persistence with children.

In summary, Table 2.4 shows that 21 items are essentially the same between DMQ 17 and the three DMQ 18 versions; 13 DMQ 17 items were deleted; 7 were substantially revised; and 4 were moved. In addition, there are number of newly developed DMQ 18 items (piloted in the US and Taiwan, as mentioned above). The table also shows that we reorganized the items so that there are social persistence with children and negative reaction items scattered throughout the questionnaire (they were almost all near the end in DMQ 17). This is especially important because, with all the negatively worded items deleted, the current eight negative reaction (4 NRA and 4 NRS) items serve the purpose that negatively worded item are intended to serve in questionnaires; i.e., reducing response set by slowing down readers so they focus on reading the text of items. In the infant version of DMQ 18, there are five NRA items but no NRS items because it is difficult to observe shame in infants.

Conclusion

After it was finalized in 1997, DMQ 17 was carefully translated into Spanish, Hungarian, and Chinese. Its wide use in research with English-, Chinese-, and Hungarian-speaking children has advanced theoretical and empirical research on children's mastery motivation across different developmental periods and diverse child populations. Such wide application has also encouraged further refinement of the questionnaire to be more developmentally and culturally appropriate, as DMQ 18.

DMQ 18 is based on the revisions suggested in this chapter. It includes items with sound measurement properties that should enable a researcher to collect information about children's mastery motivation across respondents in different cultures for infants from 6 months to approximately 2 years, for children from 2 to 6 years with the preschool version, and from 6 to 19 years with the school-age version. With complex constructs such as mastery motivation, which has multiple dimensions, it is critical to ensure and improve its ecological and psychometric rigor, so as to capture both the comprehensiveness of the construct and allow reliable, valid, and meaningful assessments across ages and groups. The development of DMQ 18 and the accumulation of data and empirical evidence will help advance the associated theory and produce valuable scientific evidence for practice.

The next chapter describes DMQ 18 in more detail, provides tables describing the current DMQ 18 studies, and provides preliminary norms for typically developing preschool and school-age children.

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Chapter 3

Overview of DMQ 18, Current Research, and Preliminary Norms

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Introduction

As described in the previous chapter about development of the revised Dimensions of Mastery Questionnaire (DMQ 18), this current version of the questionnaire improved and expanded on the international focus of the Dimensions of Mastery Questionnaire (DMQ 17). This improvement was based in part on examination of the methodological invariance of the scales in DMQ 17. The development of the current version also used an approach sometimes called decentering, in which not only the Hungarian and Chinese versions of DMQ 18, but also the English version were modified somewhat based on the feedback from developmental experts and a few parents in each of the three countries (US, Taiwan and Hungary). Thus, this careful adaptation of DMQ 18 increased the content validity of DMQ 18 as a basis for translation into a number of other cultures and languages.

DMQ 18 has the same seven scales and uses the same Likert-type items rated 1-5 (from (1) not at all like this child to (5) exactly like this child), as did DMQ 17. DMQ 18 has three current official language versions: English,

Chinese, and Hungarian, as well as translations, for which we have results, into Central American Spanish, Bahasa Indonesian, Bangla (also known as Bengali), Hebrew, Persian (known in the US as Farsi), Turkish, Kiswahili (known in English as Swahili), Russian, Romanian, and Portuguese. The DMQ 18 forms for the three official languages and scoring instructions are presented in the appendix of this book. DMQ 18 forms for all of the above languages, plus French-Canadian, German, Spanish-Argentinian are available in an online appendix.

DMQ 18 Versions, Scales and Items

In each of the three official languages, there are four parallel age-related versions of DMQ 18 (infant, preschool, school-age by adult-rating, and school-age by self-rating). See Table 3.1.

The **infant** version (38 items) is rated by an adult for children of developmental ages approximately 6-23 months. The **preschool** version (39 items) is rated by an adult for children of developmental ages approximately 2-6 years, but some children as young as 18 months have been rated using the preschool version. The **school-age by adult-rating** version (41 items) is for students from 1st grade (usually 6 or 7 years old) through high school rated by an adult (parent and/or teacher). The **school-age by self-rating** version has the same 41 items rephrased to enable students from approximately 3rd grade through high school to rate themselves. Because studies using DMQ 17 and related concepts have indicated that it is difficult to get reliable and valid self-reports from children 8 years old and younger, we don't recommend self-rated DMQs by first and second grade students. However, some researchers have read the items to first and second graders and/or used visual aids such as smiley to frowning "faces" to help younger children understand what they are asked to rate.

As shown in Table 3.1, DMQ 18 has seven scales for all three age groups. The DMQ 18 age-related versions have a number of items that are the same across each of the three age versions and most of the rest of the items are similar across the three age versions, as shown in Table 2.4 of **Chapter 2**.

Table 3.1. The Four Age-Related Versions of the DMQ 18

DMQ 18 versions	Approximate age range	Number of items	Number of scales
Infant version	6 - 23 months	38	7
Preschool version	2 - 6 years	39	7
School-age by adult-rating version	6 - 18 years	41	7
School-age by self-rating version	9 - 18 years	41	7

Table 3.2 lists the DMQ 18 scales and item numbers of three age versions. These are a Competence scale and six mastery motivation scales: 1) Cognitive/Object Persistence, 2) Gross Motor Persistence, 3) Social Persistence with Adults, 4) Social Persistence with Children, 5) Mastery Pleasure, and 6) Negative Reactions to Challenge in mastery situations. The Negative Reactions scale was intended to have two subscales: Frustration/Anger and Sadness/Shame, but especially the Negative Reactions Sadness/Shame subscale frequently had inadequate internal consistency reliability and both subscales were hard to interpret. Therefore, the Negative Reactions to Challenge scale is not subdivided into the two subscales in most of the tables and analysis presented in this book, nor is it shown in Appendix B on how to score DMQ 18. It is possible that any future version of the DMQ will include an expanded and more differentiated Negative Reactions to Challenge scale.

Table 3.2. DMQ 18 Scales and Numbers of Items on Each of the Three Versions

Scale name	Number of items		
	Infant	Preschool	School-age
Instrumental scales			
1. Cognitive/Object Persistence	6	5	6
2. Gross Motor Persistence	5	5	5
3. Social Persistence with Adults	6	5	6
4. Social Persistence with Children	6	6	6
Expressive scales			
5. Mastery Pleasure	5	5	5
6. Negative Reactions to Challenge	5	8	8
Competence scale			
7. General Competence	5	5	5

Table 3.2 also shows that the seven scales in each of the three age-related versions include four scales for the **instrumental** or persistence aspects of mastery motivation, two scales for the **expressive** or affective aspects of mastery motivation, and one scale to assess competence or the *ability* to master in contrast to the *motivation* to master tasks. The Competence scale

is not considered to be a measure of mastery motivation, so one should never compute an overall DMQ score based on the average or sum of all seven scales. A total persistence score, based on the average of the four persistence scales, is appropriate.

Table 3.3 shows that 11 of the DMQ 18 items are the same across all three age versions and four were the same only for the preschool and school-age versions because there were no Negative Reactions Sadness/Shame (NRS) items for the infant version. Negative Reaction Anger/Frustration (NRA) and NRS, were combined to form the Negative Reactions to Challenge (NRC) scale in the preschool and school-age versions.

Table 3.3. Items That Are the Same Among Different Age Versions of DMQ 18

Item No.	Scale	Item
Items the same across all three age versions		
6	SPC	Tries (hard) to make other kids feel better…
7	SPC	Tries to do (or say) things that keep other kids interested
9	NRA	Frustrated when not able to complete a challenging task
12	GMP	Tries to do well in physical activities even when they are challenging (or difficult)
18	MP	Gets excited when figures something out
20	COM	Does things that are difficult for his/her age
22	SPA	Tries (hard) to get adults to understand him/her
23	COP	Works for a long time trying to do something challenging
25	SPC	Tries (hard) to understand other children
27	COM	Does most things better than others his/her age
41 S, 19 P, 34 I	NRA	Gets angry if cannot do something after trying (hard)
Items the same in the preschool and school-age versions		
5	NRS	Sad or ashamed when he or she doesn't accomplish a goal
24	NRS	Won't look people in the eye when cannot do something
34	NRS	Looks away when tries but cannot do something
39	NRS	Withdraws after trying but not succeeding

Note. COP = Cognitive/Object Persistence; COM = General Competence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NRA = Negative Reactions Anger/Frustration; NRS = Negative Reactions Sadness/Shame; I = Infant; P = Preschool; S = School age; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

Tables 3.4 shows that almost all the remaining items were similar across the three age group versions of DMQ 18 except for Item 19 of the infant and school-age versions and Item 40 of the school-age version.

Table 3.4. Items That Are Similar Across the Infant, Preschool, and School-Age Version of DMQ 18

Item No.	Scale	Infant	Preschool	School-age
1	COP	Repeats a new skill until can do it	Repeats a new skill until can do it	Works on a new problem until can do it
2	MP	Smiles broadly after finishing something	Smiles broadly after finishing something	Is pleased with self when finishes something challenging
3	GMP	…physical activities	…motor activities	…athletic games
4	COM	Learns things quickly compared to…	Solves problems quickly compared to…	Solves problems quickly compared to…
8	SPA	"Talks" to keep adults interested	Talks to keep adults interested	Often discusses with adults…
10	COM	Is developing faster…	Very good at most things	Very good at most things
11	MP	Claps when successful	Shows excitement	Gets excited
13	NRC	Frustrated when not successful immediately	Frustrated when does not do well at something	Frustrated when does not do well at something
14	COP	Tries even if takes long	Complete tasks…	Completes school work…
15	SPA	Interests adults in playing	Interests adults in playing	Interests adults in activities
16	NRC	Screams/yell after failing	Protests after failing	Protests after failing
17	COP	Explores all parts of a toy or object	Tries to complete puzzle even if hard	Tries to figure…all steps needed to solve a problem
21	MP	Smiles or gets excited when playing with a toy	Pleased when solves challenging problem	Pleased when solves hard problem
26	GMP	Repeats skills related to moving until…	Repeats skills like jumping/running until…	Repeats sports skills until…
28	SPC	Connect with familiar children	Make friends	Make friends
29	COP	Work for a long time…get something open	Work for a long time…put something together	Will work for a long time…solve a problem for school
30	MP	Smiles when makes something happen	Smiles when makes something happen	Smiles when succeeds at something tried hard to do
31	COM	Understands things better than…his/her age	Understand things well	Understand things well
32	SPC	Get included when…playing	Get included when…playing	Get included when…doing something
33	SPA	Tries to finds out what adults like…	Tries to figure out what adults like…	Tries to finds out what adults like …
35	SPC	Tries to start play	Keep play going…	Keep things going
36	GMP	Repeats motor skills	Tries to get better at physical activities	Tries hard to get better at sports
37	SPA	Tries hard to understand my feelings	Tries hard to understand my feelings and other adults	Tries hard to understand the feelings of adults
38	GMP	Tries to retrieve objects	Tries to improve throwing/kicking	Tries to improve ball game skills

Note. Item 40 on the school-age version does not have a similar infant or preschool item. Item 19 of infant and school versions are different. COP = Cognitive/Object Persistence; COM = General Competence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NRC = Negative Reactions to Challenge; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

Current DMQ 18 Studies

There are a number of researchers in the US, Hungary, Taiwan, Australia, Indonesia, Iran, Turkey, Kenya, Republic of Moldova (which included Russian and Romanian speakers), and Bangladesh who have collected DMQ 18 data and written or presented about it. Several of these studies are not yet published.

Tables 3.5-3.10 expand information about almost all of these studies; the tables are divided by the country from which DMQ 18 data was collected. Each table shows the DMQ age version used, the type of raters, the characteristics or developmental status and age of the children whose mastery motivation was assessed, the number of children in each group, and a reference for the source of the data.

Table 3.5 provides information about the characteristics of the US samples, which includes data by Blasco and colleagues based on DMQ 18 parent ratings of American infants and toddlers who were born low birth weight and preterm or full term. In addition, Saxton et al. (2020) reported parent ratings comparing infants and toddlers born preterm and very low birth weight (VLBW) or preterm and moderately low birth weight (LBW) on DMQ 18. Ramakrishnan (2015) studied preschoolers in a homeless shelter rated by their mothers. Wang and Lewis (2019) reported data from parents of typical preschool children.

Table 3.5. Characteristics of the DMQ 18 Samples in the US

DMQ 18 version / Rater	Characteristics and age in months (m) or years (y) (M±SD)	n	References
Infant version and preschool version Raters: parents	FT: 5.8±0.06m LBW: M = 7.1m (5.7 to 8.9m)	FT: n = 13 LBW: n = 15	Blasco et al. (2018)
Infant version Raters: parents	FT: M = 6m LBW: M = 7.9m VLBW: M = 8.5m	FT: n = 41 LBW: n = 35 VLBW: n = 64	Blasco et al. (2020)
Infant version and preschool version Raters: parents or caregivers	PT: 0.66±0.05y FT: 0.58±0.06y	N = 121 PT: n = 56 FT: n = 29	Blasco & Guy (2016) published in Morgan et al. (2017)
Infant version and preschool version Raters: parents	Infants and toddlers with LBW or VLBW 14m ±8.23m Infant: M = 10m Toddler: M = 26.7m	Infant: n = 178 Toddler: n = 55	Saxton et al. (2020)
Preschool version Raters: mothers	Homeless shelter with their mothers:3.86±0.75y (3 to 5y)	n = 36	Ramakrishnan (2015) published in Morgan et al. (2017)
Preschool version Raters: caregivers	TD: 46.90± 6.50m (36 to 60m)	n = 57	Wang & Lewis (2019)

Note. FT = full-term; LBW = low birth weight; PT = preterm; TD = children developing typically; VLBW = low birth weight.

Table 3.6 includes studies from Hungary. Józsa and Morgan (2015) used preschool teachers' ratings; Morgan et al. (2017) used data provided by Józsa & Nyitrai (2016) on young Hungarian preschoolers rated by a parent. Józsa and colleagues collected data from children's self-reports and parent ratings on 4th grade school-age students in Hungary.

Table 3.6. Characteristics of the DMQ 18 Samples in Hungary

DMQ 18 version / Respondents	Characteristics and age in months (m) or years (y) (M±SD)	n	References
Preschool version **Raters: teachers**	TD 3y group: 42.3±2.7m 4y group: 53.4±3.7m 5y group: 65.7± 3.6m 6y group: 77.3 ±2.99m	n = 211 3y: n = 58 4y: n = 53 5y: n = 48 6y: n = 52	Józsa & Morgan (2015)
Preschool version **Raters: parents**	TD Children 3.50±0.47y Toddlers with parent HE 2.24± 0.46y Toddlers with parent LE 2.29±0.45y	n = 172 HE: n = 127 LE: n = 45	Józsa & Nyitrai (2016) published in Morgan et al. (2017)
School-age self-rating and adult-rating versions **Raters: students and parents**	TD: 4th grade (10-11y)	n = 140	Józsa (2019)

Note. HE = high education; LE = low education; TD = children typically developing.

Table 3.7 includes studies from Taiwan. Several articles by Wang and colleagues reported DMQ 18 results for 2-4 year-old children in Taiwan with global developmental delay; Huang and colleagues provided data on a number of studies from parents of preschool children with and without delays and also from teacher and child-self ratings of typically developing 5th to 10th grade school-age children in Taiwan.

Table 3.7. Characteristics of the DMQ 18 Samples in Taiwan

DMQ 18 version / Respondents	Characteristics and age in months (m) or years (y) (M±SD)	n	References
Preschool version Raters: mothers	DD: 32.50±5.1m (24 to 43m)	n = 62	Wang et al. (2016)
Preschool version Raters: caregivers	DD and TD: 18 to 53m	n = 85 DD: n = 40 TD: n = 45	Huang et al. (2016a) partially published in Morgan et al. (2017)
Preschool version Raters: parents	DD: M = 32.78m TD: M = 36.12m	n = 74 DD: n = 49 TD: n = 25	Huang et al. (2016b) partially published in Morgan et al. (2017)
Preschool version Rater: mothers	DD: 33.90±9.77m (18 to 48m)	n = 50	Chang et al. (2017) partially published in Morgan et al. (2017)
Preschool version Rater: mothers	TD: M = 2.89y (1.75 to 3.83y)	n = 66	Huang et al. (2018) partially published in Morgan et al. (2017)
Preschool version Rater: parents	TD: 52.45±13.81m (24 to 79m)	n = 120	Huang & Lo (2019) partially published in Morgan et al. (2017)
Preschool version Raters: mothers	Children with SELD and TD: 2.91±0.55y (1.5 to 4y)	n = 75 SELD: n = 40 TD: n = 35	Huang et al. (2019)
Preschool version Raters: parents	Toddlers with ELD: 31.75±6.11m (19 to 42m)	n = 56	Chang et al. (2020)
Preschool version Raters: parents	DD: 56.57±11.98m (31 to 80m)	n = 110	Huang & Chen (2020)
School-age by self-rating and by adult-rating versions Raters: students and/or teachers	TD: 5th to 8th grade (10 to 13y)	Students: n = 255 Teacher: n = 66	Huang & Peng (2015)
School-age by self-rating version Raters: students	TD: 5th to 6th grade (10 to 11y)	n = 192	Huang (2019)
School-age by self-rating version Raters: students	TD:10th grade (16y)	n = 235	Huang & Peng (2020)

Note. DD = developmental delay; ELD = expressive language delay; MD = mental delay; SELD = suspected expressive language delay; TD = children typically developing.

Table 3.8 provides information about studies in Iran. Salavati et al. (2018a, b) published papers on DMQ 18 parent ratings of 10-11 year-old children with cerebral palsy and also typically developing children of the same ages. Gharib et al. (2021) reported DMQ 18 data from Iranian parents and also self-reports by their 10-11 year-old children who were developing typically.

Table 3.8. Characteristics of the DMQ 18 Samples in Iran

DMQ 18 version / Respondents	Characteristics and age in months (m) (M±SD)	n	References
School-age by adult-rating version Raters: parents	CP: 127.1±24.6m TD: 128.1±15.9m	n = 441 CP: n = 229 TD: n = 212	Salavati et al. (2018a)
School-age by adult-rating version Raters: parents	CP:126.99±24.59m	n = 230	Salavati et al. (2018b)
School-age by self-rating and by adult-rating versions Raters: parents and children	TD:127.25±16.03m	n = 114	Gharib et al. (2021)

Note. CP = cerebral palsy; TD = children typically developing.

Table 3.9 shows information about eight publications by Özbey and colleagues, three in English. These studies provided teacher ratings of Turkish preschool children's mastery motivation.

Table 3.9. Characteristics of the DMQ 18 Samples in Turkey

DMQ 18 version / Respondents	Characteristics and age in months (m)	n	References
Preschool version Rater: teachers	TD: 36 to 72m	n = 207	Özbey & Dağlıoğlu (2017)
Preschool version Rater: teachers	TD: 48 to 72m	n = 219	Özbey (2018a)
Preschool version Rater: teachers	TD: 48 to 72m	n = 270	Özbey (2018b)
Preschool version Rater: teachers	TD: 60 to 72m	n = 300	Türkmen & Özbey (2018)
Preschool version Rater: teachers	TD: 48 to 60 m	n = 16	Özbey & Köyceğiz (2019)
Preschool version Rater: teachers	TD: 48 to 72m	n = 304	Özbey & Aktemur Gürler (2019)
Preschool version Raters: teachers	TD: 48 to 72m	n = 387	Köyceğiz & Özbey (2019)
Preschool version Rater: teachers	TD: 48 to 72m	n = 331	Gözübüyük & Özbey (2019)

Note. TD = children typically developing.

Table 3.10 provides information about DMQ 18 studies by researchers in five other countries using six languages. Rahmawati et al. (2020) have written a manuscript supporting the reliability and validity of DMQ 18 for preschool children in Indonesia. Shaoli et al. (2019) published a paper on the Bangla preschool DMQ 18. The Hines (2018) dissertation study included DMQ 18 data on children aged 8-16 years with cerebral palsy in Australia.

Calchei et al. (2020) have collected DMQ data about Moldovan school-age children who speak Russian or Romanian. Amukune et al. (2020) collected data in Kenya about preschool children.

Table 3.10. Characteristics of the DMQ 18 Samples from Other Countries

DMQ 18 version / Respondents	Characteristics and age in years (y)	n	References
Indonesia **Preschool version** **Rater: mothers**	TD: 5 to 7y	n = 417	Rahmawati et al. (2020)
Bangladesh **Preschool version** **Raters: parents and teachers**	TD:3 to 6y	n = 206	Shaoli et al. (2019)
Australia **School-age by adult-rating version** **Raters: mothers**	CP: 8 to 16y	n = 20	Hines (2018)
Republic of Moldova **School-age by self-rating and adult-rating version** **Raters: students and teachers**	TD: 5th grade (11y) Romanian speaking Russian speaking	Romanian-speaking: n = 150 Russian-speaking: n = 167	Calchei et al. (2020)
Kenya **Preschool version** **Raters: parents or teachers**	TD:5-12y (Majority 5-6y, 86% were 5-8y)	parents: n = 50 teachers: n = 397	Amukune et al. (2020)

Note. CP = cerebral palsy; TD = children typically developing.

Preliminary Norms for DMQ 18 from Children Developing Typically

Tables 3.11-3.16 show the means and standard deviations (SD) from various language samples used to develop preliminary age-group norms for the preschool and school-age versions of DMQ 18. These tables are based on several studies from Taiwan, Hungary, the US, Kenya, Bangladesh, Iran, Turkey, Indonesia, and Moldova (which included Russian and Romanian speakers). There are separate tables for parent ratings and teacher ratings of preschool children. There are also separate tables for self-ratings, parent ratings, and teacher ratings of the younger (10-12 years) school-aged children. The table for the older (7th-10th grade) school-age children is all child-self ratings from Taiwan.

The first column in each table shows the DMQ scales; the middle two to five columns show sample mean and SD ratings separately by country or language in the case of Russian and Romanian (in Moldova). For each table, there is a final column that is M (SD) of a preliminary norm for that table based on the ratings from each of the samples in that table. To combine means of different samples, the average mean of all samples is used.

The samples shown in Table 3.11 through Table 3.16 are those currently available for typically developing children assessed with DMQ 18. Although they are not based on typical test-standardization samples, we think that they provide useful information, perhaps especially for clinicians as discussed in **Chapter 7** and **Chapter 8**. The samples were, except in Turkey and Hungary, not drawn randomly and these are not a random selection of countries from around the world. Furthermore, the samples from each country are not equal in size. For example, there is a much smaller sample from the US in Table 3.11 than from Taiwan, Hungary, and Indonesia. In fact, there are no other US samples in these tables. Although these are not fully representative, they do represent a large number of children from a wide variety of countries.

Note that the norms for means weight each country equally. When we computed the mean weighting each child equally, there was little difference in the resulting preliminary norm. As more DMQ 18 data comes available, we hope to update these norms and make them available in the online appendix to this book.

Preschool Norms for Children Developing Typically

The preliminary norms for DMQ 18 preschool version rated by parents (n = 771) and separately by teachers (n = 2406) are shown in Table 3.11 and Table 3.12.

Table 3.11. Norms for DMQ 18 Preschool Version Rated by Parents of Children Developing Typically

	Taiwan[a] (n = 145)	Hungary[b] (n = 152)	US[c] (n = 57)	Indonesia[d] (n = 417)	Preliminary norm[e] (n = 771)
DMQ Scales	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Instrumental scales					
COP	3.44 (0.74)	3.50 (0.88)	3.78 (0.64)	3.01 (0.92)	3.43 (0.80)
GMP	3.77 (0.69)	4.17 (0.81)	4.15 (0.53)	3.11 (1.03)	3.80 (0.77)
SPA	3.79 (0.66)	3.92 (0.75)	4.20 (0.49)	3.00 (1.05)	3.73 (0.74)
SPC	3.57 (0.70)	3.59 (0.81)	3.93 (0.72)	2.87 (0.99)	3.49 (0.81)
Expressive scales					
MP	4.56 (0.45)	4.43 (0.62)	4.64 (0.44)	3.11 (0.92)	4.19 (0.61)
NRC	3.43 (0.66)	3.06 (0.81)	3.06 (0.70)	-	3.18 (0.72)
COM	3.59 (0.63)	4.07 (0.61)	3.91 (0.52)	-	3.86 (0.59)

Note. Sources from [a]Huang & Lo (2019); [b]Morgan et al. (2017); [c]Wang & Lewis (2019); [d]Ramawati et al. (2020); [e]For the norm mean (M), each country was weighted equally (M = (T + H+ U+ I)/4), and a usual weighted formula was used for the norm of the standard deviation. COP = Cognitive/Object Persistence; COM = General Competence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NRC = Negative Reactions to Challenge; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

Table 3.12. Norms for DMQ 18 Preschool Version Rated by Teachers of Children Developing Typically

DMQ Scales	Hungary[a] (n = 211)	Kenya[b] (n = 397)	Bangladesh[c] (n = 206)	Turkey[d] (n = 1592)	Preliminary norm[e] (n = 2406)
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Instrumental scales					
COP	3.58 (0.81)	4.05 (0.70)	4.12 (0.74)	3.76 (0.92)	3.88 (0.79)
GMP	3.81 (0.95)	3.80 (0.75)	3.52 (0.96)	3.97 (0.84)	3.78 (0.88)
SPA	3.52 (0.91)	3.66 (0.71)	3.71 (0.72)	3.57 (0.94)	3.62 (0.82)
SPC	3.74 (0.70)	3.98 (0.65)	3.98 (0.76)	3.67 (0.84)	3.84 (0.74)
Expressive scales					
MP	4.10 (0.64)	4.32 (0.73)	4.28 (0.48)	4.24 (0.74)	4.24 (0.65)
NRC	3.05 (0.63)	3.50 (1.00)	3.41 (0.64)	3.54 (0.76)	3.38 (0.76)
COM	3.68 (0.89)	-	3.49 (0.65)	3.74 (0.96)	3.64 (0.83)

Note. Sources from [a]Józsa & Morgan (2015); [b]Amukune et al. (2020); [c]Shaoli et al. (2019); [d]Özbey (2018a,b), Türkmen & Özbey (2018), Özbey & Aktemur Gürler (2019), Gözübüyük & Özbey (2019), Köyceğiz & Özbey (2019); [e]Each country was weighted equally for the norm mean (M); we used the usual formula for standard deviation (SD). COP = Cognitive/Object Persistence; COM = General Competence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NRC = Negative Reactions to Challenge; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

School-Age Norms for Children Developing Typically

Table 3.13 presents the preliminary norms for the DMQ 18 school-age version rated by 10-12 year-old students themselves in four countries (in five languages; n = 937), and Table 3.16 presents the preliminary norms for 7th to 10th grade students in Taiwan (n = 722). Table 3.14 shows the preliminary norms of the DMQ 18 school-age version rated by parents of 10-12 year-old students (n = 254) and Table 3.15 is the norms rated by teachers (n = 308) in two countries.

Table 3.13. Norms for DMQ 18 School-Age Version for Self-Ratings of 10-12 Year-Old Children Developing Typically

DMQ Scales	Hungary[a] (n = 140)	Taiwan[b] (n = 366)	Iran[c] (n =114)	Russian[d] (n = 167)	Romanian[d] (n = 150)	Preliminay norm[e] (n = 937)
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Instrumental scales						
COP	3.70 (0.81)	3.68 (0.81)	3.70 (0.88)	3.56 (0.89)	3.84 (0.74)	3.70 (0.83)
GMP	4.19 (0.86)	3.76 (0.87)	4.20 (0.87)	3.77 (1.16)	3.84 (1.02)	3.95 (0.96)
SPA	3.59 (0.91)	3.56 (0.76)	4.03 (0.79)	3.82 (0.96)	3.68 (0.87)	3.74 (0.86)
SPC	4.15 (0.58)	3.31 (0.77)	3.84 (0.86)	3.86 (0.92)	3.68 (0.82)	3.77 (0.79)
Expressive scales						
MP	4.25 (0.91)	4.10 (0.87)	4.58(1.19)	4.37 (0.79)	4.50 (0.55)	4.36 (0.86)
NRC	2.65 (0.96)	3.36 (0.76)	3.64 (0.90)	3.22 (0.89)	3.29 (0.79)	3.23 (0.86)
COM	3.68 (0.80)	3.23 (0.75)	3.89 (0.81)	3.48 (0.77)	3.70 (0.76)	3.60 (0.78)

Note. The Russian and Romanian-speaking children were from the Republic of Moldova. Sources from [a]Józsa (2019); [b]Huang (2019); [c]Gharib et al. (2021); [d]Calchei et al. (2020); [e]Each country was weighted equally for the norm mean (M); we used the usual formula for standard deviation (SD). COP = Cognitive/Object Persistence; COM = General Competence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NRC = Negative Reactions to Challenge; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

Table 3.14. Norms for DMQ 18 School-Age Version Rated by Parents of 10-12 Year-Old Children Developing Typically

	Hungary[a] (n = 140)	Iran[b] (n =114)	Preliminary norm[c] (n = 254)
DMQ Scales	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Instrumental scales			
COP	3.47 (0.79)	3.82 (0.72)	3.65 (0.76)
GMP	4.20 (0.79)	4.19 (0.82)	4.20 (0.81)
SPA	3.93 (0.68)	3.70 (0.75)	3.82 (0.72)
SPC	3.99 (0.58)	3.78 (0.81)	3.89 (0.70)
Expressive scales			
MP	4.44 (0.44)	4.25 (0.91)	4.35 (0.68)
NRC	3.39 (0.75)	3.08 (1.14)	3.24 (0.95)
COM	3.69 (0.66)	3.68 (0.80)	3.69 (0.73)

Note. Sources from [a]Józsa (2019); [b]Gharib (2019); [c]Each country was weighted equally for the norm mean (M); we used the usual formula for standard deviation (SD). COP = Cognitive/Object Persistence; COM = General Competence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NRC = Negative Reactions to Challenge; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

Table 3.15. Norms for DMQ 18 School-Age Version of Rated by Teachers of 10-12 Year-Old Children Developing Typically

	Russian[a] (n = 69)	Romanian[a] (n = 88)	Hungary[b] (n = 151)	Preliminary norm[c] (n = 308)
DMQ Scales	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Instrumental scales				
COP	3.22 (0.87)	3.43 (1.03)	3.57 (1.04)	3.41 (0.98)
GMP	3.52 (0.87)	3.46 (1.03)	3.99 (0.85)	3.66 (0.92)
SPA	3.42 (0.93)	3.60 (0.62)	3.55 (0.81)	3.52 (0.79)
SPC	3.52 (0.91)	3.44 (0.74)	3.57 (0.68)	3.51 (0.78)
Expressive scales				
MP	3.99 (0.69)	4.06 (0.79)	4.17 (0.57)	4.07 (0.68)
NRC	3.13 (0.45)	3.46 (0.68)	2.96 (0.94)	3.18 (0.69)
COM	3.31 (0.91)	3.47 (0.93)	3.46 (1.01)	3.41 (0.95)

Note. The Russian and Romanian-speaking children were from the Republic of Moldova. Sources from [a]Calchei et al. (2020); [b]Józsa (2019); [c]Each country was weighted equally for the norm mean (M); we used the usual formula for standard deviation (SD). COP = Cognitive/Object Persistence; COM = General Competence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NRC = Negative Reactions to Challenge; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

Table 3.16. Norms for DMQ 18 School-Age Version for Self-Ratings of Grade 7th, 8th, and 10th Taiwanese Children

	Grade 7th (n = 162)	Grade 8th (n = 325)	Grade 10th (n = 235)	Preliminary norm[a] (n = 722)
DMQ Scales	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Instrumental scales				
COP	3.39 (0.78)	3.16 (0.78)	3.38 (0.69)	3.31 (0.75)
GMP	3.79 (0.86)	3.45 (0.99)	3.62 (0.89)	3.62 (0.91)
SPA	3.28 (0.84)	3.16 (0.86)	3.36 (0.79)	3.27 (0.83)
SPC	3.60 (0.82)	3.48 (0.87)	3.68 (0.73)	3.59 (0.81)
Expressive scales				
MP	3.99 (0.86)	3.70 (0.96)	4.14 (0.76)	3.94 (0.86)
NRC	3.09 (0.69)	2.99 (0.75)	3.36 (0.63)	3.15 (0.69)
COM	3.18 (0.79)	3.02 (0.79)	3.31 (0.72)	3.15 (0.77)

Note. Sources from Huang & Lo (2015; 2020); [a]Each country was weighted equally for the norm mean (M); we used the usual formula for standard deviation (SD). COP = Cognitive/Object Persistence; COM = General Competence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NRC = Negative Reactions to Challenge; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

Conclusion

This chapter described DMQ 18, including the four age-related versions and the seven scales. Tables showing items that are the same and similar across different age versions were presented next. Then we discussed studies that have been conducted with DMQ 18 in various countries and described the characteristics of the children in six tables. Finally, preliminary norms were computed for preschool children developing typically and also for school-age typically developing children. We proposed these norms based on the existing data from a large samples of preschool (n = 3,177) and school-age children (n = 2,221) from 9 countries,10 languages in 4 continents. The application of these norms in clinical or school services is described in **Chapter 7** and **Chapter 8**.

The next chapter, **Chapter 4**, summarizes the reliability data about the DMQ and includes subsections about different measures of reliability for DMQ 18.

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Chapter 4

Evidence for Reliability of the DMQ

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Introduction

This chapter provides data about evidence for the measurement reliability of DMQ 18, which builds on evidence from DMQ 17. There are several methods to assess measurement reliability: internal consistency, test-retest, interrater, and parallel forms. We end the chapter with an extended conclusion, which provides summary statements about evidence for the reliability of the DMQ. The next section will describe and define the several methods that provide evidence for the reliability of a questionnaire such as the DMQ.

Types of Evidence to Support Reliability

Reliability refers to the consistency of a measure within a scale, over time, or among raters. Reliability is essential for a measure to be valid because if a measure is inconsistent, it cannot be a good or valid measure of the construct to be assessed. Several types of evidence have been used in the litera-

ture provide support for the reliability of a measure. There are three common types of evidence for evaluating the reliability of a measure: internal consistency, test-retest reliability, and interrater reliability.

Internal Consistency Measures

The most common measure of internal consistency is coefficient alpha, popularized by Cronbach (1951) and referred to in this book as **Cronbach alpha**, which is based on the intercorrelations of the several ratings that are used to develop a summary measure or scale. In the DMQ, there are 6 motivation scales: Cognitive/Object Persistence, Gross Motor Persistence, Social Persistence with Adults, Social Persistence with Children, Mastery Pleasure, and Negative Reactions to Challenge (which was intended to have two subscales). Each scale has several items rated on Likert scales from 1-5. Cronbach alphas are almost always used to test the internal consistency of a set of Likert scale items that form a composite scale. If the items in a summary or composite scale are highly correlated, the Cronbach alpha will be positive and high, approaching 1.0. The Cronbach alpha coefficient depends heavily on the number of items in the scale, so that with two or only a few items, a high alpha may be difficult to obtain, unless the items are highly intercorrelated. With 10 or more items, alphas are almost always above .80, unless there are very low or negative correlations among some pairs of the items. If there are negative correlations among the items, one should be careful to make sure that the items are all coded in the same direction so that a high score on every item would mean the same thing (e.g., high Gross Motor Persistence or high Mastery Pleasure). If there are negatively worded items in the scale, they would need to be reverse coded so that a high rating would indicate the same thing on each item.

Cronbach alphas also can be used with true/false or right/wrong questions (dichotomous scores), but that is relatively uncommon. There are also other statistics to assess internal consistency reliability, such as split-half methods using the Spearman-Brown formula, that are more useful if the items are dichotomous.

Test-Retest Reliability

Test-retest reliability assesses consistency in the ratings of the same group of persons over a short period of time, from a week to a month or so. Both internal consistency and test-retest reliability can use a correlation coefficient or an intraclass correlation coefficient (ICC) to assess whether there is consistency in the ratings. When the period of time is a week or two, the correlation coefficient or ICC is often high, $r \geq .80$. With the ICC, one also gets a test of statistical significance, but this test only indicates whether the ICC coefficient is greater than 0, so usually not very important.

Interrater Reliability

This type of reliability measure is used when two or more different raters rate the same subject, such as a child rated with the DMQ by two teachers, to assess the extent to which the raters agree. Again, this could be done with a correlation coefficient or the ICC. The latter is especially useful when there are more than two raters. Again, the coefficient should be positive and high, ≥ .70.

With the DMQ, it is difficult to find situations where the interrater reliability is appropriate. If, as in a couple of the preschool studies, there are two teachers who see the kids at the same or somewhat overlapping times of day, there may be an appropriate measure of interrater reliability. However, often we have self-ratings by the child and a teacher rating, or a rating by the child and a parent rating of the same child. These ratings are in somewhat different contexts because the child is not in school the whole day and is not home with the parent the whole day. Thus, we would not expect the teacher, parent, and child ratings to be highly correlated. We have considered such ratings to be evidence of the construct validity of the measure, rather than a measure of test-retest reliability. (See **Chapter 6**)

Parallel Forms Reliability

Another type of test for reliability is called parallel forms reliability. With standardized tests, there is often more than one version or form of the instrument that presumably measures the same concept. There is only one version of DMQ 17 or 18 for each language so, we cannot test for parallel forms reliability with the same DMQ version in the same language. However, somewhat similar to parallel forms is the situation where persons rated both DMQ 17 and 18, or rated the English and a local language version of the form.

In this chapter, Cronbach alphas, ICCs, and correlation coefficients of .70 and above were judged to be acceptable; equal to or greater than .80 is good. Alphas .60-.69 were said to be minimally acceptable. Those below .60 are low and usually considered unacceptable. Negative coefficients indicate some type of error.

Empirical Evidence for Reliability in This Chapter

Evidence supporting the reliability of DMQ 18 is accumulating. Evidence about the reliability is also available from DMQ 17, which has the same scales and similar items. DMQ 17 evidence will be summarized first, as background for DMQ 18. In general, the current DMQ 18 data show similar reliabilities to the earlier version. We expect that other DMQ 18 data being collected in the future will provide further support for the reliability of DMQ 18. Following the summary of internal consistency reliability for DMQ 17,

we divided the discussion of internal consistency for DMQ 18 into preschool (with a couple of infant samples) in Table 4.2 and school age in Table 4.3.

Internal Consistency Reliability

Summary of Internal Consistency for DMQ 17

Although there were a number of individual studies that provided evidence for the internal consistency of DMQ 17 and earlier versions, summary chapters by Morgan et al. (2013) and by Józsa and Molnár (2013) provided alphas for pooled DMQ 17 samples.

Table 4.1 presents alpha reliability evidence for the 6 mastery motivation scales from large, mixed-age datasets separately pooled from several English language studies and from several Chinese language studies, after excluding the negatively worded item from each scale. The table indicates that the four DMQ 17 persistence or **instrumental scales** and the **Mastery Pleasure Scale** had acceptable to good internal consistency (alphas > .74) for both English and Chinese parent versions and also for the English version rated by teachers. Alphas for the child self-ratings were somewhat lower (.67 - .85) on these five scales. Alphas for the **Negative Reactions to Failure** scale for DMQ 17 also were lower than for the persistence scales. Namely, alphas for the Negative Reactions to Failure scale ranged from .60 - .82, median .65 (Morgan et al., 2013). These lower reliabilities for the Negative Reactions to Failure scale were one reason that DMQ 17 was revised to create DMQ 18. A second reason was that some of the social persistence items seemed to be less appropriate for school age children than for younger children, especially when rated by the children themselves.

Some of the English-speaking children in the Morgan et al. (2013) data were 5-7 years old, probably too young to understand fully these self-ratings of their motivation, even when the items were read to them and/or the tester used visual aids. These young school-aged children had the lowest alphas (.61 - .85, median .68). Gilmore and Boulton-Lewis (2009) in Australia also found lower alphas from self-ratings by their young school-age children. Seventeen out of 20 of their 8-year-olds had a variety of learning disabilities, which also may have led to difficulties in making such self-ratings.

Józsa and Molnár (2013) and Józsa et al. (2014) reported on several studies with large Hungarian samples of school-age children and found acceptable (.67-.84, median .76) Cronbach alphas for the four persistence scales and Mastery Pleasure for self-ratings by children. Alphas for teachers' and parents' ratings of the child were also acceptable and somewhat higher. Reliabilities of those Hungarian teacher ratings were somewhat higher than the alphas for parents. Józsa did not provide information about the Negative Reactions to Failure scale.

Table 4.1. DMQ 17 Cronbach Alphas for Composite English and Chinese Samples

DMQ scales	Parent ratings				Teacher	Child-self	
N=	TE 894	TC 769	AE 176	AC 101	TE 363	TE 199	TC 611
Instrumental/persistence scales							
Object Oriented Persistence	.85	.76	.86	.85	.91	.78	.75
Gross Motor Persistence	.89	.83	.90	.82	.91	.85	.85
Social Persistence with Adults	.78	.74	.79	.79	.85	.68	82
Social Persistence with Children	.83	.80	.89	.89	.88	.67	.76
Expressive/affective scales							
Mastery Pleasure	.86	.75	.91	.87	.88	.80	.79
Negative Reactions to Failure	.73	.64	.71	.65	.82	.63	.60

Note. AC = Atypical Chinese-speaking; AE = Atypical English-speaking; TC = Typical Chinese-speaking; TE = Typical English-speaking; adapted from Morgan, et al. (2013).

No significant *age* differences in the alpha reliabilities were found for either the teacher or the parent samples. However, reliability for student self-ratings was somewhat higher for older-age groups than younger-age groups. Development of reading comprehension undoubtedly influences the computed reliability of the questionnaire, and it could be the reason for the increase in self-rated reliability coefficients with age.

The summaries from Morgan et al. (2013) and from Józsa and Molnár (2013) provide evidence for the internal consistency of DMQ 17. Alphas for the four instrumental/ persistence scales combined (total persistence) were almost always greater than .80, even for child self-ratings of young children with disabilities. Alphas for teacher ratings were the highest and child self-ratings the lowest, especially for children under age 9. These DMQ 17 alphas across three languages and nationalities encouraged international use. Accordingly, DMQ 18 has been translated into several other languages.

Internal Consistency Reliability of the DMQ 18 Scales for Infants and Preschool Children

The studies shown in Table 4.2 provide Cronbach alpha reliabilities for 18 samples of young children using 9 different languages. The table shows samples that include infants as young as 6 months and preschool children from a variety of countries. (Note that in Kenya and some other countries, children are sometimes allowed to stay in preschool well past the age of 6 years.)

Table 4.2. Cronbach Alpha Internal Consistency Reliability of the Revised Dimensions of Mastery Motivation Questionnaire (DMQ 18) for Infants and Preschool Children Rated by Parents or Teachers

Age	Raters/ language	Child status/ Ns	Instrumental/persistence aspect				Expressive aspect	
			Cognitive/ object	Gross motor	Social w adults	Social w children	Mastery pleasure	Negative reaction
6-10 mo	Par/Eng and Span[a, b]	PT=56 FT=29	.76	.69	.82	.84	.74	.75
18-20 mo	Par/Eng and Span[c, i]	PT=79	.84	.83	.82	.84	.81	.82
18-20 mo	Par/Eng and Span[c, i]	FT=37	.86	.82	.75	.83	.78	.79
1-4½ yr	Par/Chin[a]	TD=45	.82	.71	.85	.67	.74	.79
1-4½ yr	Par/Chin[a]	DD=40	.83	.82	.81	.87	.90	.81
1-4 yr	Par/Hun[a]	TD=197	.84	.88	.78	.84	.82	.82
3-6 yr	Tea/Hun[d]	TD=211	.93	.96	.91	.90	.90	.79
2-3½ yr	Par/Chin[a]	DD=64	.84	.88	.86	.75	.88	.65
3-6 yr	Tea/Ban[e]	TD=206	.89	.94	.89	.88	.85	.83
3-6 yr	Tea/Tur[f]	TD=1592	.89	.88	.88	.85	.87	.80
3-6 yr	Par/Eng[g]	TD=57	.80	.67	.65	.84	.80	.83
5-7 yr	Par/Ind[h]	TD=417	.67	.71	.70	.69	.90	-
2-6 ½ yr	Par/Chin[j]	TD=145	.80	.80	.77	.79	.76	.78
19-42 mo	Par/Chin[k]	SD=56	.65	.85	.75	.83	.80	.76
31-80 mo	Par/Chin[l]	DD=110	.84	.79	.79	.87	.85	.81
5-8 yr	Tea/Kis[m]	TD=397	.83	.85	.89	.89	.91	.91
6-18 mo	Par/Port[n]	TD=20	.77	.75	.82	.91	.73	.87
2-6 yr	Par/Port[n]	TD=22	.81	.72	.80	.77	.69	.81

Note. Ban = Bangla; Chin = Chinese; DD = developmental delay; Eng = English; FT = full term; Hun = Hungarian; Ind = Indonesian; Kis = Kiswahili; Negative reaction = Negative Reactions to Challenge; Par = Parent; Port = Portuguese; PT = preterm; SD = Speech Delay; Social w adults = Social Persistence with Adults; Social w children = Social Persistence with Children; Span = Spanish; TD = typically developing; Tea = Teacher; Tur = Turkish.

[a]Morgan, et al. (2017); [b]Blasco, et al. (2020); [c]Saxton et al. (2020); [d]Józsa & Morgan (2015); [e]Shaoli et al. (2019); [f]Özbey (2020); [g]Wang & Lewis (2019); [h]Rahmawati, et al. (2020); [i]Blasco et al. (2019); [j] Huang & Lo (2019); [k]Chang, et al. (2020); [l]Huang & Chen (2020); [m]Amukune et al. (2020), a few of these preschool children in Kenya were as old at 12 years, but 52% were 5-6 and 86% were 5-8; [n]Brandão et al. (2020)

Alphas for the persistence scales were all at least minimally acceptable, with only 7 of 72 being minimally acceptable and most being very good, above .80. The minimally accepted alphas were distributed across the four specific persistence scales. Six of the 18 samples included young children at risk or with delay, but there seemed to be little difference in the alphas for children who were at risk or delayed and children developing typically. There also were no clear differences in alphas between the 9 languages. The Turkish, Bangladeshi, Hungarian, and Portuguese samples did not have any minimally acceptable alphas on the persistence scales, and the other language samples had only one or two such alphas. Studies that reported overall (total) persistence found very good alphas, probably because of the increased number of items.

Alphas for the expressive scales, Mastery Pleasure, and overall Negative Reactions to Challenge were acceptable, with only two minimally acceptable alphas (out of 35). All of the other alphas were above .70, and thus acceptable to very good.

Not shown are the alphas for the negative reactions subscales, which varied from unacceptable to good, with the Negative Reactions Sadness/Shame subscale having the lowest, sometimes unacceptable alphas. Thus, revision of the Negative Reactions Sadness/Shame subscale seems necessary before it is used as a separate subscale. Józsa and Barrett's 2018 study with DMQ 17 preschool Hungarian data suggests that some of the negatively worded persistence items, used in the DMQ 17 but not in the DMQ 18, may be useful in such a revision. See the discussion of the Józsa and Barrett study under Evidence for Convergent Validity for the DMQ 17 in **Chapter 5**.

In summary, Cronbach alphas for infants and preschool children indicate that there is acceptable to good internal consistency reliability. This is true for all 6 DMQ 18 scales, in 9 languages and for children with and without developmental disabilities.

Internal Consistency for the School-age DMQ 18

Table 4.3 shows 16 sets of ratings of 8-18 year-old children rated by a parent, teacher, and/or themselves. There were only 13 independent samples for two reasons: the Hungarian 10-11 year-old children were rated by parents, teachers, and the children themselves, the 10-12 year-old Persian-speaking children rated themselves and were rated by a parent. The raters were from five countries, but spoke six languages: Chinese, Hungarian, Persian, Russian, Romanian, or Portuguese. The Russian and Romanian children lived in Moldova. All of the Cognitive/Object Persistence and Gross Motor Persistence alphas were acceptable, but in two of the 32 scales, both in Iran, there was a marginally acceptable Cognitive/Object Persistence sample.

Alphas for the social persistence (mastery motivation) scales were somewhat weaker, with 9 of the 32 scales having marginally acceptable reliability

and 1 scale was unacceptable. Six of these 10 scales were for Persian-speaking raters. The other 20 alphas were acceptable to good.

For Mastery Pleasure, 10 of the 16 alphas had acceptable reliabilities, and the other 6 were marginally acceptable, including all three from the Persian-speaking raters.

For overall Negative Reactions to Challenge, 14 of the 16 had at least minimally acceptable alphas, but two self-rated samples of students from Taiwan had unacceptable alphas. Alphas for the Negative Reactions Sadness/Shame subscale were only minimally acceptable or not acceptable, again supporting the need for revisions.

Thus, it seems that ratings for school-age children had somewhat lower levels of reliability than for infants and preschool children. This seems especially true for self-ratings of these 10-14 year-old children and for most of the scales rated by the Persian-speaking parents and children. There were only two samples of children with disabilities, rated by their parents. Reliabilities for these samples seem similar to those for the other samples of this age group.

Not shown in Table 4.3 is a study of 8-16 children with cerebral palsy by Hines and Bundy (2018), which used only the cognitive persistence scale; they found excellent alphas for their parent ratings.

To summarize the alphas for DMQ 17 and 18, the alphas for the Cognitive/Object Persistence and Gross Motor Persistence scales were acceptable to good for almost all of the samples from the several languages at both preschool and school-age and for children with and without disabilities. All 6 motivation scales had acceptable to good reliability for most preschool DMQ 18 samples; however, reliability was sometimes minimally acceptable and occasionally unacceptable for school-aged samples. Note that the DMQ 18 data are mostly from smaller, single-study samples and from a wide variety of different countries and languages. Samples with exceptions to acceptable alphas usually involved samples of children with disabilities and/or from non- European languages. Further work is needed to understand better cultural and language differences that may underlie these somewhat lower reliabilities.

Table 4.3. Cronbach Alpha Internal Consistency Reliability of the Revised Dimensions of Mastery Motivation Questionnaire (DMQ 18) for 8-18 Year-old Children

Age (years)	Raters/ language	Child status/Ns	Instrumental/persistence aspect				Expressive aspect	
			Cognitive/ object	Gross motor	Social w adults	Social w children	Mastery pleasure	Negative reaction
10-11	Self/Chin[a]	TD=174	.72	.74	.66	.66	.75	.71
10-11	Self/Hun[b]	TD=140	.79	.84	.82	.65	.66	.82
10-11	Par/Hun[b]		.86	.89	.86	.71	.61	.76
10-11	Tea/Hun[b]		.96	.94	.91	.81	.76	.88
10-12	Par/Pers[c]	CP=230	.76	.74	.61	.62	.68	.72
10-12	Self/Pers[d]	TD=114	.69	.78	.67	.67	.68	.63
10-12	Par/Pers[d]		.61	.73	.59	.67	.62	.62
11-12	Self/Chin[a]	TD=192	.75	.76	.62	.73	.90	.72
11-14	Self/Chin[e]	TD=255	.75	.85	.81	.77	.83	.70
13-14	Tea/Chin[e]	TD=66	.94	.93	.90	.92	.90	.56
11-18	Self/Chin[f]	TD=239	.70	.87	.85	.78	.87	.59
16	Self/Chin[g]	TD=235	.79	.88	.83	.85	.88	.75
8-15	Par/Chin[h]	AD=64	.80	.86	.85	.77	.85	.79
11	Self/Russ[i]	TD=167	.82	.90	.85	.85	.83	.77
11	Self/Rom[i]	TD=150	.85	.91	.82	.80	.79	.79
8-18	Par/Port[j]	TD=29	.79	.94	.78	.83	.66	.82

Note. AD = ADHD; CP = cerebral palsy; Chin = Chinese; Hun = Hungarian; Negative reaction = Negative Reactions to Challenge; Par = Parent; Pers = Persian; Port = Portuguese; Rom = Romanian; Russ = Russian; Social w adults = Social Persistence with Adults; Social w children = Social Persistence with Children; Tea = Teacher; TD = typically developing.

[a] Huang (2019); [b] Józsa (2019); [c] Salavati et al. (2018); [d] Gharib et al. (2021); [e] Huang & Peng (2015); [f] Huang & Huang (2016); [g] Huang & Peng (2020); [h] Huang, et al. (2020); [i] Calchei et al. (2020); [j] Brandão et al. (2020)

Test-Retest Reliability

Summary of Test-Retest Reliability for DMQ 17

Józsa and Molnár (2013) reported test-retest reliabilities, with a week to a month between ratings, ranging from .61 to .94 for 98 Hungarian teachers, parents, and school-aged students on the four instrumental and two expressive scales. The median correlations for these scales were .83, .80, and .74 for teacher, parents, and students, respectively. These test-retest correlations were highest for Object Oriented Persistence and Gross Motor Persistence, somewhat lower for the social persistence scales and Mastery Pleasure, and lowest for Negative Reactions to Failure. Miller et al. (2014) found good test-

retest reliabilities in their Australian sample for parent ratings of children with cerebral palsy; ICCs were .70 - .91 for the seven DMQ 17 scales.

Test-Retest Reliability for DMQ 18

Table 4.4 provides test-retest reliabilities for 9 samples from 8 studies in 6 languages for 3-16 year-old children rated by themselves, a teacher, or a parent. Reliabilities of Hungarian preschool teachers' ratings and Bangladesh preschool teachers' ratings two weeks apart were acceptable to very good for all 6 DMQ 18 scales (Józsa & Morgan, 2015; Shaoli et al., 2019). Huang & Peng (2015) found acceptable but somewhat lower test-retest reliabilities from Taiwanese child self-ratings 1 month apart, except for the Negative Reactions to Challenge scale, which was unacceptable with a test-retest correlation of .54. Both Iranian typically developing schoolchildren and their parents and also parents of children with cerebral palsy had high (.70-.98) ICCs so good test-retest reliability for all scales given two weeks apart. These findings suggest that the lower alphas did not reflect general unreliability of the Persian version, but rather differences in how intercorrelated items from the same scale are. Hines and Bundy (2018) found acceptable (r =.71) 10-day test-retest reliability for parent ratings of (only) cognitive persistence for Australian children with cerebral palsy. Also, Ramakrishnan (2015) found acceptable test-retest reliability of r = .73 for homeless American parent ratings of these preschoolers' cognitive persistence.

Not shown in Table 4.4, the Competence scale test-retest reliabilities varied from .68 to .97 with a median of .85. Thus, there is good support for the test-retest reliability for the instrumental/persistence scales of DMQ 18 and acceptable to good test-retest reliability for all but one sample for the expressive/affective aspects of DMQ 18.

Stability Within a Developmental Stage for DMQ 18

At this time, we do not have much stability data for DMQ 18. Hines and Bundy (2018) found strong 3- and 6-month stability (.76 and .76) for Australian ratings by a parent of their school-age child with cerebral palsy on the DMQ 18 Cognitive/Object Persistence scale. They did not report stability measures for the other DMQ scales.

Huang & Chen (2020) found good 6-8 month stability for Taiwanese ratings by parents of their children with developmental delay who ranged in age from 3 to 6 years (n = 40). Correlation coefficient were .72, .80, .56, .74, .64, and .68 for the six mastery motivation scales.

Table 4.4. Test-Retest Reliability for DMQ 18 (ICC or Correlation Coefficients)

Age	Raters/ language	Child status /Ns	Instrumental/persistence aspect				Expressive aspect	
			Cognitive/ object	Gross motor	Social w adults	Social w children	Mastery pleasure	Negative reactions
3-6 yr	Teac/Hun[a]	TD=58	.87	.84	.89	.89	.82	.78
3-6 yr	Teac/Ban[b]	TD=50	.84	.88	.86	.88	.79	.89
5-8 yr	Teac/Kis[c]	TD=30	.80	.89	.82	.86	.94	.89
10-12 yr	Self/Pers[d]	TD=33	.91	.89	.93	.95	.94	.97
11-14 yr	Self/Chin[e]	TD=251	.71	.73	.70	.70	.69	.54
10-12 yr	Par/Pers[f]	CP=32	.91	.85	.96	.79	.84	.84
10-12 yr	Par/Pers[d]	TD=42	.85	.89	.79	.85	.72	.77
8-16 yr	Par/Eng[g]	CP=19	.71	N/A	N/A	N/A	N/A	N/A
3-6 yr	Par/Eng[h]	HL=36	.73	N/A	N/A	N/A	N/A	N/A

Note. Ban = Bangla; Chin = Chinese; CP = Cerebral palsy; DD = Developmental Delay; Eng = English; HL = Homeless; Hun = Hungarian; Kis = Kiswahili; NA = not available; Par = Parent; Pers = Persian; Teac = Teacher; TD = Typically Developing.

[a] Józsa & Morgan (2015); [b] Shaoli et al. (2019); [c] Amukune et al. (2020), a few of these pre-school children in Kenya were as old at 12 years, but 52% were 5-6 and 86% were 5-8; [d] Gharab et al. (2020); [e] Huang & Peng (2015); [f] Salavati et al. (2018); [g] Hines & Bundy (2018); [h] Ramakrishnan (2015).

Interrater Reliability

Summary of Interrater Reliability for DMQ 17

An analysis of Hungarian DMQ 17 data was carried out by examining the correlations between the ratings of pairs of teachers who rated the same children but in somewhat different contexts (Józsa & Molnár, 2013). One of the teacher raters was the homeroom teacher and the other was a teacher who taught the children in several courses. Correlations between the ratings of total mastery motivation by these teachers for children in grades 4 and 8 were moderate, indicating a relatively close correspondence between teacher ratings. However, in grade 10, much lower correlations were found. This may be because in grade 10, the teachers teach the children in only one subject (e.g. math or history) so they know the children in different contexts and less well than the teachers in grades 4 and 8.

Interrater Reliability for DMQ 18

Table 4.5 shows that interrater reliabilities for Hungarian preschool teachers were minimally adequate to very good using intraclass correlation coefficients (ICC) based on ratings of preschool children by each of the child's two teachers (Józsa & Morgan, 2015). Except for Gross Motor Persistence, there was acceptable to good interrater reliability on each of the persistence scales and Mastery Pleasure. However, the alpha for Negative Reactions to Challenge was only minimally acceptable and was inadequate for the two negative reactions subscales. The alpha was .87 for Competence. Apparently, the child's two preschool teachers see Gross Motor Persistence and Negative Reactions to Challenge differently, but have little trouble evaluating and agreeing on a child's ability or competence and their cognitive persistence relative and to other children.

In the Bangladesh sample, the correlations between Bangla-speaking teacher and parent ratings were high, indicating very good interrater reliability.

Table 4.5. Interrater Reliability for DMQ 18

Age	Raters/ language	Child status/ Ns	Instrumental/persistence aspect				Expressive aspect	
			Cognitive/ object	Gross motor	Social w adults	Social w children	Mastery pleasure	Negative reactions
3-6 yr	T, T/Hun[a]	TD=133	.85	.65	.78	.79	.78	.61
3-6 yr	T, P/Ban[b]	TD=30	.85	.86	.80	.83	.88	.85

Note. Ban = Bangla; Hun = Hungarian; P = Parent; T = Teachers; TD = Typically developing.

[a]*Józsa & Morgan (2015);* [b]*Shaoli et al. (2019)*

Parallel Forms Reliability

Summary of Parallel Forms Reliability for Earlier DMQ Versions

The DMQ-G items were modified, mostly in minor ways, to make the DMQ easier to answer. The equivalence of the DMQ-G general scale scores with the revised and expanded DMQ-E was tested by asking mothers of 35 children, 29- to 59-months old, to answer both versions about three weeks apart. Half answered the revised version first, and half answered it second. These correlations (general persistence, .85; overall mastery pleasure, .70; independent mastery attempts, .83; and general competence, .58) indicated that the scale scores of the two versions were quite highly related. For general persistence, the correlations indicated good alternate forms reliability. The overall correlation for mastery pleasure was acceptable but somewhat lower because we attempted to differentiate two related but somewhat distinct concepts: pleasure during the process of goal-directed behavior and

pleasure at causing something to happen. As expected, the correlation was somewhat lower for competence because several items had been changed to improve the psychometric properties of the scale and to try to differentiate competence more clearly from persistence.

Parallel Forms Reliability for DMQ 18

Józsa and Morgan (2015) asked the same teachers to rate using both DMQ 17 and DMQ 18. These were not really parallel forms because a number of items were deleted and others were changed from DMQ 17 to DMQ 18, as noted in **Chapter 2**. However, these two versions of the DMQ had the same scales and many of the same items, so the correlations in Table 4.6 are similar to parallel forms reliability coefficients. Note that the negative reactions items were changed dramatically, which accounts for the relatively low correlation.

Table 4.6. Correlations to Assess Parallel Forms Reliability of DMQ 18

Age	Raters/ language	Child status/ Ns	Instrumental/persistence aspect				Expressive aspect	
			Cognitive/ object	Gross motor	Social w adults	Social w children	Mastery pleasure	Negative reactions
3-6 yr	T17-T18/ Hun[a]	TD=30	.63	.60	.76	.65	.59	.38
3-6 yr	T/Eng – T/Ban[b]	TD=20	.87	.86	.74	.85	.78	.72
5-8 yr	T/Eng – T/Kis[c]	TD=20	.80	.57	.87	.82	.76	.73

Note. Ban = Bangladesh; Eng = English; Hun = Hungarian; Kis = Kiswahili; T = Teacher rating; TD= typical development.

[a]Józsa and Morgan (2015); [b]Shaoli et al. (2019); [c]Amukune et al. (2020), a few of these preschool children in Kenya were as old at 12 years, but 52% were 5-6 and 86% were 5-8.

Shaoli et al. (2019) examined the correlations between the same teachers' ratings of the English and the Bangla version of DMQ 18 (see Table 4.6). The correlations were quite high, ranging from .72-.87, providing both evidence that DMQ measures similar constructs in the two languages and that teacher ratings were reliable.

Similarly, Amukune et al. (2020) correlated the English and Kiswahili versions of the preschool DMQ 18 rated by the same Kenyan teachers. These ratings were again acceptable for all the scales, including Negative Reactions to Challenge, the scales except Gross Motor Persistance.

Conclusion

This chapter presented evidence for a number of ways of assessing evidence for the reliability of the DMQ 18 in 12 languages with 33 samples of infant,

preschool, and school-age children, both children developing typically and atypically. The bulk of the evidence is supportive of the reliability of the DMQ 18 data, as was the evidence for the reliability of DMQ 17. As discussed in **Chapter 2,** DMQ 18 was carefully developed by researchers in the US, Taiwan, and Hungary using statistical analyses of DMQ 17 data and the process of decentering in order to make the questionnaire more appropriate to translate and adapt to other cultures.

It is not possible to compare directly alphas for DMQ 17 and DMQ 18 because a number of items were deleted or revised and because the DMQ 18 reliability data come from nine new languages in addition to the three used to develop it. The DMQ 18 reliability data were based on smaller samples of a larger set of languages, often for the first study using that language version of the DMQ. Nevertheless, reliability measures for DMQ 17 and 18 are similar. Alphas were acceptable for the persistence scales and Mastery Pleasure, and DMQ 18 had somewhat better reliabilities for overall Negative Reactions to Challenge.

In terms of **internal consistency** (i.e., Cronbach alphas) for DMQ 18, 90% of the four persistence scales for infants and preschool children had acceptable alphas (≥ .70) and the remaining 10% were minimally acceptable. For Mastery Pleasure and overall Negative Reactions to Challenge, 94% of the scales had acceptable alphas for infants and preschool children, and all the rest were minimally acceptable.

For 8-18 year-old school children, 95% of the internal consistency alphas for the persistence scales were acceptable for the Chinese, Hungarian, Russian, Romanian, and Portuguese-speaking samples. The Iranian Persian-speaking samples were more problematic for both the persistence scales and the expressive/affective scales, with most being marginally acceptable, and only 1 of 18 being unacceptable. For the non-Iranian samples, all of the Mastery Pleasure alphas were acceptable, with only three being marginally acceptable. However, two of the non-Iranian Negative Reactions to Challenge alphas were unacceptable.

There did not seem to be any clear differences in alphas for children developing typically and children at risk or developing atypically. There also did not seem to be clear differences between the alphas for the different languages, except for somewhat lower alphas for the school-age Persian-speaking children, which were almost all at least minimally acceptable.

Test-retest reliabilities were adequate to very good for all of the persistence scales in all six languages that reported this type of data. Only one sample out of seven had a minimally acceptable coefficient for Mastery Pleasure, and a school age sample had an unacceptable test-retest reliability for Negative Reactions to Challenge.

Interrater reliability was at least minimally acceptable for the two DMQ 18 studies that reported this type of data, which is difficult to obtain

because it is unusual for any two raters (e.g., parent and teacher) to see the same child in the same context

Again, because there is only one version or form of DMQ 18, we can only approximate **parallel forms reliability.** One study correlated DMQ 17 and 18 scale scores and reported significant correlations between them, except for negative reactions, whose items had been changed a lot. Two other studies asked the same raters to rate the DMQ in English and in the native language and reported significant and mostly high correlations.

In conclusion, all the measures of reliability provided evidence to support the reliability of the DMQ 18 data in 12 different languages and for infants, preschool, and school-age children, both those developing typically and those developing atypically.

The next chapter summarizes the evidence for measurement validity of the DMQ, using evidence from both DMQ 17 and DMQ 18.

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Chapter 5

Evidence for the Validity of the DMQ as a Measure of Children's Mastery Motivation

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Introduction

This chapter describes evidence for the measurement validity of the revised Dimensions of Mastery Questionnaire (DMQ 18) after briefly reviewing comparable evidence for DMQ 17 (its predecessor, which includes many of the same items as DMQ 18), as they both have been used in papers published to date. First, we define validity and present a brief overview and definition of the main types of evidence of validity: content, criterion, convergent, internal structure, and discriminant. Then, after providing a brief description of the mastery motivation construct, this chapter provides a summary of each type of validity evidence for DMQ 17, followed by such evidence for DMQ 18. Evidence with typically and atypically developing children of various ages, as rated by various individuals speaking various languages and living in various countries, is included whenever possible.

What is Measurement Validity?

Measurement validity is a process rather than an attribute, which can be defined as "establishing evidence for the use of a measure or instrument in a particular setting with a specific population for a given purpose" (Morgan et al., 2020, p. 108). Although validity was traditionally described as a characteristic of a particular measure, in recent years, there is consensus that one cannot truly ascertain validity of a measure without considering: the construct it is devised to measure, the way the measure is being used, and the population with whom it is being used (AERA, 2014). Moreover, validity pertains to the interpretation of the scores, rather than the scores themselves (e.g., see Newton, 2012). In other words, evidence regarding the validity of the DMQ must be interpreted in relation to how mastery motivation is conceptualized (the mastery motivation construct), what the DMQ is being used for (e.g., to measure individual differences in mastery motivation, to measure parents' views of their children's ways of dealing with challenge, to predict academic success, etc.), who it is being used with (e.g., parents rating their English-speaking typically developing infants, English-speaking teachers rating typically developing adolescents, Taiwanese parents rating preschoolers with developmental delays, etc.), and how the scores are interpreted. Any measure, including the DMQ, may be more valid with some populations and for some uses relative to others. Moreover, given that evaluating measurement validity is a continuous process, we not only provide evidence relative to DMQ 18 but also a summary of similar evidence for its predecessor, DMQ 17, including both very recent studies and studies from many years ago.

Types of Evidence for Validity

Content Evidence for Validity (also referred to as Content Validity)

This reflects whether the content of the instrument, in this case the DMQ, accurately and fully represents the concept that one is attempting to measure, in this case mastery motivation, and does not include material irrelevant to the concept. There is no generally recognized statistic to quantify content validity, although some studies have used expert ratings to quantify it. Content validity should be a part of measurement development from the beginning. Content validity should also be an important consideration in any translation and adaptation of an instrument, such as the DMQ, into other languages and cultures. See **Chapter 9** for discussion about good practices for the translation process.

The process of developing a measure usually starts with a conceptual definition of the construct (characteristic(s) one wishes to measure) based on a

conceptual model, theory, and/or literature review of relevant theory and research. With complex, multi-dimensional constructs such as mastery motivation, items are developed to assess the various aspects/dimensions of the construct. Once items are developed, often, including for the DMQ, experts review the items for clarity and fit with the relevant aspects of the construct. Gradually, and in this case over many versions, items are added, revised, and deleted until it is agreed that the items and scales fit the definition of the construct.

Criterion Related Evidence for Validity (Criterion Validity)

Criterion validity refers to the positive relation of the instrument with some form of external criterion, often a commonly used or "gold standard" measure of the same construct, measured concurrently, or a measure that the construct is expected to predict, usually measured later. There are, thus, two types of evidence for criterion validity: concurrent and predictive evidence. **Concurrent evidence** is obtained when a measure to be validated, such as the DMQ, is assessed at the same time as the criterion (usually an existing measure of the same or a closely related construct). **Predictive evidence** is obtained when the criterion is assessed at a later time, and the measure to be validated (such as the DMQ) is used to predict the later criterion measure (such as a measure of school success) that is conceptualized as an expected outcome of the target construct. Each of these provides evidence for validity of the instrument when used in a particular way, concurrent evidence providing evidence that the instrument can be used to measure something comparable to the criterion and predictive evidence providing evidence that the instrument can be used to predict the expected outcome.

Construct Evidence for Validity (also called Construct Validity)

Although one could argue that all of the measures of validity that have already been described are measures of construct validity (i.e., evidence that an instrument is measuring the intended construct), traditionally, three main types of evidence for construct validity have been included: convergent, internal structure, and discriminant. Recently, in keeping with the principle that measurement validity cannot be separated from the processes used to generate the response to the measure, response process validity has been assessed as well (AERA, 2014).

Convergent evidence (convergent validity) is obtained by finding significant correlations between the target instrument, in this case the DMQ, and other measures that theory suggests should be *related* to it (such as a measure of persistence), but which are not measures of the same construct.

Evidence based on response processes (response process validity) involves checking to make sure that the predicted process of responding to the instrument occurs. In the case of the DMQ, this type of evidence involves ascertaining whether different raters' reports of the same child's mastery motivation suggest that they are reporting on the same construct, based on the information available to them. So, children are obviously more aware of their own motivation that is not expressed in behavior, teachers are more aware of mastery-oriented behavior in a classroom setting, and parents are more aware of mastery-oriented behavior in the home environment. Thus, one would expect some differences in ratings by different reporters. However, one does not want reports to differ because one reporter does not understand the construct (e.g., young children who are self-reporting) or because of biases (e.g., teachers liking children who engage with them more and therefore rating such children higher on all positive aspects of mastery motivation).

Evidence based on internal structure: The appropriate way to document internal structure validity depends on the nature of the construct and measure. For the DMQ, the most appropriate way to document predicted internal structure is **Factorial evidence (factorial validity). Factorial evidence** is assessed when an instrument is expected to measure several aspects (or factors) of a construct, typically measured as scales (such as Cognitive/Object Persistence for the DMQ) or subscales (such as the two types of Negative Reactions to Challenge—anger/frustration and sadness/shame). If the items theoretically expected to measure a particular aspect/scale/subscale are more highly intercorrelated with one another than with items predicted to measure a different aspect/scale/subscale, this supports factorial evidence for those aspects, in this case, the scales of the DMQ. Typically, this is tested using a statistical method called factor analysis.

Discriminant evidence (discriminant validity) is obtained by finding low, usually nonsignificant, correlations between the instrument (DMQ) and measures that theory suggests should *not* be related to the construct. Alternatively, it can be demonstrated by showing that the covariation among the items theoretically viewed as measuring the same construct is greater than the covariation between that set of items and another set of items devised to measure a different construct.

The Construct of Mastery Motivation

As mentioned, in order to ascertain measurement validity, one must first establish what it is one is trying to measure—how the construct is defined. We view mastery motivation as a multifaceted urge or psychological "push" to solve problems, meet challenges, and master ourselves and our world. It

is considered multifaceted because instrumental and expressive/ affective aspects of mastery motivation are both crucial for understanding and for measuring mastery motivation, and because mastery motivation may differ across different domains of development. Mastery motivation is observed in individuals' persistent striving in the face of moderate challenge, and in the emotions that play important roles in motivating persistence vs withdrawal and giving up. Moreover, it is likely to be different in different domains and on different types of tasks, for the same individual (Barrett & Morgan, 2018).

Evidence for Content Validity of the DMQ

Although any measure, including the DMQ, has some limitations as a complete measure of mastery motivation, given the breadth of the construct; experts, including the authors of this chapter, have agreed that the content fit is reasonably good for the DMQ. Evidence for content validity has also been supported by the authors of the various translations of the DMQ in a variety of cultures and languages. One recent study of a new Bahasa Indonesia version of DMQ 18 systematically assessed content validity by having experts rate conceptual similarity and comparability of the Bahasa Indonesia version to the American English version, and found the two measures to be very comparable (Rahmawati et al., 2020).

However, some content limitations have been identified. We believe that DMQ 18 is more successful at addressing these limitations than prior versions of the DMQ, but it is difficult to fully address some issues using a parent-, teacher-, or self-report instrument. Most importantly, it has proven difficult to fully capture the notion of *moderate* challenge. An improvement for DMQ 18, as compared to its predecessors, is that it uses the term, "challenge" rather than "difficult" and mentions trying hard without saying the task is hard, but items do not clearly specify that the challenge should be moderate. This is largely because there is concern that the reporters may not know or accurately perceive the level of challenge *for the specific child* and children may not fully understand what we mean by "moderate" challenge. Similarly, the negative reaction items mainly discuss lack of success, rather than moderate challenge, and the Mastery Pleasure items focus on success, rather than succeeding despite moderate challenge. In addition to these problems, Cronbach's alpha reliability coefficients (see **Chapter 4**) indicate that raters do not clearly distinguish the negative reaction shame/sadness items from anger items. There is some evidence that assessing adult reports of shame/sadness based on more objective avoidance/withdrawal behaviors may be more successful (Józsa & Barrett, 2018).

Despite these limitations, the DMQ seems to measure the content of mastery motivation sufficiently well that it is related to measures one would expect it to relate to, predicts measures one would expect it to predict, and so on, supporting its utility as a measure of mastery motivation. This chapter will mainly focus concurrent and predictive criterion, convergent, response process, factorial, and discriminant evidence, the most objective sources of evidence of validity.

Evidence for Criterion Validity of the DMQ

Evidence for Concurrent and Predictive Criterion Validity of the DMQ

With regard to criterion-related evidence for the validity of the DMQ 18 scales, it is necessary to identify appropriate criteria. One criterion is the measurement of mastery motivation using behavioral tasks. This is the traditional way of assessing mastery motivation and does aim to measure mastery motivation in the context of moderately challenging tasks. However, such task-based observations are usually very brief and rely on a limited number of specific tasks, such as 1-3 puzzles or 1-3 cause-and-effect toys. Moreover, the measures obtained from such observations typically involve counting intervals of focused interaction with the toys and facial emotion; thus, one would expect only a moderate level of correlation between them and the DMQ, which involves perceptions of mastery behavior across more contexts. One would also expect a higher correlation between these tasks and Cognitive/Object Persistence, given that virtually all of the behavioral tasks focus on that domain of mastery motivation.

Another type of criterion might be school achievement at a later date (i.e., predictive criterion validity), because mastery motivation theory states that early evidence of higher or lower mastery motivation should predict higher or lower later competence or achievement. This criterion has been used in several studies and will be discussed. Again, though, one would only expect a low to moderate (but significant) level of correlation given that such achievement is not a measure of mastery motivation and there are many other influences on achievement.

A third possible way of getting at criterion-related validity would be with intervention studies that find that an intervention raised the child's motivation assessed by the DMQ. Unfortunately, there is scant evidence of this nature, and it mostly involves DMQ 17 rather than DMQ 18. We will now describe existing evidence of criterion validity, first summarized for DMQ 17, followed by DMQ 18.

Summary of Evidence for Criterion-Related Validity from DMQ 17

Criterion evidence is available from studies of DMQ 17, which is the predecessor of DMQ 18 and includes the same basic scales, with mostly the same items for the Cognitive/Object Persistence and Gross Motor Persistence scales. In two studies reported in one paper (Morgan et al., 1983), as well as in a later paper (Morgan & Bartholomew, 1998), children's general persistence ratings by parents and preschool teachers were significantly correlated with their persistence at mastery tasks.

More recently, Józsa et al. (2017) related teacher ratings of the DMQ 17 Cognitive/Object Persistence (COP) scale to persistence on new computer-tablet mastery tasks for 274 3-7 year-old Hungarian children. The DMQ COP scale correlated significantly with computer assessed and examiner rated persistence on moderately challenging computer tasks, providing more evidence for criterion related validity. In addition to concurrent criterion validity in relation to behavioral tasks, significant correlations between self-reported DMQ 17 scores and self-reported intrinsic motivation were obtained (Morgan & Bartholomew, 1998).

The prior DMQ 17 studies involved children who are typically developing. In addition, there is some evidence of concurrent criterion validity for children with intellectual disabilities. Gilmore and Cuskelly (2009) found that parents' DMQ Cognitive/Object Persistence scores were moderately to highly correlated with persistence at behavioral tasks for Australian children with Down syndrome at age 5 and at age 13.

In terms of predictive criterion validity, DMQ 17 predicted school success outcomes of Australian girls some 6 years later (Gilmore et al., 2003). More recently, Józsa and Barrett (2018) longitudinally predicted math achievement, reading, and social skills at second grade from preschoolers' affective and social mastery motivation. After controlling for extraneous variables, a behavioral withdrawal version of Negative Reactions to Challenges was a significant, negative predictor of both math and reading achievement. After controlling for extraneous variables, Mastery pleasure only predicted reading achievement, but both preschool Social Persistence with Children (positively) and Negative Reactions to Challenge (negatively) significantly predicted second grade social skills. These results support the possibility that the behavioral measure of Negative/avoidant Reactions to Challenge may be a more successful way of measuring avoidant/shame/sad reactions to challenge than the more subjective version currently included in DMQ 18.

Finally, in terms of predictive validity following intervention, Butterfield and Miller's (1984) intervention was associated with increases in NICU infants' mothers' perceptions of their mastery motivation (Harmon et al., 1984). Also, a case study of a power mobility intervention for three young children with multiple, severe disabilities and for a girl with cerebral palsy found improvements for all four children (Kenyon et al., 2018).

Evidence for Criterion-Related Validity for DMQ 18

Criterion-related validity also has been obtained for DMQ 18. As noted, one concern the developers have about the DMQ is that it does not clearly assess behavior during moderately challenging tasks even though moderate challenge is important to the mastery motivation construct. Therefore, it is particularly important to ascertain whether or not DMQ 18 is correlated with behavior during moderately challenging tasks. However, as mentioned, these tasks are narrower in scope, so only low to moderate correlations are expected with the DMQ.

Wang et al. (2016a) examined correlations between the DMQ Cognitive/Object Persistence scale and persistence on moderate to moderately challenging puzzle and cause-and-effect tasks of 24–43-month-old Taiwanese children with developmental delays. They found significant correlations between the DMQ 18 Cognitive/Object Persistence scale and behavioral persistence at moderately challenging puzzle tasks (r = .44, p < .01) and for persistence at all tasks (r = .34, p < .01), but not for cause and effects tasks separately.

Similarly, another study examined parent DMQ 18 ratings of typically developing Taiwanese children aged 18 to 44 months, in relation to the Bayley III Behavior Rating Scale (BRS). The BRS is based on children's behavior during individualized developmental testing, in this case during the cognitive scale of Bayley-III. Results indicated that DMQ total social persistence, total persistence, and total mastery motivation (i.e., total persistence and Mastery Pleasure combined) were positively correlated (rs = .25-.27, ps < .05) with the children's global motivation (enthusiasm, exploration, and ease of engagement with the examiner and assessment materials, combined) on the BRS. Mastery Pleasure (MP) was similarly positively correlated with global motivation, enthusiasm, and exploration. Also, the Negative Reactions to Challenge (NRC) scale was significantly negatively correlated (r = - .29, p < .01) with ease of engagement of children during the developmental testing (Huang et al., 2019).

In addition to measures of mastery motivation, DMQ 18 assesses child competence reported by parents, and there is evidence of criterion validity for this as well. Saxton et al. (2020) found evidence for the criterion-related validity of the DMQ General Competence scale in American infants born pre-term and low birth weight. The DMQ General Competence scale was significantly related to the infant's fine and gross motor behavior on the Bayley-III motor scales. They also found that parent ratings of infants' DMQ 18 Gross Motor Persistence (GMP) were significantly related to the infants' gross motor development on the Bayley-III behavioral test. In addition, parents' ratings of toddlers' Cognitive/Object Persistence were positively related to the toddlers' behavior on the cognitive, receptive language, and expressive language scales of the Bayley-III test (Saxton et al., 2020).

Finally, in the one study using DMQ 18 to evaluate intervention outcomes, DMQ 18 was used as an outcome measure to examine the effectiveness of a mobility intervention in a randomized control trial for 29 children with disabilities aged 1–3 years (Huang et al., 2018). Results showed that the treatment group had significantly greater improvements in Cognitive/Object Persistence during the intervention than the control group.

Evidence for Convergent Validity of the DMQ

Summary of Evidence for Convergent Validity of DMQ 17

Convergent validity assessment involves correlating the target measure concurrently with another measure of characteristics that are theoretically predicted to be related. Such evidence has been obtained for school-aged children using DMQ 17. For example, Józsa and Morgan (2014) found significant positive correlations between Cognitive/Object Persistence (COP) and Hungarian school-age children's grade point averages. Moreover, Józsa et al. (2018) studied 296 Hungarian 7th grade students' and their mothers' reports of COP on DMQ 17. This DMQ scale was highly related to a latent variable combining the students' grades in math, science and (Hungarian) literature/grammar in the most recent semester.

Convergent Validity of DMQ 18

Similar evidence has supported the validity of all of the DMQ 18 scales. Convergent validity has been assessed by correlating DMQ 18 with relevant temperamental characteristics and cognitive performance. Wang et al. (2019) examined the relationship between the mastery motivation of typically developing US preschoolers and child temperament using the Child Behavior Questionnaire (CBQ). CBQ Attentional Focusing was positively correlated with DMQ 18 Cognitive/Object Persistence (r = .37). CBQ Pleasure at High Intensity activities was strongly positively correlated with DMQ Gross Motor Persistence (r = .64). There also was a positive correlation between CBQ Smiling/Laughter and DMQ Mastery Pleasure (r = .35). CBQ sadness was positively related to DMQ 18 Negative Reactions to Challenge Sadness/Shame (r = .40) and Negative Reactions to Challenge Anger/Frustration (r = .41), which again support the use of the overall Negative Reactions to Challenge scale, rather than the sadness/shame and anger/frustration subscales of DMQ 18.

In addition, both DMQ persistence and competence scales were associated with cognitive competence in typically developing children. Huang and Lo (2019) found significant correlations between DMQ 18 General Competence and concurrent Wechsler Preschool and Primary Scale (WIPPSI-IV)

full IQ for 2-6 ½ year-old typically developing Taiwanese children. Similarly, Józsa (2019) found significant correlations between both self-rated DMQ Cognitive/Object Persistence and DMQ General Competence and school achievement (GPA) in 4th grade Hungarian students (see Table 5.1). Parent ratings of the child's DMQ Cognitive/Object Persistence and General Competence scales were also related concurrently to the child's GPA. Ratings by students and their parents of students' persistence in non-cognitive domains, as well as Mastery Pleasure Negative Reactions to Challenge, in contrast, were not correlated with GPA. Interestingly, teacher ratings of not only Cognitive/Object Persistence and General Competence but also of Social Persistence with Adults (SPA) and (negatively) Negative Reactions to Challenge were related to children's GPA. See Table 5.1.

These findings raise the question of whether teachers' grading is impacted by students' social engagement with them and by how much negative emotion students show in educational settings. Alternatively, or in addition, students' social engagement with their teachers and displays of lower levels of negative emotion at school might be associated with more positive learning experiences and, thus, higher GPA. These possible interpretations seem worthy of further investigation.

Table 5.1. Correlations Between the School-Age DMQ Scales and School Achievement (GPA) of Hungarian 4th Grade Children Rated by Self, Parent, and Teacher

DMQ 18 scales	DMQ rater		
	Student	Parent	Teacher
1. Cognitive/Object Persistence	.26**	.27**	.57**
2. Gross Motor Persistence	-.04	-.03	.16
3. Social Persistence with Adults	.12	.08	.22**
4. Social Persistence with Children	-.01	.04	.01
5. Mastery Pleasure	.08	.13	.00
6. Negative Reactions to Challenge	-.08	-.00	-.18*
7. General Competence	.22*	.44**	.49**

*Data from Józsa (2019), *p < .05; **p < .01*

Huang and Peng (2015) found significant correlations between the DMQ total persistence (r = .24*), Mastery Pleasure (r = .25**), and Negative Reaction to Challenge (r = −.19*) scales with concurrent reports of academic achievement in Taiwanese 5th to 8th grade students, but the correlations were modest. Table 5.2 shows that, for grade 4 school children in Taiwan, self-ratings of all of the DMQ 18 scales, except Social Persistence with Adults, were significantly correlated with children's school achievement in science (Huang, 2019). Self-rated Gross Motor Persistence (GMP) and Mastery Pleasure were also related to math achievement and GMP was related to English achievement; whereas, the DMQ was not related to the school subject of Chinese.

Table 5.2. Correlations of School-Age DMQ 18 Self-Ratings with School Achievement in Four Courses for Grade 4 Taiwanese Children (n = 110)

DMQ Scales	Chinese	English	Math	Science
Cognitive/Object Persistence	.01	.13	.13	.20*
Gross Motor Persistence	.03	.20*	.21*	.33***
Social Persistence with Adults	-.04	.03	.02	.18
Social Persistence with Children	.08	.19	.18	.28**
Mastery Pleasure	.13	.12	.25*	.33***
Negative Reactions to Challenge	.00	.02	.12	.24*
General Competence	-.02	.17	.12	.25*

*Data from Huang (2019), *p < .05 **p < .01, ***p < .001*

Summary of Convergent Validity for DMQ 17 in Children with Developmental Delay

There is also some evidence of convergent validity for children with motor delays with DMQ 17. First, relevant parenting characteristics were related to DMQ scores. Wang P.-J. (2014) found that DMQ total persistence and Mastery Pleasure were significantly correlated with Taiwanese mothers' cognitive growth-fostering teaching interactions with their toddlers who had motor delays. In contrast, Miller et al. (2014) found that inconsistent and excessively lax parental discipline were related to low mastery motivation in American school-age children with cerebral palsy.

Mastery motivation was also related to activity engagement. Majnemer et al. (2010) found that Gross Motor Persistence, even after controlling for age, sex, severity of motor limitations, and other variables, predicted preferences for recreational activities (e.g., crafts, drawing, watching TV) and skill-based activities (e.g., swimming or dancing). Moreover, Negative Reaction to Challenge was the only significant (negative) predictor of social activities in the 6-12 year-old children with cerebral palsy. Similarly, Majnemer et al. (2008) found that mastery motivation and involvement in rehabilitation services predicted enhanced involvement in leisure activities, and Mastery Pleasure was a strong predictor of diversity of involvement in social activities for school-age children with cerebral palsy.

Majnemer et al. (2013) also found that parent DMQ ratings of Gross Motor Persistence were related to a gross motor function measure, and the Vineland socialization measure was related to both Social Persistence with Adults (r = .46) and Social Persistence with Children (r = .56). Thus, there are also a number of studies that provide evidence for convergent validity in children with various disabilities.

Convergent Validity for DMQ 18 in Children with Developmental Delay

Similar DMQ 18 findings have been reported for children with developmental delay. Wang et al. (2016b) found significant correlations between the Cognitive/Object Persistence scale on DMQ 18 and overall developmental age scores on the Comprehensive Developmental Inventory for Infants and Toddlers (CDIIT) (r = .29) in Taiwanese toddlers with developmental delay. Two more studies in Taiwan showed that there was a significant correlation between parental ratings of Cognitive/Object Persistence on the DMQ 18 preschool version and the cognitive composite score on the Bayley Scales of Infant and Toddler Development (r = .28, p < .05) in a sample (n = 50) of children with developmental delay who had an age range from 18 to 48 months (Chang et al., 2017).

Moreover, convergent validity also was found for social persistence in children with developmental delay. Wang et al. (2019) found maternal DMQ

ratings of social persistence positively predicted parent ratings of participation in everyday activities for Taiwanese children with global delays when controlling for child age and severity of delay (β = .32-.44).

Summary of Response Processes Validity for DMQ 17 from Related Raters in Different Contexts

When two persons, such as teacher and parent, teacher and child, or parent and child, rate the child, they view the child from different perspectives and, for adult raters, based on different frequencies of observing the child in at least in somewhat different contexts (i.e., the child spends part of the day in school and part of the day at home or with other children), so the child's self-ratings of their mastery motivation on the DMQ would be expected to be somewhat different than the teacher or parent ratings of the child and the teacher's ratings would be somewhat different from the parent's. However, their ratings are expected to be correlated, if they are based on ratings of that rater's perceptions of children's mastery motivation. We consider them evidence for response processes validity. Gliner et al. (2017) argue that when either the raters or the context are quite different, correlations between raters provide evidence for validity that should be evaluated based on Cohen's (1988) rough guidelines about the magnitude of the correlation; e.g., r = .3 provides a medium level of support.

Morgan and Bartholomew (1998) correlated DMQ 17 ratings of children by parents with those of the children themselves, teachers with the child themselves, and parent and teacher ratings of the child. Twelve out of 21 of these ratings were significant at $p < .05$. In general, raters did not agree on Social Persistence with Adults; none of these three correlations were significant. In addition, children's perceptions of their Cognitive/Object Persistence, Negative Reactions to Challenge, and General Competence were relatively uncorrelated with both adults' perceptions of those same dimensions. However, correlations between all three pairs of ratings were significant for Mastery Pleasure, Gross Motor Persistence, and Social Persistence with Children, indicating that these DMQ dimensions rely on similar response processes. In addition, teachers and parents also rated Cognitive/Object Persistence, Negative Reactions to Failure, and the General Competence of the child significantly similarly to one another.

Morgan et al. (2013) had similar findings for correlations between child-parent, child-teacher, and parent-teacher ratings of English-speaking school-age children. Again, parent-teacher correlations were higher than correlations that included a child self- rating. Because the correlations with children's self-ratings were relatively low, this again suggests that the self-ratings of young school-age children may be problematic; although, of course, children may also be aware of motivation that is not expressed in behavior.

In studies of non-English versions of DMQ 17, again correlations between raters were significant. Józsa and Molnár (2013) researched mostly older school-age children and found generally higher parent, child, and teacher interrater correlations in Hungary, especially for Object Oriented Persistence and Gross Motor Persistence. Moreover, in contrast to the English-speaking sample, parent and teacher correlations in Hungary were not higher than correlations of parent or teacher with a child-self rating. Huang and Lay's (2017) Taiwanese two- and three-year-olds were rated by both fathers and mothers, who were in general agreement about all aspects of motivation and competence except Negative Reactions to Challenge.

For ratings of children with delays, Gilmore and Boulton-Lewis (2009) found a high mother-teacher correlation on Object Oriented Persistence. However, Hauser-Cram et al. (1997) did not find a significant teacher-parent correlation on Object Oriented Persistence for ratings of preschool children with disabilities. Miller et al. (2014), similarly, did not find significant parent-child concordance for DMQ ratings of their small sample of 5-14 (mean age 7 ½) year-old children with cerebral palsy; however, ICC coefficients varied from -.04 to .42, so lack of reliability/power seemed to play a role in at least some of the non-significant findings. Moreover, it is important to note that many of these children were younger than the recommended age for the self-report instrument; in general children under 8 have not been found to provide reliable self-ratings on the DMQ.

Response Processes Validity for DMQ 18 from Related Raters in Different Contexts

There is also some evidence of response processes validity from different raters of DMQ 18. First, teacher ratings have been correlated with children's self-ratings on DMQ 18 (see Table 5.3). Huang and Peng (2015) found significant, but modest correlations between Taiwanese teacher and child-self ratings on the DMQ 18 Cognitive/Object Persistence, Gross Motor Persistence, total persistence, and Mastery Pleasure scales. However, there was not significant agreement for the social persistence or Negative Reactions to Challenge scales. Interestingly the best teacher-child agreement was on General Competence (r = .44), perhaps because teachers give children feedback about their competence/ achievement, with impact on children's perceptions.

Children's reports on DMQ 18 also have been related to parent reports. Józsa (2019) reported that ratings by parents of their 10-11 year-old Hungarian child and of the same child's self-ratings were moderately correlated (.33-.46, p < .01) for all DMQ 18 scales except Mastery Pleasure (r = .04).

Table 5.3. Inter-rater Correlations of Related Raters of DMQ 18 in Different Contexts

Age Ranges	Raters/ Language	Instrumental/persistence				Expressive/ affective	
		Cognitve/ object	Gross motor	Social w adults	Social w children	Mastery pleasure	Negative reactions
11-14 yr	T-CS/Chin[a]	.33**	.28**	.16	.09	.42**	.08
10-11 yr	P-CS/Hun[b]	.38**	.46**	.33**	.40**	.04	.39**

Chin = Chinese; CS = Child self-rating; Hun = Hungarian; P = Parent rating; T = Teacher rating.

[a]*Huang & Peng (2015);* [b]*Józsa (2019)*

**p < .05, **p < .01.*

Factorial Evidence for Validity of the DMQ

Summary of Factorial Evidence for DMQ 17

Several studies have examined the *factorial validity* of the DMQ (whether the items comprising a scale are strongly interrelated with one another, and are more interrelated with other items on the same scale than they are with items from other scales). In most cases, this is done by testing a model in which latent factors, comprising each of the scale constructs (e.g., Object Oriented Persistence) predict the items theoretically expected to be measuring that construct (using statistics such as Principal Axis Factor Analysis or Structural Equations modeling).

In general, the strongest factorial validity for DMQ 17 was found when English-speaking parents or teachers of typically developing preschoolers provided the ratings. Relatively strong factorial evidence was also found when English- or Hungarian-speaking parents of school-aged children provided the data. In contrast, Taiwanese parent ratings of their school-aged children did not seem to clearly distinguish Social Persistence with Adults versus Children. Two reversed items also formed a fifth, poorly defined factor (Morgan et al., 2013). The Taiwanese preschool parent ratings and those for English- and Chinese-speaking parents of infants factored even less well, although most factors loaded most strongly on at least some of their expected items (Morgan et al., 2013).

It is likely that the differences from intended factors in both Chinese samples reflected, at least in part, cultural differences and subtle problems with translation of some DMQ items, which we have tried to correct in DMQ 18. For English-speaking parents of infants, it appeared that gross-motor and object-related persistence were less clearly distinguished from one another than was true for parents of preschool children (Morgan et al., 2013).

In general, children's self-reports on DMQ 17 did not provide as strong of factorial validity as did parent-ratings of English-speaking preschool children. The factor analysis for child report data in both English and Chinese was especially weak for the Social Persistence with Children scale and the Object Oriented Persistence scale. For Chinese-speaking school-age children's self-ratings, the first three factors, Gross Motor Persistence, Mastery Pleasure, and Social Persistence with Adults were relatively clean, but the fourth factor combined Social Persistence with Children and Object Oriented Persistence, and the fifth factor was made up of four reversed items. Note that DMQ 18 does not include any of these reversed items. In addition, the items with low loadings and highest loading from an unpredicted factor referred to activities that seem more appropriate to preschool aged children than to school-aged children. These items have been changed in DMQ 18, based on these results.

Józsa et al. (2014) computed similar factor analyses on Hungarian, Chinese, and American school-age children's self-report data for only the 30 positively worded DMQ 17 mastery motivation items (omitting reversed items from the four persistence scales and Negative Reactions to Failure). For the large combined international sample, there was strong factorial evidence for the validity of these five mastery motivation scales; these items had their highest factor loading from the intended factor and there were no factors with cross loadings above .30. However, one intended Object Oriented Persistence item did not load on any scale. Thus, the four persistence scales and Mastery Pleasure all had good factorial validity for school- aged children's self-reports when samples from these three cultures were combined, as long as negatively worded items were excluded. (Józsa et al., 2014).

Only one study, using parent ratings of 115 English-speaking children, examined factorial validity of DMQ 17 with children developing atypically (Morgan et al., 2013). Although there was some factorial validity, there was not a factor for Social Persistence with Adults; instead, three of those items had highest loadings (although even these were relatively low loadings) from the Mastery Pleasure factor and two had highest (but relatively low loadings) from the Social Persistence with Children factor. The fifth factor included only one, reversed, gross-motor item.

In conclusion, when samples were large and reversed items were excluded, DMQ 17 factor analyses more clearly conformed to prediction; however, there was some evidence that social persistence items conformed less to prediction, particularly when self-reported by Taiwanese school-aged children or American children developing atypically. Moreover, none of these studies included Negative Reactions to Failure items in the analyses because researchers already had noted difficulties with this scale for DMQ 17.

Factorial Evidence for DMQ 18

Several studies also have been conducted to test the factorial validity of DMQ 18. The findings for factorial validity most clearly distinguished DMQ 18 from DMQ 17, showing better factorial validity for DMQ 18 compared to its predecessor, especially when negatively worded/reversed persistence items were included in DMQ 17.

Józsa and Morgan (2015) used a five-factor Principal Axis Factor Analysis (PAF) with Promax (oblique) rotation to see whether the empirical findings, using teacher report data, fit the theory-based expectation that there are four distinct but inter-correlated persistence constructs / dimensions and a distinct Mastery Pleasure construct / dimension (see Table 5.4). The Negative Reactions to Challenge items were not included in this DMQ 18 factor analysis, because with limited sample sizes, the ratio of the number of items to the number of subjects would not be adequate if all items were included, so some items needed to be omitted. Because of relatively low internal consistency for the separate negative reaction-shame/ sadness and anger subscales, these items were selected for omission. The results of this 5-factor PAF analysis indicated an excellent fit of the theory with the empirical data: each of the items in each of the five scales had high factor loadings (.5 or above) from the appropriate factor, and there were no items that cross-loaded (had loadings from other factors). Item 6 did not have loadings above .4 from any factor, which may mean that it should be deleted or rewritten.

Table 5.4. Principal Axis Factor Structure of the Four Persistence Scales and Mastery Pleasure of DMQ 18 for 205 Hungarian Preschoolers Rated by Their Teachers

Scales and Items		Factor loadings				
		GMP	SAC	COP	MP	SAP
Gross Motor Persistence						
26	Repeats jumping/running skills until can do them	.94				
3	Tries to do well at motor activities	.94				
12	Tries to do well in physical activities	.88				
36	Tries hard to get better at physical skills	.87				
38	Tries hard to improve throwing or kicking	.84				
Social Persistence with Children						
28	Tries hard to make friends with other kids		.94			
35	Tries to keep play with kids going		.91			
32	Tries to get included when children playing		.87			
7	Tries to do things to keep children interested		.58			
25	Tries to understand other children		.56			
Cognitive/Object Persistence						
23	Works long to do something challenging			.87		
17	Tries to complete toys like puzzles			.85		
14	Tries to complete tasks, even if takes a long time			.83		
29	Will work a long time to put something together			.81		
1	Repeats a new skill until he can do it			.62		
Mastery Pleasure						
18	Gets excited when figures out something				.91	
11	Shows excitement when is successful				.88	
30	Smiles when makes something happen				.80	
2	Smiles broadly after finishing something				.75	
21	Is pleased when solves a challenging problem				.72	
Social Persistence with Adults						
33	Tries to figure out what adults like					.92
37	Tries hard to understand my feelings					.87
15	Tries hard to interest adults in playing					.87
22	Tries hard to get adults to understand					.51
8	Tries to keep adults interested in talking					.51

Note. Principal Axis factor analysis with Promax rotation. These five factors account for 71% of the variance. Loadings less than .40 have been omitted. Item 6, theoretically intended as a Social Persistence with Children item, is not shown because it did not load above .40 any scale. Data from Józsa and Morgan (2015).

Abbreviation: COP = Cognitive/Object Persistence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

Similar findings were obtained using parent-report data. Morgan et al. (2017) factor analyzed the data from 362 parents of preschool children from Taiwan and Hungary. The results supported the factorial validity of parent ratings of preschool children in these countries, with only one item failing to have its strongest loading from the predicted factor, and those strongest loadings ranging from .44 - .73, with all but two loadings being .5 or higher.

Rahmawati et al. (2020) found evidence for the factorial validity of the four persistence scales and Mastery Pleasure using confirmatory factor analysis for DMQ 18. Table 5.5 shows the factor loadings (as well as composite reliability (CR), average variance extracted (AVE), and Cronbach's alphas) for the five scales in the Rahmawati et al. (2020) study. Like other measures of reliability, a CR of ≥ .70 indicates that the factor is reliable. AVE is a measure of variance associated with the factor, and should be >.50. If the square root of AVE is smaller than the correlation between factors, this means that there is poor discriminant validity (see section on discriminant validity, below).

Although these studies provided strong evidence for factorial validity of DMQ 18 with several samples with typically developing preschool children from several different languages, Huang and Peng (2015) found only partial support from their factor analyses of data from Taiwanese school-age children. The Social Persistence with Children and Cognitive/Object Persistence items did not factor very well for these Taiwanese school children. Thus, some revised items may be piloted there. There was good evidence of factorial validity for Social Persistence with Adults, Gross Motor Persistence, and Mastery Pleasure.

Salavati et al. (2018) used confirmatory factor analysis on school-age DMQ 18 data from parent ratings of Iranian children with cerebral palsy (CP), with Negative Reaction to Challenge items excluded. The model fit well, but one item each on the Social Persistence with Adults (.24), Social Persistence with Children (.18), and Mastery Pleasure (.28), had low factor loadings.

Table 5.5. Factor Loadings, CR, AVE, and Cronbach's Alphas for the Indonesian Preschool DMQ 18

Item No.	Statement	FL	CR	AVE	Cronbach's Alpha
Gross Motor Persistence			0.88	0.59	0.71
3	Tries to do well at motor activities	0.80			
7	Tries to do well in physical activities	0.72			
16	Repeats jumping/running skills until can do them	0.75			
23	Tries hard to get better at physical skills	0.76			
25	Tries hard to improve throwing or kicking	0.81			
Cognitive/Object Persistence			0.91	0.66	0.67
1	Repeats a new skill until he can do it	0.79			
8	Tries to complete tasks, even if takes a long time	0.84			
10	Tries to complete toys like puzzles	0.73			
14	Works long to do something challeng-ing	0.84			
18	Will work a long time to put something together	0.85			
Mastery Pleasure			0.98	0.70	0.90
2	Smiles broadly after finishing some-thing	0.98			
6	Shows excitement when is successful	0.98			
11	Gets excited when figures out some-thing	0.93			
12	Is pleased when solves a challenging problem	0.79			
19	Smiles when makes something happen	0.72			
Social Persistence with Children			0.94	0.74	0.69
4	Tries to do things to keep children in-terested	0.90			
15	Tries to understand other children	0.86			
17	Tries hard to make friends with other kids	0.87			
20	Tries to get included when children playing	0.87			
22	Tries to keep play with kids going	0.81			
Social Persistence with Adults			0.94	0.70	0.70
5	Tries to keep adults interested in talk-ing	0.84			
9	Tries hard to interest adults in playing	0.90			
13	Tries hard to get adults to understand	0.98			
21	Tries to figure out what adults like	0.79			
24	Tries hard to understand my feelings	0.78			
Total			**0.98**	**0.70**	**0.90**

Note. Model fit was good: $\chi 2$ p>.05; RMSEA = .04; CFI = .953; data from Rahmawati et al. (2020).

Abbreviation: FL = factor loading; AVE = average variance extracted; CR = composite reliability

Evidence for Discriminant Validity of the DMQ

Discriminant Validity for DMQ 18

Discriminant validity involves the measure's *not* correlating highly with measures that are theoretically unrelated, or, in the case of complex measures, it involves the variance explained by a particular factor/construct (within-factor variance) exceeding the covariance *between* factors/constructs. In several of the studies mentioned earlier, some DMQ scales were expected to be associated with certain variables and others were not. For example, in general, Social Persistence with Children was expected to be positively associated with social skills, but not as highly with academic performance, persistence on cognitive tasks, or with IQ. In addition, for studies of factorial validity, discriminant validity is demonstrated when the average variance explained by a factor exceeds the squared correlation between factors (or the square root of the average within-factor variance exceeds the correlations between factors).

Most studies described earlier in connection with criterion validity also provided evidence of discriminant validity. For example, Wang et al. (2016b) not only found a significant correlation between DMQ 18 Cognitive/Object Persistence and persistence on moderately challenging puzzles (as mentioned earlier); they found *no* such correlation between persistence on moderately challenging puzzles and DMQ Gross Motor Persistence, Social Persistence with Adults, nor Social Persistence with Children. In the study already mentioned in the section on predictive validity (Józsa and Barrett, 2018), whereas negative and positive affective aspects of mastery motivation were expected to be correlated with all aspects of school success, Social Persistence with Children was expected mainly to relate to the development of social skills. Józsa and Barrett (2018) found that, as expected, preschool Social Persistence with Children correlated with later social skills in Grade 2 (r = .32), but it did not correlate with math skills in Grade 2 (r = .11) and the relation with reading skills in Grade 2, while significant, was small (r = .16). In contrast, preschool Negative Reactions to Challenge was negatively correlated with Grade 2 math (r =-.21) and reading (r = -.25) performance, and preschool Mastery Pleasure was positively correlated with Grade 2 math (r = .17) and, especially reading (r = .25) performance (in addition to Grade 2 social skills).

Rahmawati et al. (2020) formally analyzed discriminant validity by calculating the Average Variance Extracted (AVE) (variance explained by a factor) and comparing the square root of it to the correlation between factors (see Table 5.6). Table 5.6 shows the average variance extracted (AVE), square root of AVE (bold, on diagonal), and intercorrelations among factors

for the five scales in the Rahmawati et al. (2020) study. As mentioned earlier, AVE is a measure of variance associated with the factor. If the square root of AVE is smaller than the correlation between factors, this means that there is poor discriminant validity (see Tables 5.6 and 5.7, below). As indicated in Table 5.6, Rahmawati et al. found good discriminant validity; in all cases the square root of AVE exceeded all between factor correlations.

Table 5.6. Discriminant Validity of Five Scales of Indonesian DMQ 18

	COP	GMP	SPA	SPC	MP	AVE
COP	**.81**					.66
GMP	.56	**.77**				.59
SPA	.55	.50	**.86**			.74
SPC	.46	.57	.58	**.86**		.74
MP	.53	.56	.53	.48	**.89**	.79

Note. Data from Rahmawati et al. (2020).
Abbreviation: AVE = average variance extracted; COP = Cognitive/Object Persistence; GMP = Gross Motor Persistence; SPA = Social Persistence with Adults; SPC = Social Persistence with Children; MP = Mastery Pleasure.

Amukune et al. (2020) also found good discriminant validity among the scales of DMQ 18. In all cases, the square root of AVE was larger than the correlations between the factor corresponding to that scale and all other factors (see Table 5.7).

Table 5.7. Discriminant Validity of the Kenyan DMQ 18 Preschool Version

	COP	GMP	SPA	SPC	MP	NRC	AVE
COP	**.78**						.60
GMP	.59	**.78**					.61
SPA	.49	.63	**.89**				.79
SPC	.62	.73	.79	**.84**			.70
MP	.77	.61	.49	.72	**.89**		.80
NRC	.71	.54	.37	.47	.61	**.93**	.86

Note. Data from Amukune et al. (2020).
Abbreviations: AVE = average variance extracted; COP = Cognitive/Object Persistence; GMP = Gross Motor Persistence; SPA = Social Persistence with Adults; SPC = Social Persistence with Children; MP = Mastery Pleasure; NRC = Negative Reactions to Challenge.

However, some correlations among factors were quite high. As Table 5.7 indicates, the two social persistence scales were correlated .79, Social Persistence with Children was correlated .73 with Gross Motor Persistence, and Cognitive/Object Persistence was correlated .77 with Mastery Pleasure and

.71 with Negative Reaction to Challenge. These high intercorrelations suggest that although the factors can be seen as distinct, a general mastery motivation construct also underlies the scales, at least for this sample.

Conclusion

In summary, there is substantial evidence to support the convergent, criterion, factorial, and discriminant validity of DMQ 18 as well as most of these types of validity for its predecessor, DMQ 17. However, studies of factorial validity of DMQ 17 suggested difficulties with the social persistence scales and somewhat different constructs for the Chinese version, perhaps because of cultural and/or translation differences. Moreover, self-reports of DMQ 17 had lower factorial validity, and negatively worded (reversed) items on DMQ 17 did not have strongest loading from the factors they were intended to measure. However, there is some evidence that some of these negatively worded items are more successful in measuring negative/withdrawal responses in mastery contexts. Factorial validity with DMQ 18 was much stronger than that with the full DMQ 17, especially for Chinese-speaking samples. Additional research is needed on the factorial validity of DMQ 18 when negative reaction items are included, particularly for English-speaking samples. To date, studies of factorial validity of DMQ 18 have not included NRC items.

The next chapter, **Chapter 6**, discusses cross-national and age comparisons using the DMQ; it also presents data about the relationships between mastery motivation and school success.

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Chapter 6

Implications of the DMQ for Education and Human Development: Culture, Age and School Performance

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Introduction

There is increased awareness of the importance of both culturally appropriate and developmentally appropriate educational practice (e.g., Garcia et al., 2016; Zhao & Fischer, 2013). The child's cultural background and developmental age impact who they are, how they perceive the world and themselves, and how they relate to others. Mastery motivation, the contexts in which it is observed, and its manifestation in expressive and motor behavior is likely to vary across age, culture, and setting (e.g., home versus school). For example, there is extensive evidence that mastery motivation decreases with age during the school years (e.g., Józsa et al., 2014). However, this may differ across different cultures and school systems. For example, a common reason given for this downward trajectory is children's increasing dependence on extrinsic motivation from grades and teacher feedback as they get

older. Given that virtually all school systems grade students, this is likely to be true across a variety of cultures. However, more interdependent/collectivistic cultures may place more importance on caring about other's evaluations and/or how one's behavior reflects on one's roles and obligations toward others, in comparison to more independent/individualistic cultures. As a result, one might expect this extrinsic motivation to be less likely to undermine mastery motivation in more interdependent cultures because children see fulfilling obligations to others as part of who they are. On the other hand, children from cultures that value harmony with others more, self-control more, and individual expression less might be expected to display negative emotions less than those with the reverse pattern. All of these potential differences could impact mastery motivation and, especially, measurement of it using adult reports of children's mastery motivation.

Moreover, the implications of mastery motivation for education may differ across developmental and cultural contexts. To the extent that home culture and school culture differ, such differences can impact not only the measurement of mastery motivation but the child's learning, development, and school success. Further, the impact of these differences may change with development.

The DMQ has been used most extensively with English-, Hungarian-, and Chinese-speaking children and their parents and teachers, and it has been translated into many other languages as well. Many important steps were taken to try to ensure comparability of the DMQ in these different languages, as well as appropriateness of the items for all cultures being studied (see **Chapter 9**). However, it is still important to ascertain whether there are mean-level cultural and/or developmental differences in mastery motivation; there may be different educational implications of the DMQ in different languages and cultures and for different age groups. This chapter will therefore focus on similarities and differences in mastery motivation, as measured by the DMQ, across culture, language, and age, and it will also describe the utility of the DMQ in predicting school readiness and success in the cultures in which this has been studied.

Defining Culture and Culturally Appropriate Practice

Before discussing this research, however, it is important to define culture and culturally appropriate education. Culture involves values, goals, traditions, expected behavior, shared activities and understandings, and overarching ways of being that are learned both through active instruction and lived experiences (e.g., Garcia, 1990; Sampson, 2012). Cultures involve lan-

guages, rituals, and artifacts, but they also involve world views, views of human nature, and implicit understandings that are not consciously acknowledged or communicated (e.g., Garcia, 1990). In many cases, including in research that will be presented in this chapter, country and/or language is used as a proxy for culture; however, even though language is an important part of cultures, multiple cultures use the same language and there are often multiple languages and cultures in the same country. Thus, cross-national comparisons or cross-language comparisons are imperfect indicators of cultural differences and similarities. It is also crucial not to over-interpret or overgeneralize any cultural differences that are observed and to avoid stereotyping cultures based on such differences. As educators, it is imperative to be open to not only differences based in culture but to differences within broad cultural groups and to similarities across different cultures. As well, it is important to recognize that differences or similarities across cultures are often impacted by culture-based perceptions, interpretations, and even use of Likert scales. In order to engage in culturally appropriate education, it is important to keep all of these things in mind, being mindful of the possibility of cultural differences while not *assuming* that such average differences apply to a particular child and their family.

"Culturally appropriate education" thus, is education that is effectively adapted to cultures and the global context. It involves mindful and culturally sensitive instruction and practice that incorporates and teaches respect for different world views, epistemologies, and cultural traditions, and actively takes into account the diversity of learners and teachers from different cultural contexts (Meriam et al., 1928; Rose et al., 2013).

Cultural and Age Comparisons

Research on mastery motivation over the last decade includes research in many different countries, and a number of cross-national studies. The main objectives of many of these studies were to validate the DMQ and/or other measures of mastery motivation in various languages and to investigate possible cultural differences related to this construct. This chapter reviews cross-cultural studies of mastery motivation, studies of mastery motivation in various countries and comparisons of those findings, age-related differences in mastery motivation whenever available, and suggest some directions for future research.

Cultural and Cross-Cultural Studies

In cross-cultural psychological studies, culture is often operationalized as a quasi-independent variable (Berry et al., 2011). This approach is referred to as the etic approach, which examines behavior from a "position outside the

system" and compares cultures (Berry, 1978). The emic approach, in which behaviors are studied using an insider perspective, is an important approach as well that has historically been typical of anthropological studies (Boehnke et al., 2014). This approach focuses on the behaviors, motivation, and values of members of a particular culture, focusing on understanding that culture rather than comparing different cultures. The research presented in this chapter takes an etic approach; however, the development of the DMQ in the different languages represented in this research always involved at least one member of the culture in question, discussions of any perceived culturally inappropriate contexts or constructs, and modifications of both the wording in the new language and, when appropriate, the wording and/or contexts in both languages. An emic approach therefore also was used in the development of the DMQ in new languages.

Mastery motivation is likely to be impacted by a range of contextual factors. Social and cultural groups may have particular expectations about the levels of effort and achievement that are required, and these expectations may differ for subcultures defined by other characteristics, such as gender or socioeconomic status (Blackhurst & Auger, 2008). Economic and political factors affect educational and career opportunities, which in turn influence individual strivings for mastery.

Cross-cultural studies also are important as a way of testing the generalizability of DMQ, as a measure of mastery motivation, across contexts different from its original one, as well as generalizability of mastery motivation theory (Klassen & Usher, 2010; Marsh & Hau, 2004). Not only does this type of study explore the applicability of the theory in different contexts; it can potentially identify new aspects of the theory (Segall et al., 1998; Sue, 1999). Hence, cross-cultural studies of mastery motivation extend the understanding of how it operates, and the extent to which it is valid and generalizable across a variety of cultural contexts. This lays the foundation for studying how mastery motivation is shaped by cultural practices and beliefs and how researchers can explain, rather than simply demonstrating, any observed cross-cultural variations.

Culture and Mastery Motivation

Spiro (1961) was one of the first researchers who described processes through which cultural socialization impacts the motivation of members of that culture. In Spiro's perspective, one is motivated, through both extrinsic rewards and positive sanctions, to follow cultural teachings; in addition, cultures may socialize motivation indirectly, via culturally prescribed goals and norms, which are experienced as intrinsic to the individual. Ryan and Deci (2009) further elaborated that individuals internalize values and behaviors that are viewed positively by their culture, even if they are not initially intrinsically motivated to display them. The culture-specific goals, motives,

values and behaviors influence learning and development and also are a source of cultural differences in motivation (Chiu & Hong, 2007; Gelfand & Triandis, 1998). To the extent that cultures teach the importance of mastery and achievement in particular domains, one would expect children to show greater mastery motivation in that culture in those domains. Importantly, cultural similarities and differences may be evident in ethnic differences within one country (e.g., Wang et al., 2020), in differences between countries with the same language but at least somewhat different cultures, and in broader differences between countries that differ in both language and other important aspects of culture (e.g., Hwang et al., 2017; Józsa et al., 2017).

One of the first cross-cultural studies of mastery motivation was conducted by Morgan et al. (2013). This study included more than 13,000 children from 6 months to 19 years of age, divided into two major samples (a) English speakers from the United States, Canada, the United Kingdom, and Australia; and (b) Chinese speakers from mainland China and Taiwan. Some of the results presented in this study were based on cross-regional analysis and some on cross-linguistic analysis, enabling some distinction between language and culture. However, since languages are based in a particular culture and express differences that were important to the parent culture, the shared language of the subsamples also indicate at least some shared culture, and cultures that share a language are expected to share more values than cultures differing in both language and country (Kramsch, 2011). Alpha was set at .005 because of the large number of comparisons being made.

Morgan et al. (2013) reported that, in general, English-speaking parents rated their children higher than the Chinese-speaking parents on the DMQ 17 scale scores except for on Negative Reactions to Failure. Moreover, the English- and Chinese-speaking samples were also compared for each age group (infant, preschool, and school-aged children) separately. Although the MANOVAs were significant for each age level, the effect sizes were larger for the univariate comparisons of parent ratings of English- versus Chinese-speaking school-age children than for ratings of infants and preschoolers; at these younger ages, some of the univariate differences were not significant. Thus, it appears that the English- versus Chinese-language differences in parent ratings become more pronounced in school-aged children. The comparisons of English- and Chinese-speaking infants for the parent ratings of infants (Table 6.1) revealed that English speaking infants were rated higher on three scales: Cognitive/Object Persistence, Mastery Pleasure, and General Competence. For even these three significant differences, the effect sizes were small to medium (Morgan et al., 2013).

Table 6.1. Means, SDs, and MANOVA for Parent-reported Scale Scores for Typical English- and Chinese-speaking Infant Master Samples

DMQ 17 Scales	Typical English *M (SD)* (*N*= 414)	Typical Chinese *M (SD)* (*N*=74)	*F*	*p*	η^2
MANOVA			8.85	<.001*	.11
COP	3.65 (.54)	3.30 (.48)	26.10	<.001*	.05
GMP	3.80 (.60)	3.62 (.55)	5.59	.018	.01
SPA	3.96 (.65)	4.01 (.57)	0.54	.462	.00
SPC	3.84 (.73)	3.86 (.72)	0.02	.890	.00
MP	4.31 (.66)	4.00 (.67)	6.17	<.001*	.03
NRF	2.79 (.79)	2.79 (.59)	0.00	.979	.00
COM	3.80 (.59)	3.47 (.53)	20.37	<.001*	.04

Note. Morgan et al., 2013, p.319. COP = Cognitive/Object Persistence, GMP = Gross Motor Persistence, SPA = Social Persistence with Adults, SPC = Social Persistence with Children, MP = Mastery Pleasure, NRF = Negative Reactions to Failure, COM = General Competence.

**Considered to be a statistically significant difference.*

Parent ratings of English- and Chinese-speaking preschool children provided more mixed results than either the infant or school-age data. Chinese-speaking preschool children were rated higher by parents than their English-speaking peers on Social Mastery Motivation with Adults and on Negative Reactions to Failure, with the effect sizes being small (see Table 6.2). On the other hand, the English-speaking parents of typically developing preschoolers rated their children higher on Social Persistence with Children. Differences between languages were not significant for the other scales for typically developing preschoolers.

Table 6.2. Means, SDs, and MANOVA for Parent Reported Scale Scores for Typically Developing English- and Chinese-Speaking Preschool Master Samples

DMQ 17 Scales	Typical English *M (SD)* (*N*=471)	Typical Chinese *M (SD)* (*N*=309)	*F*	*p*	η^2
MANOVA			16.47	<.001*	.13
COP	3.39 (.67)	3.46 (.55)	2.32	.128	<.01
GMP	3.75 (.74)	3.63 (.56)	5.87	.016	.01
SPA	3.93 (.71)	4.06 (.54)	8.14	.004*	.01
SPC	3.98 (.69)	3.69 (.73)	3.84	<.001*	.04
MP	4.30 (.66)	4.36 (.53)	1.83	.177	<.01
NRF	2.82 (.77)	2.98 (.63)	9.80	.002*	.01
COM	3.72 (.71)	3.61 (.60)	5.75	.017	.01

Note. Morgan et al., 2013, p.320. COP = Object-oriented Persistence, GMP = Gross Motor Persistence, SPA = Social Persistence with Adults, SPC = Social Persistence with Children, MP = Mastery Pleasure, NRF = Negative Reactions to Failure, COM = General Competence.

**Considered to be a statistically significant difference.*

The results of cross-cultural comparisons of English- and Chinese-speaking parent ratings of elementary school-aged children, presented in Table 6.3, indicate that English-speaking parents rated their children higher on all four instrumental mastery motivation scales, along with Mastery Pleasure and General Competence. The Chinese parents rated their children higher on Negative Reactions to Failure. However, the effect sizes varied from small for Negative Reactions and Gross Motor Persistence to large for General Competence. The authors concluded that it was hard to determine whether these are true cultural motivational and behavioral differences or whether the Chinese parents of school-aged children had higher expectations for mastery motivation and for control of negative emotions and/or were less influenced by social desirability than the English-speaking parents. It seems less likely that parents from different language backgrounds were simply using the rating scale differently and/or there were differences due to translation difficulties, if one takes into consideration the data from Table 6.2 that shows that the Chinese parents of preschoolers rated their children higher on some scales, even though rating scales and translations were the same. However, as just noted and shown in Table 6.3, the parents of Chinese school-aged children rated them lower than the English-speaking parents on all scales except Negative Reactions to Failure.

Table 6.3. Means, SDs, and MANOVA for Parent Reported Scale Scores for Typically Developing English- and Chinese-speaking School Age Samples

DMQ 17 Scales	Typical English *M (SD)* (*N*=146)	Typical Chinese *M (SD)* (*N*=393)	*F*	*p*	η^2
MANOVA			14.66	<.001*	.16
COP	3.62 (.64)	3.22 (.56)	50.71	<.001*	.09
GMP	3.71 (.85)	3.46 (.69)	12.41	<.001*	.02
SPA	4.11 (.70)	3.81 (.64)	21.63	<.001*	.04
SPC	4.17 (.67)	3.86 (.62)	26.58	<.001*	.05
MP	4.40 (.61)	4.14 (.54)	23.08	<.001*	.04
NRF	2.82 (.86)	3.03 (.63)	9.68	<.001*	.02
COM	3.88 (.68)	3.33 (.58)	89.81	<.001*	.14

Note. Morgan et al., 2013, p.320. COP = Object-oriented Persistence, GMP = Gross Motor Persistence, SPA = Social Persistence with Adults, SPC = Social Persistence with Children, MP = Mastery Pleasure, NRF = Negative Reactions to Failure, COM = General Competence.

**Considered to be a statistically significant difference.*

In contrast to their parents, Chinese elementary school-aged children did not rate themselves differently from English-speaking children on DMQ Mastery Pleasure and Negative Reactions to Failure, as shown in Table 6.4. Moreover, the overall MANOVA was not statistically significant with alpha set at .005 (p = .015) and the effect size was small. The English-speaking children rated themselves higher than the Chinese-speaking children only on Cognitive/Object Persistence and Gross Motor Persistence, and the effect sizes of these differences were small. Thus, while most of the English versus Chinese language comparisons were in the same direction for the parent and for child self-ratings of school-aged children, the effect sizes of most differences were much smaller for the child self-ratings. However, in the case of Gross Motor Persistence, the child self-rating difference and effect size was very similar to those of parents, with English-speaking children rated higher than the Chinese by both their parents and themselves. It appears that English-language school-aged children are more motivated to master physical and athletic skills than their Chinese peers. Finally, both Chinese- and English-speaking children rated Gross Motor Persistence, Mastery Pleasure, and Social Mastery with Children higher than they rated Social Mastery with Adults, General Competence, and Negative Reactions to Failure.

This order of importance of motives is similar to what Józsa (2007) found in his large Hungarian sample. However, Józsa et al. (2014) compared DMQ 17 self-ratings of 11-year-old children from Hungary and China and found that the Chinese children rated themselves higher on General Competence rather than Cognitive/Object Persistence. The lower ratings of Chinese chil-

dren on Gross Motor Persistence were identified by both studies. More research is needed to ascertain whether these differences are also observable in behavior; nevertheless, studies with the DMQ consistently support lower Gross Motor Persistence in Chinese-speaking children relative to children speaking English and Hungarian.

Table 6.4. Means, SDs, and MANOVA for English and Chinese Elementary School-Aged Children's Self-Reports

DMQ 17 Scales	Typical English *M (SD)* (*N*= 112)	Typical Chinese *M (SD)* (*N*=612)	*F*	*p*	η^2
MANOVA			2.51	.015	.02
COP	4.00 (.64)	3.82 (.62)	8.18	.004*	.01
GMP	4.21 (.81)	3.92 (.74)	14.37	<.001*	.02
SPA	3.62 (.79)	3.49 (.88)	2.43	.120	<.01
SPC	4.05 (.68)	3.90 (.72)	4.08	.044	.01
MP	4.08 (.73)	4.02 (.75)	.54	.462	<.01
NRF	2.60 (.98)	2.62(.72)	.09	.766	<.01
COM	3.61 (.78)	3.53 (.65)	1.53	.217	<.01

Note. Morgan et al., 2013, p.322. COP = Object-oriented Persistence, GMP = Gross Motor Persistence, SPA = Social Persistence with Adults, SPC = Social Persistence with Children, MP = Mastery Pleasure, NRF = Negative Reactions to Failure, COM = General Competence.

**Considered to be a statistically significant difference.*

Morgan et al. (2013) also compared preschool children in Taiwan (Taipei) and mainland China (Hangzhou). This within-language, cross-cultural comparison indicated that mainland Chinese parents rated their preschoolers lower than Taiwanese parents on Mastery Pleasure and especially General Competence. Although these two countries share Confucian/Taoist historical cultural roots, the current political, educational, and social systems differ. One possible explanation of these differences in mastery motivation is that China's one-child policy and continued norm of one-child families led to higher parental expectations for their only children's achievement and connectedness with the parents, so they see them as lower relative to these higher expectations. More research is needed to replicate these findings and to explore whether different parental expectations and/or parenting behaviors might contribute to differences in mastery motivation in these different Chinese cultures and how much is attributable to expectation and interpretation versus actual differences in behavior.

Morgan et al. (2017) studied cross-national cultural differences between Hungarian and Taiwanese parents' ratings of their preschool children on the DMQ 18 (Table 6.5). They found that Hungarian parents' ratings of their preschool children were higher than those of Taiwanese parents on Gross

Motor Persistence and General Competence. In contrast, parents in Taiwan rated their children higher on Negative Reactions to Challenge-Sadness/Shame than parents in Hungary (Morgan et al., 2017). Note that although fewer differences were significant than found for DMQ 17 comparisons of English and Chinese-speaking children; the effect sizes for most comparisons in the DMQ 18 study were much larger and the sample size was much smaller, suggesting differences in power between the two studies may have impacted results. Importantly, the difference in findings for the two subscales of the Negative Reactions to Challenge support the need for this distinction and the advisability of further work to refine these subscales.

Table 6.5. Comparisons of Parent Ratings of Typically Developing 1-5 Year-Old Children from Hungary (n = 152) and Taiwan (n = 61) on the Preschool DMQ 18

DMQ 18 Scales	Hungary *M* (*SD*)	Taiwan *M* (*SD*)	*t*	*p*	*d*
COP	3.50 (.88)	3.31 (.79)	1.45	.149	.23
GMP	4.17 (.81)	3.71 (.70)	3.85	<.001	.60
SPA	3.92 (.75)	3.70 (.75)	1.86	.065	.28
SPC	3.59 (.81)	3.51 (.65)	0.79	.431	.11
TP	3.79 (.64)	3.56 (.55)	2.51	.013	.35
MP	4.43 (.62)	4.60 (.47)	1.94	.053	.27
NRC	3.06 (.81)	3.34 (.69)	2.35	.020	.35
NRA	3.45 (1.07)	3.43 (.82)	0.14	.886	.02
NPS	2.67 (.82)	3.25 (.75)	4.74	<.001	.70
COM	4.07 (.61)	3.61 (.66)	4.77	<.001	.63

Note. Morgan et al., 2017, p.59. COP = Cognitive/Object Persistence, GMP = Gross Motor Persistence, SPA = Social Persistence with Adults, SPC = Social Persistence with Children, TP = Total Persistence, MP = Mastery Pleasure, NRC = Negative Reactions to Challenge, NRA = Negative Reactions Anger/Frustration, NRS = Negatives Reaction Sadness/Shame, COM = General Competence.

Hungarian school-aged children's mastery motivation, as self-reported and reported by parents using DMQ 18, also has been compared to those same reports on Iranian children. Tables 6.6 and 6.7 summarize the results of that study (Józsa & Gharib, 2019). As the tables suggest, there were reported differences between Hungarian and Iranian children in social and affective aspects of mastery motivation regardless of the rater; however, interestingly, the *direction* of these differences often depended on the rater. Whereas Hungarian *parents* reported higher levels of Social Persistence with Adults, Social Persistence with Children, Mastery Pleasure, Negative Reactions to Challenge/shame/sadness, and Negative Reactions to Chal-

lenge/anger/frustration than Iranian parents, Hungarian *children* self-reported lower levels of all of these scales except for Social Persistence with Children, in comparison with Iranian children. Children's self-reported Social Persistence with Children showed the same pattern found for parental reports, with Hungarian children reporting higher Social Persistence with Children compared to Iranian children (see Table 6.7).

Table 6.6. Comparisons of Parent Ratings on the School-Age DMQ 18 of Typically Developing Iranian (n = 114) and Hungarian (n = 140) 10-11 Year-Old Children

DMQ Scales	Iran *M* (*SD*)	Hungary *M* (*SD*)	*t*	*p*	*d*
COP	3.82 (0.72)	3.47 (0.79)	3.98	<.001	.46
GMP	4.19 (0.82)	4.20 (0.79)	-0.11	.457	.01
SPA	3.70 (0.75)	3.93 (0.68)	-2.77	.003	.32
SPC	3.78 (0.81)	3.99 (0.58)	-2.57	.005	.30
MP	4.25 (0.91)	4.44 (0.44)	-2.31	.011	.27
NRA	3.19 (1.33)	3.54 (1.00)	-2.57	.005	.30
NRS	2.96 (0.95)	3.20 (0.75)	-2.42	.008	.28
COM	3.68 (0.80)	3.69 (0.66)	-0.12	.453	.01

Note. Józsa & Gharib (2019). Abbreviation: COM = General Competence; COP = Cognitive/Object Persistence; GMP = Gross Motor Persistence; MP = Mastery Pleasure, NRA = Negative Reactions Anger/Frustration, NRS = Negatives Reaction Sadness/Shame; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

Iranian parents also reported higher Cognitive/Object Persistence for their children compared to Hungarian parents' reports. No significant cultural differences were found for Gross Motor Persistence or General Competence, according to parent or child report, and children's self-reported Cognitive/Object Persistence was comparable for Iranian and Hungarian children. These different findings for cultural differences in parentally reported versus self- reported mastery motivation may have been due, at least in part, to notable differences between mastery motivation as reported by Iranian children and their parents. Iranian parents reported significantly lower levels of Social Persistence with Adults, Mastery Pleasure, Negative Reactions to Challenge- Shame/sadness and Negative Reactions to Challenge-Anger/frustration compared to their children. In addition, surprisingly, the internal consistency reliability was lower for Iranian *parents* relative to their children, in many cases being unacceptably low (see Gharib et al., 2021). This pattern is contrary to the general trend for self-reports to be less reliable than parent-reports (see **Chapter 5**). These reliability findings suggest the need for caution in interpreting the parent report cultural differences and the need for further research on mastery motivation in Iranian children.

In conclusion, cross-sectional cross-cultural studies of mastery motivation have identified some differences between languages, countries speaking the same language, and age groups on the DMQ scales, but also many similarities across cultures and ages. Much more research is needed, to examine socialization processes that help explain observed differences and to see if the same findings are obtained using behavioral measures. In addition, it is important to examine actual developmental change and stability in mastery motivation, using longitudinal designs. We will now review such studies.

Table 6.7. Comparisons of Iranian and Hungarian 10-11 Year-Old Children's Self-Ratings on the School-Age DMQ 18

DMQ Scales	Iran *M* (*SD*)	Hungary *M* (*SD*)	*t*	*p*	*d*
COP	3.70 (0.88)	3.71 (0.81)	-0.10	.459	.01
GMP	4.20 (0.87)	4.19 (0.86)	0.10	.540	.01
SPA	4.03 (0.79)	3.59 (0.91)	4.43	<.001	.52
SPC	3.84 (0.86)	4.15 (0.58)	-3.65	<.001	.42
MP	4.58 (1.19)	4.18 (0.73)	3.51	<.001	.40
NRA	3.89 (1.00)	2.56 (1.12)	10.67	<.001	1.26
NRS	3.38 (0.79)	2.70 (1.02)	6.33	<.001	.75
COM	3.89 (0.81)	3.72 (0.71)	1.91	.057	.22

Note. Józsa & Gharib (2019).

Abbreviation: COP = Cognitive/Object Persistence, GMP = Gross Motor Persistence, SPA = Social Persistence with Adults, SPC = Social Persistence with Children, MP = Mastery Pleasure, NRA = Negative Reactions Anger/Frustration, NRS = Negatives Reaction Sadness/Shame, COM = General Competence.

Backman et al., (2006) reported longitudinal data for a large community sample of U.S. infants whose parents rated them on the DMQ 17 at 6, 12, and 18 months. This study found a significant increase in the ratings of the motivation of these infants from 6 to 12 months on Cognitive/Object and Gross Motor Persistence and Mastery Pleasure. Similarly, Sparks et al. (2012) collected parent-report DMQ 17 data on these U.S. infants when the children were 6-, 12-, 18- and 42-months old. The researchers found that mastery motivation improved from 6 to 18 months of age for all subscales except the two social persistence scales, which showed no significant change over time (see Table 6.8).

Table 6.8. Age Comparisons of DMQ 17 Between 6-Month and 18-Month Old Infants

DMQ 17 Scales	6 Months		18 Months		6–18 Month correlation		6–18 Month difference	
	M	SD	M	SD	*r*	*p*	*t*	*p*
COP	3.5	0.5	3.6	0.5	.29	<.001	3.9	<.001
SPA	3.9	0.7	4.0	0.6	.21	.01	1.2	.23
SPC	3.7	0.7	3.8	0.7	.17	.04	1.1	.28
GMP	3.4	0.6	3.9	0.5	.19	.03	8	<.001
MP	3.9	0.6	4.3	0.6	.30	<.001	6.7	<.001
NRF	2.8	0.8	3.0	0.8	.26	.001	2.9	.004
COM	3.7	0.5	3.9	0.5	.25	.002	4.7	<.001

Note. Sparks et al. (2012).

Abbreviation: COM = General Competence; COP = Object-oriented Persistence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NRF = Negative Reactions to Failure; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

Ross and Hunter (2010) also followed 29 of the participants until the age of 3.5 years. Interestingly, from age 18 months until 3.5 years, these children showed increases in social persistence with adults, as well as mastery pleasure and general competence (Table 6.9). Thus, this 36-month longitudinal study highlighted that different aspects of mastery motivation show stability and change at different ages during infancy and toddlerhood in U.S. infants. More research is needed to see if similar age trends are found in other countries.

This longitudinal study beginning in infancy was valuable in showing actual developmental change, but it was limited to U.S. children. Research examining longitudinal change in mastery motivation in other countries has been conducted with older aged children. In 2013, Józsa and Molnár studied mastery motivation in school-aged children in Hungary and concluded that mastery motivation underwent a considerable decline from fourth grade to tenth grade (see Figure 6.1). This was similar to earlier research findings with U.S. children using measures of intrinsic motivation, a related construct (e.g., see Gottfried et al., 2001; Harter, 1992). Similar declines in motivation for older elementary school children (age 11) compared to ratings by younger elementary school children (age 9) were reported by Morgan et al. (2013).

Table 6.9. Age Comparisons of DMQ 17 Between 18-Month and 3.5-Year-Old Children

DMQ 17 Scales	18 months[a]		3.5 years[b]		Reliability		Diff.
	M	*SD*	*M*	*SD*	α at age 3.5	*r*	*t*
COP	3.71	.57	3.50	.60	.83	.46	1.78
GMP	3.80	.54	3.81	.57	.83	.70	-.15
SPA	3.91	.62	4.19	.70	.87	.60	-2.56*
SPC	3.82	.71	3.99	.77	.91	.40	-1.10
MP	4.11	.66	4.54	.49	.68	.60	-4.31**
NRF	2.87	.82	2.52	.73	.68	-.03	1.67
COM	3.78	.53	4.03	.53	.68	.65	-3.00**

Note. Ross and Hunter (2010).

Abbreviation: COM = General Competence; COP = Cognitive/Object Persistence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NRF = Negative Reactions to Failure; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

**p < .05, **p < .01, [a]N = 28, [b]N=29.*

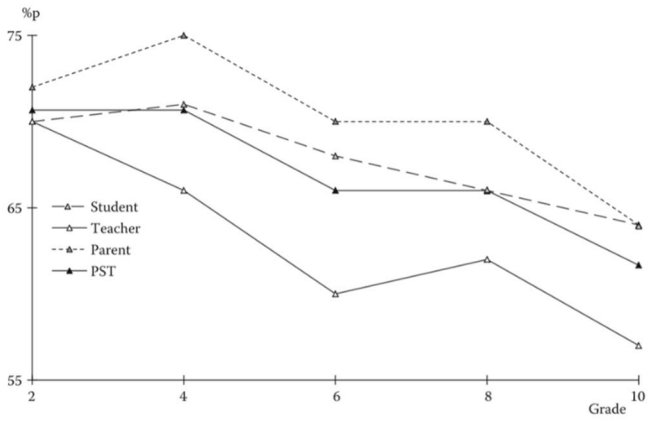

Figure 6.1. Age Differences in Total Mastery Motivation of DMQ 17

Note. Józsa and Molnár (2013, p.278).

Abbreviation: PST = parent, student and teacher combined

Analyzing each scale separately, Józsa and Molnár (2013) concluded that Gross Motor Persistence showed the most significant decline throughout the entire age period, followed by Cognitive/Object Persistence, which consistently and significantly decreased after age 10. Social Persistence with Adults showed a more moderate but statistically significant decline from grade 4 to grade 6; whereas Social Persistence with Children and Mastery Pleasure did not significantly decline during the school years; in fact Mastery Pleasure increased significantly between grades 2 and 4. These results

were further supported by Józsa et al. (2014), who identified declines in total persistence for Chinese, American, and Hungarian students (Figure 6.2). In all three cultures, there was a significant decline from age 11 or 13 to later adolescence. Declines were also seen in all three cultures on three of the four persistence measures: Cognitive/Object Persistence, Gross Motor Persistence, and Social Persistence with Children. The Chinese and Hungarian children also showed a decline on Social Persistence with Adults.

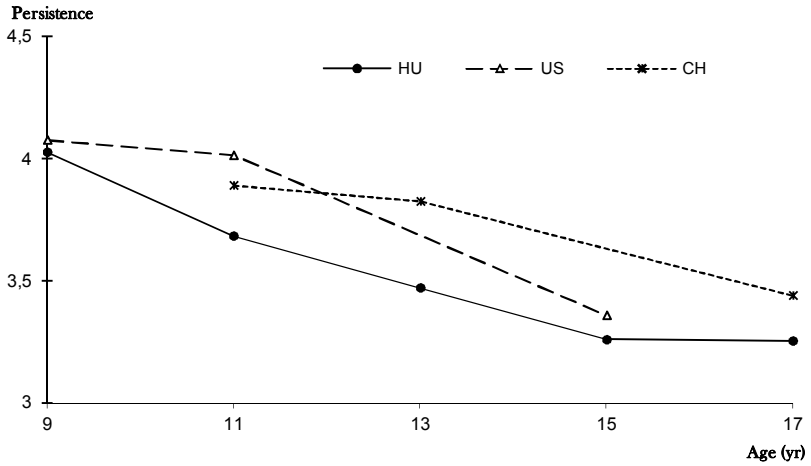

Figure 6.2. Age Changes in Total Persistence of DMQ 17 for the US, Chinese, and Hungarian Students

Note. Józsa et al. (2014, p.10).
Abbreviation: CH = Chinese; HU = Hungarian; US = American

In contrast with the findings for the persistence scales, the trends for mastery pleasure were less clear and varied across cultures. The Chinese and American samples had no significant age differences, while in the large Hungarian sample, there was a significant decrease in these self-ratings of mastery pleasure from 9 to 13. In all samples, though, the effect size for age effects on mastery pleasure, was small (Józsa et al., 2014).

In addition to declines in mastery motivation, the researchers found declines in General Competence that varied by culture. There was not a significant decline in the U.S. competence ratings, as shown in Table 6.10. Although there was a significant decline in the Hungarian ratings from second grade until fourth grade, afterwards they were mostly flat. There was, however, a significant linear decline in ratings for the Chinese sample, with a small effect size. Thus, there were significant cultural differences in self-perceived General Competence at age 16. The Chinese teens rated their competence as lower than both the Hungarian and U.S. teens, and the U.S. teens

rated themselves as more competent than the Hungarians. This at first might seem surprising given how well Chinese teens perform on academic tests, but it is consistent with other evidence about cultural influences on the self-perceptions of Chinese youth.

Table 6.10. Significant Age Group Comparisons of DMQ 17 Samples

	U.S.	China	Hungary
DMQ Scales	(*N*=200)	(*N*=1582)	(*N*=5791)
Age compared	{7-12} v. {13-17}	{10-12} v. {13-15} v. {16-19}	{10} v. {12} v. {14} v. {16}
COP	{7-12} > {13-17}	{10-12}, {13-15} > {16-19}	{10} > {12,14} > {16}
GMP	{7-12} > {13-17}	{10-12}, {13-15} > {16-19}	{10} > {12} > {14} > {16}
SPA	—	{10-12} > {13-15} > {16-19}	{10} > {12,14,16}
SPC	{7-12} > {13-17}	{10-12}, {13-15} > {16-19}	{10,12} > {14,16}
MP	—	—	—
TMM	{7-12} > {13-17}	{10-12}, {13-15} > {16-19}	{10} > {12} > {14} > {16}
NRF	{7-12} < {13-17}	{10-12} > {13-15}, {16-19}	—
COM	—	{10-12} > {13-15} > {16-19}	—

Abbreviation: COM = General Competence; COP = Cognitive/Object Persistence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NRF = Negative Reactions to Failure; SPA = Social Persistence with Adults; SPC = Social Persistence with Children; TMM = Total Mastery Motivation.

When comparing total persistence across cultures, the researchers identified similar levels at 11 across cultures but more significant cultural differences at age 16. On total persistence at age 11, the overall difference was not significant at $p < .01$. In contrast, at age 16, the overall difference was significant; the U.S. and Hungarian teens rated themselves higher than the Chinese teens rated themselves on total persistence.

The researchers found little evidence of a significant decline in mastery pleasure with age. The Chinese and American samples had no significant age differences, and although in the extensive Hungarian sample there was a significant decrease in these self-ratings of mastery pleasure from 9 to 13, the effect size for age differences on mastery pleasure was small (Józsa et al., 2014). These findings suggest that the reduced persistence is not likely a result of reduced tendency to derive pleasure from successful mastery. Thus,

it seems plausible that increased difficulty and time intensiveness of schoolwork with age contribute to the reduced mastery motivation. There is some evidence that decreased perceived competence is associated with later decreased motivation, which is consistent with the idea that difficulty level plays a role in decreased motivation (e.g., Harter, 1992). In conclusion, although there are some cultural differences in age-related declines in General Competence and some aspects of mastery motivation, there are more cross-cultural similarities than differences. Further research is needed to ascertain the influences on these age-related changes in the various cultures.

Relationship of Mastery Motivation with School Success

Relationship with Cognitive Skills

Probably the most important reason that these studies of mastery motivation are important to educators is that there is a wealth of evidence that mastery motivation is a strong predictor of cognitive skill development, playing a crucial role in school achievement (Józsa & Molnár, 2013; Yarrow et al., 1975). A child's tendency to persist on cognitive tasks even when they become challenging would seem crucial for success in school and beyond. This prediction has typically been tested using cross-sectional designs. For example, Józsa (2007) found that Hungarian teachers' ratings of students' Cognitive/Object Persistence correlated with students' basic skill development: .79 in grade 3 and .64 in grade 6. Józsa and Molnár (2013) collected a large set of cross-sectional data in grades 2, 4, 6, 8, and 10. Altogether, 365 classes were involved. Self-report questionnaires were administered to 7,410 students. Reports of teachers (about 3,504) and parents (about 3,843) were also collected. The sample was representative of Hungary in terms of gender, geographical distribution, and parents' highest level of education.

Combined (Parent, Student, and Teacher) ratings of Cognitive/Object Persistence were found to be correlated strongly, around 0.80, with grade point average (GPA), and teacher and parent ratings also were strongly correlated with GPA. However, there was a weaker correlation between students' ratings of Cognitive/Object Persistence and GPA. Importantly, in a multiple regression predicting GPA from Cognitive/Object Persistence, Raven IQ scores, and basic skills, all three variables were predictors, but Cognitive/Object Persistence more strongly predicted GPA than either IQ or cognitive skills. Hence, it seems that Cognitive/Object Persistence contributed more powerfully to school achievement than cognitive development tests (Józsa & Molnár, 2013).

In addition to cross-sectional studies, longitudinal studies have supported the relation between mastery motivation and school achievement. Józsa and Morgan (2014) found that persistence at grade 4 significantly predicted grade point average (GPA) in grade 8. Children's persistence at challenging cognitive tasks also has been a significant predictor of school-related skills such as language and math achievement (e.g., Gilmore et al., 2003; Mercader et al., 2017; Mokrova et al., 2013). Gilmore et al. (2003) demonstrated that, for girls only, parentally reported mastery motivation predicted IQ and spelling and reading achievement six years later. They found a significant relationship between maternal ratings of girls' persistence at age 2 on the DMQ and age 8 cognitive ability (r = .61, p < .01) and achievement in reading and spelling (r = .64 & .59, respectively, p < .01). However, there was no correlation between age two and age eight measures for boys, apart from a negative correlation of maternal ratings at age 2 with age eight boys' self-reported motivation for reading (Gilmore et al., 2003).

Józsa and Barrett (2018) used Structural Equations Modeling to explore the relationship between affective aspects of mastery motivation at preschool age and math and reading scores at grade 2 in 327 Hungarian children. Children's IQ (β = .26, p < .01) and SES (β = .32, p < .01) significantly and positively predicted math achievement, while Negative Reactions to Failure was a significant, negative predictor (β = -.16, p < .05). Mastery Pleasure did not significantly predict math achievement. First grade math performance strongly predicted second-grade math performance (β = .80, p < .01).

A somewhat different pattern emerged in predicting reading. IQ did not significantly predict first-grade reading achievement, while socioeconomic status (SES) (β = .35, p < .01) and Mastery Pleasure (β = .20, p < .01) both had significant, positive coefficients. Negative Reactions to Failure's coefficient was significant and negative (β = -.19, p < .05), as it was for mathematics. The relation between first- and second grade reading was also strong (β = .60, p < .01).

Relationship with Social Skills

Less attention has been given to the role of mastery motivation in social and emotional competence, a set of skills that enable children to successfully interact with peers and adults (social skills), to recognize and label emotions in self and others, and have empathy and ability to self-regulate emotions and behavior. There is now substantial evidence that children's social emotional competence influences their ability to adjust to the school environment and succeed in both school and in other important life settings. Much as Cognitive/Object Persistence contributes importantly to cognitive skill development, social and affective aspects of mastery motivation are likely to

be important predictors of social skills, which play important roles in success in school and life. Józsa & Barrett (2018) used Structural Equations Modeling to examine the role of affective aspects of mastery motivation, social mastery motivation, and Socio-Economic Status (SES) in the preschool period in longitudinally predicting social skills in grade 2 in 327 Hungarian children. Affective and social mastery motivation were measured using the Teacher report of the Dimensions of Mastery Questionnaire (DMQ; Morgan, 1997; Morgan et al., 2009) specifically the Social Persistence with Children and Mastery Pleasure scales, along with a new scale measuring negative emotion/withdrawal following failure. Social skills were assessed using DIFER (Diagnostic Assessment Systems for Development, Nagy et al., 2016) in grade 1 and 2, and social skills at grade 1 was used as an additional predictor. Social Persistence with Children (SPC) significantly and positively predicted first-grade social skills ($\beta = .21$, $p < .01$). The coefficient for SES ($\beta = .31$, $p < .01$) was also significant. Negative/withdrawal to failure negatively predicted social skills ($\beta = -.23$, $p < .01$), but Mastery Pleasure did not significantly predict social skills in this model. The relationship between first- and second-grade social skills was quite high ($\beta = .88$, $p < .01$).

Subject Specific Mastery Motivation among Different Grades

Based on Barrett and Morgan's (1995) definition, Józsa (2014) described further dimensions of mastery motivation, assuming that mastery motivation had school-specific dimensions, and could vary in different school domains, i.e. different subjects. He developed new scales to measure school subject-specific dimensions of mastery motivation. The Subject-Specific Mastery Motivation Questionnaire (SSMMQ, Józsa, 2014) covers six school subjects/domains (reading, mathematics, science, English as a foreign language, art, and music) and also school mastery pleasure. The questionnaire consists of 5-point Likert items: 6 items in each scale, with 42 items altogether in the seven scales. The total score of the six subject-specific scales was considered to be a measure of school mastery motivation. The school mastery pleasure scale includes six items, each of them related to one of the school domains. Academic mastery pleasure and academic mastery motivation were computed scales based only on the reading, math, and science items. Based on suggestions by Józsa and Morgan (2017), the SSMMQ scales included only positive items.

As mentioned earlier, there is a developmental decline in Cognitive / Object Persistence in middle school-aged children compared to younger school-aged children (Józsa et al., 2014; Józsa & Morgan, 2014). However, it was important to see whether this decline with age characterized only some subjects for subject-specific mastery motivation, and whether the subjects that declined differed for different cultural groups.

Józsa et al. (2017) investigated subject-specific mastery motivation of Hungarian (N = 1359) and Taiwanese (N = 623) children from grades 4, 6, 8, and 10. In Hungarian children, mastery motivation decreased from grade 4 to 8 in all subjects except English as a foreign language (see Table 6.11). There were significant grade level decreases in Hungary in reading (F = 55.95, p < .001), math (F = 70.90, p < .001, and science (F = 47.75, p < .001. In art (F = 128.53, p < .001) the decline was steep and continued throughout the period studied; whereas, in music (F = 82.90, p < .001) the downward slope grew less steep beginning in grade 8. In contrast, there was less decline in English (F = 4.46, p < .05), which only dropped a little from grade 4 to grade 6, and remained constant after that.

Although there were significant grade level differences in Taiwan (see Table 6.11), the decline was not a linear decline throughout the period. There were significant age differences in reading (F = 7.43, p < 0.001), math (F = 14.38, p < 0.001), science (F = 7.63, p < .001), English (F = 4.17, p < .05), art (F = 19.10, p < .001), but not in music (F = 1.07, p = .344). For reading, math, and science, the youngest and oldest children reported the highest motivation, so the pattern was quite different from that found in Hungary. Similar to Hungary, the motive to master English as a foreign language stayed essentially constant from grades 6 to 10, but it was somewhat higher at grade 4. In summary, in Taiwan, there was a significant decline in subject-specific mastery motivation following elementary school, but motivation to master reading, math, and science returned again to its higher level in 10th grade. Moreover, motivation to learn English as a second language did not decline as much, remaining high throughout the period studied.

Table 6.11. Significant Age Group (School Grade) Comparisons of the Subject Specific Mastery Motivation Scales

SSMMQ Scales	Hungary (N = 1359)	Taiwan (N = 623)
Reading	{4} > {6} > {8, 10}	{4, 10} > {6, 8}
Math	{4} > {6} > {8, 10}	{4, 10} > {6, 8}
Science	{4} > {6} > {8, 10}	{4, 10} > {6, 8}
English	{4} > {6, 8, 10}	{4} > {6, 8, 10}
Art	{4} > {6} > {8 > {10}	{4} > {6} > {8}
Music	{4} > {6} > {8} > {10}	{4} > {6, 8}

Note. Józsa et al. (2017). Abbreviations: SSMMQ = Subject-Specific Mastery Motivation Questionnaire.

Conclusion

The present body of research on cultural influences on mastery motivation highlights the need to expand the scope of research to cultures that have not yet been studied, to study socialization and other cultural processes that could be mechanisms for any cultural differences, and to study behavioral measures of mastery motivation in addition to using the DMQ. These studies will be important in extending our understanding of mastery motivation and better enabling culturally appropriate educational practice. Future research on mastery motivation should also include a variety of age groups, measures, and analyses in the same study, to enable better understanding of the roles of both development and culture in mastery motivation. In addition to cross-national studies, the comparison of ethnic groups within a country and regional similarities and differences in mastery motivation is needed. In such studies, it will be important to decide which comparisons to make based on conceptually important and observed cultural similarities and differences in relevant characteristics, such as socialization processes, cultural ideologies, and school systems. These studies should address the social, political, and economic ecologies that are likely to have an impact both on culture and motivation.

Another important direction for such research is to carefully study how the cultures are changing over time. Some countries, such as China, are undergoing rapid sociopolitical and economic change, which is likely to impact cross-temporal comparisons of mastery motivation. It is particularly important to replicate older studies, to see if observed cross-cultural differences are still observed. Moreover, it will be important to explore the impact not only of ongoing sociopolitical and economic change, but also more rapid change due to major world crises, such as the current pandemic and economic crisis, on mastery motivation. For instance, it will be important to explore whether the need for online and hybrid delivery of education was associated with changes in mastery motivation in school-aged children and university students.

Finally, there is a need to take an "emic" approach to mastery motivation, in which one ascertains culture-specific characteristics by obtaining in-depth information from members of that culture. Currently, research has been limited to comparing "etic" characteristics that are expected to be relevant to all of the cultures studied. Further research is needed, taking this emic approach to determine potential sources of cross-cultural differences in motivation that are pertinent to age-related changes (Józsa et al., 2014).

This chapter discussed aspects of DMQ research that are particularly relevant to education. We focused on cultural similarities and differences in mastery motivation and on age-related decline in mastery motivation and

in school subject-specific mastery motivation during the school years. In addition, we summarized the important relationship between mastery motivation and the development of skills that are crucial to school success, including social and cognitive skills and school achievement. The next chapter will focus on DMQ research regarding children developing atypically, in comparison to children developing typically.

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Chapter 7

The DMQ in Children Developing Atypically and Comparisons with Those Developing Typically

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Introduction

Mastery motivation has been identified as a key developmental concept in a U.S. National Academy of Science report by Shonkoff and Phillips (2000). Thus, it is important for parents, teachers and clinicians to understand children's mastery motivation in order to enhance their future competence. This chapter focuses on the several aspects of mastery motivation assessed using the DMQ in children with atypical development, including children and youth with or at risk of developmental delay or developmental disabilities. Children at risk include those being born prematurely and those living in low income or homeless families. Developmental delay is defined as significant delay in achieving age-appropriate developmental milestones in at least one of the following domains: cognition, gross/fine motor, speech/language, social, and activities of daily living (Sherr & Shevell, 2006; Shevell et

al., 2003). Developmental disabilities are a group of conditions due to impairments in physical ability, learning, language, and/or behavior. These conditions begin during the developmental period, may impact day-to-day functioning, and usually last throughout a person's lifetime (https://www.cdc.gov/ncbddd/developmentaldisabilities/facts.html). Examples of developmental disabilities include intellectual disability (such as Down syndrome), cerebral palsy, autism spectrum disorder, speech and hearing impairments, and other learning disabilities. In this chapter, we will: a) briefly summarize the reliability and validity of the DMQ for children with atypical development, b) compare mastery motivation in children at risk for developmental delay with typically developing children using the DMQ, c) compare mastery motivation in children with and without developmental delays or disabilities, d) summarize factors influencing the DMQ scores in children with atypical development, e) use the preliminary norms for children developing typically to identify four categories ("typical," "possibly atypical," "clearly atypical," and "very atypical") for DMQ 18 scores based on calculations from the preliminary norms in **Chapter 3**, and f) explore how these DMQ 18 score categories could be used with an actual sample of preschoolers with atypical development.

Reliability and Validity of the DMQ for Children Developing Atypically

Reliability of the DMQ

For DMQ 17, the internal consistency reliability coefficients of six scales for both English-speaking and Chinese-speaking children developing atypically rated by parents were at least minimally acceptable (alphas .65-.91, median .85). The six scales were four instrumental/persistence scales and the two expressive/affective scales: Mastery Pleasure and Negative Reactions to Failure. The one minimally acceptable alpha was for the Chinese-speaking children on the Negative Reactions to Failure scale (Morgan et al., 2013).

For DMQ 18, parent ratings of preschool children developing atypically or at risk in the US and Taiwan again had alphas that were at least minimally acceptable (see Table 4.2 of **Chapter 4**). Only 3 out of 36 (8%) alphas, one from the US and two from Taiwan (Morgan et al., 2017; Chang et al., 2020), for the seven samples were minimally acceptable for these children with delays or at risk due to prematurity; the median alpha was .81. There were only two samples of school-age children with delays (see Table 4.3 of **Chapter 4**). The sample from Iran of children with cerebral palsy had 3 out of 6 alphas that were minimally acceptable; the other 3 were above .70, and thus

acceptable (Salavati et al. 2018a). All of the Taiwanese children with attention deficit disorder rated by their parents had acceptable to good alphas (Huang et al., 2020).

In terms of test-retest reliability, all of the interclass correlation coefficients (ICC) or correlation coefficients were acceptable, above .70 (see Table 4.4 of **Chapter 4**). These included three samples with parent ratings: one from Iran having children with cerebral palsy (Salavati et al. 2018a), one from Australia having children with cerebral palsy (Hines & Bundy, 2018), and one from the US with children who lived with a homeless parent (Ramakrishnan et al., 2015).

Validity of the DMQ

Support for the validity of the DMQ for children developing atypically is available for the validity for both DMQ 17 and DMQ 18 with children with motor or intellectual delays, especially for the Cognitive/Object Persistence scale. For example, Gilmore and Cuskelly (2009) found that parents' DMQ 17 Object Oriented Persistence scores were moderately to highly correlated with persistence at behavioral tasks for Australian children with Down syndrome at age 5 and at age 13.

There is also some evidence with DMQ 17 of convergent validity for children with motor delays. First, relevant parenting characteristics were related to DMQ scores: DMQ 17 total persistence and Mastery Pleasure were significantly correlated with Taiwanese mothers' cognitive growth-fostering teaching interactions with their toddlers who had motor delays (Wang et al., 2014); and inconsistent and lax parental discipline was related to low mastery motivation in Australian school-age children with cerebral palsy (Miller et al., 2014a). The DMQ was also related to activity engagement in school-aged children with cerebral palsy. Majnemer and colleagues found that Gross Motor Persistence predicted preferences for recreational and skill-based activities, Negative Reactions to Failure negatively predicted engagement in social activities, mastery motivation predicted enhanced involvement in leisure activities, and Mastery Pleasure was a strong predictor of diversity of involvement in social activities (Majnemer et al., 2008; 2010). Majnemer et al. (2013) also found that parent DMQ 17 ratings of Gross Motor Persistence were moderately related to a gross motor function measure, and the Vineland socialization measure was moderately to highly related to both Social Persistence with Adults and Social Persistence with Children.

A problem with DMQ 17 was that parent ratings, especially for children developing atypically, might have reflected their perceptions of both the child's motivation and competence. This could be because the items focused on the difficulty of everyday tasks, not necessarily whether they were just challenging or moderately difficult for that child, which is the definition of mastery motivation. DMQ 18 items put more emphasis on the child's trying

hard and less on the difficulty of the task, thus, helping parents base their ratings on their child's motivation.

Saxton et al. (2020) found evidence of convergent validity for DMQ 18 parent ratings of U.S. infants born pre-term and low birth weight. The DMQ 18 General Competence scale was significantly related to the infant's fine and gross motor behavior on the Bayley-III motor scales, and DMQ 18 Gross Motor Persistence was significantly related to the infants' gross motor development on the Bayley-III behavioral test.

Saxton et al. (2020) also found that Cognitive/Object Persistence was positively related to the toddlers' behavior on the cognitive, receptive language, and expressive language scales of the Bayley-III test. This finding and the similar ones from Wang et al. (2016) and Chang et al. (2017) indicate that the DMQ index of cognitive persistence is related to a measure of the developmentally delayed child's competence, as was predicted and, thus, provides some evidence for convergent validity. However, these findings also could indicate that that the DMQ 18 is measuring the child's competence or ability instead of or in addition to the child's mastery motivation. Thus, we should be cautious our interpretation of these findings as evidence for the validity of the DMQ.

Wang et al. (2019a) found that maternal DMQ 18 ratings of social persistence positively predicted parent ratings of participation in everyday activities for Taiwanese children with global delays.

Probably the strongest evidence for DMQ 18 validity is concurrent criterion related evidence for the relationship between DMQ 18 persistence and persistence on the Individualized Moderately Challenging Tasks (IMoT), which is considered a criterion measure. McCall (1995) argued that using behavioral tasks of moderate difficulty for each child was a major methodological advancement in separating the child's motivation and competence. Wang et al. (2016b) examined DMQ 18 and IMoT data from 64 toddlers with developmental delay; they found that DMQ 18 Cognitive/Object Persistence was moderately highly related ($r = .46$, $p < .01$) with persistence on the IMoT puzzle task. Thus, there is considerable evidence to support the validity of the DMQ for us with Taiwanese, Australian, and U.S. children at risk and with intellectual, global, and motor delays.

Stability of the DMQ

Table 7.1 shows 6-month stability coefficients for DMQ 18 rated by mothers of Taiwanese children with developmental delay (Wang et al., 2020); there were moderate to high significant positive correlations for both persistence and expressive scales. In addition, at the second wave, children showed somewhat higher parental perceived motivation than at the first wave of testing. However, there were not significant age differences between time 1 and time 2 ratings on the DMQ scales, except for Social Persistence with Adults. Perhaps, children with delays who were six-month older at time 2 have learned, from experience or early intervention, how to interact more effectively with parents and other adults. It is possible that they were more capable of expressing their cues and needs to adults.

Table 7.1. Stability of Mother's DMQ 18 Ratings for Taiwanese Children with Developmental Delay (N = 64)

DMQ 18 Scales	1st wave *M* (*SD*)	2nd wave *M* (*SD*)	*r*	*t*
Persistence scales				
Cognitive/Object Persistence	2.74 (0.90)	2.91 (0.82)	.70***	-1.93
Gross Motor Persistence	3.07 (0.88)	3.20 (0.77)	.57***	-1.35
Social Persistence with Adults	3.06 (0.86)	3.29 (0.78)	.65***	-2.65*
Social Persistence with Children	3.07 (0.77)	3.12 (0.83)	.53***	-0.51
Expressive scales				
Mastery Pleasure	4.08 (0.77)	4.23 (0.63)	.31*	-1.53
Negative Reactions to Challenge	3.16 (0.63)	3.25 (0.58)	.41**	-1.04
General competence	2.65 (0.72)	2.78 (0.69)	.63***	-1.70

Note. 1st wave = 24-30 months, 2nd wave = 30-36 months. Paired t test and Pearson correlations used to examine stability.

** p < .05, ** p < .01, *** p < .001.*

Other studies also reported moderate to good stability for DMQ 18 rated by parents of: a) preschoolers from low-income families and thus at risk for delay (MacPhee et al., 2018), b) preschoolers with developmental delay (Huang & Chen, 2020), and c) school-age children with cerebral palsy (Hines & Bundy, 2018). Acceptable long-term stability of DMQ 17 Object Oriented Persistence ($r = .52, p < .01$) was found from childhood (4-6 years) to adolescence (11-15 years) in children with Down syndrome (Gilmore & Cuskelly, 2017).

Comparisons of DMQ Scores in Children at Risk for Delay with Those Developing Typically

Some studies have examined mastery motivation using DMQ 18 in children at risk for delays compared with those developing typically. Blasco et al. (2018) compared preterm infants with low birth weight (LBW) at 6-8 months corrected age with full term infants of the same age. They found that parents rated the LBW preterm infants significantly lower on Gross Motor Persistence and General Competence but not on the other DMQ 18 scales (See also Blasco et al. 2018 data reported by Morgan et al. 2017). They also reported that at 18 months, the toddlers who were born at full term were rated higher than toddlers who were LBW and preterm only on Mastery Pleasure, and at 3 years there were no significant differences in parental ratings between the two groups on the seven DMQ 18 scales. Blasco et al., (2020), using updated information from Blasco et al (2018), found that there were no significant differences between very LBW, LBW, and full-term 6-month-old infants on the DMQ 18 persistence scales or Mastery Pleasure. The LBW groups received significantly lower DMQ ratings than the full-term group on competence, but the two LBW groups did not differ from each other.

Another study compared very LBW with moderately LBW preterm 6- to 9-month-old infants and found the very LBW group was rated significantly higher on DMQ 18 Negative Reactions to Challenge (Saxton et al., 2020). However, for the 18-month-old toddlers, there were no significant differences between the LBW and the very LBW groups on DMQ 18 scales. Huang et al. (2019) reported that preschoolers at risk for expressive language delay had significantly lower scale scores on Social Persistence with Adults and Social Persistence with Children than preschoolers with typical development, but there were no significant group differences on the other DMQ scales.

In summary, it seems that there were some significant differences on the persistence scales, the expressive scales, and General Competence scores between infants at risk for developmental delay and full-term infants. However, parental perceptions of motivation do not appear to differ significantly between preschoolers who are born prematurely and at full-term.

Comparisons of DMQ Scores between Children with and without Delays

Table 7.2 presents the group difference in DMQ 18 scale scores rated by parents between preschoolers with and without developmental delay. We compared the means and standard deviations of 124 preschoolers with delays from P.-J. Wang and S.-Y. Huang's studies reported by Morgan et al. (2017) and 145 preschoolers with typical development reported by Huang et al., Table 3.11 of **Chapter 3**. The Cohen's d is an appropriate effect size for the comparison between two means. Cohen (1988) suggested that d = 0.5 represents a medium effect size and ≥ 0.8 large effect size. The DMQ scores for the typically developing group were higher than those in the atypical group, with large effect sizes for all scales except Negative Reactions to Challenge, where the typically developing group was rated somewhat higher.

Table 7.2. Comparisons of the DMQ 18 Preschool Version for Taiwanese Children with and without Delays Rated by Parents

DMQ 18 Scales	Delayed (n = 124) *M* (*SD*)	Typical (n = 145) *M* (*SD*)	*t*	*p*	*d*
Persistence scales					
Cognitive/Object Persistence	2.77 (0.91)	3.44 (0.74)	-6.66	< .001	0.82
Gross Motor Persistence	3.08 (0.93)	3.77 (0.69)	-6.97	< .001	0.85
Social Persistence with Adults	2.89 (0.90)	3.79 (0.66)	-9.44	< .001	1.16
Social Persistence with Children	2.81 (0.89)	3.57 (0.70)	-7.83	< .001	0.96
Expressive scales					
Mastery Pleasure	4.05 (0.82)	4.56 (0.45)	-6.44	< .001	0.79
Negative Reactions to Challenge	3.16 (0.73)	3.43 (0.66)	-3.19	.002	0.39
General Competence	2.58 (0.78)	3.59 (0.63)	-11.74	< .001	1.44

Note. Independent t tests to examine group differences. Adapted from Morgan et al. (2017) and Table 3.11 of ***Chapter 3****.*

English-speaking children developing typically were compared to children with development delay roughly matched on mental age, rated by their parent on DMQ 17 (Morgan et al., 2013). The average age of atypically-developing sample was 9 years, and estimated mental age was approximately 4 years. The children were rated differently on all six DMQ 17 scales and on General Competence, as shown in Table 7.3. On the four instrumental mastery motivation scales, Mastery Pleasure and General Competence, the typically developing children were rated higher than the children with developmental delay. However, the effect sizes varied from large for four persistence

scales, Mastery Pleasure and General Competence to small for Negative Reactions to Failure, which was rated higher for the children with developmental delay.

In both Chinese-speaking and English-speaking children with and without developmental delay/disabilities, parents of children developing atypically rated their children lower on persistence scales, Mastery Pleasure and General Competence than parents of children without delays (see Table 7.2 and Table 7.3). However, the finding about differences in the Negative Reactions scale were different. Typically developing Chinese-speaking children were reported to show relatively high levels of Negative Reactions to Challenge, while the typically developing English-speaking children were reported to have relatively low levels of negative reaction to failure. This may be due to cultural differences in the behavior of the children or in their parent's perceptions of the meaning of Negative Reactions to Challenge.

Table 7.3. Comparisons of the DMQ 17 Preschool Version for English-speaking Children with and without Delays Rated by Parents

DMQ 17 Scales	Delayed (n = 259) M (SD)	Typical (n =1031) M (SD)	t	p	d
Persistence scales					
Object Oriented Persistence	2.59 (0.81)	3.53 (0.63)	-20.19	<.001	1.13
Gross Motor Persistence	2.85 (0.91)	3.76 (0.70)	-17.53	<.001	0.98
Social Persistence with Adults	3.50 (0.86)	3.96 (0.69)	-9.10	<.001	0.51
Social Persistence with Children	3.07 (0.99)	3.95 (0.71)	-16.35	<.001	0.91
Expressive scales					
Mastery Pleasure	3.93 (0.87)	4.32 (0.65)	-8.02	<.001	0.45
Negative Reactions to Failure	3.09 (0.94)	2.81 (0.79)	-4.90	.123	0.27
General Competence	2.40 (0.88)	3.78 (0.66)	-27.98	<.001	1.56

Note. Independent t test used to examine group differences. Adapted from Morgan et al. (2013).

In Hungary, school-aged children with and without delays were compared. Józsa and Molnár (2013) summarized an earlier cross-sectional study using a simplified self-report version of DMQ 17 with Hungarian school-aged children who were in special schools for children with intellectual disabilities. These children were assessed at grades 2-8 for their self-perceptions of cognitive persistence and mastery pleasure. They were compared to typically developing children in the same grades. The children developing typically rated themselves higher on Cognitive Persistence at grades 2 and 3 than the children with intellectual disabilities rated themselves. Surprisingly, the 7th and 8th grade children developing atypically rated themselves higher on Cognitive Persistence than the 7th and 8th grade

children developing typically. Mastery Pleasure in both groups was similar. These results may have been due to less focus on achievement and more focus on reinforcing the persistence of the children in special schools.

In summary, parents of atypically developing children generally rate their children lower on mastery motivation than do parents of typically developing children. This finding is in contrast to the results from laboratory mastery tasks. Several research teams have reported few statistically significant behavioral differences on moderately challenging mastery motivation tasks between typically developing and mental-age-matched children with delays or disabilities (Gilmore et al., 2003; Gilmore & Cuskelly, 2011; Glenn et al., 2001; Wang et al., 2013). As shown in Tables 7.2 and 7.3, parents usually rate children with disabilities lower on most DMQ scales. Two possible explanations for the different findings between parental report and behavioral task are: 1) parents of children with delays rate their children lower because they compare them to typically developing children of the same chronological age; 2) some DMQ items seem to imply that rated tasks are quite difficult. Thus, parents assume that difficult or hard tasks are more than moderately challenging tasks (Morgan et al., 2013).

Morgan, et al. (2013) divided atypically developing English-speaking children into four groups: Down syndrome, autism spectrum disorder, cerebral palsy, and other genetic and developmental disabilities. These 244 children developing atypically were compared to 936 children developing typically, all of whom had participated in studies mostly in the US or Australia, but also some in the UK or Canada. For the atypically developing children, about half were preschool or early elementary school age and half were upper elementary or teenage. Their average chronological age was 9 years, but estimated mental age was approximately 4 years, similar to the chronological age of the typically developing group.

Table 7.4 shows that means and standard deviations of the DMQ 17 scales in children developing typically and the four groups of children developing atypically. Further statistical comparison among the five groups indicated that the children developing typically were rated higher on DMQ 17 than all four groups of children developing atypically on Object Oriented Persistence, Gross Motor Persistence, Social Persistence with Children, and General Competence. However, on Social Persistence with Adults and Mastery Pleasure, the typically developing children were only rated higher than children with autism spectrum disorder and with cerebral palsy. Ratings of children with Down syndrome were not significantly different from children developing typically on Mastery Pleasure, Social Persistence with Adults, and Negative Reactions to Failure. On Negative Reactions to Failure, typically developing children were only rated significantly lower than the children with autism spectrum disorder.

There were also some significant differences among the four groups of children with disabilities. Children with Down syndrome and children with other genetic and developmental disabilities were rated higher than children on with autism spectrum disorder on both social persistence scales and Mastery Pleasure, as would be predicted. Similarly, children on the autism spectrum and cerebral palsy were rated higher on General Competence than children with Down syndrome. For details, please see Morgan et al. (2013).

For school-age children with disabilities, one study compared DMQ 18 parent ratings of school-age children developing typically to children with cerebral palsy, and found that parents rated the children with cerebral palsy much lower on all scales except Negative Reactions to Challenge (Salavati et al., 2018b). The biggest difference was for Gross Motor Persistence, as would be predicted given that difficulties with muscle control, movement and coordination are characteristic of cerebral palsy.

Table 7.4. DMQ 17 Scores among Typically Developing Children and Four Groups of Children with Developmental Disabilities Rated by Parents

DMQ 17 Scales	Typically, developing (*n* = 936)	Down syndrome (*n* = 59)	Autism spectrum disorders (*n* = 57)	Other disabilities (*n* = 57)	Cerebral palsy (*n* = 71)
Persistence scales	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
COP	3.52 (0.63)	2.59 (0.83)	2.49 (0.81)	2.64 (0.82)	2.62 (0.85)
GMP	3.76 (0.71)	2.99 (0.88)	2.42 (0.92)	3.02 (0.91)	2.83 (0.82)
SPA	3.96 (0.69)	3.66 (0.76)	3.16 (0.89)	3.69 (0.88)	3.44 (0.87)
SPC	3.95 (0.71)	3.28 (0.95)	2.61 (1.13)	3.28 (1.01)	3.14 (0.84)
Expressive scales					
MP	4.32 (0.64)	4.19 (0.72)	3.55 (0.94)	4.03 (0.85)	3.87 (0.87)
NR	2.81 (0.78)	3.07 (0.77)	3.26 (1.05)	3.14 (1.03)	2.98 (0.91)
COM	3.78 (0.67)	2.08 (0.70)	2.46 (0.78)	2.34 (0.94)	2.65 (0.93)
Age (y)	4.35 (2.79)	10.76 (3.96)	8.69 (2.70)	8.36 (3.01)	9.22 (2.14)

Note. COP = Object Oriented Persistence; COM = General Competence; GMP = Gross Motor Persistence; MP = Mastery Pleasure; NR = Negative Reactions to Failure; SPA = Social Persistence with Adults; SPC= Social Persistence with Children. Adapted from Morgan et al. (2013).

Factors That May Influence DMQ Scores in Children Developing Atypically

Table 7.5 and Table 7.6 display the child and family factors that have been identified in previous studies as possible influences on DMQ scores for atypically developing children. Regarding the child factors (Table 7.5), age was

significantly associated with child persistence scores perceived by parents of school-age children with disabilities in one study (Miller et al., 2014b). However, in other studies no significant associations of DMQ scores with age were found in children at risk or with disabilities (Morgan et al., 2017). Miller et al. (2014a) found no association with gender. Child participation diversity and intensity were found to be positively associated with child total persistence and Mastery Pleasure in young children with global delays (Wang et al., 2019b). Blasco et al (2020) reported that Social Persistence with Children was positively associated with child inhibitory control of the executive function in preterm infants with LBW. Positive associations between child cognitive competence and maternal ratings on Object Oriented Persistence were found in preschoolers with Down syndrome (Gilmore & Cuskelly, 2009; Niccols et al., 2003) and school-age children with cerebral palsy (Majnemer et al., 2013).

One study reported that expressive language quotient was positively correlated with the maternal ratings on social persistence in toddlers with hearing loss and developmental delays (Pipp-Siegel et al., 2003). Wang et al. (2019b) found that positive association between social ability and Mastery Pleasure and total persistence in young children with global delays. Furthermore, gross motor ability has positively correlation with Gross Motor Persistence rated by their parents in school-age children with cerebral palsy (Salavati et al., 2018b; Miller et al., 2014b). Therefore, child developmental abilities in a specific domain might be associated with the same specific domain of perceived mastery motivation.

Table 7.5. Child Factors Related to DMQ Scales in Children with Atypical Development

Factors	Related DMQ Scales	Participants	DMQ Version	References
Age	Gross Motor Persistence (r = .28*)	Cerebral palsy (age: 7±2y)	DMQ 17	Miller et al. (2014b)
Preference for leisure activities	Mastery Pleasure (β = .48 - .57*)	Cerebral palsy (age: 9±2y)	DMQ 17	Majnemer et al. (2008)
Participation diversity	Total persistence (r = .45*) Mastery Pleasure (r = .43*)	Global delay (age: 33±5m)	DMQ 18	Wang et al. (2019b)
Participation intensity	Total persistence (r = .46*) Mastery Pleasure (r = .44*)	Global delay (age: 33±5m)	DMQ 18	Wang et al. (2019b)
Prosocial behavior	Social persistence with Adults/Children (r = .46 - .50*)	Cerebral palsy (age: 9±2y)	DMQ 17	Majnemer et al. (2010)
Cognitive ability	Object Oriented Persistence (r = .49 **)	Down syndrome (age: 2-4y)	DMQ-E	Gilmore & Cuskelly (2009)
	Object Oriented Persistence (r = .52**)	Down syndrome (age: 7±2y)	DMQ-E	Niccols et al., (2003)
	Object Oriented Persistence (r = .42***)	Cerebral palsy (age: 7±2y)	DMQ 17	Majnemer et al. (2013)
Language ability	Social Persistence (r = .28*)	Hearing loss & DD (age: 26±13m)	DMQ-E	Pipp-Siegel et al. (2003)
Gross motor ability	Gross Motor Persistence (r = .24*)	Cerebral palsy (age: 7±2 y)	DMQ 17	Miller et al., (2014b)
	Gross Motor Persistence (r = .83***)	Cerebral palsy (age: 10±2y)	DMQ 18	Salavati et al. (2018b)
Social ability	Total persistence (r = .46*) Mastery Pleasure (r = .31*)	Global delay (age: 33±5m)	DMQ 18	Wang et al. (2019b)
Hyperactivity	Object Oriented Persistence (r = -.41*) Gross Motor Persistence (r = -.37*)	Cerebral palsy (age: 9±2y)	DMQ 17	Majnemer et al. (2010)
Inhibitory control	Social Persistence with Children (r = .26*)	LBW & prematurity (age: 6-8m)	DMQ 18	Blasco et al. (2020)
Attention Problem	Total persistence (r = -.28*)	Global delay (age: 33±5m)	DMQ 18	Wang et al. (2019b)
Sensory process difficulties	Total persistence (r = -.34*)	Developmental coordination disorder (age: 4-7y)	DMQ 18	Kim (2020)
Academic self-concept (self-perceived ability)	Cognitive/Object Persistence (r = .62**) Gross Motor Persistence (r = .42**) Social Persistence with Adults (r = .29**)	Learning disabilities (age: 13-16y)	DMQ 18	Szenczi et al. (2018)

Note. DD = developmental delay; DMQ-E = The Expanded Dimensions of Mastery Questionnaire; LBW = low birth weight; m = months, y = years.

**p < .05; **p < .01; ***p < .001*

Table 7.6. Family Factors Related to DMQ Scales in Children with Atypical Development

Factors	Related DMQ Scales	Participants	DMQ Version	References
Mother teaching behaviors	Total persistence (r = .45*)	Motor delay (age: 30±6m)	DMQ 17	Wang et al. (2014)
Parent-Child dysfunctional interaction	Mastery Pleasure (r = -.36*)	Global delay (age: 33±5m)	DMQ 18	Wang et al. (2019b)
Home affordance	Negative Reactions to Challenge (r = -.67*)	Motor disabilities (age: 18±7m)	DMQ 18	Huang et al. (2018)
Verbosity parenting	Gross Motor Persistence (r = -.35*) Social Persistence with Children (r = -.33*)	Cerebral palsy (age: 7±2 y)	DMQ 17	Miller et al. (2014b)
Single-parent families	Negative Reactions to Failure (β =.69*)	Cerebral palsy (age: 7±2 y)	DMQ 17	Miller et al. (2014b)

Note. m = months, y = years.
**p < .05; **p < .01; ***p < .001*

Several studies also have found that child behavioral problems, sensory processing ability, as well as preferences for participation experiences were associated with mastery motivation rated by their parents. One study indicated that for school-aged children with developmental coordination disorder, low sensory processing difficulties were significantly associated with high parental perceived motivation (Kim, 2020). In school-aged children with cerebral palsy, greater prosocial behavior, a preference for social leisure activities, and lower hyperactivity were positively associated with higher levels of mastery motivation (Majnemer et al., 2008; Majnemer et al., 2010). One study has found that higher child academic self-concept (self-perceived academic abilities) was associated with higher mastery motivation in school-aged children with learning disabilities (Szenczi et al., 2018)

For family factors (Table 7.6), a positive association between maternal teaching behavior and parental perceived mastery motivation was found in toddlers with motor delays (Wang et al., 2014). Wang et al (2019b) also found that young children with global delays who had parent-child dysfunctional interactions were perceived to have lower Mastery Pleasure. In addition, Huang et al. (2018) indicated that children with high quality of home affordance (supportive home environment) showed lower Negative Reactions to Failure. Family type, parental stress, and parenting style have been associated with mastery motivation in school-aged children with cerebral

palsy (Majnemer et al., 2010). Miller et al. (2014b) found that children from single-parent families showed greater Negative Reactions to Challenge scores rated by their parents than children from two-parent families; parents who reported greater over-reactivity and verbosity in their discipline practices had children with lower perceived overall persistence.

Using Preliminary Norms to Classify Children's DMQ 18 Scores

We propose that DMQ 18 scale score ranges could be used to classify typical and three atypical DMQ categories based on the preliminary norms for children developing typically. These norms, shown in Tables 3.11-3.16 in **Chapter 3,** provide means and standard deviations for the four persistence scales and Mastery Pleasure of the preschool and school-age versions. In this section, Table 7.7 is for the preschool version rated by parents; Table 7.8 shows the preschool version rated by teachers; Table 7.9 to Table 7.11 are for the school-age versions for child self-ratings, parent-ratings, and teacher-ratings for 10-12 year-old students, respectively; and Table 7.12 shows the school-age version for self-ratings of 13-16 year-old Taiwanese students.

In order to determine the four DMQ score categories ("typical," "possibly atypical," "clearly atypical," and "very atypical"), we use 1 standard deviation (SD) below the mean of the preliminary norm as one cutoff point to classify atypical and typical DMQ 18 scores. As shown in Figure 7.1, a DMQ scale score is considered "typical" (or normal) if it is above the mean of the preliminary norm or greater in value than 1 SD below the mean. Although it is not common for children with delays to be rated much above the normative mean, typically developing children are sometimes rated very high on the DMQ scales. This probably indicates a social desirability bias on the part of the rater. Unfortunately, we do not have an adequate solution for such biased ratings.

If the score is instead less than or equal to 1 SD below the mean, then it is considered to be atypical. There are two additional cutoff points (2 SD and 3 SD below the mean) to classify the three atypical categories of DMQ scores. If a DMQ scale score is between 1 SD and 1.99 SD below the mean, the scale score could be referred as "possibly atypical" (see Figure 7.1). If a DMQ scale score was between 2 SD and 2.99 SD below the mean, the scale score could be referred as "clearly atypical." If a DMQ scale score is lower than 3 SD below the normative mean, the scale score could be labeled as "very atypical."

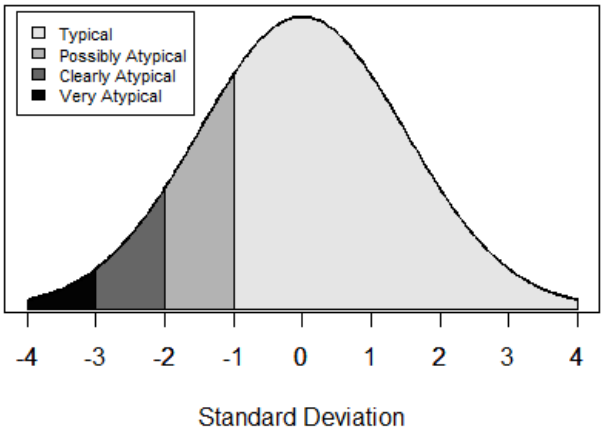

Figure 7.1. The Normal Curve Showing How Each of the Four Categories of DMQ 18 Scores Are Determined

Table 7.7 shows how the preliminary norm for Gross Motor Persistence could be used to identify the four DMQ score categories. The preliminary norm of the Gross Motor Persistence scale is 3.80 ± 0.77 (M ± SD), so the DMQ gross motor scores shown in Table 7.7 for the "typical" category is greater than 3.03 (3.80 minus 0.77). For the possibly "atypical" category, the range is 2.27 to 3.03 (i.e. between -1.0 SD and -1.99 SD); and for "clearly atypical", the range is 1.50 to 2.26 (i.e. between -2 SD and -2.99 SD). Finally, a "very atypical" gross motor persistence score would be less than or equal to 1.49, as shown in Table 7.7.

Table 7.7. Score Ranges for the Four Categories of the DMQ 18 Preschool Version Rated by Parents (N=771)

Scales	Classification of DMQ 18 Scores			
	Typical	Possibly atypical	Clearly atypical	Very atypical
Persistence scales				
Cognitive/Object Persistence	> 2.63	1.84 – 2.63	1.04 – 1.83	≤ 1.03
Gross Motor Persistence	> 3.03	2.27 – 3.03	1.50 – 2.26	≤ 1.49
Social Persistence with Adults	> 2.99	2.26 – 2.99	1.52 – 2.25	≤ 1.51
Social Persistence with Children	> 2.68	1.88 – 2.68	1.07 – 1.87	≤ 1.06
Mastery Pleasure	> 3.58	2.98 – 3.58	2.37 – 2.97	≤ 2.36

Note. These score ranges are based on the means and standard deviations from the preliminary norms shown in Table 3.11 of ***Chapter 3****.*

We will use a preschooler with developmental delay as an example. If the child's Gross Motor Persistence score is 2.20, his gross motor mastery motivation is considered to be "clearly atypical". If gross motor goals are prioritized by his parents, clinicians should collaborate with his parent to use motivation-based strategies to enhance his motivation for gross motor tasks in daily routines. See **Chapter 8**.

We calculated score ranges for Table 7.8 to Table 7.12 based on similar methods, but used the appropriate preliminary norms. Table 7.8 presents score ranges for the four categories of the DMQ 18 preschool version rated by teachers; of course, they are somewhat different from Table 7.7 rated by parents.

Table 7.8. Score Ranges for the Four Categories of the DMQ 18 Preschool Version Rated by Teachers (N=2406)

Scales	Classification of DMQ 18 Scores			
	Typical	Possibly atypical	Clearly atypical	Very atypical
Persistence scales				
Cognitive/Object Persistence	> 3.09	2.31 – 3.09	1.52 – 2.30	≤ 1.51
Gross Motor Persistence	> 2.90	2.03 – 2.90	1.15 – 2.02	≤ 1.14
Social Persistence with Adults	> 2.80	1.99 – 2.80	1.17 – 1.98	≤ 1.16
Social Persistence with Children	> 3.10	2.37 – 3.10	1.63 – 2.36	≤ 1.62
Mastery Pleasure	> 3.59	2.95 – 3.59	2.30 – 2.94	≤ 2.29

Note. These score ranges are based on the means and standard deviations from the preliminary norms shown in Table 3.12 of ***Chapter 3****.*

Table 7.9 to Table 7.11 show the score ranges of the four DMQ categories for the school-age version rated by 10-12 year-old children themselves, their parents, and their teachers.

Table 7.9. Score Ranges for the Four Categories of the DMQ 18 School-Age by Self-Rating Version in 10-12 Year-Old Children (N=741)

Scales	Classification of DMQ 18 Scores			
	Typical	Possibly atypical	Clearly atypical	Very atypical
Persistence scales				
Cognitive/Object Persistence	> 2.87	2.05 – 2.87	1.22 – 2.04	≤ 1.21
Gross Motor Persistence	> 2.99	2.04 – 2.99	1.08 – 2.03	≤ 1.07
Social Persistence with Adults	> 2.88	2.03 – 2.88	1.17 – 2.02	≤ 1.16
Social Persistence with Children	> 2.98	2.20 – 2.98	1.41 – 2.19	≤ 1.40
Mastery Pleasure	> 3.50	2.65 – 3.50	1.79 – 2.64	≤ 1.78

Note. These score ranges are based on the means and standard deviations from the preliminary norms shown in Table 3.13 of ***Chapter 3****.*

Table 7.10. Score Ranges for the Four Categories of the DMQ 18 School-Age by Adults-Rating Version Rated by Parents in 10-12 Year-Old Children (N=254)

Scales	Classification of DMQ 18 Scores			
	Typical	Possibly atypical	Clearly atypical	Very atypical
Persistence scales				
Cognitive/Object Persistence	> 2.89	2.14 – 2.89	1.38 – 2.13	≤ 1.37
Gross Motor Persistence	> 3.39	2.59 – 3.39	1.78 – 2.58	≤ 1.77
Social Persistence with Adults	> 3.10	2.39 – 3.10	1.67 – 2.38	≤ 1.66
Social Persistence with Children	> 3.19	2.50 – 3.19	1.80 – 2.49	≤ 1.79
Mastery Pleasure	> 3.67	3.00 – 3.67	2.32 – 2.99	≤ 2.31

Note. These score ranges are based on the means and standard deviations from the preliminary norms for 10-12 year-old children rated by parents shown in Table 3.14 of ***Chapter 3****.*

It is impossible for a DMQ scale score to be lower than 1.00 (on the 1-5 rating scale). Thus, "NA" (Not Appropriate) will be presented for the score range of "very atypical" category in Tables 7.11 and 7.12.

Table 7.11. Score Ranges for the Four Categories of the DMQ 18 School-Age by Adults-Rating Version Rated by Teachers in 10-12 Year-Old Children (N=308)

Scales	Classification of DMQ 18 Scores			
	Typical	Possibly atypical	Clearly atypical	Very atypical
Persistence scales				
Cognitive/Object Persistence	> 2.43	1.46 – 2.43	≤1.45	NA
Gross Motor Persistence	> 2.74	1.83 – 2.74	≤1.82	NA
Social Persistence with Adults	> 2.73	1.95 – 2.73	≤1.94	NA
Social Persistence with Children	> 2.73	1.96 – 2.73	≤1.95	NA
Mastery Pleasure	> 3.39	2.72 – 3.39	2.04 – 2.71	≤ 2.03

Note. NA= not appropriate. These score ranges are based on the means and standard deviations from the preliminary norms shown in Table 3.15 of ***Chapter 3****.*

Table 7.12 shows the score ranges for the four DMQ categories for the school-age version rated by 13-16 year-old Taiwanese children themselves. Because these data are from only one country and only from self-ratings, it will be desirable to collect more DMQ 18 data from older school-aged children from other countries and ratings by parents and teachers.

Table 7.12. Score Ranges for the Four Categories of the DMQ 18 School-Age by Self-Rating Version in 13-16 Year-Old Taiwanese Children (N=722)

Scales	Classification of DMQ 18 Scores			
	Typical	Possibly atypical	Clearly atypical	Very atypical
Persistence scales				
Cognitive/Object Persistence	> 2.56	1.82 – 2.56	1.07 – 1.81	≤ 1.06
Gross Motor Persistence	> 2.71	1.81 – 2.71	≤ 1.80	NA
Social Persistence with Adults	> 2.44	1.62 – 2.44	≤ 1.61	NA
Social Persistence with Children	> 2.78	1.98 – 2.78	1.17 – 1.97	≤ 1.16
Mastery Pleasure	> 3.08	2.23 – 3.08	1.37 – 2.22	≤ 1.36

Note. NA = not appropriate. These score ranges are based on the means and standard deviations from the preliminary norms shown in Table 3.16 of ***Chapter 3****.*

How the DMQ 18 Categories Could Be Used with a Sample of Real Preschool Data

In this section, we explore how the DMQ 18 classification categories could be used to evaluate a sample of DMQ 18 preschool children using existing data from 124 Taiwanese toddlers with developmental delay aged 33.6 ± 7.8 months, reported by Morgan et al. (2017). Table 7.13 shows that about half or more of toddlers were classified as having "typical" scores on the five DMQ scales. Note, especially, that almost 80% of mothers rated their child's Mastery Pleasure within the "typical" range.

Table 7.13. Frequencies and Percentages of the Four DMQ Score Categories Based on Preschool DMQ 18 Ratings by Parents of Taiwanese Preschoolers with Developmental Delay (N=124)

Scales	DMQ categories, n (%)			
	Typical	Possibly atypical	Clearly atypical	Very atypical
Persistence scales				
Cognitive/Object Persistence	59 (48%)	45 (36%)	18 (14%)	2 (2%)
Gross Motor Persistence	62 (50%)	34 (27%)	24 (20%)	4 (3%)
Social Persistence with Adults	59 (48%)	30 (24%)	27 (22%)	8 (7%)
Social Persistence with Children	72 (58%)	31 (25%)	16 (13%)	5 (4%)
Mastery Pleasure	98 (79%)	13 (11%)	9 (7%)	4 (3%)

The items for Mastery Pleasure (such as "smiles broadly after finishing something" or "gets excited when he or she figures something out") are not necessarily related to the child's competence or abilities. It is important to note that positive social-emotional skills (including social relationships) are listed among the first three childhood outcomes in early childhood intervention (ECI) services proposed by the Early Childhood Technical Assistance Center in U.S. (https://ectacenter.org/eco/pages/childoutcomes.asp). Thus, using the DMQ 18 Mastery Pleasure and the social persistence scales would help practitioners and parents understand and enhance levels of social-emotional skills in natural settings.

Table 7.13 suggests evidence that mastery motivation and developmental ability are different constructs. Although these children have problems with regard developmental abilities (i.e., they all have DMQs less than 85, which is 1 SD below the mean), approximately half or more of them were rated as typical on the DMQ and thus, presumably, have mastery motivation within the typical range.

As we mentioned before in the section of this chapter on the validity of the DMQ, Cognitive/Object Persistence (COP) scores were significantly correlated with the Individualized Moderately Challenging Mastery Tasks persistence at puzzles score in a preschool sample of children with developmental disabilities (Wang et al., 2016). In clinical settings, does a child's COP score rated by a parent and the child's DMQ score category help professionals estimate the child's persistence during a mastery task? To help answer this question, we used data from the Wang et al. (2016) study.

We used a method some clinicians call "validity for decision making" to dichotomize both the DMQ classification scores and the mastery task persistence scores. We dichotomized the puzzle task persistence scores into two categories, "less" and "more" persistent. Because the possible range of the puzzle persistence is from 0 to 36 intervals, we classified the child as having "less persistence" if he or she persisted at (i.e., tried to solve) the moderately

challenging puzzle task less than half of the time, i.e., less than 18 of the 36 intervals. Those children who engaged in puzzle task persistence equal to or more than 18 intervals were classified as having "more persistence." This is shown in Table 7.14, as is the dichotomized DMQ score. Based on Table 7.7, children whose DMQ Cognitive/Object Persistence scores are above 2.63 are considered "typical," and scores below are "atypical." We assume that the dichotomized scores are in agreement with one another when children rated as atypical on the DMQ are less persistent on the mastery task, and when children rated as typical on the DMQ are more persistent on the mastery task. Table 7.14 shows that among the 59 children who were categorized as typical on Cognitive/Object Persistence, 42 (71% agreement) children tried to solve mastery tasks more than half of the time. Among those in the atypical category, 56 (86% agreement) engaged in task persistence less than half of the time. Thus, the average agreement between the dichotomized DMQ 18 score and the dichotomized mastery task score is 79%. The chi-square ($\chi^2 = 39.66$, $p < .001$) is highly significant, thus there is a strong relationship between the DMQ scores and task persistence, indicating that there is strong agreement of an atypical DMQ score with lower task persistence and also of a typical DMQ score with higher task persistence.

Table 7.14. Agreements between the Dichotomized DMQ Cognitive/Object Persistence Score and the Dichotomized Task Persistence Score for Preschoolers with Developmental Delays (N = 124)

Scale		Task persistence		
		Less	More	Total
DMQ Cognitive/ Object Persistence	Atypical	56 (86%)	9 (14%)	65 (100%)
	Typical	17 (29%)	42 (71%)	59 (100%)
	Total	73 (59%)	51 (41%)	124 (100%)

Note. Atypical Cognitive/Object Persistence includes children who's DMQ score ≤ 2.63; less task persistence includes those who persisted at the task less than half time.

Because the average agreement is quite high, the results indicate that clinicians may use DMQ 18 Cognitive/Object Persistence scores to estimate the child's persistence during mastery tasks. However, more information would be helpful to understand fully the usefulness of the DMQ categories in clinical settings.

Conclusion

Evidence for the reliability and validity of the DMQ were found to be acceptable in several studies for children with atypical development, so we can use the DMQ to measure mastery motivation for intervention services.

However, further research is desirable to investigate the psychometrics of DMQ 18 in more studies, including those with larger samples.

Parents of children with atypical development have rated their children relatively low on mastery motivation when using the DMQ. However, few statistically significant behavioral differences on moderately challenging mastery motivation tasks between typically developing children and mental-age-matched children with delays or disabilities have been reported in previous studies. Children with different diagnoses also showed different mastery motivation profiles on the DMQ scales. To understand caregivers' perceptions of their children's motivation, we could encourage practitioners to observe each child's motivation in a variety of everyday situations at different difficulty levels, noting especially whether the child persists at and enjoys tasks that are moderately difficult for him or her personally; that is, not to hard and not too easy. Then practitioners can coach caregivers of children with atypical development about how to distinguish the differences between mastery motivation and developmental ability. Practitioners can help parents and children focus on encouraging the child's persistence on moderately difficult tasks. The DMQ also can help practitioners identify which domains (cognitive, motor, social, or affective) that the parent or teacher (or older children themselves) perceive to be lowest in terms of the child's current levels of mastery motivation.

This chapter provides clues about which child and family factors have been found to be related to the DMQ and, thus, possibly be causal influences on the child's mastery motivation. Some of these factors, probably especially the family ones, could be modified with family-centered interventions. Some of these topics are discussed in **Chapter 8** in the sections about how to use the DMQ and motivation strategies in early childhood interventions and with school children who have special needs.

A major contribution of this chapter is that we use the preliminary norms for children developing typically, presented in **Chapter 3**, to classify the DMQ 18 scale scores for children who have delays. This method classifies DMQ scores as "atypical" or "typical;" in this context, typical means the child's DMQ scores were within the expected range of DMQ scores for children developing typically. This classification method should be helpful to practitioners and clinicians. They will be able to identify which domains of the child's mastery motivation (cognitive, motor, social, or affective), if any, were perceived to be problematic. If the parent (or teacher) does not perceive any domains of the child's mastery motivation to be atypical, even that information may be useful. The parent may have a "social desirability bias" that indicates they don't want to accept or believe that their child has deficits in mastery motivation. It could alternatively indicate that the parent is perceptive, perhaps because of prior interventions, noting that their child's mastery motivation is within the typical range, if the child is provided with

tasks that are moderately difficult rather than too difficult. Whatever the results of using the DMQ score classifications, these results will provide the practitioner with useful information to have meaningful discussions with the parents as they jointly discuss and implement plans for enhancing the child's mastery motivation.

The final section of this chapter provides an example from an actual sample of preschool DMQ data from parent ratings of their children with delays. These data use the DMQ classification method to show the percentages of these children that were currently classified as having atypical DMQ scores. This last section also shows how a clinician might use dichotomized DMQ and mastery task data to assess the value of the DMQ ratings and provides a simplified table to help practitioners make decisions about DMQ scores.

Chapter 8 will focus on the use of the DMQ in early childhood intervention and for schoolchildren with special needs.

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Chapter 8

Using DMQ 18 in Early Intervention and with School Children Who Have Special Needs

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Introduction

It is important for clinicians, educators, and parents to focus on assessing and cultivating the mastery motivation of children with special needs in order to enhance children's competencies. Mastery motivation enables a child or a youth to autonomously and consistently perform and enjoy activities with moderate difficulty levels (Morgan et al., 1995). The motivation for actively interacting with the environment, human or non-human objects, and obtaining information (learning experiences) spontaneously provides the foundation for learning affordances during the early development process (Gibson & Pick, 2000). Affordance is the fit between a child and his or her perception of environmental supports, which enables the child to perform an action (Gibson, 1979). For those with neurological impairments or developmental disabilities, mastery motivation for tasks related to intervention goals provides the motivation for the repetitive practice that is needed to induce permanent changes in neuroplasticity (Lang et al., 2009). To provide motivation-enhancing interventions, clinicians and educators must assess

children's mastery motivation at the beginning of services. The revised Dimensions of Mastery Questionnaire (DMQ 18) is one of several methods for assessing mastery motivation and is the primary focus of this book. There are several language versions of DMQ 18 that are used around the world (**Chapter 1**). The following is a vignette that describes how DMQ 18 can be used for assessment in an early childhood intervention program.

Hua-Mei's daughter, Ting-Ting, is delayed in meeting developmental milestones across several domains. Although she is 24 months old, she is at a developmental age of 18 months. Hua-Mei brought Ting-Ting to an early intervention program at a children's hospital in Taipei, Taiwan. The pediatric physical therapist, Yu-Wen, asked Hua-Mei to complete the revised Dimensions of Mastery Motivation Questionnaire (DMQ 18, Morgan et al., 2019). Yu-Wen explained the 5-point Likert scale and asked Hua-Mei if she had any questions. Hua-Mei said, "I'm not sure how to rate and practically observe Ting-Ting's motivation in daily activities. Can you give me an example?" Yu-Wen replied "Sure. I was watching Ting-Ting in the waiting room and she chose a car puzzle that might be moderately challenging for her abilities, and she played with it for a long time. I noticed that she was persistent at putting each puzzle piece in a hole, even though she failed several times. Although she demonstrated mild frustration, she kept persisting at this activity until she completed the puzzle. Then, she clapped her hands and looked at you, her caregiver, to express her pleasure in completing the task. These behaviors demonstrated her high motivation to complete the puzzle. In contrast, I noticed that when you asked her to draw a person's face, a task that is typically very challenging for her age group, she scribbled for a few seconds, appeared highly frustrated, and turned away. These behaviors suggest lower motivation for the drawing task. In general, children's motivation is correlated with the difficulty level of the task, the possibility of allowing the child to choose the task, and the extent of the child's interest in the task. If a child is interested in a task and chooses it, and if the task is at an appropriate level of difficulty for that child, the child will typically show higher motivation and persist longer on the task."

Health care professionals, teachers, and caregivers should consider not only a child's competence, but also the child's persistence and affective behaviors while engaging in challenging tasks. The DMQ 18 is a tool that is used to assess children's mastery motivation in daily life and is helpful in developing motivation-based strategies for early childhood intervention (ECI) services and school services. If health care professionals, teachers, and caregivers do not have a comprehensive understanding of the concept of mastery motivation, they may conflate children's current abilities with their motivation to master challenges. However, these are distinct constructs.

Mastery motivation involves the child's attempts, even if unsuccessful, to master challenging tasks. Mastery motivation is different from skillfulness

or developmental ability, and varies according to settings and tasks. Mastery motivation is a multifaceted concept that is multi-disciplinary, context-specific, and domain-specific (Józsa & Barrett, 2018). Such a concept provides a unique way to understand individual differences in children's and adolescents' developmental trends of motivation. In this chapter, we will describe why it is important to focus on mastery motivation in order to enhance children's competencies, a 5-Step Enhancing Mastery Motivation (5-SEMM) model in children with special needs, how to use DMQ 18 both at the assessment stage of intervention and in motivation-based strategies for ECI and for students with special needs. While this chapter focuses on the use of DMQ 18 and motivation-based strategies among children with special needs, these tools can also promote adaptive outcomes for children developing typically.

The Importance of Mastery Motivation for Children's Competencies

In order to enhance children's active engagement in daily life and learning activities, clinicians, educators, and parents should focus on mastery motivation. Mastery motivation has been described as the motivation to master moderately challenging tasks in order to increase competence (White, 1959; Harter, 1981). The concept of mastery motivation is similar to intrinsic motivation from the internal regulation and volitional endorsement of self-determination theory continuum (Ryan & Deci, 2000), or the mastery goal pattern in achievement goal theory (Elliot, 2005). Mastery motivation can also be thought of as children's psychological drive to make mastery attempts (Barrett & Morgan, 1995, 2018; Morgan et al., 2013) and to try persistently to solve problems or master skills (Morgan et al., 1990).

Higher levels of mastery motivation (i.e., focusing on mastering tasks in early life) will increase interactions with the environment (Seifer & Vaughn, 1995). Repetitive practice leads to better developmental competencies for toddlers (Yarrow et al., 1975). Goal-setting theory also proposes that the mechanisms of increasing motivation to attain measurable and optimal challenging goals are task persistence, a purposeful attention, the expenditure of effort, and effective strategy usage (Locke & Latham, 2013). For those with neurological impairment or developmental disabilities, neuroplasticity provides the potential for change, yet thousands of repetitive practices are needed to ensure that the changes are permanent (Lang et al., 2009). Thus, motivation is one of the important moderators of neuroplasticity (Cramer et al., 2011).

For school-aged children and adolescents, mastery motivation is important in order to engage in academic learning tasks, physical fitness and

community activities. In this period, it is crucial that children have mastery motivation in multidisciplinary learning and activate abilities of active learning, as well as self-efficacy, so that they will be involved in school life. The categories of students' multiple learning tasks include not only subject activities (e.g., mathematics, foreign language, physical education, and biology etc.), but also non-subject activities (e.g., extracurricular activities and social activities etc.). These activities expand life experiences, become a part of leisure activities, and improve interpersonal communication; thus, they are important for children's physical and mental health. Empirical data indicates that both subject and non-subject motivations of school-age children and adolescents show a declining trend (Józsa et al., 2017b; Józsa & Molnár, 2013; Lau, 2009). This trend had cross-cultural commonalities (Józsa et al., 2014); therefore, it is important to enhance mastery motivation of school-age children and adolescents.

Task-directed persistence and pleasure, which are indicators of mastery motivation, are also similar to the definition of the involvement of participation of the Family of Participation-related Constructs (fPRC, Imms et al., 2016). An operational definition of involvement provided by the fPRC is: "*the experience of participation while attending that may include elements of engagement, motivation, persistence, social connection, and affect*" (Imms, 2020). In addition, child participation has been proposed as a "right" for children based on the United Nation's Convention on the Rights of the Child (UNCHR, 1990), the United Nation's Convention on the Rights of Persons with Disabilities (UN General Assembly, 2007), and the People with Disabilities Rights Protection Act in Taiwan (Liao & Wu, 2017). For infants and young children, in both the International Classification of Functioning, Disability, and Health (ICF) framework (World Health Organization, 2001) and a developmental systems approach (Guralnick, 2019), motivation is closely related to competence or participation. Motivation (encoded as b130 in ICF) is also included in one ICF core set, the ICF-CY Code Set for Infants with Early Delay and Disabilities (Pan et al., 2015; Pan et al., 2019). Therefore, mastery motivation assessment and motivation-based strategies in services for children and adolescents are important.

Numerous cross-sectional studies have found positive associations between mastery motivation and competence among preschool- and school-aged children with developmental delays. Mastery motivation was positively correlated with cognitive and motor developmental quotients, as well as adaptive competence, in toddlers and preschoolers with developmental delays (Gilmore & Cuskelly, 2009; Hauser-Cram, 1996; Niccols et al., 2003). Furthermore, mastery motivation is associated with academic competence, prosocial skills, and emotional functioning in preschoolers at risk for delays, such as preschoolers experiencing homelessness or low socioeconomic status (Ramakrishnan & Masten, 2020; Turner & Burke, 2003). Two studies

found that mastery motivation was positively associated with leisure activities in school-aged children and adolescents with cerebral palsy (Miller et al., 2014; Shikako-Thomas et al., 2008). Furthermore, mastery motivation was positively associated with adaptive competence in social domains, such as getting along with others and engaging in recreational activities, in adolescents and young adults with physical disabilities aged 13 to 29 years (Warschausky et al., 2017). The executive function components extrapolated from Bayley Scales of Infant Development-III were significantly correlated with DMQ 18 scores in preterm infants (Blasco et al., 2020). Children with higher perceived persistence showed better cognitive, gross motor, and fine motor abilities as well as adaptive social competence in school-age children and adolescents with cerebral palsy (Majnemer et al. 2013; Miller et al., 2014; Salavati et al., 2018).

Mastery motivation is also a positive predictor of later competencies in various developmental domains, executive functions, and school performance between preschool and school-age periods in children with and without developmental delays. Persistence when engaging with moderately challenging tasks at age 3 was a predictor of cognitive and adaptive competencies at 10 years among children with global delays (Hauser-Cram et al., 2001). Toddlers' task persistence mediated the relationship between maternal teaching behavior and children's cognitive, fine motor, and gross motor abilities six months later (Wang et al., 2019a). Task persistence at age 3 also predicted the executive function skills at age 23 among children with disabilities (Hauser-Cram et al., 2014). In addition to task persistence, parental-perceived persistence measured using DMQ 18 predicted participation in daily activities six months later for toddlers with global developmental delays (Wang et al., 2019b).

There is also evidence of mastery motivation as a predictor of later competence in school-aged children and adolescents with disabilities. Early mastery motivation predicted later academic competences from 6 to 15 years in children with Down syndrome (Gilmore & Cuskelly, 2009). In addition, positive associations have been found between childhood perceived motivation using DMQ 18 rated by parents and later self-determination skills from 6 years to 26 years among children with Down syndrome (Gilmore & Cuskelly, 2017).

Lack of motivation is cited as a key limitation for children to achieve their functional potential in rehabilitation (Jennings et al., 1988). There is positive evidence of the effects of motivating interventions on outcomes in children developing atypically. Tatla et al. (2014) found that motivating rehabilitation interventions might enhance memory and response inhibition performance in children with acquired brain injury. For children aged 3 to 10 years old with motor delays, a systemic review study showed positive effects of motivation interventions on locomotor and object control skills

(Bandeira et al., 2017). The mastery motivation climate program (Ames, 1992), described later in this chapter, has a positive impact on object control skills and perceived physical competence in preschoolers with risk for delays (Robinson, 2011; Robinson & Goodway, 2009; Robinson, et al., 2009). Among 5 to 6 year-old children with developmental delay, the program had a positive impact on locomotor performance, and the positive pattern of change was maintained for six months (Valentini & Rudisill, 2004). The mastery motivation enhancing program, which includes the "I can" mastery motivation classroom program for preschoolers with typical development, showed effectiveness on persistence of mastery tasks (Hashmi et al., 2017). Miller et al. (2016) and Huang et al. (2018) also found that for toddlers with physical disabilities, motor training programs based on motivation-based strategies have a positive impact on the toddlers' motor and social competences. A meta-analytic review of motivation interventions in education settings generally demonstrated effectiveness in physical education for children aged 5-17 years (Lazowski & Hulleman, 2016).

In summary, from the perspectives of both children's rights and developmental science, childhood mastery motivation is important for children's competence. Therefore, focusing on mastery motivation during assessment and considering mastery motivation as a target of intervention are important in order to enhance children's competencies and societal participation. In the next section, we introduce the 5-SEMM model in children with special needs.

A Model for Enhancing Mastery Motivation in Children with Special Needs

Article 13 of the Convention on the Rights of the Child (United Nations Commission on Human Rights, 1990) regulates that children shall have the right to freedom of expression and to be included in decision making because autonomy and self-determination are important for them, a principle echoed by the Individual with Disabilities Education Act (1997). Consistent with these values, the Institute of Medicine (2001) proposed the person-centered approach, which emphasizes providing care or services that is respectful of and responsive to individual client preferences, needs, and values and ensuring that client values guide all clinical decisions. The World Health Organization (2015) adopted the person-centered approach as one global strategy for 2016 to 2026. When children are old enough to communicate their ideas, the intervention team usually applies the person-centered approach and collaborates with the child in the intervention plan. For younger children early childhood intervention (ECI) has adopted family-centered practice as its philosophical foundation. Family-centered practice includes

three key elements: (1) an emphasis on strengths, not deficits; (2) promoting family choice and control over desired resources; and (3) the development of a collaborative relationship between parents and professionals (Espe-Sherwindt, 2008).

To create a family- or person-centered intervention, we integrated the collaborative problem-solving (Bjorck-Akesson, 2018; Greene et al., 2003; Liao et al., 2018; Liao et al., 2017) and the guideline for in-service practitioners of community-based ECI service program (Liao et al., 2016; Liao, 2020). The collaborative problem-solving approach is a self-management principle in primary care (Battersby et al., 2010) and involves both collaboration and problem solving. Collaboration for a group task is essential because some problem-solving tasks are too complex for an individual to work through alone or the solution will be improved through the joint capacities of a team. If service providers only use direct treatments to decrease the child's problems, then parents or children themselves will not learn problem-solving competences. Through collaboration, parents' and/or children's self-efficacy will be improved (Greene et al., 2003; Liao et al., 2017). The guideline and principles for in-service practitioners of the community-based ECI service program propose a flow chart for each child as: case intake, relationship building, multiple assessment, analysis of assessment results, design IFSP, executive community-based ECI service, outcome evaluation and case closed (Liao, 2020).

Figure 8.1 presents the 5-Step Enhancing Mastery Motivation (5-SEMM) model for children with special needs. Based on a family/person centered approach aims to enhance children's mastery motivation in everyday routines. 5-SEMM emphasizes children's and families' participation in intervention programs and is consistent with developing Individualized Family Support Plans (IFSP) for children under age 3 or Individualized Educational Plans (IEP) for older children. The five steps are:

1. Practitioners collaborate with the parent/child to identify and assess the problem of mastery motivation.
2. Practitioners discuss the problem explanation with the parent/child.
3. The parent/child select the goals to be pursued.
4. Motivation-enhancing strategies are proposed and executed by practitioners using collaborative consultation with parent/child.
5. Practitioners and parent/child perform the outcome evaluation together.

The steps may at times be bidirectional. For example, after practitioners consult collaboratively with parents and gain more information about the presenting concerns (step 4), they may then modify the goals (step 3). *Using Ting-Ting's example, during collaborative consultation (step 4), practitioners find that the goal of persistence of holding spoon to eat by himself during meal time has less progress due to the child's food preference and*

inadequate of spoon management skill. In addition, the child likes to eat fruits and yogurt. During snack time, the child can use spoon to eat sticky foods (e.g., yogurt with sliced fruits) better. Therefore, the motivation goal is change from "persistence of holding spoon to eat regular rice meal" to "persistence of holding spoon to eat favorite sticky foods".

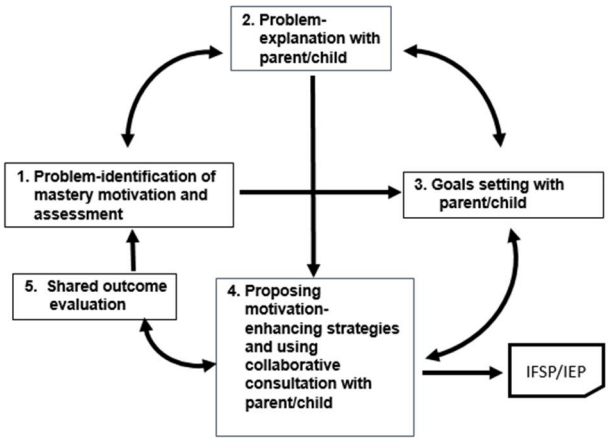

Figure 8.1. 5-Step Enhancing Mastery Motivation (5-SEMM) Model

Based on family/person-centered approaches, practitioners have to collect information for understanding family and child needs and majors concerns at the beginning. Practitioners should work with parents and/or children themselves to identify concrete problems of mastery motivation in everyday life. Multiple assessments with parents/child can be used to achieve a concrete problem description that answers the 4W1H questions: who (characteristics of the child), what (domains and dimensions of motivation problems), when (which routine), where (which context), and how (severity of problems). A complete description of the problem can provide baseline data for setting SMART (specific, measurable, attainable, realistic, and time-bound; Jung, 2007) goals (Step 3) and help to find explanations for the problem. Finding possible explanations for the problems (Step 2) not only guides assessment (Step 1) and goal setting (Step 3), but can also lead to recommendations for motivation-enhancing strategies (Step 4) in the IFSP/IEP or other treatment plans. To find possible explanations, possible facilitators and existing resources to solve the problems are identified along with reasons for the problems and barriers to its solution. At Step 5, shared outcome evaluation, practitioners should invite the family/child to evaluate the achievement of outcome goals together.

In this chapter, 5-SEMM focuses on mastery motivation and the problems, goals, strategies, and outcomes are related to children's motivation.

However, interventions for enhancing motivation may focus on motivation as a desired outcome or as the process. For goals that are not motivation-related, the 5-SEMM process and strategies could be used during the process of intervention services or activities participation to increase mastery motivation and to accomplish outcome goals. The next section we will describe how to use DMQ 18 and motivation measures for assessment at Step 1 (problem-identification of mastery motivation and assessment) and Step 5 (shared outcome evaluation).

Using DMQ 18 and Motivation Measures for Intervention Assessment

Consistent with a number of calls to include mastery motivation in assessments of children with special needs (Pritchard-Wiart et al., 2019; Shonkoff & Phillips, 2000; Tatla et al., 2013; Ziviani et al., 2015), we describe how to use DMQ and related motivation measures at the initial assessment stage for understanding the strength and weakness of various mastery motivation domains and at the outcome evaluation stage to examine the effectiveness for mastery intervention programs in this section.

Previous studies used the DMQ as one of the body function parameters in family-centered and ICF-based ECI services in a remote area of Taiwan (Hsieh et al., 2020) and in a hospital-based environment, in order to promote mobility and social functions in young children with motor disabilities in northern Taiwan (Huang, 2018; Huang & Chen, 2017). In school settings, the DMQ has been also be used to understand the specific domain levels of mastery motivation among certain groups, such as children with congenital hemiplegia (Miller et al., 2014) or autism spectrum disorder (Morgan et al., 2013). This information can identify problems of mastery motivation and provide motivational interventions for students who are in certain development periods or special groups.

Additionally, the DMQ has been used as an outcome measure to examine intervention effectiveness (Kenyon et al., 2018; Kenyon et al., 2017). When practitioners or researchers use DMQ 18 as an outcome measure, they should measure a child's DMQ 18 twice: before and after the intervention. We suggest that clinicians use the minimum (actually) detectable change (MDC) given the measurement error of the instrument (Beaton et al., 2001; Ferguson et al., 2002; Jacobson & Traux, 1991; Wang & Liao, 2004). The concept and formula to obtain the MDC is similar to the reliable clinical change index that indicates the number of scale points needed on a given psychometric measure to determine if a change in score from pre-to-post-treatment is due to real change (Jacobson & Traux, 1991). In addition, clinicians may also evaluate the category of the post-test score to interpret the

results of the intervention (Jacobson & Traux, 1991). If a child's pre-test DMQ 18 score is "not typical", and the post-test score improves and belongs to the "typical" category after intervention, then we may define that intervention is effective. However, we also have to check if the pre-to-post-change score is equal to or above the MDC.

In this chapter we use the MDC of DMQ 18 at the individual level to determine if a change in score from pre-to-post-treatment is due to real change. In other words, 'is the difference in score from pre-to-post-treatment above the random error of measurement?' The MDC is calculated using DMQ 18 standard error of the measurement (SEmeas) to estimate the range of chance variation. If the difference in DMQ 18 score from pre-to-post-treatment is above the MDC, then the possibility of the change having been caused by the measurement error is less than 5%.

As seen in Table 8.1, in order to calculate the MDC of DMQ 18 preschool version, we use the standard deviation (SD) and test-retest reliability *r* values from previous studies. The SD values of a Taiwanese sample of preschoolers developing atypically (n = 124) are from Table 7.2 in **Chapter 7**, and the test-retest reliability values are from full-term preschoolers 3-6 years old developing typically (n = 58), shown in Table 4.4 in **Chapter 4**. Due to the lack of availability of DMQ 18 test-retest reliability coefficients for preschool children developing atypically, we assume the test-retest reliability coefficients for an atypical sample would be similar to the typical samples from **Chapter 4**. Table 8.1 presents, for each DMQ 18 scale, the computed value of MDC based on the SD and test-retest reliability coefficients. The DMQ normative values come from the preliminary preschool norms of typically developing samples rated by parents (n = 771), shown in Table 7.7 in **Chapter 7.**

Similar information for school-age children is presented in Table 8.2, including the SD and test-retest reliability values of an Iranian sample of 10-12 year-old children with cerebral palsy (n = 230) rated by their parents (Salavati, et al. 2018; reliabilities are shown in Table 4.4 in **Chapter 4)**. For each DMQ 18 scale, the computed value of MDC is based on these SDs and test-retest reliability coefficients. Table 8.2 also presents the DMQ 18 scores "typical" for the parent ratings of this age group based on Table 7.10 of **Chapter 7**.

Table 8.1. MDCs and "Typical" DMQ 18 Cut-off Scores for Five Scales Used to Determine Intervention Effectiveness for Preschool Children with Special Needs

	DMQ Scales				
Score	COP	GMP	SPA	SPC	MP
Standard deviation[a]	0.91	0.93	0.90	0.89	0.82
Reliability[b]	.87	.84	.89	.89	.82
MDC[c]	0.91	1.03	0.83	0.82	0.96
Typical[d]	> 2.63	> 3.03	> 2.99	> 2.68	> 3.58

Note. COP = Cognitive/Object Persistence; GMP = Gross Motor Persistence; MDC = the minimum actually detectable change given the measurement error of the instrument; MP = Mastery Pleasure; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

*[a]The SDs of preschool children developing atypically are from Table 7.2 of **Chapter 7**; [b]the reliability coefficients are from Table 4.4 of **Chapter 4**; [c]the minimum actually detectable change (MDC) was computed from the DMQ 18 SEmeas; [d]the "typical" DMQ 18 scale scores are based on Table 7.7 in **Chapter 7**.*

Table 8.2. MDCs and "Typical" DMQ 18 Cut-off Scores for Five Scales Used to Determine Intervention Effectiveness for School Children with Special Needs

	DMQ Scales				
Score	COP	GMP	SPA	SPC	MP
Standard deviation[a]	0.84	0.81	1.04	1.00	1.21
Reliability[b]	.91	.85	.96	.79	.84
MDC[c]	0.70	0.87	0.58	1.27	1.34
Typical[d]	> 2.89	> 3.39	> 3.10	> 3.19	> 3.67

Note. COP = Cognitive/Object Persistence; GMP = Gross Motor Persistence; MDC = the minimum actually detectable change given the measurement error of the instrument; MP = Mastery Pleasure; SPA = Social Persistence with Adults; SPC = Social Persistence with Children.

*[a]The SDs are based on parent ratings are based on Salavati, et al. (2018); [b]the reliability coefficients are from Table 4.4 of **Chapter 4**; [c]the minimum actually detectable change (MDC) was computed from the DMQ 18 SEmeas; [d]the "typical" DMQ 18 scale scores are based on Table 7.10 in **Chapter 7**.*

Children's motivated behavior will be influenced by their health status, as well as environmental and personal factors (Guralnick, 2019; Imms et al., 2016), especially the immediate environment. Therefore, to enhance children's mastery motivation in daily life, it is important to involve primary caregivers, teachers, and/or the children themselves in the assessment in

order to collect information on the child's mastery motivation and related factors in a variety of situations, including daily family routines or in school settings. Before assessment, practitioners should communicate clear and complete information in a positive way to ensure caregivers, teachers, and, if age-appropriate, the children themselves have a strong understanding of mastery motivation. If there are available facilities and ample time, practitioners may also use the individualized moderately challenging mastery tasks for children with mental ages of 1 to 4 years (Morgan et al., 1990; Morgan et al., 1992; Wang et al., 2016a; Wang et al., 2016b; Wang et al., 2017), or 7 to 10 years (Green & Morgan, 2017), or the Finding Out Children's Unique Strengths (FOCUS) computer-tablet mastery tasks (Barrett et al., 2017; Józsa et al., 2017a) for 3- to 8-year-olds to assess child's cognitive/object mastery motivation.

Studies found that children with motor or cognitive impairments were perceived to be deficient in mastery motivation when rated by their caregivers (Gilmore & Cuskelly, 2011; Gilmore et al., 2003; Glenn et al., 2001; Majnemer et al., 2010; Salavati et al., 2018; Wang, et al., 2013); however, children with delays did not show lower motivation compared with mentally age-matched typically developing children when given tasks that were moderately difficult for them personally (Gilmore & Cuskelly, 2011; Wang et al., 2013). If there are differences in the strength of mastery motivation between the DMQ and mastery tasks, then practitioners should discuss with caregivers/teachers or children themselves about the possible reasons for such differences. If one understands why there are differences between the results of the tasks and the DMQ, it might be possible to identify environment- and person-related factors that could be used in a later intervention.

In the next two sections, we will describe how to apply the 5-SEMM model for enhancing mastery motivation in ECI and school children who have special needs.

Applying 5-SEMM with DMQ 18 in Early Childhood Intervention

A primary goal of early childhood intervention (ECI) services is to boost the learning and functional outcomes for young children with special needs (Bruder, 2010; Dunst et al., 2001; Liao, 2020). Being family-centered 5-SEMM intervention could support infants and toddlers' learning motivation and experiences in natural environment. In order to conduct shared decision making with the primary caregivers of children, practitioners must know constructs and measures of mastery motivation (described earlier), and understand and assess factors influencing mastery motivation for children with special needs. Positive environmental factors include providing

tasks with appropriate difficulty level that fit the child's interests or preference (Miller et al., 2016; Odom et al., 2000), higher quality of caregiver-child interactions (Gilmore & Cuskelly, 2009; Hauser-Cram et al., 2001; Vondra, 1995; Wang et al., 2019a; Wang et al., 2014; Young & Hauser-Cram, 2006), motivation-enhancing therapeutic context (Miller et al., 2016), assistive technology (Kenyon et al., 2018; Kenyon et al., 2017), and virtual reality technology (Tatla et al., 2014). Negative environmental factors include caregivers' over-controlling behaviors (Glenn et al., 2001; Pomerantz & Dong, 2006). Positive child factors include a high level of prosocial behavior (Majnemer et al., 2010), self-efficacy and self-competence beliefs (Ryan & Deci, 2000; Gilmore, 2018), better cognitive, gross, and fine motor functions (Hauser-Cram, 1996; Salavati et al., 2018; Young & Hauser-Cram, 2006), and better sensory processing or executive functions (Hauser-Cram et al., 2014; Kim, 2020). Finally, negative child factors include extreme prematurity, history of seizure disorders, and negative emotions (Buhs et al., 2006; Hauser-Cram, 1996).

In applying 5-SEMM to ECI, it is important to remember the contributing role of the social environment (Harter, 1981). When this environment supports the child's autonomy and encourages relatedness among practitioners, parents and child, the children's mastery motivation and competence will be enhanced (Liao & Morgan, 2014). Overall, it is recommended that parents provide moderately difficult tasks for the child that reflect the child's interests and abilities, and reinforce persistence rather than successful outcomes, in order to enhance children's mastery motivation.

Table 8.3 presents motivation-based strategies based on the 5-SEMM model for enhancing mastery motivation for young children with special needs in the ECI.

Table 8.3. Applying 5-SEMM Model in Early Childhood Intervention

Steps	Mastery motivation content focus	Strategy examples
1. Problem-identification & assessment	Identify mastery motivation problems in daily living	Use 4W1H to clarify the mastery motivation problems
	Parents as assessment team members, especially in collecting information about child mastery motivation in daily routines	Collect information of mastery motivation behaviors in different routines, different tasks, different settings, and with different people, etc.
		Share and discuss the assessment results with parents, including factors related to mastery motivation
	Assessment using questionnaires, interview, and/or various tests to collect information related to mastery motivation and related factors in daily routines	Include measures of DMQ 18, IMoT, developmental tests, participation scales, daily routines etc.
2. Problem-explanation	Explanation possible reasons of mastery motivation problems with parents, and encourage child to express	Clarify the discrepancy between objective mastery behavior observations and ratings of perceived mastery motivation behavior
		Find possible environmental, personal, task and competence factors related to motivation problem
	From results of DMQ 18 to identify strength and weakness of various domains and dimensions of mastery motivation	Clarify the discrepancy among motivation domains and competence
3. Goals setting	Shared decision-making procedure to set motivation goals	Use the baseline 4W1H problem description and possible explanation to set an achievable and mastery motivation goals in daily life
	Child-level and family-level goals related to children's mastery motivation behaviors	Set child's SMART mastery motivation goals
4. Motivation-enhancing strategies and collaborative consultation	Collaborative consultation with parents	Work with parents to solve problem, not just instruct directly
	One-step-ahead[a]	Adults focus and scaffold the next level of the child's performance (or moderately challenging tasks) and help the child achieve beyond his/her current level of mastery
	Responsive teaching strategies[b]	Adults set the task and environments to make assumed moderately challenging and interesting tasks for that child
		Adults observe and adjust environments if necessary to let the child complete task successfully at least once or do partial parts of the task independently during one practice session

Steps	Mastery motivation content focus	Strategy examples
		Adults be sensitive to child's cues and quickly respond to signals
		Adults give the child opportunities to make a choice
	Participatory help-giving practice [c]	Practitioners model and discuss strategies of enhancing mastery motivation to the family
	Embedded goals in daily routine [d]	Adults embed goals within and across routines to provide contextually relevant opportunities for enhancing mastery motivation
	Pivotal response treatment[e]	Adults encourage child's persistence in unsuccessful mastery attempts
		Intersperse the task to be learned with previously mastered tasks and using natural reinforcement
5. Shared outcome evaluation	Monitoring the progress of child-level and family-level goals related to mastery motivation	Discuss with parents "How long did Johnny engage in play per session on the average in the past one month?"
Back to step 1 to identify new problems or to revise goals		

Note. 5-SEMM = 5-Step Enhancing Mastery Motivation; 4W1H = who, what, when, where and how; DMQ 18 = The Revised Dimensions of Mastery Motivation Questionnaire; IMoT = the individualized moderately challenging behavioral tasks; SMART = Specific; Measurable; Attainable; Routine-based or realistic or relevant; Time-bound.
[a] Heckhausen (1987); [b] Mahoney & MacDonald (2007); [c] Dunst, etal. (2007); [d] McWilliam (2010); [e] Koegel & Koegel (2012).

In step 1, concrete mastery motivation problems are identified, and multiple assessments are conducted together with parents and the child. DMQ 18 (Morgan et al., 2017; Morgan et al., 2019) is a useful tool at this stage. *For example, Honey is a 5-year-old girl with global developmental delay and suspected autistic spectrum disorder. The main concern of Honey's parents is her restriction of social interactions with peers. After viewing the developmental history, developmental assessment reports, interviewing parents, observation and DMQ 18 rating, a concrete mastery motivation problem is identified as "Honey never initiates communication with peers and keeps conversation with peers less than 2 turns at kindergarten during free play time". The results of DMQ 18 preschool version rated by her mother shows that Honey's Cognitive/Object Persistence and Social Persistence with Children are possibly atypical, and other two persistence scales and Mastery Pleasure belong to typical categories. Mother shares that Honey can initiate communication with her and or teachers in short sentences, and can only give "yes" or "no" answers to peers at school. Except two elder cousins who grows up together with her, Honey seldom tries hard to make friends with other kids or get included when other children*

are playing, and seldom tries hard to make other children feel better if they cry or seem sad.

In step 2, problem-explanation, practitioner and parents get a consensus that Honey's delay in speech, intellectual and social developmental domains, and inadequate Cognitive/Object Persistence are possible barriers to addressing this problem. Due to articulation impairment, most peers cannot understand her speech. In additional, the family lived in foreign countries for about 2 years before, and Honey did have few experiences to interact with peers that time. However, current environmental supports, such as kindergarten and family support, variety of successful interaction and communication experiences, and typical motivation in social interaction with adults, gross motor and mastery pleasure are facilitators to solve this problem.

Step 3 involves goal setting. During this step, the team should consider the possibility of increasing facilitators and decreasing barriers to reaching goals. Additionally, children's mastery motivation is maximized when the goal to be achieved is within the child's individual zone of proximal development, defined as the next step ahead of a child's current ability level (Blasco, 2008; Heckhausen, 1987; Keilty et al., 2015). *For example, one of Honey's SMART motivation goals is "Within three months, Honey will participate in school free time and story time, and play time at home. The goal is considered to be achieved when she can actively tell others (peers or adults) a short story or keep conversation for at least 5 turns with or without guidance during two occasions a day, 5 days a week, for 4 consecutive weeks." One child-related family goal was: "Within three months, Honey's parents will learn three ways of increasing Honey's persistence at conversation and her frequencies of sharing story actively; e.g., praising Honey's efforts when she tries to share story actively; using body language or restating to encourage longer conversation; arranging peer play opportunities more frequently; working together with ECI team; etc."*

During step 4, a motivation-enhancing intervention is implemented, and several existing programs have the potential to enhance motivation. In the One-step-ahead model, caregivers are expected to address tasks just above the child's current status by providing appropriate and necessary assistance to help the child succeed (Heckhausen, 1987). For enhancing motivation, similar strategies could be used to increase the persistence or pleasure level with caregivers' supports. The Responsive Teaching Curriculum proposed five maternal teaching strategies to enhance child's motivation: reciprocity, contingency, shared control, affect, and match (Mahoney & MacDonald, 2007). Pivotal Response Treatment (PRT) is a naturalistic intervention model derived from applied behavior analysis approaches. Rather than target individual behaviors one at a time, PRT targets pivotal areas of a child's

development, such as motivation, responsivity to multiple cues, self-management, and social initiations (Koegel & Koegel, 2012).

Parents often play a key role in these interventions, and children's mastery motivation is maximized when parental scaffolding is provided (Blasco, 2008; Heckhausen, 1987; Keilty et al., 2015). To provide such scaffolding, it is important that caregivers engaged in the ECI receive coaching in order to execute motivation-enhancing procedures confidently in everyday life. Coaching is a set of flexible strategies that provide the interventionist and caregiver with opportunities to share information, learn and practice strategies, and solve problems in a manner guided by caregiver-identified priorities. Friedman et al. (2012) proposed eight operationally defined coaching behaviors: 1) conversation and information sharing; 2) observation; 3) demonstrating; 4) direct teaching; 5) caregiver practice with feedback; 6) joint interaction; 7) guided practice with feedback; and 8) problem-solving. It is important to establish a respectful and collaborative relationship with the parents prior to coaching or consultation. If the parent feels forced to engage with their child or if the practitioner is demanding a practice that is neither relevant nor functional for the family, then coaching and consultation will be unsuccessful. For motivation-focused interventions, the aims of parent coaching include strengthening the caregiver-child relationship, building the caregiver's capacity to scaffold the child (Friedman et al., 2012), and collaborating with parents to observe and understand children's mastery motivation behavior, to arrange the home environment, including assistive technology, to make moderately challenging learning material or tasks available and accessible to the child.

For example, to improve Honey's motivation for conversation goals, Honey's physical therapist used the goals-routine matrix from the routines-based early intervention (McWilliam, 2010) to find possible routines for her to practice the goal activities with parents and teachers. The completed goals-routine matrix indicated that Honey could learn to initiate and engage conversation during the following routines: storytime and free time with her classmates, on the way between home and school, during dinner time, bathing time, bedtime, and playtime with parents at home; and weekend playtime with peers. To create a successful experience of story-telling at school, Mom made a book of her favorite dog, with shortened but funny content after therapist's consultation. The book was modified with the same pictures on both sides of each page. When she stands in front of the group, she and her classmates can look at the same pictures and she could tell the story with the hints of the pictures. The length and complexity of the story gradually increased with her improved performance. Mom or teacher made a live video recording of Honey with a mobile phone to share with the intervention team for consultation. During therapy time, the therapist asked parents to demonstrate the conversation

practice at home first, and then modelled or discussed strategies with parents to increase Honey's turn-taking times of conversation with others.

Finally, in step 5, outcomes are evaluated. At the fifth step of shared outcome evaluation, practitioners should invite the family to evaluate the achievement of outcome goals together. It is very easy to decide whether goals are achieved or not if goals are set using SMART strategies. Practitioners could also discuss with family any issues related to outcomes, especially the quality of mastery motivation behaviors. To evaluate the effectiveness of the ECI service on children's mastery motivation using DMQ 18, practitioners could check to see if the pre-to-post-difference scores are equal to or higher than the MDC scores shown in Table 8.1, and also if the post-intervention DMQ score is considered to be "typical" based on Table 8.1. *For example, if Honey has a DMQ 18 Social Persistence with Children score of 2.00 before the intervention and gets a score of 3.00 after the intervention, then Honey's pre-to-post difference score is 1.00. This difference score is above the MDC of 0.82, and her post-intervention score is also above 2.68, so within typical category. Therefore, the practitioner would interpret that the intervention for Honey's Social Persistence with Children is effective.* The results of the outcome evaluation could inform the design of future IFSPs.

Environmental factors and environmental adaptation are important in the 5-SEMM model. Sometimes, after clarifying the 4W1H questions and problem-explanation, the intervention team finds that caregivers' beliefs and parenting skills might be a reason for the child's problems. *For example, a mother mentioned that her 2-year-old girl with delays did not eat meals all the time, and she had to force her to eat. The girl also occasionally vomited after a meal. Before the feeding problem occurred, the girl would eat a half bowl of rice with cut up table food independently without her mother's help. However, mother felt the amount eaten was not enough and the girl might be shorter than her when she grows up, one of the mother's major concerns. The mother was short height, which prompted her concern. Thus, the mother pushed the girl to eat more by feeding her, then the girl began to refuse to eat and vomited more often. A family-level goal related to the girl's feeding problem was then set. After collaborative consultation, the mother changed her attitude and learned interaction skills to use with the child during meal time. Before long, the problems were solved* (Hwu et al., 1987).

Applying 5-SEMM and DMQ 18 to School-aged Children with Special Needs

Studies have shown that when teachers and practitioners adopt strategies to boost mastery motivation in school settings, it has a positive impact on school-aged children (Ames, 1992; Martin et al., 2009; Ryan & Grolnick, 1986). Using DMQ 18 (Morgan et al., 2019) in school settings can help teachers and practitioners to quickly detect students' levels of motivation in multiple domains, including object/cognitive skills, gross motor skills, physical fitness, interaction with adults, and interaction with peers. This allows teachers and practitioners to understand levels of motivation across multiple domains among students with special needs (Miller et al., 2014; Morgan et al., 2010).

In order to enhance mastery motivation in school children with special needs, teachers and practitioners may follow the 5-SEMM approach. For these children, we suggest also applying the mastery motivation climate program (Ames, 1992; Epstein, 1988) to create a motivational instructional environment that would promote student's adaptive motivation patterns. TARGET is the main content of the mastery motivation climate program with the following components: **T**ask, providing developmentally appropriate activities; **A**uthority, giving children the freedom to select their activities; **R**ecognizing children's efforts during the learning process; **G**rouping children to encourage cooperation with peers; **E**valuation, providing feedback based on the child's effort and process; and **T**ime, the length of time practicing each skill is determined by the child.

In step 1 of 5-SEMM, problem identification and assessment, teachers or practitioners use the DMQ 18 adult- and self-rating versions with caregivers and students themselves in order to identify student's motivation level in various domains. Then, they conduct an interview to collect mastery motivation related information and apply the empirically supported method of behavioral functional analysis (Sturmey, 1996) to set a concrete problem description including 4W1H (Who, What, When, Where, How). For example, *John is a 11-year-old boy attention-deficit hyperactivity disorder; DMQ 18 results indicate that John manifests a strength on Gross Motor Persistence (score = 4), weaknesses on Cognitive/Object Persistence (score = 2) and Negative Reactions to Challenge (score = 4), and an average level of social motivation with adults and children (score = 3).* The identified main problem is *"John seldom engaged the school paper work for more than 20 minutes after school at home and for more than 30 minutes at school during a week day".*

The motivation related interview or functional analysis can be executed with the structure of TARGET for collecting more information about students' learning context and factors that might influence student's mastery motivation behaviors. For example, information about difficulty levels and characteristics of task (T), caregiver's autonomy supporting, controlling behavior, the degree of student involving in the decision making (A), progress being recognized or not (R), grouping size and characteristics for group activities (G), progress evaluation method (E), and time for task practice (T) are collected.

Collectively, the results of DMQ 18, interviews, and motivation-focused behavioral functional analysis will provide vital information for the next four steps. In step 2, problem explanation, the team (including teachers, practitioners, students, and caregivers) clarifies possible factors affecting motivation and school participation (Boavida et al., 2016; McWilliam, 2010), discusses how these protective and risk factors, such as diagnosis, perceived competence, emotions, self-regulation (i.e., attention control or inhibitory control), classroom environment or others factors listed in this chapter or **Chapter 7** may influence motivation, If both adult-rating and self-rating of DMQ 18 are collected, the team may also clarify the consistency and discrepancy between results of two raters and explore possible factors explaining the discrepancy. The team members identify strength/weakness in the domains of DMQ 18 as indicated by consistency and discrepancy among the persistence scales, the expressive scales and the General Competence scale. *For John, the result of the DMQ18 school-age version shows that his Cognitive/Object Persistence is clearly atypical and a weakness relative to the other persistence scales*. Then, the team members propose desire-to-change motivation goals (step 3) and possible strategies to enhance motivation (step 4).

Continuing with step 2 in *John's example, teachers and practitioners first encourage John and his parents to describe their perspectives about reasons or factors that affect John's motivation on persistence on school paper work and other various types of tasks. Then, the team obtains consensus about explanations for the persistence problem. Specifically, John's problems on school work are tentatively explained by tasks, parents, and personal factors. School paper work tasks are too difficult and too complex for John and he needs a long time to finish or fail. Parents give rules and suggestions to John before he does his work, and focus on his failures and the outcomes comparing to John's classmates or siblings. John has executive function deficits based on the previous assessment.*

For the goal setting in step 3, students, teachers, practitioners, and other team members collaborate to select the goal priorities using the problem statement of step 1 and the problem explanation of step 2. Students' own choice of goals is influenced by their subjective perspectives (Bong, 2001;

Schiefele, 2009) while teachers and practitioners can emphasize the meaningfulness and relevance of tasks to students' own lives (Mitchell, 1993). *For example, John wants to increase his performance for school subject tasks so that he can complete school work, even if it takes a long time. The SMART-format goal is "By the end of this semester, John will engage the assigned home work more than 20 minutes at home and engage the school paper work more than 50 minutes at school twice per day, 5 days a week, for 4 consecutive weeks.*"

Using a collaborative and brainstorming process focusing on the problem explanation, motivation-enhancing strategies are identified in step 4. Teachers and practitioners may also consider the components of the TARGET to make specific strategies based on students' characteristics to foster students' motivation. For the Task component, teachers, practitioners, caregivers, or students can utilize diverse media, design vivid activities containing novel and amazing elements, and follow students' preference or interests to select task types in order to support students' task engagement (Ames, 1992; Martin et al., 2009; Mitchell, 1993). Teachers or practitioners should intersperse tasks required to be learned with previously mastered or interesting tasks. Adults can also adjust the difficulty level of tasks (Ames, 1992; Keilty & Freund, 2004) by considering student's competence and levels of motivation across multiple domains. To prepare different challenging activities in different domains for each student that fit the moderately challenging principles is an important strategy to improve positive intention to master subject or non-subject skills. Giving students skill training (Schunk & Ertmer, 2000) or allowing students to participate in activities in which they already have relative strengths will increase opportunities for success (Simpkins et al., 2005; Simpkins et al., 2015), which can boost perceived competence and, ultimately, mastery motivation.

Within the Authority and Evaluation components of TARGET, an important strategy is to provide rewards and feedback for students based on their efforts during goal attainment. For students with low authority or high dependence, teachers or practitioners may focus on increasing student's responsibility through enhancing student's self-regulated behaviors (e.g., self-monitoring, planning), allowing students to participate actively in identifying goal priorities (Reutebuch et al., 2015), and coaching caregivers to support student's autonomy. These strategies will increase students' sense of empowerment, allow students to become masters of their own learning, and foster their engagement and intrinsic motivation. It is important to help students with mild cognitive disability learn how to monitor their own motivation, abilities, progress, and goals. Then, they can determine how to allocate their time and effort optimally. In addition, supporting students to build their attentional, behavioral, emotional, and cognitive self-regulation is

helpful in developing autonomy and ultimately enhancing their mastery motivation (Cleary & Zimmerman, 2004).

Perception of one's own competence affects expectancy-related beliefs, task-choice, motivation, and performance (Harter, 1985; Jacobs et al., 2002). Thus, self-perceived competence is a key factor affecting student's decision making and the Evaluation component of TARGET. Teachers or practitioners may detect students' perceived competence using the General Competence scale of DMQ 18 self-rating. Then, they support students to focus evaluation on self-reference and their efforts instead of using social-comparison and outcome. Providing students with an appropriate (i.e., moderately difficult) level of challenge increases experiences of success, which in turn boosts self-efficacy further. Teachers and practitioners who monitor student's mastery characteristics, effort, personal progress (e.g., the Recognition component of TARGET) and then provide feedback privately, praising student's efforts rather than their abilities or outcomes, also facilitate student's positive self-concept and positive motivational beliefs (Ames, 1992; Dweck & Master, 2009), which leads to self-efficacy and higher motivation (Corpus & Lepper, 2007; Kamins & Dweck, 1999).

For the Group and Time components of TARGET, adapting grouping style, frequency, learning speed, and time of duration to students' abilities, progress levels, and executive functions (such as attention and working memory) would enhance student's successful experience and positive peer relationships to benefit their motivation. In addition, to reflect students' social motivation measured using DMQ 18, teachers and practitioners could adjust various tasks to offer either cooperative group work or one-on-one tutoring, which will in turn boost students' engagement.

Finally, while engaging in challenging tasks, students have varied emotional experiences. Task-related emotions, such as pleasure, anxiety, or frustration can either promote or impede students' mastery motivation (Barrett & Morgan, 1995). Student's frustration interacts with their ability to self-regulate to predict their learning (Huang & Yeh, 2019), so supporting students to manage and regulate task-related emotions will enhance their mastery motivation (Sakiz, 2017). Teachers and practitioners need to support caregivers and students to practice and master their skill to implement these strategies in their daily life.

Using John as an example, for step 4 the teacher assigns school work and home work that are moderately challenging and fit John's preference. His teacher or practitioners coach his parents how to support John to arrange time schedule after school and increase the studying time gradually. Teacher and parents encourage John to focus on his effort and pleasure during executing or finishing the works.

In step 5, outcome evaluation, teachers or practitioners should collaborate with students and caregivers to evaluate the outcome goals. Quantitative indicators such as DMQ 18 scores can be used to detect whether the goals are achieved or not. For example, the MDC and typical DMQ 18 scores, shown in Table 8.2, can be used as one outcome evaluation indicator. *If John has a DMQ 18 Cognitive/Object Persistence score of 2.00 before the intervention and a score of 4.00 after the intervention, then John's pre-to-post-change score is 2.00, above MDC of 0.70. His post-intervention score is also above 2.89, so within the typical category for his age group. Therefore, John's Cognitive/Object Persistence has improved and is within the typical range after intervention.* Teachers or practitioners could also discuss with student and family the qualitative changes of his motivational behavior, components of TARGET, and even self-regulated behaviors.

Conclusion

Understanding and using DMQ 18 and motivation-related measures and strategies to promote mastery motivation are important for effective ECI and school services because mastery motivation influences competencies and school performance among children with special needs. Thus, we propose the 5-SEMM (five steps to enhance mastery motivation) model for enhancing mastery motivation in children with special needs. 5-SEMM includes: problem identification of mastery motivation and assessment (step 1); problem-explanation with parent/child (step 2); goals selected by parent/child (step 3); proposing motivation-enhancing strategies and using collaborative consultation with parent/child (step 4); and shared outcome evaluation (step 5). DMQ 18 can be used at steps 1, 2 and 5 to understand motivation problems and to evaluate the outcome of motivation-enhancing programs. Using models like 5-SEMM, mastery motivation should be intentionally assessed and targeted for intervention in collaboration with caregivers, teachers, and students themselves, in order to promote optimal educational and social outcomes across the lifespan. Further studies that define, develop and examine the effectiveness of these program are needed to ensure that these interventions foster strengths and overcome challenges at the child, family, professional, and community levels (Liao & Wu, 2017).

The next chapter describes the International Test Commission Guidelines for translating and adapting tests. The chapter provides an extended example of what we believe are current best practices for translating and adapting the DMQ and other questionnaires into a different language and culture.

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Chapter 9

Best Practices in Translating and Adapting DMQ 18 to Other Languages and Cultures

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Introduction

This chapter provides guidelines developed by the International Test Commission: *The ITC Guidelines for Translating and Adapting Tests* (ITC, 2017). We recommend that future researchers who want to translate and use DMQ 18 follow these guidelines to both translate the questionnaire and assess its cultural appropriateness in their language and culture; and also provide evidence for the reliability and validity of resulting data. In addition, the chapter is an overview about validity issues and biases in regard to making such adaptation. It also provides a step-by-step approach to what we believe are best practices for doing adaptation, using examples based on a proposed translation from English into a Southeast Asian language. Furthermore, the chapter provides detailed examples of how to provide evidence for the reliability and validity of hypothetical data from the use of the

DMQ in this Southeast Asian culture. The examples utilized in this chapter are based on a previous research conducted by Rahmawati et al. (2020).

Translation of psychological questionnaires developed and normed in other countries is a common practice. For example, in the research literature there are other translations and adaptations of the Dimension of Mastery Questionnaire (DMQ). Using the decentering procedure (Marín & Marín, 1980), DMQ 18 was developed in English, Chinese, and Hungarian for children 6 months to 19 years (see **Chapter 2**). Research using translations of DMQ 18 has been published in Turkish (Özbey & Daglioglu, 2017), Persian/Farsi (Salavati et al., 2018), and Bangla (Shaoli et al., 2019). In **Chapter 3**, there are several tables showing the characteristics of samples from other more recent translations and adaptations.

Reasons for and Cautions about Adapting Tests and Questionnaires

When adaptation are made, rigorous assessment of the equivalence of the original and adapted versions of the questionnaire is essential. There are many good reasons and considerable advantages for adapting a questionnaire. Hambleton and Patsula (1999) identified at least five reasons found in the literature for adapting tests or questionnaires:

1. It is usually cheaper and faster to adapt a questionnaire, compared to developing a new one in a second language.
2. Adapting a questionnaire is the most effective method in producing an equivalent questionnaire in a second language, when the purpose is cross-cultural or cross-national assessment (for example: credentialing exams).
3. Developing a new questionnaire in a second language demands expertise which may be lacking.
4. An adapted questionnaire of an already well-known questionnaire offers a greater sense of security, compared to developing a new questionnaire.
5. Providing multiple language versions of a questionnaire offers more fairness to examinees.

By adapting a questionnaire, in particular when adaptation is used for cross-cultural studies, the major issue is obtaining tests for cross-cultural populations that produce valid and comparable results, so that the researcher is able to compare data from cross-lingual populations. This enables greater fairness in the evaluation because the same instrument assesses the construct based on the same theoretical and methodological perspectives. The use of adapted instruments naturally enables a greater ability to

generalize and also enables one to investigate differences within cross-lingual populations (Borsa et al., 2012; Hambleton, 2005).

Adaptation processes aim to yield instruments that are equivalent across different cultures (Hambleton, 2005). Unfortunately, in practice the questionnaire adaptation process is often viewed as a simple task that can be completed by anyone who knows the target languages. Researchers have incorrectly assumed that finding a good translator would be sufficient for obtaining equivalent cross-linguistic or cross-cultural questionnaires and surveys. Failing to follow-up the translation process by providing a compilation of empirical evidence, which supports the intended uses of the questionnaire scores in its target languages and cultures is a fundamental mistake in the practice of test adaptation (Rios & Hambleton, 2016).

Common Issues Related to Test Adaptation

Test and questionnaire adaptation is a scientific and professional activity that refers to the development of a derived questionnaire; the adapted questionnaire is obtained by transferring the original questionnaire from its source language or culture to a target language or culture. The adaptation process should offer proof of the psychometric appropriateness and similarity ("equivalence") of the adapted questionnaire, in the new language and culture, to the original questionnaire (Greiff & Iliescu, 2017).

"Equivalence" (or "invariance") refers to score compatibility obtained from the administration of the versions of a questionnaire (original vs. adapted), and is considered to be a specific source of validity. One version of questionnaire being equivalent to another has two important implications. First, the scores of the two versions are directly comparable. Second, evidence generated by a version is also valid for the other version, as validity evidence is transferable.

"Equivalence" and "bias" are closely connected. "Bias" is associated with errors, often used as an expression of "non-equivalence". When the original and adapted versions of a questionnaire are not equivalent, responses collected using the two versions cannot be directly compared, and conclusions based on evidence from the original version cannot be advanced for scores from the adapted version (Greiff & Iliescu, 2017; Rios & Hambleton, 2016). van de Vijver and his colleagues identified three potential sources of measurement bias in cross-cultural assessment: (1) construct bias, (2) method bias, and (3) item bias (van de Vijver & Hambleton, 1996; van de Vijver & Leung, 1997; van de Vijver & Poortinga, 2005). Construct bias occurs because of differences in conceptual definitions or in behaviors that are deemed indicative of the construct. Methodological-procedural bias happens when the assessment procedure causes unfavorable difference between groups. Item content bias can take place because of poor translation

or use of items that are not suitable in a particular cultural context (Byrne & Watkins, 2003; van de Vijver & Tanzer, 2004).

For example, the construct of happiness does not have the same meaning across cultural groups (He & van de Vijver,2012). In European American culture (Western culture), with the positive hedonic experience at its core, happiness is imagined to be infinite, attainable, in principle, for everybody if sought. In the United States, then, there is a widespread belief that happiness is an end result of personal pursuit, which in turn is grounded in personal goals and aspirations. In contrast, in Southeast Asian cultural (Eastern culture) contexts, there is a contrasting view of the self as interdependent. Within this interdependent, highly relational model of self, happiness is also likely to take one particular form, wherein interpersonal and social aspects of happiness receive a much greater emphasis (Uchida & Kitayama, 2009). As a result, the tests implemented to measure happiness in Western culture do not capture the same underlying dimensions of the construct in Eastern cultures. This has two implications: the validity of the measurement is lacking, and direct comparisons between samples cannot be made. There are validity concerns whenever an instrument developed in one language and culture is translated and used in another language and culture.

Questionnaire Adaptation and Instrument Validity

In adapting a questionnaire, issues about the validity of the translated instrument must be considered and dealt with. Validity is a theoretical concept that has evolved considerably over time. In modern validity theory, it is often referred to as a *unitary validity framework*. Validity is an 'integrated evaluative judgement of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores' (Wolming & Wikstrom, 2010). The search for evidence of an instrument's validity is subdivided into two main areas: the instrument validation for the new context and validation for cross-cultural studies (Borsa et al., 2012).

Instrument Validation for the New Language and Context

Instrument validation begins by evaluating the factorial structure. Instruments are generally designed to measure multifaceted constructs, so instruments should have a relatively organized factor structure, even when latent (Borsa et al., 2012). For example, factorial validation for the Dimensions of Mastery Questionnaire (DMQ) has focused on of five main dimensions or factors: Cognitive/Object Persistence (COP), Gross Motor Persistence (GMP), Social Persistence with Adults (SPA), and Social Persistence with

Children (SPC), and Mastery Pleasure (MP). The DMQ is considered the most widely used instrument for measuring mastery motivation; it assesses those five dimensions, plus Negative Reactions to Challenge (NRC) and General Competence (COM). The competence scale is a quick way to assess a child's ability and, thus, is not considered a measure of mastery motivation. Factorial structures that are relatively similar to the original proposal are expected in DMQ validation studies for use in new contexts. Otherwise, discrepancies will affect the understanding of the evaluated construct. Possible changes, which occur in validation studies in light of quantitative and qualitative discrepancies, should be discussed. By doing so, researchers can identify possible reasons for changes in the questionnaire's factorial structure. Certain changes are to be expected, especially in complex questionnaires with high number of items and factors, as a result of sampling characteristics. The techniques of confirmatory factor analysis (CFA) should be used to assist the researcher in their choice of a factorial structure that is most plausible for the sample. Evaluating the factorial structure of the instrument is only one aspect of a validation study. Other evidences of validity are to be collected, including the evaluation of the instrument's content and criterion validity through comparing its results with those of equivalent measures. See **Chapter 5** for discussion of the several types of evidence for evaluating the validity of the Dimensions of Mastery Questionnaire. The analysis of internal consistency among items (i.e. internal consistency reliability) is often also a part of the evaluation process. See **Chapter 4** for a discussion of the several types of evidence for evaluating the reliability of the DMQ.

Instrument Validation for Cross-Cultural Studies

Researchers must simultaneously assess the compatibility of a measure within the various groups when conducting cross-cultural studies (Hambleton & Patsula, 1998; Sireci, 2005). Through comparative analyses, researchers ensure that the same construct in different populations is similarly evaluated, ensuring the assumption of measurement invariance (Reise et al., 1993). Multi-Group Confirmatory Factor Analysis (MGCFA), Differential Item Functioning (DIF) proposed by the Item Response Theory (IRT), and Multidimensional Scaling (MDS) can be considered as valuable ways of assessing measurement invariance (Rios & Hambleton, 2016; Sireci, 2005). The validity of the assumption of factorial invariance between groups is paramount for psychometric instrument development and adaptation, and also for group comparisons in cross-cultural studies. Unless thoroughly tested, researchers cannot claim that an instrument has similar structures and parameters in different populations. If the instrument measurements are not comparable between different groups, any differences in group scores or correlation patterns with external variables tend to be measurement errors,

not reflecting the actual differences between groups (Tanzer, 2005). See **Chapter 2** for discussion of the measurement invariance of DMQ 17 in preschool children whose parents spoke Chinese, Hungarian, and English (Hwang et al., 2017) and also discussion of the measurement invariance for self-reports by school-age children in China, Hungary, in the US (Wang et al., 2014).

ITC Guidelines for Translating and Adapting Tests

In order to avoid common translation biases, the International Test Commission (ITC, 2017) developed guidelines for test adaptation. These guidelines were organized into six categories: (1) pre-condition, (2) test development, (3) confirmation, (4) administration, (5) score interpretation, and (6) documentation. This section summarizes 10 specific ITC guidelines from the first three categories. The description here is based on the current version (2.4) of the second edition of the ITC Guidelines, published on the International Test Commission website in 2017. Researchers should endeavor to use the most recent editions when they become available. After the description of these 10 guidelines, we will provide a hypothetical example of the process for translation and adaptation of DMQ 18 into a Southeast Asian language and culture.

Pre-Condition (PC) Guidelines

PC-1 (Guideline 1) Request Permission

Obtain the necessary permission from the holder of the intellectual property rights relating to the test before carrying out any adaptation.

Intellectual property rights refer to a set of rights people have over their creations, inventions, or products, to protect the interests of creators by providing moral and economic rights over their creation. An agreement from the intellectual property owner should be obtained before starting test adaptation. The agreement should specify the modifications which are acceptable regarding original test characteristics and the property rights of the developer of the adapted version.

PC-2 (Guideline 2) Evaluate Overlap

Evaluate whether the amount of overlap in the construct's definition and content measured by the test is sufficient for the intended use(s) in the population of interest.

The items assessed should be understood in the same way in both the source or original language and in the new or target language and cultural group into which it is being translated. This is the foundation of valid cross-cultural comparisons. In this stage, the test or questionnaire has not been adapted, so it is good to compile previous empirical evidence with similar

tests and make judgments of the suitability of the construct, including the item content, in the new language.

In order to make valid interpretations of scores, the scope of the test has to be described thoroughly. To do so requires an adequate working definition of the construct to be measured. Psychologists and other knowledgeable persons in the new culture should determine if the construct exists and if the same definition applies equally well in both language and cultural groups. Persons with expertise about the construct and about the cultural group should be recruited to evaluate the legitimacy of the measured construct in each cultural/linguistic group, and to answer the question as to whether the construct makes sense in both cultures. Focus groups, interviews, and surveys can be utilized to obtain structured information regarding the degree of construct overlap.

The goal of any analyses is to confirm the equivalence of the structure of the test across the two languages; e.g., English vs. Southeast Asian in the example in the next section. This process is conducted to avoid construct bias, which occurs when the studied constructs are non-equivalent across language or cultural groups. Non-equivalence can occur when there is partial overlap in conceptualizing the construct or when the behaviors associated with the construct manifest themselves differentially across cultures (van de Vijver & Hambleton, 1996). As a result, the tests do not capture the same underlying dimensions of the construct across groups; there are two implications: validity of the measurement is lacking, and direct comparisons between samples cannot be made.

Construct bias has two main sources:

Source 1: Differential construct manifestation. Bias could result from the fact that although the construct does exist in both cultures, there are differences in how it is defined and exhibited (Byrne & Watkins, 2003).

Source 2: Construct under-representation. This is characterized by insufficient sampling of the behaviors describing the construct (Messick, 1995); this is similar to the concept of content validity in classical test theory. The test should be fully representative of the construct (Kline, 1993). Construct under-representation means that it does not cover all the essential dimensions and facets of the construct (Messick, 1995). A construct is under-represented when the original test is too short to provide valid deductions or the items are too poorly written for the reader to comprehend the intended construct (Downing, 2002). As with the first source, if the construct is not fully investigated in the target culture, the items from the original version may not be inclusive of the behaviors defining the construct in the target culture.

PC-3 (Guideline 3) Minimize Irrelevant Differences

Minimize the influence of any cultural and linguistic differences that are irrelevant to the intended uses of the test in the population of interest.

This guideline relies mainly on qualitative methods and experts familiar with the research on specific cultural and language differences. For a questionnaire measure like DMQ 18, special emphasis is placed on the selection of content experts and translators, who are native to the target language and culture; knowing the target language is insufficient for identifying possible sources of method bias. The guidelines clearly suggest that a well-designed translation procedure should emphasize conceptual similarity instead of literal similarity of the translation as a necessary step toward a valid adaptation. Consequently, the use of systematic procedures by experts is necessary to complement the use of statistical analyses. The choice of translators and development of the translation procedures are also critical to meet the ITC guidelines concerning test development, so they are described in greater depth in the next section.

Test Development (TD) Guidelines

TD-1 (Guideline 4) Choose Experts for the Translation

Ensure that the translation and adaptation processes consider linguistic, psychological, and cultural differences in the intended populations by choosing experts with relevant expertise.

It is important to use at least two translators; the ITC guidelines note that the older practice of using a single translator, however qualified, is no longer considered acceptable. Expertise in the target culture results from using translators native in the target language who are also living in the target locale, with the former being essential and the latter highly desirable. "Expert" is a person or a team with sufficient combined knowledge of: (1) the languages involved, (2) the cultures involved, (3) the content of the (original) test, and (4) general principles of testing. These are paramount to produce a professional quality translation/adaptation. In practice it may be effective to use teams of people with different qualifications (e.g., translators with and without expertise in the specific subject, etc.) in order to identify areas that may be overlooked (rather than just relying on a single expert). It is also desirable to provide training for translators in item writing principles for the formats utilized.

TD-2 (Guideline 5) Translation

Use appropriate translation designs and procedures in order to maximize the suitability of the adaptation for the intended populations.

This guideline requires that decisions made by translators maximize the adapted version's suitability for the intended population, meaning that the language should feel natural and acceptable, focusing more on functional rather than literal equivalence. Popular designs to achieve these goals are forward and backward translations. Brislin (1986) and Hambleton and Patsula (1999) provide full discussions of the two designs, including definitions, strengths, and weaknesses.

Two (or more) translation and a reconciliation procedure aim to address the shortcomings and risks of relying on the idiosyncrasies resulting from a single translation. A third independent translator or expert panel could then identify and resolve the discrepancies between alternative forward translations, resulting in a single version to be utilized.

TD-3 (Guideline 6) Evidence for Equivalence

Provide evidence that the test instructions and item content have similar meaning for the intended populations.

The evidence required by the guideline can be collected using various strategies. For example, the strategies recommended by van de Vijver and Tanzer (1997) included: (1) using reviewers native to local culture and language to evaluate the translation; (2) using samples of bilingual respondents to provide suggestions about the equivalence of instructions and items; (3) using local surveys to evaluate the test and interview the administrators and respondents post-administration for feedback; and (4) using adapted test administration procedures to increase acceptability and validity, when following the original instructions would make less sense or be misunderstood by respondents of the target language/culture group. Trying out the translation on a small scale can be valuable.

TD-4 (Guideline 7) Appropriateness of the Procedure

Provide evidence that the item formats, rating scales, scoring categories, and modes of administration are suitable for the intended population.

Researchers should ensure that respondents are familiar with any novel item formats or test administration procedures in the testing process. Qualitative and quantitative evidence both have a role in assessing this guideline. Several features of an adapted test may be checked, such as the reading level required for respondents to provide valid responses.

TD-5 (Guideline 8) Pilot Data

Collect pilot data on the adapted test version to enable item analysis, reliability assessment, and small-scale validity studies so that any necessary revisions can be made.

It is important to have confirming evidence regarding the psychometric qualities of the adapted test before conducting large-scale studies of reliability, validity, and/or norming, which are usually time-consuming and expensive. There are many psychometric analyses (such as coefficient alpha to examine the internal consistency of the scales) that could be carried out to provide initial evidence of score reliability and validity.

Confirmation (C) Guidelines

The Confirmation Guidelines are those that are based on empirical analyses of full-scale validity studies.

C-1 (Guideline 9) Sample Selection

Select samples with characteristics for the intended use of the test and of sufficient size and relevance for empirical analyses.

The data collection design refers to the way data are collected to establish norms (if needed), to check the equivalence among the language versions of the test, and to conduct validity, reliability, and DIF studies. The first requirement is that samples should be sufficiently large to allow for stable statistical information. The ITC guidelines provide two suggestions regarding the sample. First, to investigate the factorial structure of a test, a sample size of 300 or above is considered sufficient (Wolf et al., 2013). Second, the sample should be as representative of the intended population as possible.

C-2 (Guideline 10) Empirical Analysis

Provide relevant statistical evidence regarding the construct, method, and item equivalence for all intended populations.

Establishing the construct equivalence of the original and target language versions of a test is important, though not the only important empirical analysis to conduct. Approaches for construct equivalence (PC-2) and method equivalence (PC-3) were addressed briefly earlier in the ITC guidelines.

This guideline requires researchers to address construct equivalence empirically. There are at least four statistical approaches for assessing construct equivalence across source and target language versions of a test: Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Multidimensional Scaling (MDS), and comparison of nomological networks (Sireci et al., 2005). Researchers are expected to identify any possible sources of method bias in the adapted test. Sources of method bias include: (1) different levels of test motivation in participants, (2) differential experience on the part of respondents with psychological tests, (3) a longer duration needed to take the test in one language group than the other, (4) differential familiarity with the response format across language groups, and (5) heterogeneity of response style, etc. Item equivalence can be analysed with, for example, CFA and IRT approaches to the identification of potentially biased test items.

An Example of the Adaptation and Evaluation Process for DMQ 18

This section provides a detailed example of the process that we used to create a hypothetical Southeast Asian version, from the original English DMQ 18, and to test its reliability and validity. The example is based on the ITC guidelines with a few additions. The sequence of steps in the example used the Precondition (PC) ITC guidelines for Steps 1-3, the Test Development (TD) for Steps 4, 5, 7, 10 and 11, and The Confirmation (C) ITC guidelines for Steps 12 and 13. Steps 6 and 9 are additional steps that we recommend, which involve consulting with the test developers to be sure that the back translation and any later revisions fit with the original conceptualization of the items. Step 8 provided a recommended method to check the content validity of the instrument.

Step 1: PC-1 Request Permission

The process of obtaining the necessary permission to adapt DMQ 18 was conducted through e-mail addressed to Professors George Morgan and Krisztián Józsa, the developers of DMQ 18. By doing so and receiving a reply that permission was granted, the researchers were ready to start the translation and adaptation process into the new language version.

Step 2: PC-2 Evaluate Overlap

In the adaptation process of DMQ 18, the researchers from Southeast Asia collaborated with three content experts in early childhood psychology and education (the focus of the preschool DMQ 18, which was being considered for use in the planned Southeast Asia studies) to conduct a literature review of the concept of mastery motivation in early childhood. The review was also conducted for similar concepts about general ability and the competencies required for children as they progress through developmental tasks. Based on the review, it was agreed that the DMQ items overlap sufficiently with the concept of mastery motivation in the intended Southeast Asian preschool population.

The DMQ was developed and refined since the 1980s by a team of researchers, including Morgan, Busch-Rossnagel, Harmon, and Jennings (Morgan et al., 1983; Morgan et al., 1993). DMQ 18 uses five-point Likert scales, ranging from 1 (*completely unlike this child*) to 5 (*exactly like this child*). Higher scores indicate higher mastery motivation in a child. Each of the five dimensions utilized in this example consisted of five items.

The next step was to review the construct of mastery motivation with experts, utilizing several questions:

1. Does the particular construct to be measured exist in both cultures?
2. Is it logical to compare the two cultures in regards to the particular construct?

3. Would cross-cultural comparison on the particular construct be meaningful?
4. Does the particular construct to be measured have the same meaning in the compared cultures?

Based on the analysis of the construct, it was found that the definition and scope (or operational definition) of mastery motivation are similar in the Southeast Asian culture and in the culture of where DMQ 18 was originally developed, indicating sufficient overlap of the constructs in the two cultures.

Step 3: PC-3 Minimize Irrelevant Differences

In the adaptation process of DMQ 18, it was important that the Southeast Asia content experts were not just natives and proficient in both languages and cultures (English and the Southeast Asian), but they also had educational backgrounds in early childhood development.

Qualitative methods, including interviews, were conducted. Discussions focused on item clarity, test instructions, and the rating scales. The goal was to develop procedures appropriate for the intended population and to minimize potential problems due to cultural differences. Standardized procedures were designed to administer DMQ 18 under consistent procedures so that the test-taking experience would be as similar as possible across examinees and cultures. Feedback from the discussions noted issues of item clarity and revised the instructions about how to respond to the rating scale.

Step 4: TD-1 Choose Experts for the Translation

In the DMQ 18 adaptation process for the Southeast Asian culture, four experts were selected as translators. All of them were considered functionally bilingual; all were able to conduct professional activities in both languages and had an academic background in psychology or education. They were not all equally fluent in both languages, but all met the "functionally bilingual" condition. All were given written information concerning the kind of translation that was expected from them as well as instructions on how to write test items. The four translators were selected because they were considered content experts; their academic backgrounds were closely related to psychology and child development.

The List of Qualifications for the Expert Translators, including their highest degree:

1. Expert/translator 1: Doctorate in Psychology. Teaches Child Education and Developmental Psychology and is familiar with research on mastery motivation and the DMQ.
2. Expert/translator 2: Master's in Psychology as a Profession. Teaches Child Education and Developmental Psychology. Head of Foundation for Childhood Education. Somewhat familiar with the concept of mastery motivation.

3. Expert/translator 3: Master's in Psychology as Profession. Teaches Child Education and Developmental Psychology. Consultant of Foundation for Childhood Education. Not familiar with the concept of mastery motivation.
4. Expert/translator 4: Doctorate in Education. University department head for preschool education. Not familiar with the concept of mastery motivation.

Step 5: TD-2 Translation

In the process of translating and adapting DMQ 18 to the Southeastern Asian language, both a forward and then a backward translation of the DMQ 18 items were used. Two translators were used for the forward translation, and two different translators were used for the back translation. The two forward translators were not only considered technical experts, but also somewhat knowledgeable about the concept of mastery motivation and its measurement. The two backward translators were not knowledgeable about the concept of mastery motivation, but were generally knowledgeable about child development, as noted above in Step 4. All were given written information about the meaning and the use of the rating scales that they were asked to assess the equivalence of the translated items. The two forward translations were synthesized by consensus. Likewise, a synthesis of the backwards items was done. Table 9.1 shows an example of the original English version of two DMQ 18 items with their forward translation in the Southeastern Asian language and backward translations in English.

Table 9.1. Comparison of an Example of DMQ 18 Items from the Original with the Forward and Backward Translations

Item No.	Original version	Forward translation version	Backward translation Version
4	*Tries to do things to keep children interested*	Berusaha melakukan sesuatu agar anak-anak lain tetap tertarik	*Trying to do something so that other children remain interested*
5	*Tries to keep adults interested in talking*	Berusaha agar orang dewasa tetap tertarik dalam pembicaraan.	*Trying to keep adults interested in the conversation.*

Step 6: Consult Original Developer

Although this step is not explicit in the ITC guidelines, we think that it is highly desirable to have the original developer review the back translation to be sure that the items are consistent with their intended meaning related to the concept of mastery motivation. If some items do not reflect the original meaning adequately, suggestions would be made to have the translator use different terms in the forward translation.

Step 7: TD-3 Gather Evidence for Equivalence

of the original English DMQ items and the back translation synthesis. In order to avoid randomness and mere subjectivity in the evaluation of the translated items, the three content experts in early childhood psychology and education (see Steps 2 and 3) were now asked to rate each item using a systematic method developed by the research team. Based on the various definitions of equivalence proposed over the years, our method focuses on the *linguistic* and also the *conceptual* equivalence (Jeanrie & Bertrand, 1999).

The three content experts were first asked to rate the comparability and similarity between original items and the synthesis of the perhaps somewhat revised backward translation (Jeanrie & Bertrand, 1999). **Comparability** refers to the degree of formal *linguistic equivalence* in language, phrases, terms, words, and sentences. To assess *conceptual equivalence*, the experts were asked to rate **similarity**, which concerns the degree to which the two versions of an item are *semantically* similar, having the same meaning despite the use of perhaps somewhat different terminology. The expert review form (shown in Table 9.2) is a rating scale, with a range of 1 to 4. Items with identical meaning were given a score of 4, while those with a very different meaning were assigned a score of 1.

Table 9.2. A Form to Rate the Linguistic Comparability and Conceptual Similarity of the Original DMQ 18 Items with the Back Translation Items

No.	Original item	BT synthesis item	Comparability				Similarity			
			1	2	3	4	1	2	3	4
1.	Tries to figure out what adults like	Trying to find out what adults like								
2.	Tries to understand other children	Trying to understand other children								
Etc.										

** BT= Back Translation.*

We used the criteria suggested by Polit et al. (2007) to evaluate the ratings for Step 7 (evidence for equivalence) and Step 8 (evidence for content validity). That is, relatively good items were those with a rating of 3 or 4,

while relatively poor items were rated 1 and 2. To evaluate equivalence, ratings were divided into a dichotomous score: 1 (for items with scores of 3 and 4) and 0 (for items with scores of 1 and 2). The linguistic and semantic equivalence of each item was estimated by summing up the dichotomous scores for comparability and similarity, respectively, and then dividing them by the number of reviewers. Polit et al. (2007) suggested a cut-off of 0.78. as evidence that the new items shared adequate linguistic or semantic characteristics with the original DMQ item. If no item was below the cut-off of 0.78, there were only marginal linguistic and semantic differences between items of the original scale and those of the adapted version, regardless of minor differences in the terminologies used. This type of equivalence was rated by three experts, and all of the DMQ 18 items in this example were above the cutoff score of 0.78.

Step 8: Gather Content Validity Evidence

We think that it's important to have the expert reviewers rate the original and translated items for content validity, so we have added this step to our example. The content validity of the items within the cultural context of the new language was rated for relevance, importance, and clarity. Content validity assessment was carried out on both the backward and forward translations. Sireci and Faulkner-Bond (2014) state that content validity (using the Content Validity Index, CVI) refers to the degree to which the content of a test is relevant to the measurement objective. The CVI of each item was calculated by asking the three content expert reviewers to rate each item, from 1 to 4, in terms of its: *relevance* (the extent to which the item measures a relevant dimension of the construct of mastery motivation), *importance* (the extent to which the item is critical for a dimension of the construct of mastery motivation), and *clarity* (the degree of clarity and understandability of the item) (Polit et al., 2007). Table 9.3 and Table 9.4 illustrate the rating forms that the expert reviewers were asked to use to rate the forward translation (Table 9.3), and then separately rate the back translation (Table 9.4).

Table 9.3. Form for Expert Reviewers to Rate the Relevance, Importance, and Clarity of the Forward Translation

No.	Original Item	FT synthesis item	Relevance				Importance				Clarity			
			1	2	3	4	1	2	3	4	1	2	3	4
1.	Tries to figure out what adults like	Mencoba mencari tahu tentang apa yang disukai orang dewasa												
2.	Tries to understand other children	Berusaha memahami anak-anak lain												
Etc.														

Note. FT = Forward Translation.

Table 9.4. Form for the Expert Reviewers to Rate the Relevance, Importance, and Clarity of the Back Translation

No.	Original Item	BT synthesis item	Relevance				Importance				Clarity			
			1	2	3	4	1	2	3	4	1	2	3	4
1.	Tries to figure out what adults like	Trying to find out what adults like												
2.	Tries to understand other children	Trying to understand other children												
Etc.														

Note. BT= Back Translation.

As for evidence of equivalence, Polit et al. (2007) suggested that good items are those with a score of 3 or 4, while poor items are rated 1 or 2. Content validity ratings were, similar to Step 7, dichotomized: 1 (for items with scores of 3 and 4) and 0 (for items with scores of 1 and 2). The Content Validity Index (CVI) of each item was estimated by summing the dichotomous scores and then dividing the sum by the number of reviewers. A minimum CVI value of 0.78 was suggested for an item to be deemed good (Polit et al., 2007) and, thus, provide evidence for content validity. In the Southeast Asian example, all the items had content validity indices above 0.78.

Step 9: Revisions and Further Consultation with the Developer

We have added this step, which is not explicitly in the ITC guidelines, because the results of feedback from the original developer of the DMQ, ratings of conceptual and linguistic equivalence, and also ratings of content validity may lead to revisions in the translated questionnaire. When the ratings from Tables 9.2, 9.3, and 9.4, were completed, the main researcher compiled the results and considered the comments made by the experts on some items. This led the researcher to make some changes at this step, often to adapt an item when the preferred wording in Step 7 of the conceptual similarity rating was different from the linguistic comparability rating. This

led to a somewhat revised version of the Southeast Asian DMQ 18. In general, however, the use of these scales provided evidence for both the semantic and the linguistic equivalence of the items and also for their content validity.

Further consultation with original developer could occur if the results of the assessment of equivalence and content validity by the expert reviewers lead to changes in the adapted questionnaire, as was the case in our example mentioned in the previous paragraph. Minor revisions resulted from correspondence with the developer of the DMQ. The purpose of this consultation was to make sure that the original item and the adapted items had the same meaning so that the adapted scale still measured the concepts intended by the original developer. After obtaining the agreement of the original developer, the adaptation was deemed to be appropriate to be used.

Step 10: TD-4 Small Scale Administration and Parent Feedback

The translated and adapted DMQ was revised in Step 9, so it should be administered to a few parents of children of the intended age for the planned studies, in order to find out whether the items and instructions would be clearly understood by adult raters such as parents/guardians or preschool teachers. (If this had been a translation of the school-age DMQ, it would be desirable to administer it to a few school-age children to be sure that they were able to answer it appropriately.) Feedback from these parents who were considered to be representative of the potential research sample indicated that items and instructions in this final form of the adaptation version were easy to comprehend and use. Thus, no further revisions were made.

Step 11: TD-5 Pilot Data

Collect and analyze pilot data on the adapted test version to enable item analysis, reliability assessment, and small-scale validity studies, indicating whether any necessary revisions should be made. Pilot data were collected from 169 parents who had kindergarten children aged 5-6 years old. Each of the five dimensions demonstrated relatively high levels of internal consistency ranging from .63 to 0.76. In addition, the relevance, importance, and clarity ratings provided by content experts in Step 8 were also a source evidence for content validity.

Because the pilot study did not suggest that further changes were needed, a full-scale validity study was then conducted for the Southeast Asian version of the preschool DMQ 18.

Step 12: C-1 Sample Selection

For the field test of the validity study, a random sample of 20 kindergarten classes was drawn from those in a large Southeast Asian city. All 20 teachers agreed to participate and to encourage parents to complete the DMQ; 75% of the parents signed a consent form and completed the DMQ and a family information form.

Because the intended population for the study was 5-6-year-old kindergarten children in this Southeast Asian country, the sample was probably representative at least of urban children in that country, who were required to attend kindergarten. The sample was also large enough for the statistics used in the planned validity study.

Step 13: C-2 Empirical Analysis

of the field test results. To validate the factor structure and provide further evidence of construct validity, confirmatory factor analysis (CFA) was used with a different sample than in the pilot study. The CFA sample consisted of 300 parents who rated the mastery motivation of their 5-6-year-old kindergarten children.

Second-order CFA (Hwang et al., 2017) was used to provide construct validity evidence for the translated and adapted questionnaire. The criteria specified by Hair et al. (2014) for deciding whether the model fits is based on several model fit indices. These indices include: (a) the chi-square *p* value; (b) Root Mean Square Error of Approximation (RMSEA: is an index of differences between the observed covariance matrix per degree of freedom and the hypothesized covariance matrix); (c) Goodness of Fit Index (GFI: is a measure of fit between the hypothesized model and the observed covariance matrix); (d) Comparative Fit Index (CFI: is an analysis of the model fit by examining the discrepancy between the data and the hypothesized model; CFI also adjusts for sample size issues in the chi-squared test of model fit and the normed fit index); and (e) Adjusted Goodness of Fit Index (AGFI: is a correction of the GFI, based on the number of indicators in each variables). The criteria for judging the fit of each index are presented in Table 9.5, which is a useful way to provide the goodness of fit index values for: the chi-square *p,* RMSA, GFI, CFI, and AGFI. Next to each required value in Table 9.5 is the goodness of fit statistic for our hypothetical example, and then a statement under "decision" about whether the statistic met the criterion value stated by Hair et al. (2014). Note that, except for the adjusted goodness of fit index, the values shown in Table 9.5 were considered to support a good fit with the model.

Table 9.5. Tests of Goodness of Fit Based on Confirmatory Factor Analysis

Fit Indices	Required Value	Obtained Value	Decision
χ^2 *p*-value	> .05	0.950	*Good fit*
RMSEA	< .08	0.045	*Good fit*
GFI	> .90	0.975	*Good fit*
CFI	> .90	0.960	*Good fit*
AGFI	> .90	0.890	*Marginal fit*

Abbreviation: AGFI = Adjusted Goodness of Fit Index; CFI = Comparative Fit Index; GFI = Goodness of Fit Index; RMSEA = Root Mean Square Error of Approximation.

When the model fit results are not a good fit, researchers can modify the model to obtain a parsimonious or better fitting model. However, the modification must be guided by theory and not just to improve the analysis (Shreiber et al., 2006). Based on the model fit results, a diagram or figure of the confirmatory factor analysis for the adapted questionnaire could be presented. In our example, the hypothesized second-order factor model demonstrated adequate fit.

Further evidence for construct validity is obtained from examination of the CFA factors. The minimum CFA factor loadings should be no less than .5, with a preferred value greater than .70. Other calculations that should be taken into account are a minimum construct reliability (CR) score in the range of .60-.70, a recommended Average Variance Extracted (AVE) coefficient of at least .50, and Cronbach alpha coefficients of at least .60. Table 9.6 presents the factor loadings, Cronbach alphas, construct reliability, and average variance extracted for the adapted DMQ 18 questionnaire of our hypothetical example.

In our hypothetical example, all the items had factor loading greater than .70, which implies that construct validity has been fulfilled according to the criteria. If any items had factor loadings lower than .50, they would have been potential candidates for deletion, especially if there was some other evidence that they were problematic. However, their deletion would affect the content validity of the tool (Hair et al., 2014). Because construct reliability (CR) values were all above .70, they were considered satisfactory. The average variance extracted (AVE) values yielded favorable results because all scores were greater than .50. Furthermore, Cronbach's alpha values met the requirements of above .60. Thus, the values shown in Table 9.6 indicate that the factor loadings, construct reliability, average variance extracted, and Cronbach's alphas were acceptable in this example.

Table 9.6. Factor Loadings, CR, AVE, and Cronbach's Alpha for Each DMQ 18 Scale

Item No.	Statement	FL	CR	AVE	Cronbach's Alpha
Cognitive/Object Persistence (COP)			0.90	0.65	0.705
1	Repeats a new skill until he can do it	0.90			
8	Tries to complete tasks, even if takes a long time	0.95			
10	Tries to complete toys like puzzles	0.80			
14	Works long to do something challenging	0.75			
18	Will work a long time to put something together	0.80			
Gross Motor Persistence (GMP)			0.85	0.60	0.735
3	Tries to do well at motor activities	0.75			
7	Tries to do well in physical activities	0.80			
16	Repeats jumping/running skills until can do them	0.85			
23	Tries hard to get better at physical skills	0.75			
25	Tries hard to improve throwing or kicking	0.80			
Social Persistence with Adults (SPA)			0.80	0.65	0.720
5	Tries to keep adults interested in talking	0.85			
9	Tries hard to interest adults in playing	0.90			
13	Tries hard to get adults to understand	0,85			
21	Tries to figure out what adults like	0,75			
24	Tries hard to understand my feelings	0,80			
Social Persistence with Children (SPC)			0.90	0.65	0.780
4	Tries to do things to keep children interested	0.75			
15	Tries to understand other children	0.80			
17	Tries hard to make friends with other kids	0.75			
20	Tries to get included when children playing	0.90			
22	Tries to keep play with kids going	0.75			
Mastery Pleasure (MP)			0.90	0.70	0.710
2	Smiles broadly after finishing something	0.95			
6	Shows excitement when is successful	0.90			
11	Gets excited when figures out something	0.75			
12	Is pleased when solves a challenging problem	0.75			
19	Smiles when makes something happen	0.80			
Total			0.85	0.65	0.805

Note. FL= Factor Loading; CR = construct reliability; AVE = average variance extracted.

Discriminant validity must also fulfill the requirement of having an AVE root square greater than the correlation value between dimensions. These validity results could be presented in a correlation matrix similar to that shown in Table 9.7. Note that each AVE root square coefficient, shown on the diagonal, should be larger than the correlations between the dimensions. The logic here is based on the idea that a latent construct should explain more of the variance in its item measures than it shares with another construct (Hair et al., 2014). Table 9.7 shows that the discriminant validity for the hypothetical example would be considered acceptable.

Table 9.7. Discriminant Validity of the Five DMQ 18 Scales

	COP	GMP	SPA	SPC	MP
Cognitive/Object Persistence (COP)	**0.805**				
Gross Motor Persistence (GMP)	0.515	**0.755**			
Social Persistence with Adults (SPA)	0.460	0.215	**0.775**		
Social Persistence with Children (SPC)	0.485	0.205	0.555	**0.825**	
Mastery Pleasure (MP)	0.565	0.400	0.445	0.570	**0.800**

Conclusion

One purpose of this chapter was to describe potential problems and biases related to the translation of questionnaires into a different language and culture. Many of these issues can be addressed through application of the guidelines from the International Test Commission (ITC) guidelines titled *ITC Guidelines for Translating and Adapting Tests*. The chapter applies the guidelines to describe the procedure we used to develop a hypothetical Southeast Asian version of DMQ 18. Finally, we describe statistical analyses, using realistic but hypothetical data, to assess the reliability and validity of such a translated and adapted questionnaire.

The appendices of this book provide complete English, Chinese, and Hungarian DMQ 18 forms, including the items for each of the four age-related versions, plus how to score them. The available DMQ 18 rating forms in other approved languages can be found in the online version of this book. These are open access and available for free for qualified researchers and clinicians. See Appendix C at the end of the book for how to request formal approval to use DMQ 18.

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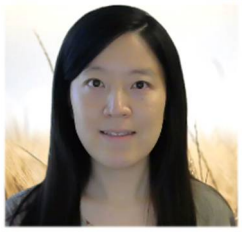

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Appendix A.

Letter to Potential DMQ 18 Users and Form

Letter to potential DMQ 18 Users

After finishing editing the DMQ book, "Assessing Mastery Motivation in Children Using the Dimensions of Mastery Questionnaire (DMQ)", George Morgan has fully retired and stepped down from doing research and writing about mastery motivation and from future updates of the DMQ. Krisztián Józsa and Hua-Fang (Lily) Liao, the co-editors of the DMQ book have agreed to continue to correspond with potential users and provide them with access to the DMQ questionnaires, the book and other relevant publications. For the DMQ in English, Europe, the Americas, and Africa, please contact professor Józsa (jozsa@edpsy.u-szeged.hu). For access to and questions about the DMQ in China/Taiwan (next year the DMQ book be translated into Chinese) and other Asian and Middle-eastern counties, contact Professor Liao (hfliao@ntu.edu.tw).

We want the DMQ to be used as widely as possible; both the DMQ and this book are open access distributed under the terms and conditions of the Creative Commons Attribution (CC-BY-NC-ND). We do want to know as much as possible about the use, and we also want to know about any future translations of the instrument. Thus, we would like to approve the back translation from any new languages, as suggested in **Chapter 9** of the DMQ book, which describes best practices for translating and adapting DMQ 18 and other questionnaires. We also want to know a little about your planned research and the language/translation that you intend to use. Thus, we would like you to complete the form on the next page and email it to us. We also would like you to share later your presentations and preliminary reports as well as publications using DMQ 18. Thank you for your interest and cooperation.

George A. Morgan, Krisztián Józsa, and Hua-Fang (Lily) Liao

Your Use of the Dimensions of Mastery Questionnaire (DMQ 18) Form

Please email this form to Krisztián Józsa (jozsa@edpsy.u-szeged.hu) or Hua-Fang Liao (hfliao@ntu.edu.tw) and to the researcher who is the contact person for the translation you would like to use (see the contact person's name and email address in **Appendix D**, List of the Available Translations).

Date: _____

Names of principal investigators (printed or typed):

_____

_____

Organization: _____

Address: _____

E-mail address: _____

DMQ 18 language and age version(s) that you plan to use: _____

Age(s) and approximate numbers of participants/children: _____

Who do you plan to ask to rate the children/youth? (check YES for all you plan to use)

Mother:	☐ Yes	☐ No
Father:	☐ Yes	☐ No
Child Self-report:	☐ Yes	☐ No
Teacher/caregiver:	☐ Yes	☐ No

Other characteristics of the sample(s) (ethnicity, language, risk factors, etc.):

_____

_____

Main research question(s) or purpose(s):

_____

_____

_____

Appendix B.

DMQ 18 Questionnaires for the Three Official Languages, Each with Four Age-Related Versions

Dimensions of Mastery Questionnaires (DMQ 18) have three official languages and four age-related versions. The three official languages are American English, Traditional Chinese, and Hungarian. Each language has four age-related versions: Infants, Preschool, School-age by Adult-rating, and School-age by Self-rating, as shown in the following table.

Official language	Age-related version
English	Infant Motivation Questionnaire Preschool Motivation Questionnaire School-age Motivation Questionnaire (by Adult-rating) School-age Motivation Questionnaire (by Self-rating)
Chinese	Infant Motivation Questionnaire Preschool Motivation Questionnaire School-age Motivation Questionnaire (by Adult-rating) School-age Motivation Questionnaire (by Self-rating)
Hungarian	Infant Motivation Questionnaire Preschool Motivation Questionnaire School-age Motivation Questionnaire (by Adult-rating) School-age Motivation Questionnaire (by Self-rating)

Dimensions of Mastery Questionnaire (DMQ 18)
English Versions

Infant Motivation Questionnaire

Child's ID:_____; Age:_____months; Gender: □boy, □girl; Today's date: _____

Rater's relationship to child: □mother; □father; □other (please specify) _____
Please CIRCLE the number that best indicates how typical each statement of the 38 items is of this child's recent behavior. Children vary; most are motivated to do some things but not others. Note that some of the items may not be typical of a child his or her age, so it is okay to use a "not like this child" rating. Please try to answer all questions even if you are not sure.

		NOT AT ALL LIKE THIS CHILD				EXACTLY LIKE THIS CHILD
1.	Repeats a new skill until he or she can do it	1	2	3	4	5
2.	Smiles broadly after finishing something	1	2	3	4	5
3.	Tries to do well at physical activities	1	2	3	4	5
4.	Learns things quickly compared to children his or her age	1	2	3	4	5
5.	Fusses if cannot do something	1	2	3	4	5
6.	Tries to make other children feel better if they cry or seem sad	1	2	3	4	5
7.	Tries to do things that keep other children interested	1	2	3	4	5
8.	"Talks" to adults and tries to keep them interested	1	2	3	4	5
9.	Gets frustrated when not able to complete a challenging task	1	2	3	4	5
10.	Is developing faster than other children his or her age	1	2	3	4	5
11.	Claps hands or shows excitement when he or she is successful	1	2	3	4	5
12.	Tries to do well in physical activities even when they are difficult	1	2	3	4	5
13.	Gets frustrated when not successful immediately	1	2	3	4	5
14.	Tries to do things even if it takes a long time	1	2	3	4	5
15.	Tries hard to interest adults in playing with him or her	1	2	3	4	5
16.	Screams or bangs things after failing something	1	2	3	4	5
17.	Explores all parts of an object or toy	1	2	3	4	5
18.	Gets excited when he or she figures something out	1	2	3	4	5
19.	Tries to influence play with me or other adults	1	2	3	4	5
20.	Does things that are difficult for children his or her age	1	2	3	4	5
21.	While playing with a toy, he or she smiles or gets excited	1	2	3	4	5

		NOT AT ALL LIKE THIS CHILD				EXACTLY LIKE THIS CHILD
22.	Tries to get adults to understand him or her	1	2	3	4	5
23.	Works for a long time trying to do something challenging	1	2	3	4	5
24.	Tries hard to do cause and effect toys such as a busy box	1	2	3	4	5
25.	Tries to understand other children	1	2	3	4	5
26.	Repeats skills related to moving around until he or she can do them	1	2	3	4	5
27.	Does most things better than other children his or her age	1	2	3	4	5
28.	Tries hard to interact with other familiar children when near t	1	2	3	4	5
29.	Will work for a long time trying to get something open	1	2	3	4	5
30.	Smiles when he or she makes something happen	1	2	3	4	5
31.	Understands things better than children his or her age	1	2	3	4	5
32.	Tries to get included when other children are playing	1	2	3	4	5
33.	Tries to find out what adults like and don't like	1	2	3	4	5
34.	Gets angry if cannot do something after trying	1	2	3	4	5
35.	Tries to start play with other children	1	2	3	4	5
36.	Repeats motor skills in order to do them well	1	2	3	4	5
37.	Tries hard to understand my feelings	1	2	3	4	5
38.	Tries hard to retrieve objects	1	2	3	4	5

Preschool Motivation Questionnaire

Child's ID:_____; Age:_____months; Gender: □boy, □girl; Today's date: _____

Rater's relationship to child: □mother; □father; □other (please specify) _____

Please CIRCLE the number that best indicates how typical each statement of the 39 items is of this child's recent behavior. Children vary; most are motivated to do some things but not others. Note that some of the items may not be typical of a child his or her age, so it is okay to use a "not like this child" rating. Please try to answer all questions even if you are not sure.

		NOT AT ALL LIKE THIS CHILD				EXACTLY LIKE THIS CHILD
1.	Repeats a new skill until he or she can do it	1	2	3	4	5
2.	Smiles broadly after finishing something	1	2	3	4	5
3.	Tries to do well at motor activities	1	2	3	4	5
4.	Solves problems quickly	1	2	3	4	5
5.	Seems sad or ashamed when doesn't accomplish a goal	1	2	3	4	5
6.	Tries hard to make other children feel better if they cry or seem sad	1	2	3	4	5
7.	Tries to do and say things that keep other children interested	1	2	3	4	5
8.	When talking with adults, tries to keep them interested	1	2	3	4	5
9.	Gets frustrated when not able to complete a challenging task	1	2	3	4	5
10.	Is very good at doing most things	1	2	3	4	5
11.	Shows excitement when he or she is successful	1	2	3	4	5
12.	Tries to do well in physical activities even when they are challenging	1	2	3	4	5
13.	Gets frustrated when does not do well at something	1	2	3	4	5
14.	Tries to complete tasks, even if it takes a long time to finish	1	2	3	4	5
15.	Tries hard to interest adults in playing with him or her	1	2	3	4	5
16.	Protests after failing at something	1	2	3	4	5
17.	Tries to complete toys like puzzles even if it takes hard work	1	2	3	4	5
18.	Gets excited when he or she figures something out	1	2	3	4	5
19.	Gets angry if cannot do something after trying hard	1	2	3	4	5
20.	Does things that are difficult for children for his or her age	1	2	3	4	5
21.	Is pleased when solves a challenging problem	1	2	3	4	5

		NOT AT ALL LIKE THIS CHILD				EXACTLY LIKE THIS CHILD
22.	Tries hard to get adults to understand him or her	1	2	3	4	5
23.	Works for a long time trying to do something challenging	1	2	3	4	5
24.	Won't look people in the eye when tries but cannot do something	1	2	3	4	5
25.	Tries to understand other children	1	2	3	4	5
26.	Repeats skills like jumping or running until he or she can do them	1	2	3	4	5
27.	Does most things better than other children his or her age	1	2	3	4	5
28.	Tries hard to make friends with other kids	1	2	3	4	5
29.	Will work for a long time trying to put something together	1	2	3	4	5
30.	Smiles when he or she makes something happen	1	2	3	4	5
31.	Understands things well	1	2	3	4	5
32.	Tries to get included when other children are playing	1	2	3	4	5
33.	Tries to figure out what adults like and don't like	1	2	3	4	5
34.	Looks away when tries but cannot do something	1	2	3	4	5
35.	Tries to keep play with other kids going for a long time	1	2	3	4	5
36.	Tries hard to get better at physical skills	1	2	3	4	5
37.	Tries hard to understand my feelings and those of other adults	1	2	3	4	5
38.	Tries hard to improve his or her skill at throwing or kicking	1	2	3	4	5
39.	Withdraws after trying but not succeeding	1	2	3	4	5

School-age Motivation Questionnaire (by Adult-rating)

Child's ID:_____; Age:_____months; Gender: □boy, □girl; Today's date: _____

Rater's relationship to child: □mother; □father; □other (please specify) _____

Please CIRCLE the number that best indicates how typical each statement of the 41 items is of this child's recent behavior. Children vary; most are motivated to do some things but not others. Note that some of the items may not be typical of a child his or her age, so it is okay to use a "not like this child" rating. Please try to answer all questions even if you are not sure.

		NOT AT ALL LIKE THIS CHILD				EXACTLY LIKE THIS CHILD
1.	Works on a new problem until he or she can do it	1	2	3	4	5
2.	Is pleased with self when finishes something challenging	1	2	3	4	5
3.	Tries to do well at athletic games	1	2	3	4	5
4.	Solves problems quickly	1	2	3	4	5
5.	Seems sad or ashamed when he or she doesn't accomplish a goal	1	2	3	4	5
6.	Tries hard to make other children feel better if they seem sad	1	2	3	4	5
7.	Tries to say and do things that keep other children interested	1	2	3	4	5
8.	Often discusses things with adults	1	2	3	4	5
9.	Gets frustrated when not able to complete a challenging task	1	2	3	4	5
10.	Is very good at doing most things	1	2	3	4	5
11.	Gets excited when he or she is successful	1	2	3	4	5
12.	Tries to do well in physical activities even when they are challenging	1	2	3	4	5
13.	Gets frustrated when does not do well at something	1	2	3	4	5
14.	Completes school work, even if it takes a long time	1	2	3	4	5
15.	Tries hard to interest adults in his or her activities	1	2	3	4	5
16.	Protests after failing at something tried hard to do	1	2	3	4	5
17.	Tries to figure out all the steps needed to solve a problem	1	2	3	4	5
18.	Gets excited when he or she figures something out	1	2	3	4	5
19.	Tries to get adults to see his or her point of view	1	2	3	4	5
20.	Does things that are difficult for kids his or her age	1	2	3	4	5
21.	Is pleased when solves a problem after working hard at it	1	2	3	4	5

		NOT AT ALL LIKE THIS CHILD				EXACTLY LIKE THIS CHILD
22.	Tries hard to get adults to understand him or her	1	2	3	4	5
23.	Works for a long time trying to do something challenging	1	2	3	4	5
24.	Won't look people in the eye when tries but cannot do something	1	2	3	4	5
25.	Tries hard to understand other children	1	2	3	4	5
26.	Repeats sports skills until he or she can do them better	1	2	3	4	5
27.	Does most things better than other kids his or her age	1	2	3	4	5
28.	Tries hard to make friends with other kids	1	2	3	4	5
29.	Will work for a long time trying to solve a problem for school	1	2	3	4	5
30.	Smiles when succeeds at something he or she tried hard to do	1	2	3	4	5
31.	Understands things well	1	2	3	4	5
32.	Tries to get included when other kids are doing something	1	2	3	4	5
33.	Tries to find out what adults like and don't like	1	2	3	4	5
34.	Looks away when tries but cannot do something	1	2	3	4	5
35.	Tries to keep things going for a long time when playing with other kids	1	2	3	4	5
36.	Tries hard to get better at sports	1	2	3	4	5
37.	Tries hard to understand the feelings of adults	1	2	3	4	5
38.	Tries hard to improve his or her ball-game skills	1	2	3	4	5
39.	Withdraws after trying but not succeeding	1	2	3	4	5
40.	Prefers to try challenging problems instead of easy ones	1	2	3	4	5
41.	Gets angry if cannot do something after trying hard	1	2	3	4	5

School-age Motivation Questionnaire (by Self-rating)

Child's ID:_____; Age:_____months; Gender: □boy, □girl; Today's date: _____

Please CIRCLE the number that best indicates how much like you each statement is of you recently. Kids vary; most are motivated to do some things, but not others. Note that some of the questions are not typical of kids your age, so it is okay to use a "not at all like me" rating. Please try to answer all questions even if you are not sure.

		NOT AT ALL LIKE ME				EXACTLY LIKE ME
1.	I work on a new problem until I can do it	1	2	3	4	5
2.	I am pleased with myself when I finish something challenging	1	2	3	4	5
3.	I try to do well at athletic games	1	2	3	4	5
4.	I solve problems quickly	1	2	3	4	5
5.	I am sad or ashamed when I don't accomplish a goal	1	2	3	4	5
6.	I try hard to make other kids feel better if they seem sad	1	2	3	4	5
7.	I try to say and do things to keep other kids interested	1	2	3	4	5
8.	I often discuss things with adults	1	2	3	4	5
9.	I get frustrated when not able to complete a challenging task	1	2	3	4	5
10.	I am very good at doing most things	1	2	3	4	5
11.	I get excited when I am successful	1	2	3	4	5
12.	I try to do well in physical activities even when they are challenging	1	2	3	4	5
13.	I get frustrated when I don't do well in something	1	2	3	4	5
14.	I complete my school work, even if it takes a long time	1	2	3	4	5
15.	I try hard to interest adults in my activities	1	2	3	4	5
16.	I protest after failing something I tried hard to do	1	2	3	4	5
17.	I try to figure out all the steps needed to solve a problem	1	2	3	4	5
18.	I get excited when I figure something out	1	2	3	4	5
19.	I try to get adults to see my point of view	1	2	3	4	5
20.	I do things that are difficult for kids my age	1	2	3	4	5
21.	I am pleased when I solve a problem after working hard at it	1	2	3	4	5
22.	I try hard to get adults to understand me	1	2	3	4	5

		NOT AT ALL LIKE ME				EXACTLY LIKE ME
23.	I work for a long time trying to do something challenging	1	2	3	4	5
24.	I don't look people in the eye when I try but cannot do something	1	2	3	4	5
25.	I try hard to understand other children	1	2	3	4	5
26.	I repeat sports skills until I can do them well	1	2	3	4	5
27.	I do most things better than other kids my age	1	2	3	4	5
28.	I try hard to make friends with other kids	1	2	3	4	5
29.	I will work for a long time trying to solve a problem for school	1	2	3	4	5
30.	I smile when I succeed at something I tried hard to do	1	2	3	4	5
31.	I understand things well	1	2	3	4	5
32.	I try to get included when other kids are doing something	1	2	3	4	5
33.	I try to find out what adults like and don't like	1	2	3	4	5
34.	I look away when I try but cannot do something	1	2	3	4	5
35.	I try to keep things going when I am playing with other kids	1	2	3	4	5
36.	I try hard to get better at sports	1	2	3	4	5
37.	I try hard to understand the feelings of adults	1	2	3	4	5
38.	I try hard to improve my ball-game skills	1	2	3	4	5
39.	I withdraw after trying but not succeeding	1	2	3	4	5
40.	I prefer to try challenging problems instead of easy ones	1	2	3	4	5
41.	I get angry if I cannot do something after trying hard	1	2	3	4	5

Dimensions of Mastery Questionnaire (DMQ 18)
Chinese Versions

嬰兒動機問卷

兒童編號:_____；兒童年齡:___月；性別：•男，•女； 填寫日期:_____年_____月 _____日
填寫者與孩童關係：•母親，•父親，•其他 (請說明)_____
請根據以下 38 題每一題的描述，對照這個孩子的目前行為，依據符合程度，圈選 1 到 5。每個孩子都不一樣；有些孩子對一些事情動機很強，對其他事情則動機不強。請注意，有些項目描述並非符合您孩子年齡的表現，所以圈選"完全不符合這個孩子"並不代表孩子有問題。即使您不確定這個孩子表現，也請回答所有問題。若填寫問卷過程中，有任何問題請與發問卷者討論。

		完全不符合這個孩子				完全符合這個孩子
1.	會反覆練習一個新的技巧直到能做到為止。	1	2	3	4	5
2.	完成某件事以後會開心露出笑容。	1	2	3	4	5
3.	嘗試做好肢體活動。	1	2	3	4	5
4.	與同年齡孩子相比，他/她學習事情速度快。	1	2	3	4	5
5.	當不會做一件事的時候，就容易放棄。	1	2	3	4	5
6.	當其他孩子哭泣或悲傷時，會嘗試做一些事讓他們感覺好一點。	1	2	3	4	5
7.	會嘗試做一些事來讓其他孩子保持與他/她互動的興趣。	1	2	3	4	5
8.	會和大人"說話"（包括發出聲音），並嘗試讓大人保持與他/她互動的興趣。	1	2	3	4	5
9.	當無法完成困難任務時，會焦躁不安。	1	2	3	4	5
10.	比同年齡孩子發展快。	1	2	3	4	5
11.	當成功完成一件事時，他/她會拍手或表現出興奮的樣子。	1	2	3	4	5
12.	即使是困難的肢體活動，他也會嘗試做好。	1	2	3	4	5
13.	當一件事情無法立即成功時，會有挫敗的表現。	1	2	3	4	5
14.	即使做一些事情要花一段長的時間，他/她也會試著去做。	1	2	3	4	5
15.	會努力嘗試去引起大人的興趣來跟他/她玩。	1	2	3	4	5
16.	遭遇失敗後會尖叫或敲打物品。	1	2	3	4	5
17.	會探索一個物品或玩具各個部分。	1	2	3	4	5
18.	當弄懂一件事的時候，會很興奮。	1	2	3	4	5
19.	和我或其他大人一起玩時，會嘗試主導遊戲的方式。	1	2	3	4	5

		完全不符合這個孩子				完全符合這個孩子
20.	會做一些對他/她的年紀來說屬於困難的事。	1	2	3	4	5
21.	玩玩具時會微笑或表現出興奮的樣子。	1	2	3	4	5
22.	嘗試讓大人了解他/她的意思。	1	2	3	4	5
23.	會花一段長的時間嘗試去做一些有挑戰性的事。	1	2	3	4	5
24.	會努力嘗試去玩因果關係的玩具,譬如像是有多種玩法的玩具盒。	1	2	3	4	5
25.	嘗試去了解其他孩子。	1	2	3	4	5
26.	反覆練習身體移位的技巧，直到他/她可做到為止。	1	2	3	4	5
27.	很多事情做的比同年齡孩子好。	1	2	3	4	5
28.	當其他熟識孩子在附近時，會努力嘗試與他/她們互動。	1	2	3	4	5
29.	會花一段長的時間嘗試打開物品。	1	2	3	4	5
30.	促成一件事後，他/她會微笑。	1	2	3	4	5
31.	比同年齡孩子更能了解事物。	1	2	3	4	5
32.	看到別的孩子在玩的時候會嘗試加入。	1	2	3	4	5
33.	嘗試去發現大人喜歡或不喜歡那些事物。	1	2	3	4	5
34.	嘗試做卻無法做到某些事時，會生氣。	1	2	3	4	5
35.	會嘗試主動去和別的孩子一起玩。	1	2	3	4	5
36.	為做好一些動作技巧會反覆練習。	1	2	3	4	5
37.	努力嘗試去了解我的感受。	1	2	3	4	5
38.	努力嘗試移動身體去拿到東西。	1	2	3	4	5

學前兒童動機問卷

兒童編號:_____；兒童年齡:__歲__月；性別：•男，•女； 填寫日期:_____年_____月_____日
填寫者與孩童關係：•母親，•父親，•其他 (請說明)_____
請根據以下 39 題每一題的描述，對照這個孩子的目前行為，依據**符合程度，**圈選 1 到 5。每個孩子都不一樣；有些孩子對一些事情動機很強，對其他事情則動機不強。請注意，有些項目描述並非符合您孩子年齡的表現，所以圈選"完全不符合這個孩子"並不代表孩子有問題。即使您不確定這個孩子表現，也請回答所有問題。若填寫問卷過程中，有任何問題請與發問卷者討論。

	完全不符合這個孩子				完全符合這個孩子
1. 會反覆練習一個新的技巧直到能做到為止。	1	2	3	4	5
2. 完成某件事以後會開心露出笑容。	1	2	3	4	5
3. 嘗試做好動作活動。	1	2	3	4	5
4. 遇到困難可快速解決問題。	1	2	3	4	5
5. 當無法達成某一設定目標時，會感到難過。	1	2	3	4	5
6. 當其他孩子哭泣或悲傷時，會努力嘗試做一些事讓他們感覺好一點。	1	2	3	4	5
7. 會嘗試做和說一些事來讓其他孩子保持與他/她互動的興趣。	1	2	3	4	5
8. 和大人說話時，嘗試讓大人保持與他/她互動的興趣。	1	2	3	4	5
9. 當無法完成困難任務時，會焦躁不安。	1	2	3	4	5
10. 大部分事情都做的非常好。	1	2	3	4	5
11. 當成功完成一件事時，他/她會表現出興奮的樣子。	1	2	3	4	5
12. 即使是挑戰性的肢體活動，他也會嘗試做好。	1	2	3	4	5
13. 沒有把事情做好時，會有挫敗的表現。	1	2	3	4	5
14. 即使完成一些事情要花一段長的時間，他/她也會嘗試去做完。	1	2	3	4	5
15. 會努力嘗試去引起大人的興趣來跟他/她玩。	1	2	3	4	5
16. 遭遇失敗後會爭辯。	1	2	3	4	5
17. 設法完成如拼圖一類的玩具，即使這些玩具需花心力完成。	1	2	3	4	5

		完全不符合這個孩子				完全符合這個孩子
18.	當弄懂一件事的時候，會很興奮。	1	2	3	4	5
19.	努力嘗試做卻無法做到某些事時，會生氣。	1	2	3	4	5
20.	會做一些對他/她的年齡來說屬於困難的事。	1	2	3	4	5
21.	當解決一個難題時會顯得滿足愉悅。	1	2	3	4	5
22.	努力嘗試讓大人了解他/她的意思。	1	2	3	4	5
23.	會花一段長的時間嘗試去做一些有挑戰性的事。	1	2	3	4	5
24.	嘗試做某些事卻做不到時，會不看別人的眼睛。	1	2	3	4	5
25.	嘗試去了解其他孩子。	1	2	3	4	5
26.	重複練習跳躍或奔跑一類的技巧，直到他/她可做到為止。	1	2	3	4	5
27.	很多事情做的比同年齡孩子好。	1	2	3	4	5
28.	會努力嘗試去和其他的孩子交朋友。	1	2	3	4	5
29.	會花一段長的時間嘗試把東西組合在一起。	1	2	3	4	5
30.	促成一件事後，他/她會微笑。	1	2	3	4	5
31.	了解事物能力好。	1	2	3	4	5
32.	看到別的孩子在玩的時候會嘗試加入。	1	2	3	4	5
33.	嘗試去弄清楚大人喜歡或不喜歡那些事物。	1	2	3	4	5
34	想嘗試某件事但做不到時，會把目光移開。	1	2	3	4	5
35.	和其他孩子玩時，會嘗試讓遊戲維持一段長的時間。	1	2	3	4	5
36.	努力嘗試使肢體動作技巧更好。	1	2	3	4	5
37.	努力嘗試去了解我和其他大人的感受。	1	2	3	4	5
38.	努力嘗試改善他/她做丟或踢的動作技巧。	1	2	3	4	5
39.	經嘗試卻無法成功後，就會退縮。	1	2	3	4	5

學齡兒童動機問卷–成人填寫

兒童編號:_____；兒童年齡:__歲__月；性別：•男，•女； 填寫日期:_____年_____月_____日
填寫者與孩童關係：•母親，•父親，•其他 (請說明)_____
請根據以下 41 題每一題的描述，對照這個孩子的日常行為，依據**符合程度**，圈選 1 到 5。每個孩子都不一樣；有些孩子對一些事情動機很強，對其他事情則動機不強。請注意，有些項目描述並非符合您孩子年齡的表現，所以圈選 ”完全不符合這個孩子”並不代表孩子有問題。即使您不確定這個孩子的表現，也請回答所有問題。若填寫問卷過程中，有任何問題請與發問卷者討論。

	完全不符合這個孩子				完全符合這個孩子
1. 對新的問題會持續努力，直到他/她把問題解決為止。	1	2	3	4	5
2. 完成挑戰的事情時，他/她會感到滿足愉悅。	1	2	3	4	5
3. 在體育競賽上，會嘗試做好。	1	2	3	4	5
4. 能夠快速地解決問題。	1	2	3	4	5
5. 當他/她無法達成某一設定目標時，會感到難過。	1	2	3	4	5
6. 當其他孩子難過時，他/她會努力嘗試讓他們感覺好一點。	1	2	3	4	5
7. 會嘗試說和做一些事，讓其他孩子與他/她保持互動的興趣。	1	2	3	4	5
8. 常常和大人討論事情。	1	2	3	4	5
9. 當無法完成困難任務時，他/她會感到焦躁不安。	1	2	3	4	5
10. 大部分的事情都做的非常好。	1	2	3	4	5
11. 當成功完成一件事時，他/她會感到興奮。	1	2	3	4	5
12. 即使是挑戰性的肢體活動，他/她也會嘗試做好。	1	2	3	4	5
13. 當沒有把事情做好時，會有挫敗的表現。	1	2	3	4	5
14. 即使要花一段長的時間，他/她也會完成學校功課。	1	2	3	4	5
15. 會努力嘗試讓大人對他/她在進行的活動感興趣。	1	2	3	4	5
16. 在努力嘗試做的事情失敗後，會爭辯。	1	2	3	4	5
17. 嘗試弄懂所有解決問題的步驟。	1	2	3	4	5
18. 當他/她弄懂一件事的時候，會很興奮。	1	2	3	4	5
19. 試著讓大人了解他/她的看法。	1	2	3	4	5
20. 會做一些對他/她的年齡來說屬於困難的事。	1	2	3	4	5

		完全不符合這個孩子				完全符合這個孩子
21.	當努力將問題解決時，會感到滿足愉悅。	1	2	3	4	5
22.	努力嘗試讓大人了解他/她。	1	2	3	4	5
23.	會花一段長的時間，嘗試去做一些有挑戰性的事情。	1	2	3	4	5
24.	嘗試做某些件事卻做不到時，會不看別人的眼睛。	1	2	3	4	5
25.	努力嘗試去了解其他孩子。	1	2	3	4	5
26.	重複練習運動技能，直到他/她可以做的不錯為止。	1	2	3	4	5
27.	很多事情做的比同年齡孩子好。	1	2	3	4	5
28.	會努力嘗試去和其他孩子交朋友。	1	2	3	4	5
29.	會花一段長時間嘗試解決學校的功課。	1	2	3	4	5
30.	當努力嘗試的事情成功時，他/她會微笑。	1	2	3	4	5
31.	了解事物的能力好。	1	2	3	4	5
32.	看到別的孩子在做事的時候，會嘗試加入。	1	2	3	4	5
33.	嘗試去弄清楚大人喜歡或不喜歡那些事物。	1	2	3	4	5
34.	想嘗試做一些事卻做不到時，會把目光移開。	1	2	3	4	5
35.	和其他孩子玩時，會嘗試讓遊戲維持一段長的時間 。	1	2	3	4	5
36.	努力嘗試在運動競賽中有較好的表現。	1	2	3	4	5
37.	努力嘗試去了解大人的感受。	1	2	3	4	5
38.	努力嘗試改善他/她在球類遊戲的技能。	1	2	3	4	5
39.	經過嘗試卻無法成功後，就會退縮。	1	2	3	4	5
40.	比較喜歡嘗試解決有挑戰性的問題，而不是簡單的問題。	1	2	3	4	5
41.	努力嘗試做卻無法做到某些事時，會生氣。	1	2	3	4	5

學齡兒童動機問卷-兒童自填

兒童編號:_____；兒童年齡:___歲_____月；性別：•男，•女； 填寫日期:_____年_____月_____日
請依照以下 41 題每一題的描述，從 1 到 5 中圈選最符合你狀況的數字。每個孩子都不一樣；有些孩子對一些事情動機很強，對其他事情則動機不強。請注意，有些題目描述並非符合你這個年紀孩子的表現，所以勾選"完全不符合我"並不代表你有問題。請試著回答所有的問題。若填寫問卷過程中，有任何問題請與發問卷的人討論。

		完全不符合我				完全符合我
1.	我對新的問題會持續努力，直到把問題解決為止。	1	2	3	4	5
2.	當我完成挑戰的事情時，我會感到滿足愉悅。	1	2	3	4	5
3.	在體育競賽上，我會嘗試做好。	1	2	3	4	5
4.	我能夠快速地解決問題。	1	2	3	4	5
5.	當我無法達到某一設定目標時，我會感到難過。	1	2	3	4	5
6.	當其他孩子看起來難過時，我會努力嘗試讓他們感覺好一點。	1	2	3	4	5
7.	會嘗試說和做一些事，讓其他孩子跟我保持互動的興趣。	1	2	3	4	5
8.	我常常和大人們討論事情。	1	2	3	4	5
9.	當無法完成困難任務時，我會感到焦躁不安。	1	2	3	4	5
10.	我大部分的事情都做的非常好。	1	2	3	4	5
11.	當成功完成一件事時，我會感到興奮。	1	2	3	4	5
12.	即使是挑戰性的肢體活動，我也會嘗試做好。	1	2	3	4	5
13.	當我沒有把事情做好時，我會挫敗的表現。	1	2	3	4	5
14.	即使要花一段長的時間，我也會完成學校功課。	1	2	3	4	5
15.	我會努力嘗試讓大人對我在進行的活動感興趣。	1	2	3	4	5
16.	在努力嘗試的事情失敗後，我會爭辯。	1	2	3	4	5
17.	我會嘗試弄懂所有解決問題的步驟。	1	2	3	4	5
18.	當弄懂一件事的時候，我會感到很興奮。	1	2	3	4	5
19.	我試著讓大人了解我的看法。	1	2	3	4	5
20.	我會做一些對我的年齡來說屬於困難的事。	1	2	3	4	5

		完全不符合我				完全符合我
21.	當努力將問題解決時，我會感到滿足愉悅。	1	2	3	4	5
22.	我努力嘗試讓大人了解我。	1	2	3	4	5
23.	我會花一段長的時間，嘗試去做一些有挑戰性的事情。	1	2	3	4	5
24.	嘗試做某件事卻做不到時，我會不看別人的眼睛 。	1	2	3	4	5
25.	我努力嘗試去了解其他孩子。	1	2	3	4	5
26.	我重複練習運動技能，直到可以做的不錯為止。	1	2	3	4	5
27.	很多事情我做的比同年齡孩子好。	1	2	3	4	5
28.	我會努力嘗試去和其他孩子交朋友。	1	2	3	4	5
29.	我會花一段長時間嘗試解決學校的功課。	1	2	3	4	5
30.	當努力嘗試的事情成功時，我會微笑。	1	2	3	4	5
31.	我了解事物的能力好。	1	2	3	4	5
32.	看到別的孩子在做事的時候，我會嘗試加入。	1	2	3	4	5
33.	我嘗試去弄清楚大人喜歡或不喜歡那些事物。	1	2	3	4	5
34.	想嘗試做事卻做不到時，我會將目光移開。	1	2	3	4	5
35.	和其他孩子玩時，我會嘗試讓遊戲維持一段長的時間。	1	2	3	4	5
36.	我努力嘗試在運動競賽中有較好的表現。	1	2	3	4	5
37.	我努力嘗試去了解大人的感受	1	2	3	4	5
38.	我努力嘗試改善在球類遊戲的技能。	1	2	3	4	5
39.	經過嘗試卻無法成功後，我會退縮。	1	2	3	4	5
40.	我比較喜歡嘗試解決挑戰性的問題，而不是簡單的問題。	1	2	3	4	5
41.	努力嘗試做卻無法做到某些事時，我會生氣。	1	2	3	4	5

Dimensions of Mastery Questionnaire (DMQ 18)
Hungarian Versions

Elsajátítási motiváció – Kérdőív kisgyermekekről

Intézmény: ..... Csoport: .....
Gyermek neve: ..... Dátum: .....
Született: ..... év .....hó, Neme: (1) fiú (2) lány
Az értékelő viszonya a gyermekhez: (1) anya (2) apa (3) pedagógus (4) más: .....
Kérem, karikázza be azt a számot, amely legjobban mutatja, hogy mennyire jellemző az adott kijelentés a gyermekre! A gyermekek különbözőek: az egyik erre, a másik arra motiváltabb. Az állítások között lehetnek olyanok is, amik nem tipikusan jellemzőek az adott életkorú gyermekekre, ezért az *„egyáltalán nem jellemző”* válaszlehetőség megjelölése is indokolt lehet. Minden kérdésre próbáljon válaszolni, még ha esetleg bizonytalan is!

		EGYÁLTALÁN NEM JELLEMZŐ				TELJES MÉRTÉKBEN JELLEMZŐ
1.	Addig ismételget egy új dolgot, amíg végül meg tudja csinálni.	1	2	3	4	5
2.	Elégedetten mosolyog, ha valamivel elkészült.	1	2	3	4	5
3.	Próbál ügyes lenni a különböző mozgásokban.	1	2	3	4	5
4.	Gyorsabban megtanul dolgokat, mint a kortársai.	1	2	3	4	5
5.	Könnyen feladja, ha valami nem sikerül neki.	1	2	3	4	5
6.	Megpróbálja vigasztalni a másik gyereket, ha az sír vagy szomorú.	1	2	3	4	5
7.	Megpróbál olyanokat tenni, ami felkelti a másik gyerek érdeklődését.	1	2	3	4	5
8.	Beszél a felnőttekhez és megpróbálja fenntartani az érdeklődésüket.	1	2	3	4	5
9.	Bosszússá válik, ha nem tud befejezni egy kihívást jelentő feladatot.	1	2	3	4	5
10.	Gyorsabban fejlődik, mint a kortársai.	1	2	3	4	5
11.	Tapsol, izgatott lesz, amikor sikerül neki valami.	1	2	3	4	5
12.	Próbál ügyes lenni a mozgásos tevékenységekben akkor is, ha azok nehezek.	1	2	3	4	5
13.	Zaklatott lesz, ha valami nem sikerül neki azonnal.	1	2	3	4	5
14.	Megpróbál megcsinálni valamit akkor is, ha sok időbe telik.	1	2	3	4	5
15.	Nagyon igyekszik, hogy bevonja a felnőtteket a közös játékokba.	1	2	3	4	5
16.	Sikít vagy csapkod, ha sikertelen valamiben.	1	2	3	4	5
17.	A tárgyak, játékok minden részét megvizsgálja.	1	2	3	4	5

		EGYÁLTALÁN NEM JELLEMZŐ				TELJES MÉRTÉKBEN JELLEMZŐ
18.	Izgatott lesz, ha megfejt valamit.	1	2	3	4	5
19.	Próbál rávenni engem vagy más felnőtteket, hogy játszanak vele.	1	2	3	4	5
20.	Olyan dolgokat is megcsinál, ami a kortársai számára még nehéz.	1	2	3	4	5
21.	Mosolyog vagy izgatott lesz, amikor játszik valamivel.	1	2	3	4	5
22.	Próbálja megértetni magát a felnőttekkel.	1	2	3	4	5
23.	Sokáig hajlandó dolgozni egy kihívást jelentő feladaton.	1	2	3	4	5
24.	Nagyon kitartóan foglalkozik olyan játékokkal, amit működtetni, irányítani lehet (pl. gombnyomásra hangot, fényt ad, mozog).	1	2	3	4	5
25.	Igyekszik megérteni a többi gyereket.	1	2	3	4	5
26.	Addig ismételget egyes mozgásokat, amíg ügyes lesz bennük.	1	2	3	4	5
27.	A legtöbb dolgot ügyesebben megcsinálja, mint a kortársai.	1	2	3	4	5
28.	Mindent megtesz, hogy kapcsolatba kerüljön az ismerős gyerekekkel, amikor a közelében vannak.	1	2	3	4	5
29.	Sokáig hajlandó dolgozni azon, hogy ki tudjon nyitni valamit.	1	2	3	4	5
30.	Mosolyog, amikor valamit megcsinált.	1	2	3	4	5
31.	Jobban megérti a dolgokat, mint a kortársai.	1	2	3	4	5
32.	Megpróbál bekapcsolódni, ha a többi gyerek játszik.	1	2	3	4	5
33.	Megpróbálja kitalálni, hogy mi tetszik és mi nem tetszik a felnőtteknek.	1	2	3	4	5
34.	Mérges lesz, ha valamit megpróbált, de nem sikerült.	1	2	3	4	5
35.	Próbál játékot kezdeményezni a többi gyerekkel.	1	2	3	4	5
36.	Addig ismételget bizonyos mozgásokat, amíg jól mennek neki.	1	2	3	4	5
37.	Nagyon igyekszik megérteni az én érzéseimet.	1	2	3	4	5
38.	Kitartóan próbálja visszaszerezni tárgyakat.	1	2	3	4	5

Elsajátítási motiváció – Kérdőív óvodásokról

Intézmény: ..... Csoport: .....
Gyermek neve: ..... Dátum: .....
Született: ..... év .....hó, Neme: (1) fiú (2) lány
Az értékelő viszonya a gyermekhez: (1) anya (2) apa (3) pedagógus (4) más:
Kérem, karikázza be azt a számot, amely legjobban mutatja, hogy mennyire jellemző az adott kijelentés a gyermekre! A gyermekek különbözőek: az egyik erre, a másik arra motiváltabb. Az állítások között lehetnek olyanok is, amik nem tipikusan jellemzőek az adott életkorú gyermekekre, ezért az *„egyáltalán nem jellemző”* válaszlehetőség megjelölése is indokolt lehet. Minden kérdésre próbáljon válaszolni, még ha esetleg bizonytalan is!

		EGYÁLTALÁN NEM JELLEMZŐ				TELJES MÉRTÉKBEN JELLEMZŐ
1.	Addig ismételget egy új dolgot, készséget, amíg végül meg tudja csinálni.	1	2	3	4	5
2.	Fülig ér a mosolya, ha valamivel elkészült.	1	2	3	4	5
3.	Mindent megtesz, hogy jó legyen a mozgásos tevékenységekben.	1	2	3	4	5
4.	Gyorsan megtalálja a megoldásokat.	1	2	3	4	5
5.	Szomorú, elszégyelli magát, ha valami nem sikerül neki.	1	2	3	4	5
6.	Mindent megtesz, hogy megvigasztalja a társát, ha sír vagy szomorú.	1	2	3	4	5
7.	Megpróbál olyanokat tenni, mondani, ami felkelti a társai érdeklődését.	1	2	3	4	5
8.	Ha felnőttekkel beszélget, megpróbálja fenntartani az érdeklődésüket.	1	2	3	4	5
9.	Mérgessé válik, ha nem tud megoldani egy kihívást jelentő feladatot.	1	2	3	4	5
10.	Jó képességű.	1	2	3	4	5
11.	Izgatott lesz, ha sikerül neki valami.	1	2	3	4	5
12.	Próbál ügyes lenni a mozgásos tevékenységekben akkor is, ha azok nehezek.	1	2	3	4	5
13.	Ingerült lesz, ha valami nem sikerül neki.	1	2	3	4	5
14.	Megpróbálja befejezni a feladatot akkor is, ha sok időbe telik.	1	2	3	4	5
15.	Nagyon igyekszik, hogy bevonja a felnőtteket közös játékokba.	1	2	3	4	5
16.	Tiltakozóvá válik azután, hogy sikertelen valamiben, amivel nagyon igyekezett.	1	2	3	4	5
17.	Akkor is igyekszik befejezni a képkirakó (puzzle) jellegű játékokat, ha nehezek.	1	2	3	4	5

		EGYÁLTALÁN NEM JELLEMZŐ				TELJES MÉRTÉKBEN JELLEMZŐ
18.	Izgatott lesz, ha megfejt valamit.	1	2	3	4	5
19.	Mérges lesz, ha kitartó próbálkozás után sem sikerül neki valami.	1	2	3	4	5
20.	Olyan dolgokat is megcsinál, ami a kortársai számára még nehéz.	1	2	3	4	5
21.	Örül, ha megold egy kihívást jelentő feladatot.	1	2	3	4	5
22.	Mindent megtesz, hogy megértesse magát a felnőttekkel.	1	2	3	4	5
23.	Sok időt hajlandó rászánni, hogy egy kihívást jelentő feladaton dolgozzon.	1	2	3	4	5
24.	Lesüti a szemét, ha valamit próbált megcsinálni, de nem sikerült.	1	2	3	4	5
25.	Igyekszik megérteni a társait.	1	2	3	4	5
26.	Addig ismételget mozgásosokat (pl. ugrás, futás), amíg ügyes lesz bennük.	1	2	3	4	5
27.	A legtöbb dolgot ügyesebben csinálja meg, mint a kortársai.	1	2	3	4	5
28.	Mindent megtesz, hogy barátságban legyen a többi gyerekkel.	1	2	3	4	5
29.	Sok ideig hajlandó dolgozni azon, hogy összerakjon, összeépítsen valamit.	1	2	3	4	5
30.	Mosolyog, amikor valamit megcsinált.	1	2	3	4	5
31.	Jól megérti a dolgokat.	1	2	3	4	5
32.	Megpróbál bekapcsolódni, ha a többiek játszanak.	1	2	3	4	5
33.	Megpróbálja kitalálni, hogy mi tetszik és mi nem tetszik a felnőtteknek.	1	2	3	4	5
34.	Félrenéz, ha sikertelen a próbálkozása valamiben.	1	2	3	4	5
35.	Próbál minél hosszabb ideig együtt játszani a többi gyerekkel.	1	2	3	4	5
36.	Mindent megtesz, hogy ügyesedjen a mozgása.	1	2	3	4	5
37.	Igyekszik megérteni a felnőttek érzéseit.	1	2	3	4	5
38.	Mindent megtesz, hogy ügyesebben tudjon dobni, rúgni.	1	2	3	4	5
39.	Otthagyja, ha megpróbált valamit, de nem sikerült.	1	2	3	4	5

Elsajátítási motiváció – Kérdőív iskolásokról

Intézmény: ..... Csoport: .....
Gyermek neve: ..... Dátum: .....
Született: ..... év ..... hó, Neme: (1) fiú (2) lány
Az értékelő viszonya a gyermekhez: (1) anya (2) apa (3) pedagógus (4) más:
Kérem, karikázza be azt a számot, amely legjobban mutatja, hogy mennyire jellemző az adott kijelentés a gyermekre! A gyermekek különbözőek: az egyik erre, a másik arra motiváltabb. Az állítások között lehetnek olyanok is, amik nem tipikusan jellemzőek az adott életkorú gyermekekre, ezért az *„egyáltalán nem jellemző”* válaszlehetőség megjelölése is indokolt lehet. Minden kérdésre próbáljon válaszolni, még ha esetleg bizonytalan is!

		EGYÁLTALÁN NEM JELLEMZŐ				TELJES MÉRTÉKBEN JELLEMZŐ
1.	Addig dolgozik egy új feladaton, amíg végül meg tudja csinálni.	1	2	3	4	5
2.	Elégedett magával, ha befejez egy kihívást jelentő feladatot.	1	2	3	4	5
3.	Mindent megtesz, hogy jó legyen a sportjátékokban.	1	2	3	4	5
4.	Gyorsan megtalálja a megoldásokat.	1	2	3	4	5
5.	Szomorú, ha valami nem sikerül neki.	1	2	3	4	5
6.	Mindent megtesz, hogy megvigasztalja a társát, ha az szomorú.	1	2	3	4	5
7.	Megpróbál olyanokat tenni, mondani, ami érdekes a társainak.	1	2	3	4	5
8.	Gyakran megbeszél dolgokat felnőttekkel.	1	2	3	4	5
9.	Bosszússá válik, ha nem tud megoldani egy kihívást jelentő feladatot.	1	2	3	4	5
10.	A legtöbb dologban nagyon jó.	1	2	3	4	5
11.	Izgatott lesz, ha sikerül neki valami.	1	2	3	4	5
12.	Igyekszik ügyes lenni a mozgásos tevékenységekben még akkor is, ha azok kihívást jelentenek számára.	1	2	3	4	5
13.	Ingerült lesz, ha valami nem sikerül neki.	1	2	3	4	5
14.	Elkészíti az iskolai feladatokat akkor is, ha sok időbe telik.	1	2	3	4	5
15.	Nagyon igyekszik, hogy felkeltse a felnőttek érdeklődését a tevékenységei iránt.	1	2	3	4	5
16.	Tiltakozóvá válik azután, hogy sikertelen valamiben, amivel nagyon igyekezett.	1	2	3	4	5
17.	Megpróbálja kitalálni a bonyolult feladat megoldásához szükséges összes lépést.	1	2	3	4	5

		EGYÁLTALÁN NEM JELLEMZŐ				TELJES MÉRTÉKBEN JELLEMZŐ
18.	Izgatott lesz, ha megfejt valamit.	1	2	3	4	5
19.	Megpróbálja elérni, hogy a felnőttek megértsék a nézőpontját.	1	2	3	4	5
20.	Olyan dolgokat is megcsinál, ami a kortársai számára még nehéz.	1	2	3	4	5
21.	Örül, ha sikerül valami, amiben nagyon igyekezett.	1	2	3	4	5
22.	Mindent megtesz, hogy megértesse magát a felnőttekkel.	1	2	3	4	5
23.	Sokáig hajlandó dolgozni egy kihívást jelentő feladaton.	1	2	3	4	5
24.	Lesüti a szemét, ha valamit próbált megcsinálni, de nem sikerült neki.	1	2	3	4	5
25.	Igyekszik megérteni a társait.	1	2	3	4	5
26.	Addig ismételgeti a mozgásos gyakorlatokat, amíg ügyes lesz bennük.	1	2	3	4	5
27.	A legtöbb dologban ügyesebb, mint a kortársai.	1	2	3	4	5
28.	Mindent megtesz, hogy összebarátkozzon más gyerekekkel.	1	2	3	4	5
29.	Hosszú ideig hajlandó dolgozni azért, hogy megcsináljon egy iskolai feladatot.	1	2	3	4	5
30.	Mosolyog, amikor sikerült valami, amiben nagyon igyekezett.	1	2	3	4	5
31.	Jól megérti a dolgokat.	1	2	3	4	5
32.	Megpróbál bekapcsolódni, ha a többiek csinálnak valamit.	1	2	3	4	5
33.	Megpróbálja kitalálni, hogy mi tetszik és mi nem tetszik a felnőtteknek.	1	2	3	4	5
34.	Félrenéz, ha sikertelen valamiben a próbálkozása.	1	2	3	4	5
35.	Próbál minél hosszabb ideig együtt játszani a többi gyerekkel.	1	2	3	4	5
36.	Mindent megtesz, hogy ügyesebb legyen a sportokban.	1	2	3	4	5
37.	Igyekszik megérteni a felnőttek érzéseit.	1	2	3	4	5
38.	Mindent megtesz, hogy ügyesedjen a labdajátékokban.	1	2	3	4	5
39.	Feladja, ha megpróbált valamit, de nem sikerült.	1	2	3	4	5
40.	Jobban szereti a kihívást jelentő feladatokat, mint a könnyűeket.	1	2	3	4	5
41.	Mérges lesz, amikor nem sikerül neki valami, amit nagyon meg akart csinálni.	1	2	3	4	5

Elsajátítási motiváció – Kérdőív iskolásoknak

Intézmény: ..... Osztály: .....
Név: .....
Dátum: .....
Született: ..... év ..... hó
Nem: (1) fiú (2) lány

Karikázd be azt a számot, amelyik legjobban mutatja, hogy mennyire jellemző rád az adott kijelentés! A gyermekek különbözőek: az egyik erre, a másik arra motiváltabb. Az állítások között lehetnek olyanok is, amik nem tipikusan jellemzőek a te életkorodban, ezért az *„egyáltalán nem jellemző”* válaszlehetőség megjelölése is indokolt lehet. Még ha bizonytalan vagy, akkor is próbálj válaszolni minden kérdésre!

		EGYÁLTALÁN NEM JELLEMZŐ				TELJES MÉRTÉKBEN JELLEMZŐ
1.	Addig dolgozom egy új feladaton, amíg végül meg tudom csinálni.	1	2	3	4	5
2.	Örülök, ha készen vagyok egy kihívást jelentő feladattal.	1	2	3	4	5
3.	Mindent megteszek, hogy jó legyek a mozgásos játékokban.	1	2	3	4	5
4.	Gyorsan megtalálom a megoldásokat.	1	2	3	4	5
5.	Szomorú vagyok, ha valami nem sikerül.	1	2	3	4	5
6.	Mindent megteszek, hogy megvigasztaljam a társam, ha szomorú.	1	2	3	4	5
7.	Megpróbálok olyanokat tenni, mondani, ami érdekes a társaimnak.	1	2	3	4	5
8.	Gyakran megbeszélek dolgokat felnőttekkel.	1	2	3	4	5
9.	Bosszús leszek, ha nem tudok megoldani egy kihívást jelentő feladatot.	1	2	3	4	5
10.	A legtöbb dologban nagyon jó vagyok.	1	2	3	4	5
11.	Izgatott leszek, ha sikerül valami.	1	2	3	4	5
12.	Igyekszem ügyes lenni a mozgásos tevékenységekben akkor is, ha kihívást jelentenek.	1	2	3	4	5
13.	Dühös leszek, ha valami nem sikerül.	1	2	3	4	5
14.	Elkészítem az iskolai feladatokat akkor is, ha sok időbe telik.	1	2	3	4	5
15.	Nagyon igyekszem, hogy felkeltsem a felnőttek érdeklődését a dolgaim iránt.	1	2	3	4	5
16.	Dacossá válok, ha nem sikerül valami, amiben nagyon igyekeztem.	1	2	3	4	5
17.	Megpróbálok rájönni a bonyolult feladatok megoldásához szükséges minden lépésre.	1	2	3	4	5
18.	Izgatott leszek, ha megfejtek valamit.	1	2	3	4	5

		EGYÁLTALÁN NEM JELLEMZŐ				TELJES MÉRTÉKBEN JELLEMZŐ
19.	Megpróbálom elérni, hogy a felnőttek megértsék a nézőpontomat.	1	2	3	4	5
20.	Olyan dolgokat is megcsinálok, ami a többiek számára még nehéz.	1	2	3	4	5
21.	Örülök, ha sikerült valami, amiben nagyon igyekeztem.	1	2	3	4	5
22.	Mindent megteszek, hogy megértsenek a felnőttek.	1	2	3	4	5
23.	Hajlandó vagyok hosszú ideig dolgozni egy kihívást jelentő feladaton.	1	2	3	4	5
24.	Lesütöm a szemem, ha valamit próbáltam megcsinálni, de nem sikerült.	1	2	3	4	5
25.	Igyekszem megérteni a társaimat.	1	2	3	4	5
26.	Addig ismételgetem a sportfeladatokat, amíg ügyes leszek bennük.	1	2	3	4	5
27.	A legtöbb dolgot ügyesebben csinálom meg, mint a kortársaim.	1	2	3	4	5
28.	Mindent megteszek, hogy összebarátkozzam más gyerekekkel.	1	2	3	4	5
29.	Hosszú időn át hajlandó vagyok dolgozni azért, hogy megcsináljak egy iskolai feladatot.	1	2	3	4	5
30.	Mosolygok, amikor sikerült valami, amiben nagyon igyekeztem.	1	2	3	4	5
31.	Jól megértem a dolgokat.	1	2	3	4	5
32.	Megpróbálok bekapcsolódni, ha a többiek csinálnak valamit.	1	2	3	4	5
33.	Megpróbálom kitalálni, hogy mi tetszik és mi nem tetszik a felnőtteknek.	1	2	3	4	5
34.	Elszégyellem magam, ha sikertelen vagyok valamiben.	1	2	3	4	5
35.	Próbálok minél hosszabb ideig együtt játszani a többi gyerekkel.	1	2	3	4	5
36.	Mindent megteszek, hogy ügyesebb legyek a sportokban.	1	2	3	4	5
37.	Igyekszem megérteni a felnőttek érzéseit.	1	2	3	4	5
38.	Mindent megteszek, hogy ügyesedjek a labdajátékokban.	1	2	3	4	5
39.	Feladom, ha megpróbáltam valamit, de nem sikerült.	1	2	3	4	5
40.	Jobban szeretem a kihívást jelentő feladatokat, mint a könnyűeket.	1	2	3	4	5
41.	Mérges leszek, amikor nem sikerül valami, amit nagyon meg akartam csinálni.	1	2	3	4	5

Appendix C.

Scoring the DMQ 18

The DMQ 18 is easy to administer and score. No instructions other than those on the questionnaires (attached) are necessary. The ratings usually take about 10-15 minutes to complete. To score the DMQ 18, use the formulas shown below.

To compute the scale scores for the **Infant Version**, use:

1. Cognitive/Object Persistence = (1+14+17+23+24+29)/6
2. Gross Motor Persistence = (3+12+26+36+38)/5
3. Social Persistence with Adults = (8+15+19+22+33+37)/6
4. Social Persistence with Children = (6+7+25+28+32+35)/6
5. Mastery Pleasure = (2+11+18+21+30)/5
6. Negative Reactions to Challenge = (5+9+13+16+34)/5
7. General Competence = (4+10+20+27+31)/5

To compute the scale scores for the **Preschool Version**, use:

1. Cognitive/Object Persistence = (1+14+17+23+29)/5
2. Gross Motor Persistence = (3+12+26+36+38)/5
3. Social Persistence with Adults = (8+15+22+33+37)/5
4. Social Persistence with Children = (6+7+25+28+32+35)/6
5. Mastery Pleasure = (2+11+18+21+30)/5
6. Negative Reactions = (5+9+13+16+19+24+34+39)/8
7. General Competence = (4+10+20+27+31)/5

To compute the scale scores for both **School-Age Versions**, use:

1. Cognitive/object Persistence = (1+14+17+23+29+40)/6
2. Gross Motor Persistence = (3+12+26+36+38)/5
3. Social Persistence with Adults = (8+15+19+22+33+37)/6
4. Social Persistence with Children = (6+7+25+28+32+35)/6
5. Mastery Pleasure = (2+11+18+21+30)/5
6. Negative Reactions = (5+9+13+16+24+34+39+41)/8
7. General Competence = (4+10+20+27+31)/5

Note. Many researchers also have computed a total persistence score from the average of scales 1-4, and some have computed a total mastery motivation score from the average of the four persistence scales and mastery pleasure. Do not compute a total DMQ score; Competence is not a measure of mastery motivation. If the assessed child has significant developmental delays, it may be best to use an age version that corresponds to the child's developmental age.

Appendix D.

List of Available Language Translation of DMQ 18

Language	Contact person and email	Affiliation	Age-Related Versions			
			I	**P**	**S-A**	**S-S**
Bahasa Indonesia	Anayanti Rahmawati anayanti_r@staff.uns.ac.id	Universitas Sebelas Maret, Indonesia		√		
Bangla (Bengali)	Salowa Salam Shaoli salowasalam.shaoli@gmail.com	University of Dhaka, Bangladesh		√		
Chinese (Traditional)	Hua-Fang Liao hfliao@ntu.edu.tw	National Taiwan University, Taiwan	√	√	√	√
English	George A. Morgan george.morgan@colostate.edu	Colorado State University, USA	√	√	√	√
French-Canadian	Elizabeth Zimmermann ezimmermann@shriners.mcgill.ca	McGill University, Canada		√	√	
German	Janik Festerling janik.festerling@education.ox.ac.uk	Oxford University, England	√	√	√	√
Hungarian	Krisztián Józsa jozsa@edpsy.u-szeged.hu	University of Szeged, Hungary	√	√	√	√
Kiswahili	Stephen Amukune steamukune@googlemail.com	Pwani University, Kenya		√		
Persian (Farsi)	Masoud Gharib gharib_masoud@yahoo.com	Mazandaran University of Medical Sciences, Sari, Iran			√	√
Portuguese (Brazil)	Marina Brandao marinabbrandao@gmail.com	Universidade Federal de Minas Gerais, Brazil	√	√	√	√
Romanian	Marcela Calchei marcelacalchei@gmail.com	University of Szeged, Hungary			√	√
Russian	Marcela Calchei marcelacalchei@gmail.com	University of Szeged, Hungary			√	√
Spanish-Argentinian	Natalia Ailin Mancini draylif@gmail.com	University of Buenos Aires, Argentina	√	√		
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Turkish	Saide Ozbey saideozbey@gmail.com	Gazi University, Turkey		√		

Note. Institution is the university where the translation was developed. I= Infant version; P= Preschool version; S-A= School-age version by adult-rating; S-S= School-age version by self-rating.

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Appendix E.

DMQ 18 Translations in Addition to the Three Official Languages

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Kuesioner Motivasi Anak Prasekolah

Nama anak _____
Tanggal lahir _____
Usia _____
Pengisi kuesioner
(hubungan dengan anak: ayah / ibu/
sebutkan...) _____

Kuesioner ini berisi 25 pernyataan yang terkait dengan motivasi anak. Setiap anak memiliki motivasi yang unik, yang berbeda satu sama lain. Beberapa anak memiliki motivasi untuk melakukan aktivitas tertentu tetapi tidak memiliki motivasi untuk melakukan aktivitas yang lain. Untuk mengetahui keunikan motivasi seorang anak, lingkarilah satu dari pilihan angka 1 – 5 dari setiap pernyataan dalam kuesioner ini. Angka 1 adalah kondisi yang paling tidak sesuai dengan anak saat ini sedangkan angka 5 merupakan kondisi yang sangat sesuai dengan anak. Untuk mendapatkan data yang lengkap maka semua pernyataan harus diisi.

No.	Pernyataan	Sangat tidak sesuai				Sangat sesuai
1.	Mengulang ketrampilan baru sampai dapat melakukannya.	1	2	3	4	5
2.	Tersenyum lebar setelah menyelesaikan sesuatu.	1	2	3	4	5
3.	Berusaha melakukan aktivitas motorik dengan baik.	1	2	3	4	5
4.	Berusaha melakukan sesuatu agar anak-anak lain tetap tertarik.	1	2	3	4	5
5.	Berusaha agar orang dewasa tetap tertarik dalam pembicaraan.	1	2	3	4	5
6.	Menunjukkan kegembiraan saat berhasil.	1	2	3	4	5
7.	Berusaha melakukan aktivitas fisik dengan baik.	1	2	3	4	5
8.	Berusaha menyelesaikan tugas walaupun butuh waktu lama.	1	2	3	4	5
9.	Berusaha keras membuat orang dewasa tertarik ikut bermain.	1	2	3	4	5
10.	Berusaha menyelesaikan mainan seperti teka-teki.	1	2	3	4	5
11.	Bersemangat ketika berhasil menemukan sesuatu.	1	2	3	4	5
12.	Puas ketika memecahkan masalah yang menantang	1	2	3	4	5
13.	Berusaha keras membuat orang dewasa mengerti.	1	2	3	4	5
14.	Bekerja dalam waktu lama untuk melakukan sesuatu yang menantang.	1	2	3	4	5
15.	Berusaha memahami anak-anak lain.	1	2	3	4	5
16.	Mengulang keterampilan melompat / berlari hingga dapat melakukannya.	1	2	3	4	5
17.	Berusaha keras menjalin pertemanan baru dengan anak-anak lain.	1	2	3	4	5
18.	Akan menyelesaikan tugas meskipun membutuhkan waktu yang lama.	1	2	3	4	5

No.	Pernyataan	Sangat tidak sesuai				Sangat sesuai
19.	Tersenyum ketika menghasilkan sesuatu.	1	2	3	4	5
20.	Berusaha ikut serta ketika anak-anak lain sedang bermain.	1	2	3	4	5
21.	Mencoba mencari tahu yang disukai orang dewasa.	1	2	3	4	5
22.	Berusaha mempertahankan keberlanjutan permainan dengan anak-anak lain.	1	2	3	4	5
23.	Berusaha keras mendapatkan keterampilan fisik yang lebih baik.	1	2	3	4	5
24.	Berusaha keras memahami perasaan saya.	1	2	3	4	5
25.	Berusaha keras meningkatkan kemampuan melempar atau menendang.	1	2	3	4	5

প্রি-স্কুল মটিভেশন প্রশ্নমালা

ব্যক্তিগত তথ্যাবলী

১। শিশুর আইডিঃ _____ ২। বয়সঃ____ (বছর)____ (মাস) ____ ৩। লিঙ্গঃ ☐ ছেলে ☐ মেয়ে
৪। শ্রেনীঃ ৫। স্কুলে ভর্তির সময় বয়সঃ
৬। স্কুল মিডিয়ামঃ ☐ বাংলা ☐ ইংরেজি

১৬। শিশুর সাথে অংশগ্রহণকারীর সম্পর্কঃ ☐ মা ☐ বাবা ☐ শিক্ষক
☐ অন্যান্য(সুনির্দিষ্টভাবে উল্লেখ করুন)_____

প্রিয় উত্তরদাতা,
নিচের বাক্যগুলো পড়ুন এবং ভাবুন আপনার শিশুর ইদানিংকালের আচরণ এর সাথে সেগুলো কতটুকু সামঞ্জস্যপূর্ণ। সেই সামঞ্জস্যপূর্ণতার আলোকে পাশের ১ থেকে ৫ যেকোন একটা নম্বরে গোলাকার চিহ্ন দিন। ১ হল একদমই এই শিশুর মতন নয় এবং ৫ হলে ঠিক এই শিশুর মতনই। বিবেচনায় রাখবেন যে, প্রতিটা শিশুই যেহেতু আলাদা আলাদা আচরণ করতেই পারে সুতরাং নিচের কোন একটা বাক্যের সাথে কোন একজন শিশুর আচরণের মিল থাকতে না-ই পারে। সেক্ষেত্রে একদমই এই শিশুর মতন নয় বা ১ নম্বর চিহ্নিত করায় কোন সমস্যা নাই। আর অনুগ্রহপূর্বক সবগুলো বাক্য চিহ্নিত করবেন। যদি আপনি কোন একটা বাক্য সম্পর্কে নিশ্চিত নাও হন, তবে অনুমান করে সর্বোচ্চ সম্ভব উত্তরটি দিবেন। মনে রাখবেন, এই প্রশ্নমালায় ভুল বা শুদ্ধ উত্তর বলে কিছু নেই।
ধন্যবাদ।

		একদমই এই শিশুর মতন নয়				ঠিক এই শিশুর মতনই
১.	নতুন কিছু শেখার ক্ষেত্রে, যতক্ষণ পর্যন্ত না নিজে থেকে সেটা করতে পারছে, ততক্ষণ চেষ্টা করতেই থাকে	১	২	৩	৪	৫
২.	কোন কিছু শেষ করতে পারলে গালভরা হাসি হাসে	১	২	৩	৪	৫
৩.	যেসব কাজে হাত-পা বা পেশীর ব্যবহার আছে, সেসব কাজ ভালভাবে করার চেষ্টা করে	১	২	৩	৪	৫
৪.	খুব তাড়াতাড়ি সমস্যার সমাধান করতে পারে	১	২	৩	৪	৫
৫.	কোন লক্ষ্য অর্জনে ব্যর্থ হলে মন খারাপ করে থাকে	১	২	৩	৪	৫
৬.	যদি অন্য কোন শিশু কাঁদে বা মন খারাপ করে থাকে, তবে তার মন ভাল করার জন্য খুব চেষ্টা করে	১	২	৩	৪	৫
৭.	কিছু বলে বা করে অন্যান্য শিশুদের কৌতুহল ধরে রাখার চেষ্টা করে	১	২	৩	৪	৫
৮.	বড়দের সাথে কথা বলার সময় তাদের আগ্রহ ধরে রাখার চেষ্টা করে	১	২	৩	৪	৫
৯.	কঠিন কোন কাজ শেষ করতে না পারলে মন খারাপ হয়ে যায়	১	২	৩	৪	৫
১০.	অধিকাংশ বিষয়েই সে খুব পারদর্শী	১	২	৩	৪	৫
১১.	সে যখন কোন কিছুতে সফল হয়, তখন বেশ উচ্ছ্বাস প্রকাশ করে	১	২	৩	৪	৫
১২.	যত কঠিনই হোক না কেন, শারীরিক কর্মকাণ্ডগুলো ভাল করে করার চেষ্টা করে	১	২	৩	৪	৫
১৩.	কোন কিছুতে সফল হতে না পারলে, হতাশ হয়ে পড়ে	১	২	৩	৪	৫

		একদমই এই শিশুর মতন নয়				ঠিক এই শিশুর মতনই
১৪.	যত সময়ই লাগুক না কেন, কাজ শেষ করতে চেষ্টা করে	১	২	৩	৪	৫
১৫.	তার সাথে খেলার জন্য বড়দের অংশগ্রহন করানোর খুব চেষ্টা করে	১	২	৩	৪	৫
১৬.	কোন কিছুতে বিফল হলে সেটা নিয়ে বিরোধ করে	১	২	৩	৪	৫
১৭.	কঠিন হলেও ধাঁধাঁর খেলা সমাধানের চেষ্টা করে	১	২	৩	৪	৫
১৮.	কিছু সমাধানের কোন উপায় খুঁজে পেলে, বেশ উচ্ছ্বসিত হয়ে উঠে	১	২	৩	৪	৫
১৯.	অনেক চেষ্টার পরেও কোন কাজে ব্যর্থ হলে রেগে যায়	১	২	৩	৪	৫
২০.	তার বয়সের তুলনায় কঠিন, এমন কাজ করতে পারে	১	২	৩	৪	৫
২১.	কঠিন কোন সমস্যা সমাধান করতে পারলে খুশি হয়	১	২	৩	৪	৫
২২.	বড়রা যেন তাকে বুঝতে পারে সেজন্য খুব চেষ্টা করে	১	২	৩	৪	৫
২৩.	কঠিন কোন কাজ করার জন্য অনেক সময় ব্যয় করে	১	২	৩	৪	৫
২৪.	যখন কোন কাজ চেষ্টা করার পরেও পেরে ওঠে না, তখন অন্য মানুষের চোখের দিকে তাকায় না	১	২	৩	৪	৫
২৫.	অন্য শিশুদের বোঝার চেষ্টা করে	১	২	৩	৪	৫
২৬.	লাফানো বা দৌড়ানোর মতন কাজগুলো নিজে না পারা পর্যন্ত বারবার করতেই থাকে	১	২	৩	৪	৫
২৭.	বেশীরভাগ কাজই তার বয়সের অন্যান্য শিশুদের চেয়ে ভালভাবে করে	১	২	৩	৪	৫
২৮.	অন্যান্য শিশুদের সাথে বন্ধুত্ব করার জন্য অনেক চেষ্টা করে	১	২	৩	৪	৫
২৯.	কোন জিনিস একত্রে মিলাতে অনেকক্ষণ ধরে কাজ করে	১	২	৩	৪	৫
৩০.	কোন কাজ করে ফেলতে পারলে হাসি দেয়	১	২	৩	৪	৫
৩১.	সবকিছু সে খুব ভালভাবে বুঝে	১	২	৩	৪	৫
৩২.	অন্যান্য শিশুরা যখন খেলাধুলা করে, তখন তাদের সাথে মেশার চেষ্টা করে	১	২	৩	৪	৫
৩৩.	বড়দের পছন্দ-অপছন্দ বোঝার চেষ্টা করে	১	২	৩	৪	৫
৩৪.	কোন কাজ চেষ্টা করার পরেও না পারলে অন্যদিকে তাকিয়ে থাকে	১	২	৩	৪	৫
৩৫.	অন্যান্য শিশুদের সাথে অনেকক্ষণ ধরে খেলার চেষ্টা করে	১	২	৩	৪	৫
৩৬.	শারীরিক দক্ষতা আরো ভাল করার জন্য অনেক পরিশ্রম করে	১	২	৩	৪	৫
৩৭.	আমার এবং অন্যান্য বড় মানুষের অনুভূতি বোঝার খুব চেষ্টা করে	১	২	৩	৪	৫
৩৮.	কোন কিছু ছুঁড়ে মারা বা লাথি দেয়ার দক্ষতাগুলো উন্নতির জন্য অনেক চেষ্টা করে	১	২	৩	৪	৫
৩৯.	চেষ্টা করার পরেও সফল না হলে, নিজেকে গুটিয়ে নেয়	১	২	৩	৪	৫

Questionnaire sur la motivation

(Préscolaire)

ID de l'enfant:_____ Âge:_____ Sexe:_____ Date:_____

Relation avec l'enfant:_____

Veuillez encercler le chiffre qui indique le mieux le caractère typique de votre enfant pour chaque habitude énoncée. Les enfants sont différents ; la plupart sont motivés à faire certaines choses, mais pas d'autres. Notez que certains éléments peuvent ne pas être typiques pour un enfant de son âge, il est donc acceptable d'utiliser une note « pas comme cet enfant ». Veuillez essayer de répondre à toutes les questions même si vous n'êtes pas sûr.

		Pas du tout comme cet enfant				**Tout à fait comme cet enfant**
1.	Répéter une nouvelle habileté jusqu'à réussite.	1	2	3	4	5
2.	Sourit largement après avoir terminé une activité.	1	2	3	4	5
3.	Essaie de bien faire aux activités motrices.	1	2	3	4	5
4.	Résout des problèmes rapidement.	1	2	3	4	5
5.	Semble triste ou honteux lorsqu'il n'atteint pas un objectif.	1	2	3	4	5
6.	Essaie fortement que les autres enfants se sentent mieux lorsqu'ils pleurent ou semblent tristes.	1	2	3	4	5
7.	Essaie de faire et de dire des choses qui gardent les autres enfants intéressés.	1	2	3	4	5
8.	Lorsqu'il parle avec des adultes, essaie de les garder intéressés.	1	2	3	4	5
9.	Se sent frustré lorsqu'il n'est pas en mesure de terminer une tâche difficile.	1	2	3	4	5
10.	Est très bon pour faire la plupart des choses.	1	2	3	4	5
11.	Montre de l'enthousiasme lorsqu'il réussit.	1	2	3	4	5
12.	Essaie de bien faire dans les activités physiques, même lorsqu'elles sont difficile.	1	2	3	4	5
13.	Se sent frustré quand il ne fait pas bien quelque chose.	1	2	3	4	5
14.	Tente de terminer les tâches, même si celà prend beaucoup de temps.	1	2	3	4	5
15.	Essaie beaucoup d'intéresser les adultes à jouer avec lui.	1	2	3	4	5
16.	Proteste après avoir échoué à quelque chose.	1	2	3	4	5
17.	Tente de compléter des jeux, comme des casse-têtes, même si c'est difficile.	1	2	3	4	5

		Pas du tout comme cet enfant				Tout à fait comme cet enfant
18.	S'excite quand il ou elle comprend quelque chose.	1	2	3	4	5
19.	Se met en colère s'il ne peut pas faire quelque chose après avoir beaucoup essayé.	1	2	3	4	5
20.	Fait des choses difficiles pour les enfants de son âge.	1	2	3	4	5
21.	Est satisfait quand il résout un problème difficile.	1	2	3	4	5
22.	Essaie fortement que les adultes le comprennent.	1	2	3	4	5
23.	Travaille sur une longue période de temps pour essayer de faire quelque chose de difficile.	1	2	3	4	5
24.	Ne regarde pas les gens dans les yeux quand il essaie quelque chose, mais n'y arrive pas.	1	2	3	4	5
25.	Essaie de comprendre les autres enfants.	1	2	3	4	5
26.	Répète des habiletés comme sauter ou courir jusqu'à ce qu'il puisse les faire.	1	2	3	4	5
27.	Fait la plupart des choses mieux que les autres enfants de son âge.	1	2	3	4	5
28.	Essaie de se faire des amis avec d'autres enfants.	1	2	3	4	5
29.	Travaille pendant longtemps pour essayer de mettre quelque chose en place.	1	2	3	4	5
30.	Sourit quand il ou elle fait bouger les choses.	1	2	3	4	5
31.	Comprend bien les choses.	1	2	3	4	5
32.	Essaie d'être inclus lorsque d'autres enfants jouent.	1	2	3	4	5
33.	Essaie de comprendre ce que les adultes aiment et n'aiment pas.	1	2	3	4	5
34.	Regarde ailleurs lorsqu'il essaie, mais ne peut pas faire quelque chose.	1	2	3	4	5
35.	Essaie que ça dure longtemps lorsqu'il joue avec d'autres enfants.	1	2	3	4	5
36.	Essaie beaucoup d'améliorer ses habiletés physiques.	1	2	3	4	5
37.	Essaie de comprendre mes sentiments et ceux des autres.	1	2	3	4	5
38.	Essaie fortement d'améliorer ses habiletés à lancer ou à donner des coups de pied.	1	2	3	4	5
39.	Abandonne après avoir essayé, mais sans succès.	1	2	3	4	5

Questionnaire sur la motivation-Âge scolaire

(par l'adulte)

ID de l'enfant:_____ Âge:_____ Sexe:_____ Date:_____

Relation avec l'enfant:_____

Veuillez encercler le chiffre qui indique le mieux le caractère typique de votre enfant pour chaque habitude énoncée. Les enfants sont différents ; la plupart sont motivés à faire certaines choses, mais pas d'autres. Notez que certains éléments peuvent ne pas être typiques pour un enfant de son âge, il est donc acceptable d'utiliser une note « pas comme cet enfant ». Veuillez essayer de répondre à toutes les questions même si vous n'êtes pas sûr.

		Pas du tout comme cet enfant				**Tout à fait comme cet enfant**
1.	Travaille sur un nouveau problème jusqu' à ce qu'il puisse le réussir.	1	2	3	4	5
2.	Est satisfait de lui lorsqu'il termine quelque chose de difficile.	1	2	3	4	5
3.	Essaie de bien faire aux jeux sportifs.	1	2	3	4	5
4.	Résout des problèmes rapidement.	1	2	3	4	5
5.	Semble triste ou honteux lorsqu'il n'atteint pas un objectif.	1	2	3	4	5
6.	Essaie fortement que les autres enfants se sentent mieux lorsqu'ils pleurent ou semblent tristes.	1	2	3	4	5
7.	Essaie de faire et de dire des choses qui gardent les autres enfants intéressés.	1	2	3	4	5
8.	Discute souvent de choses avec des adultes.	1	2	3	4	5
9.	Se sent frustré lorsqu'il n'est pas en mesure de terminer une tâche difficile.	1	2	3	4	5
10.	Est très bon pour faire la plupart des choses.	1	2	3	4	5
11.	Montre de l'enthousiasme lorsqu'il réussit.	1	2	3	4	5
12.	Essaie de bien faire dans les activités physiques, même lorsqu'elles sont difficile.	1	2	3	4	5
13.	Se sent frustré lorsqu'il ne fait pas bien quelque chose.	1	2	3	4	5
14.	Termine ses travaux scolaires, même si celà prend beaucoup de temps.	1	2	3	4	5
15.	Tente beaucoup d'intéresser les adultes avec ses activités.	1	2	3	4	5
16.	Proteste après avoir échoué à quelque chose qu'il a beaucoup essayé de faire.	1	2	3	4	5
17.	Tente de comprendre toutes les étapes nécessaires pour résoudre un problème.	1	2	3	4	5
18.	Est satisfait lorsqu'il résout un problème difficile.	1	2	3	4	5

		Pas du tout comme cet enfant				Tout à fait comme cet enfant
19.	Tente d'amener les adultes à voir son point de vue.	1	2	3	4	5
20.	Fait des choses difficiles pour les enfants de son âge.	1	2	3	4	5
21.	Est satisfait lorsqu'il résout un problème difficile sur lequel il a travaillé fort.	1	2	3	4	5
22.	Travaille sur une longue période de temps pour essayer de faire quelque chose de difficile.	1	2	3	4	5
23.	Ne regarde pas les gens dans les yeux lorsqu'il essaie quelque chose, mais n'y arrive pas.	1	2	3	4	5
24.	Essaie de comprendre les autres enfants.	1	2	3	4	5
25.	Répète des habiletés sportives jusqu'à ce qu'il puisse les améliorer.	1	2	3	4	5
26.	Fait la plupart des choses mieux que les autres enfants de son âge.	1	2	3	4	5
27.	Essaie de se faire des amis avec d'autres enfants.	1	2	3	4	5
28.	Travaille pendant longtemps pour essayer de résoudre un problème pour l'école.	1	2	3	4	5
29.	Sourit lorsqu'il réussit quelque chose qu'il a beaucoup essayé de faire.	1	2	3	4	5
30.	Comprend bien les choses.	1	2	3	4	5
31.	Essaie d'être inclus lorsque d'autres enfants font quelque chose.	1	2	3	4	5
32.	Essaie de comprendre ce que les adultes aiment et n'aiment pas.	1	2	3	4	5
33.	Regarde ailleurs lorsqu'il essaie, mais ne peut pas faire quelque chose.	1	2	3	4	5
34.	Essaie que ça dure longtemps lorsqu'il joue avec d'autres enfants.	1	2	3	4	5
35.	Essaie beaucoup de s'améliorer dans les sports.	1	2	3	4	5
36.	Essaie fortement de comprendre les sentiments des adultes.	1	2	3	4	5
37.	Essaie fortement d'améliorer ses compétences en jeu de ballon.	1	2	3	4	5
38.	Abandonne après avoir essayé, mais sans succès.	1	2	3	4	5
39.	Préfère essayer des problèmes difficiles plutôt que faciles.	1	2	3	4	5
40.	Se met en colère s'il ne peut pas faire quelque après avoir fortement essayé.	1	2	3	4	5
41.	Travaille sur une longue période de temps pour essayer de faire quelque chose de difficile.	1	2	3	4	5

Motivationsfragebogen für Säuglinge und Kleinkinder (6-23 Monate)

Kind ID: _____ Alter: _____ (Monate)

Geschlecht: □ Mädchen □ Junge □ Divers (umkreisen) Datum: _____

Beziehung der ausfüllenden Person zum Kind:

Mutter ___ Vater ___ Andere _____(bitte benennen)

Bitte UMKREISEN Sie die Zahl, welche am ehesten auf das typische Verhalten des Kindes in letzter Zeit zutrifft. Kinder sind unterschiedlich; manche sind motiviert bestimmte Sachen zu machen, aber dafür weniger motiviert bei anderen Sachen. Beachten Sie, dass manche der folgenden Sachen möglicherweise nicht typisch für das Alter des Kindes sind; es ist also auch völlig in Ordnung „Gar nicht" zu umkreisen. Bitte versuchen Sie zudem alle Fragen zu beantworten, auch wenn Sie sich nicht sicher sind.

		TRIFFT GAR NICHT AUF DAS KIND ZU				TRIFFT GENAU AUF DAS KIND ZU
1.	Wiederholt solange eine neue Fähigkeit, bis er/sie diese beherrscht.	1	2	3	4	5
2.	Zeigt breites Lächeln, wenn er/sie etwas geschafft hat.	1	2	3	4	5
3.	Strengt sich bei körperlichen Aktivitäten an.	1	2	3	4	5
4.	Lernt Sachen schneller im Vergleich zu anderen Kindern in seinem/ ihrem Alter.	1	2	3	4	5
5.	Ist quengelig, wenn ihm/ihr etwas nicht gelingt.	1	2	3	4	5
6.	Versucht andere Kinder fröhlicher zu stimmen, wenn diese weinen oder traurig wirken.	1	2	3	4	5
7.	Versucht Sachen zu machen, die das Interesse anderer Kinder aufrecht erhalten.	1	2	3	4	5
8.	„Redet" mit Erwachsenen und versucht deren Interesse aufrecht zu erhalten.	1	2	3	4	5
9.	Ist frustriert, wenn er/sie eine herausfordernde Aufgabe nicht zu Ende schafft.	1	2	3	4	5
10.	Entwickelt sich schneller im Vergleich zu anderen Kindern in seinem/ ihrem Alter.	1	2	3	4	5
11.	Klatscht in die Hände und zeigt Begeisterung, wenn er/sie Erfolg hat.	1	2	3	4	5
12.	Strengt sich bei körperlichen Aktivitäten an, selbst wenn diese schwierig sind.	1	2	3	4	5
13.	Ist frustriert, wenn ihm/ihr etwas nicht auf Anhieb gelingt.	1	2	3	4	5
14.	Versucht Sachen zu machen, selbst wenn diese länger dauern.	1	2	3	4	5
15.	Sehr bemüht Erwachsene dazu zu bringen, dass sie mit ihm/ihr spielen.	1	2	3	4	5
16.	Schreit oder schlägt auf Dinge ein nach einem Misserfolg.	1	2	3	4	5
17.	Erkundet alle Teile eines Gegenstands oder Spielzeugs.	1	2	3	4	5
18.	Ist begeistert, sobald er/sie etwas herausgefunden hat.	1	2	3	4	5

		TRIFFT GAR NICHT AUF DAS KIND ZU				TRIFFT GENAU AUF DAS KIND ZU
19.	Versucht beim Spielen auf mich oder andere Erwachsene Einfluss zu nehmen.	1	2	3	4	5
20.	Macht Sachen, die anderen Kindern in seinem/ihrem Alter schwerfallen.	1	2	3	4	5
21.	Beim Spielen mit einem Spielzeug lächelt er/sie und ist begeistert.	1	2	3	4	5
22.	Ist darum bemüht, dass Erwachsene ihn/sie verstehen.	1	2	3	4	5
23.	Arbeitet sehr ausdauernd beim Versuch etwas Herausforderndes zu tun.	1	2	3	4	5
24.	Gibt sich viel Mühe bei Spielen, die Kindern Ursache und Wirkungszusammenhäng vermitteln (z.B. mechanische Spielzeuge).	1	2	3	4	5
25.	Versucht andere Kinder zu verstehen.	1	2	3	4	5
26.	Wiederholt Fähigkeiten in Bezug auf körperliche Bewegungen solange, bis er/sie diese beherrscht.	1	2	3	4	5
27.	Macht die meisten Sachen besser als andere Kinder in seinem/ihrem Alter.	1	2	3	4	5
28.	Sehr bemüht mit anderen bereits vertrauten Kindern zu spielen, wenn diese in der Nähe sind.	1	2	3	4	5
29.	Würde sehr ausdauernd daran arbeiten etwas aufzubekommen.	1	2	3	4	5
30.	Lächelt wenn er/sie etwas erfolgreich umsetzen kann.	1	2	3	4	5
31.	Versteht Sachen besser als andere Kinder in seinem/ihrem Alter.	1	2	3	4	5
32.	Versucht sich mit einzubringen, wenn andere Kinder spielen.	1	2	3	4	5
33.	Versucht herauszufinden, was Erwachsene mögen und was nicht.	1	2	3	4	5
34.	Ist wütend, wenn ihm/ihr etwas nach einigen Versuchen nicht gelingt.	1	2	3	4	5
35.	Versucht andere Kinder zum Spielen zu bringen.	1	2	3	4	5
36.	Wiederholt motorische Fähigkeiten, um diese gut zu beherrschen.	1	2	3	4	5
37.	Sehr bemüht meine Gefühle zu verstehen.	1	2	3	4	5
38.	Sehr bemüht an Gegenstände heranzukommen oder diese zu erreichen.	1	2	3	4	5

Motivationsfragebogen für Vorschulkinder (2-6 Jahre)

Kind ID: _____ Alter: ___ (Jahre) ___ (Monate)

Geschlecht: □ Mädchen □ Junge □ Divers (umkreisen) Datum: _____

Beziehung der ausfüllenden Person zum Kind:

Mutter ___ Vater ___ Andere _____(bitte benennen)

Bitte UMKREISEN Sie die Zahl, welche am ehesten auf das typische Verhalten des Kindes in letzter Zeit zutrifft. Kinder sind unterschiedlich; manche sind motiviert bestimmte Sachen zu machen, aber dafür weniger motiviert bei anderen Sachen. Beachten Sie, dass manche der folgenden Sachen möglicherweise nicht typisch für das Alter des Kindes sind; es ist also auch völlig in Ordnung „Gar nicht" zu umkreisen. Bitte versuchen Sie zudem alle Fragen zu beantworten, auch wenn Sie sich nicht sicher sind.

		TRIFFT GAR NICHT AUF DAS KIND ZU				TRIFFT GENAU AUF DAS KIND ZU
1.	Wiederholt solange eine neue Fähigkeit, bis er/sie diese beherrscht.	1	2	3	4	5
2.	Zeigt breites Lächeln, wenn er/sie etwas geschafft hat.	1	2	3	4	5
3.	Strengt sich bei motorischen Aktivitäten an.	1	2	3	4	5
4.	Löst Probleme schnell.	1	2	3	4	5
5.	Scheint traurig oder peinlich berührt, wenn er/sie ein Ziel nicht erreicht.	1	2	3	4	5
6.	Versucht andere Kinder aufzumuntern, wenn diese weinen oder traurig wirken.	1	2	3	4	5
7.	Versucht Sachen zu machen oder zu sagen, die das Interesse anderer Kinder aufrechterhalten.	1	2	3	4	5
8.	Versucht im Gespräch mit Erwachsenen deren Interesse aufrecht zu erhalten.	1	2	3	4	5
9.	Ist frustriert, wenn er/sie eine herausfordernde Aufgabe nicht zu Ende schafft.	1	2	3	4	5
10.	Ist in den meisten Sachen sehr gut.	1	2	3	4	5
11.	Zeigt Begeisterung, wenn ihm/ihr etwas gelingt.	1	2	3	4	5
12.	Strengt sich bei körperlichen Aktivitäten an, selbst wenn diese herausfordernd sind.	1	2	3	4	5
13.	Ist frustriert, wenn er/sie etwas nicht so gut kann.	1	2	3	4	5
14.	Versucht Aufgaben zu erledigen, selbst wenn es lange dauert.	1	2	3	4	5
15.	Sehr bemüht Erwachsene dazu zu bringen, dass diese mit ihm/ihr spielen.	1	2	3	4	5
16.	Protestiert nach einem Misserfolg.	1	2	3	4	5

		TRIFFT GAR NICHT AUF DAS KIND ZU				TRIFFT GENAU AUF DAS KIND ZU
17.	Versucht Spiele, wie etwa Puzzle, zu beenden, selbst wenn es harte Arbeit erfordert.	1	2	3	4	5
18.	Ist begeistert, sobald er/sie etwas herausgefunden hat.	1	2	3	4	5
19.	Ist wütend, wenn ihm/ihr etwas trotz großer Bemühungen nicht gelingt.	1	2	3	4	5
20.	Macht Sachen, die anderen Kindern in seinem/ihrem Alter schwerfallen.	1	2	3	4	5
21.	Freut sich, wenn er/sie ein herausforderndes Problem gelöst hat.	1	2	3	4	5
22.	Ist darum bemüht, dass Erwachsene ihn/sie verstehen.	1	2	3	4	5
23.	Arbeitet sehr ausdauernd beim Versuch etwas Herausforderndes zu tun.	1	2	3	4	5
24.	Würde anderen Personen nicht in die Augen schauen, wenn er/sie etwas versucht aber nicht geschafft hat.	1	2	3	4	5
25.	Versucht andere Kinder zu verstehen.	1	2	3	4	5
26.	Wiederholt Fähigkeiten wie Springen oder Rennen solange, bis er/sie diese beherrscht.	1	2	3	4	5
27.	Macht die meisten Sachen besser als andere Kinder in seinem/ihrem Alter.	1	2	3	4	5
28.	Sehr bemüht Freundschaften mit anderen Kindern zu schließen.	1	2	3	4	5
29.	Würde sehr ausdauernd arbeiten, um etwas zusammenzubauen.	1	2	3	4	5
30.	Lächelt wenn er/sie etwas erreicht hat.	1	2	3	4	5
31.	Versteht Sachen gut.	1	2	3	4	5
32.	Versucht sich mit einzubringen, wenn andere Kinder zusammen spielen.	1	2	3	4	5
33.	Versucht herauszufinden, was Erwachsene mögen und was nicht.	1	2	3	4	5
34.	Schaut weg, nachdem er/sie etwas versucht aber nicht geschafft hat.	1	2	3	4	5
35.	Versucht das Spielen mit anderen Kindern lange am Laufen zu halten.	1	2	3	4	5
36.	Sehr bemüht seine/ihre körperlichen Fähigkeiten zu verbessern.	1	2	3	4	5
37.	Sehr bemüht meine Gefühle oder die Gefühle anderer Erwachsener zu verstehen.	1	2	3	4	5
38.	Sehr bemüht seine/ihre Fähigkeiten im Werfen und Schießen zu verbessern.	1	2	3	4	5
39.	Zieht sich zurück nachdem er/sie etwas versucht aber nicht geschafft hat.	1	2	3	4	5

Motivationsfragebogen für Schulkinder (6-18 Jahre)

(von Erwachsenen auszufüllen)

Kind ID: _____ Alter: _____ (Jahre)
Geschlecht: □ Mädchen □ Junge □Divers (umkreisen) Datum: _____

Beziehung der ausfüllenden Person zum Kind:
Mutter ___ Vater ___ Lehrer ____ Andere _____(bitte benennen)

Bitte UMKREISEN Sie die Zahl, welche am ehesten auf das typische Verhalten des Kindes in letzter Zeit zutrifft. Kinder sind unterschiedlich; manche sind motiviert bestimmte Sachen zu machen, aber dafür weniger motiviert bei anderen Sachen. Beachten Sie, dass manche der folgenden Sachen möglicherweise nicht typisch für das Alter des Kindes sind; es ist also auch völlig in Ordnung „Gar nicht" zu umkreisen. Bitte versuchen Sie zudem alle Fragen zu beantworten, auch wenn Sie sich nicht sicher sind.

		TRIFFT GAR NICHT AUF DAS KIND ZU				TRIFFT GENAU AUF DAS KIND ZU
1.	Arbeitet solange an einem neuen Problem, bis es ihm/ihr gelingt.	1	2	3	4	5
2.	Ist zufrieden mit sich selbst, wenn ihm/ihr etwas Herausforderndes gelingt.	1	2	3	4	5
3.	Strengt sich beim Spielen im Sport an.	1	2	3	4	5
4.	Löst Probleme schnell.	1	2	3	4	5
5.	Scheint traurig oder peinlich berührt, wenn er/sie ein Ziel nicht erreicht.	1	2	3	4	5
6.	Sehr bemüht andere Kinder aufzumuntern, wenn diese weinen oder traurig wirken.	1	2	3	4	5
7.	Versucht Sachen zu sagen oder zu machen, die das Interesse anderer Kinder aufrechterhalten.	1	2	3	4	5
8.	Diskutiert oft Sachen mit Erwachsenen.	1	2	3	4	5
9.	Ist frustriert, wenn er/sie eine herausfordernde Aufgabe nicht zu Ende schafft.	1	2	3	4	5
10.	Ist in den meisten Sachen sehr gut.	1	2	3	4	5
11.	Ist begeistert, wenn ihm/ihr etwas gelingt.	1	2	3	4	5
12.	Strengt sich bei körperlichen Aktivitäten an, selbst wenn diese herausfordernd sind.	1	2	3	4	5
13.	Ist frustriert, wenn er/sie etwas nicht so gut kann.	1	2	3	4	5
14.	Erledigt Schul- und Hausaufgaben, selbst wenn es lange dauert.	1	2	3	4	5
15.	Sehr bemüht darum, dass Erwachsene sich für das interessieren was er/sie gerade macht.	1	2	3	4	5
16.	Protestiert, wenn er/sie sich bei etwas sehr Mühe gibt aber es trotzdem nicht schafft.	1	2	3	4	5
17.	Versucht alle Schritte herauszufinden, die zur Lösung eines Problems erforderlich sind.	1	2	3	4	5

		TRIFFT GAR NICHT AUF DAS KIND ZU				TRIFFT GENAU AUF DAS KIND ZU
18.	Ist begeistert, sobald er/sie etwas herausgefunden hat.	1	2	3	4	5
19.	Versucht Erwachsenen seine/ihre eigene Sichtweise klar zu machen.	1	2	3	4	5
20.	Macht Sachen, die anderen Kindern in seinem/ihrem Alter schwerfallen.	1	2	3	4	5
21.	Freut sich, wenn er/sie nach hartnäckigem Versuchen ein Problem gelöst hat.	1	2	3	4	5
22.	Ist sehr darum bemüht, dass Erwachsene ihn/sie verstehen.	1	2	3	4	5
23.	Arbeitet sehr ausdauernd beim Versuch etwas Herausforderndes zu tun.	1	2	3	4	5
24.	Würde anderen Personen nicht in die Augen schauen, wenn er/sie etwas versucht aber nicht geschafft hat.	1	2	3	4	5
25.	Sehr bemüht andere Kinder zu verstehen.	1	2	3	4	5
26.	Wiederholt sportliche Fähigkeiten solange, bis er/sie diese beherrscht.	1	2	3	4	5
27.	Macht die meisten Sachen besser als andere Kinder in seinem/ihrem Alter.	1	2	3	4	5
28.	Sehr bemüht Freundschaften mit anderen Kindern zu schließen.	1	2	3	4	5
29.	Würde auch länger arbeiten, um ein Problem für die Schule zu lösen.	1	2	3	4	5
30.	Lächelt, wenn er/sie nach hartnäckigem Versuchen Erfolg bei etwas hat.	1	2	3	4	5
31.	Versteht Sachen gut.	1	2	3	4	5
32.	Versucht sich mit einzubringen, wenn andere Kinder etwas zusammen machen.	1	2	3	4	5
33.	Versucht herauszufinden, was Erwachsene mögen und was nicht.	1	2	3	4	5
34.	Schaut weg, nachdem er/sie etwas versucht aber nicht geschafft hat.	1	2	3	4	5
35.	Versucht das Spielen mit anderen Kindern lange am Laufen zu halten.	1	2	3	4	5
36.	Sehr bemüht besser im Sport zu werden.	1	2	3	4	5
37.	Sehr bemüht die Gefühle von Erwachsenen zu verstehen.	1	2	3	4	5
38.	Sehr bemüht in Ballsportarten besser zu werden.	1	2	3	4	5
39.	Zieht sich zurück nachdem er/sie etwas versucht aber nicht geschafft hat.	1	2	3	4	5
40.	Bevorzugt es herausfordernde Aufgaben zu probieren statt einfacher.	1	2	3	4	5
41.	Ist wütend, wenn ihm/ihr etwas trotz großer Bemühungen nicht gelingt.	1	2	3	4	5

Motivationsfragebogen für Schulkinder (9-18 Jahre)

Deine ID: _____ Alter: _____ (Jahre)

Geschlecht: □ Mädchen □ Junge □ Divers (umkreisen) Datum: _____

Bitte UMKREISE die Zahl, welche am ehesten auf dich und dein Verhalten in letzter Zeit zutrifft. Kinder sind unterschiedlich; manche sind motiviert bestimmte Sachen zu machen, aber dafür weniger motiviert bei anderen Sachen. Beachte, dass manche der folgenden Sachen möglicherweise nicht typisch für Kinder in deinem Alter sind; es ist also auch völlig in Ordnung „Gar nicht" zu umkreisen. Bitte versuche alle Fragen zu beantworten, auch wenn du dir nicht sicher bist.

		TRIFFT GAR NICHT AUF MICH ZU				TRIFFT GENAU AUF MICH ZU
1.	Ich arbeite solange an einem neuen Problem, bis es mir gelingt.	1	2	3	4	5
2.	Ich bin zufrieden mit mir selbst, wenn mir etwas Herausforderndes gelingt.	1	2	3	4	5
3.	Ich strenge mich beim Spielen im Sport an.	1	2	3	4	5
4.	Ich löse Probleme schnell.	1	2	3	4	5
5.	Ich bin traurig oder peinlich berührt, wenn ich ein Ziel nicht erreiche.	1	2	3	4	5
6.	Ich bin sehr bemüht andere Kinder aufzumuntern, wenn diese weinen oder traurig wirken.	1	2	3	4	5
7.	Ich versuche Sachen zu sagen und zu machen, die das Interesse bei anderen Kindern aufrechterhalten.	1	2	3	4	5
8.	Oft diskutiere ich Sachen mit Erwachsenen.	1	2	3	4	5
9.	Ich bin frustriert, wenn ich eine herausfordernde Aufgabe nicht zu Ende schaffe.	1	2	3	4	5
10.	Ich bin in den meisten Sachen sehr gut.	1	2	3	4	5
11.	Ich bin begeistert, wenn mir etwas gelingt.	1	2	3	4	5
12.	Ich strenge mich bei körperlichen Aktivitäten an, selbst wenn diese herausfordernd sind.	1	2	3	4	5
13.	Ich bin frustriert, wenn ich etwas nicht so gut kann.	1	2	3	4	5
14.	Ich erledige Schul- und Hausaufgaben, selbst wenn es lange dauert.	1	2	3	4	5
15.	Ich bin sehr bemüht darum, dass Erwachsene sich für das interessieren was ich gerade mache.	1	2	3	4	5
16.	Ich protestiere, wenn ich mich bei etwas sehr Mühe gebe aber es trotzdem nicht schaffe.	1	2	3	4	5
17.	Ich versuche alle Schritte herauszufinden, die zur Lösung eines Problems erforderlich sind.	1	2	3	4	5
18.	Ich bin begeistert, wenn ich etwas herausgefunden habe.	1	2	3	4	5

		TRIFFT GAR NICHT AUF MICH ZU				TRIFFT GENAU AUF MICH ZU
19.	Ich versuche Erwachsenen meine eigene Sichtweise klar zu machen.	1	2	3	4	5
20.	Ich mache Sachen, die anderen Kindern in meinem Alter schwerfallen.	1	2	3	4	5
21.	Ich freue mich, wenn ich nach hartnäckigem Versuchen ein Problem gelöst habe.	1	2	3	4	5
22.	Ich bin sehr bemüht, dass Erwachsene mich verstehen.	1	2	3	4	5
23.	Ich arbeite sehr ausdauernd, wenn ich versuche etwas Herausforderndes zu schaffen.	1	2	3	4	5
24.	Ich schaue anderen Personen nicht in die Augen, wenn ich etwas versucht aber nicht geschafft habe.	1	2	3	4	5
25.	Ich bin sehr bemüht andere Kinder zu verstehen.	1	2	3	4	5
26.	Ich wiederhole sportliche Fähigkeiten solange, bis ich diese beherrsche.	1	2	3	4	5
27.	Ich mache die meisten Sachen besser als andere Kinder in meinem Alter.	1	2	3	4	5
28.	Ich bin sehr bemüht Freundschaften mit anderen Kindern zu schließen.	1	2	3	4	5
29.	Ich würde auch länger arbeiten, um ein Problem für die Schule zu lösen.	1	2	3	4	5
30.	Ich lächele, wenn ich nach hartnäckigem Versuchen Erfolg bei etwas habe.	1	2	3	4	5
31.	Ich verstehe Sachen gut.	1	2	3	4	5
32.	Ich versuche mich einzubringen, wenn andere Kinder etwas zusammen machen.	1	2	3	4	5
33.	Ich versuche herauszufinden, was Erwachsene mögen und was nicht.	1	2	3	4	5
34.	Ich schaue weg, wenn ich etwas versucht aber nicht geschafft habe.	1	2	3	4	5
35.	Ich versuche das Spielen mit anderen Kindern am Laufen zu halten.	1	2	3	4	5
36.	Ich bin sehr bemüht im Sport besser zu werden.	1	2	3	4	5
37.	Ich bin sehr bemüht die Gefühle von Erwachsenen zu verstehen.	1	2	3	4	5
38.	Ich bin sehr bemüht besser in Ballsportarten zu werden.	1	2	3	4	5
39.	Ich ziehe mich gerne zurück, wenn ich etwas versucht aber nicht geschafft habe.	1	2	3	4	5
40.	Ich bevorzuge es herausfordernde Aufgaben zu probieren anstatt einfacher.	1	2	3	4	5
41.	Ich bin wütend, wenn mir etwas trotz großer Bemühungen nicht gelingt.	1	2	3	4	5

Hojaji Ya Motisha Kwa Shule Ya Chekechea

Kitambulisho cha Mtoto_____Umri_____ Miaka Miezi

Viringa (Chagua) moja: □ Mvulana □Msichana Tarehe ya Leo_____

Uhusiano wa Anayejaza na mtoto:

Mama_____ Baba_____ Mwingine (Eleza Uhusiano)_____

Tafadhali VIRINGA nambari inayoafiki vyema jinsi kila kauli inaendana na tabia ya hivi karibuni ya mtoto huyu. Watoto hutofautiana, wengi wana motisha wa kufanya mambo fulani na sio vingine. Fahamu fika kuwa kuna baadhi ya mambo Kwenye hojaji hii yasiyoendana na mtoto wa umri wake kwa hivyo ni sawa kutumia kauli Kama "sio kwa mtoto huyu" kiviwango. Tafadhali jaribu kujibu maswali yote katika hojaji hii hata kama huna hakika.

		SIO KAMA MTOTO HUYU KABISA				KAMA MTOTO HUYU HASA
1.	Anarudia kipengele kipya cha ujuzi mpaka aweze kukifanya.	1	2	3	4	5
2.	Anatabasamu sana pindi amalizapo kufanya jambo Fulani.	1	2	3	4	5
3.	Anajaribu kufanya vyema katika shughuli za miondoko.	1	2	3	4	5
4.	Anatatua matatizo kwa haraka.	1	2	3	4	5
5.	Anaonekana kuwa na huzuni au kuaibika asipofikia lengo Fulani.	1	2	3	4	5
6.	Anajaribu sana kuwafanya watoto wengine wajisikie vizuri wakilia au wakihuzunika.	1	2	3	4	5
7.	Anajaribu kufanya au kusema mambo ambayo huwapendeza watoto wengine.	1	2	3	4	5
8.	Anapozungumza na watu wazima hujaribu kuwafanya wapendezwe na kuendelea kumsikiliza.	1	2	3	4	5
9.	Anakwazika anaposhindwa kukamilisha shughuli yenye changamoto kwake.	1	2	3	4	5
10.	Ni mzuri sana kwa kufanya mambo mengi.	1	2	3	4	5
11.	Anaonyesha furaha anapofanikiwa kutekeleza jambo Fulani.	1	2	3	4	5
12.	Anajaribu kufanya vyema katika shughuli za kunyoosha viungo hata ingawa ina changamoto.	1	2	3	4	5
13.	Anakwazika akikosa kufanya vyema katika jambo Fulani.	1	2	3	4	5
14.	Anajaribu kutamatisha majukumu hata kama yatamchukua muda mrefu.	1	2	3	4	5
15.	Anajaribu sana kuwapendeza watu wazima wacheze naye.	1	2	3	4	5
16.	Anazusha asipofaulu kufanya jambo fulani.	1	2	3	4	5

		SIO KAMA MTOTO HUYU KABISA				KAMA MTOTO HUYU HASA
17.	Anajaribu kutamatisha michezo kama ya jeduali hata kama itamgharimu kazi ngumu.	1	2	3	4	5
18.	Anafurahi anapofahamu jambo.	1	2	3	4	5
19.	Anakasirika akishindwa kufanya jambo baada ya kujitahidi sana.	1	2	3	4	5
20.	Anafanya vitu vilivyo vigumu kwa watoto wa umri wake.	1	2	3	4	5
21.	Anaridhika anapotatua tatizo lenye changamoto.	1	2	3	4	5
22.	Anajaribu sana kuwafanya watu wazima wamuelewe.	1	2	3	4	5
23.	Hufanya kazi kwa muda mrefu akijaribu kufanya jambo lenye changamoto.	1	2	3	4	5
24.	Hawaangalii watu machoni anapojaribu na kushindwa kufanya jambo.	1	2	3	4	5
25.	Anajaribu kuwaelewa watoto wengine.	1	2	3	4	5
26.	Anarudia mbinu kama kuruka au kukimbia mpaka aweze kuvifanya.	1	2	3	4	5
27.	Anafanya mambo mengi vyema kuliko watoto wengine wa umri wake.	1	2	3	4	5
28.	Anajaribu sana kufanya urafiki na watoto wengine.	1	2	3	4	5
29.	Anatumia muda mwingi akijaribu kufanya jambo fulani.	1	2	3	4	5
30.	Anatabasamu anapofaulu kutekeleza jambo fulani.	1	2	3	4	5
31.	Anaelewa mambo vyema.	1	2	3	4	5
32.	Anajaribu ajumuishwe kwa watoto wengine wanapokuwa wakicheza.	1	2	3	4	5
33.	Anajaribu kung'amua ni kipi wakipendacho watu wazima na ni kipi wasichokipenda.	1	2	3	4	5
34.	Anaangalia kando anapojaribu ila hawezi kufanya jambo fulani.	1	2	3	4	5
35.	Anajaribu kuendeleza mchezo na watoto wengine kwa muda mrefu.	1	2	3	4	5
36.	Hujaribu sana kujiboresha katika mbinu za kunyoosha viungo vya kimwili.	1	2	3	4	5
37.	Anajaribu sana kuelewa hisia zangu na zile za watu wazima wengine.	1	2	3	4	5
38.	Anajaribu sana kuboresha mbinu zake katika urushaji au upigaji teke.	1	2	3	4	5
39.	Anajiondoa baada ya kujaribu na kutofaulu.	1	2	3	4	5

پرسشنامه‌ی انگیزه‌ی کودک دبستانی
(با پاسخ‌دهی بزرگسالان)

کد ملی کودک: ..... سن (سال) ..... دور یک مورد دایره بکشید دختر پسر تاریخ روز: .....
نسبت ارزیاب با کودک: مادر ◯ پدر◯ سایر◯ (لطفاً مشخص کنید)
لطفاً دور عددی را دایره بکشید که بهتر نشان می دهد هر جمله چقدر به رفتار اخیر کودک شباهت دارد. کودکان با هم متفاوتند. بیشترشان انگیزی انجام بعضی کارها را دارند، ولی برای بعضی کارهای دیگر انگیزه ندارند. توجه داشته باشید که برخی از موارد ممکن است در بچه های هم سن او معمول نباشد بنابراین انتخاب گزینه‌ی «شبیه کودک نیست» ایرادی ندارد. لطفاً تلاش کنید که به همه‌ی سوالات پاسخ بدهید، حتی اگر درباره‌شان مطمئن نیستید.

	اصلاً به کودک من شباهت ندارد				دقیقاً شبیه کودک من است
1. روی مشکل جدید کار می کند تا بتواند حلش کند	1	2	3	4	5
2. وقتی کاری چالش برانگیز را تمام می‌کند احساس رضایت دارد	1	2	3	4	5
3. سعی می کند بازی‌های ورزشی را به خوبی انجام دهد	1	2	3	4	5
4. مشکلات را سریع حل می‌کند	1	2	3	4	5
5. وقتی به هدفی دست نمی‌یابد غمگین به نظر می‌رسد	1	2	3	4	5
6. اگر بچه‌های دیگری گریه کنند یا غمگین باشند سعی می‌کند حالشان را بهتر کند	1	2	3	4	5
7. سعی می‌کند کارهایی انجام دهد که بقیه کودکان را علاقه‌مند کند	1	2	3	4	5
8. بیشتر اوقات درباره چیزها با بزرگترها گفت و گو می کند	1	2	3	4	5
9. وقتی از عهده‌ی کار چالش‌برانگیزی برنمی‌آید کلافه می شود	1	2	3	4	5
10. در انجام بیشتر کارها خیلی خوب است	1	2	3	4	5
11. هنگام موفقیت؛ هیجان‌زده می‌شود	1	2	3	4	5
12. تلاش می‌کند فعالیت‌های بدنی را، حتی اگر چالش برانگیز باشند؛ به خوبی انجام دهد	1	2	3	4	5
13. وقتی کاری را به خوبی انجام نمی دهدکلافه می شود	1	2	3	4	5
14. تکالیف مدرسه را تکمیل می‌کند، حتی اگر به وقت زیادی نیاز داشته باشند	1	2	3	4	5
15. سخت سعی می کند بزرگترها را به فعالیت‌هایش علاقه مند کند	1	2	3	4	5
16. بعد از شکست در کاری که برای انجام دادن آن سخت سعی کرده اعتراض می کند	1	2	3	4	5
17. تلاش می‌کند همه‌ی گام‌های مورد نیاز برای حل یک مشکل را بفهمد	1	2	3	4	5
18. وقتی چیزی را می فهمد هیجان‌زده می‌شود	1	2	3	4	5
19. سعی می کند بزرگترها نقطه نظرش را درک کنند	1	2	3	4	5
20. کارهایی انجام می‌دهد که برای کودکانی به سن او مشکل است	1	2	3	4	5

ردیف		اصلا به کودک من شباهت ندارد				دقیقاً شبیه کودک من است
21.	وقتی مشکلی چالش برانگیزی را حل می‌کند، احساس رضایت دارد	1	2	3	4	5
22.	سخت تلاش می‌کند بزرگسالان او را درک کنند	1	2	3	4	5
23.	مدتی طولانی تلاش می‌کند تا کاری چالش‌انگیز را انجام دهد	1	2	3	4	5
24.	وقتی تلاش می‌کند ولی نمی‌تواند کاری را انجام دهد، به چشمان افراد نگاه نمی‌کند	1	2	3	4	5
25.	سخت سعی می کند بقیه کودکان را درک کند	1	2	3	4	5
26.	مهارت های ورزشی را تکرار می کند تا زمانی که بتواند آنها را بهتر انجام بدهد	1	2	3	4	5
27.	بیشتر کارها را بهتر از بچه‌های هم سنش انجام می‌دهد	1	2	3	4	5
28.	سخت سعی می کند با بقیه ی کودکان دوست شود	1	2	3	4	5
29.	زمان طولانی سعی می کند تا مساله ای که معلم به او داده حل کند	1	2	3	4	5
30.	وقتی در انجام چیزی که سخت برای آن کار کرده موفق می شود لبخند می زند	1	2	3	4	5
31.	چیزها را به خوبی می‌فهمد	1	2	3	4	5
32.	وقتی بقیه بچه ها کاری می کنند، سعی می کند خود را داخل کند	1	2	3	4	5
33.	تلاش می‌کند بفهمد بزرگسالان چه چیزی دوست دارند و چه چیزی دوست ندارند	1	2	3	4	5
34.	وقتی سعی می کند ولی نمی تواند کاری انجام دهد رو برمی‌گرداند	1	2	3	4	5
35.	وقت بازی با بچه های دیگر، تلاش می کند زمان بازی را طولانی تر کند	1	2	3	4	5
36.	سخت تلاش می‌کند تا در ورزش بهتر شود	1	2	3	4	5
37.	سخت تلاش می‌کند که احساسات بزرگسالان را بفهمد	1	2	3	4	5
38.	سخت تلاش می‌کند تا مهارت‌های خود را با توپ بهتر کند	1	2	3	4	5
39.	بعد از اینکه سعی می کند ولی موفق نمی شود صرف نظر می کند	1	2	3	4	5
40.	تلاش برای مشکلات چالش برانگیز را به آسان ترجیح می دهد	1	2	3	4	5
41.	اگر بعد از تلاش فراوان نتواند کاری را انجام دهد، عصبانی می‌شود	1	2	3	4	5

پرسشنامه‌ی انگیزه‌ی کودک دبستانی

کد ملی‌تان ..... سن ..... دور یک مورد دایره بکشید زن مرد تاریخ روز: .....
لطفاً دور عددی را دایره بکشید که به بهترین نحو نشان می‌دهد که هر عبارت تا چه اندازه به وضعیت فعلی شما شبیه است. کودکان با هم متفاوتند. برخی از آن‌ها انگیزه‌ی انجام کارهایی را دارند و برخی ندارند. توجه داشته باشید که برخی از موارد ممکن است در بچه های هم سن شما معمول نباشد ؛ بنابراین انتخاب گزینه «شبیه من نیست» ایرادی ندارد. لطفاً تلاش کنید که به همه‌ی سوالات، حتی اگر درباره‌شان مطمئن نیستید، پاسخ بدهید.

	اصلا شبیه من نیست			دقیقاً شبیه من است
1. روی مشکل جدید کار می کنم تا بتوانم حلش کنم	1	2	3	4 5
2. وقتی کار چالش‌برانگیزی را تمام می کنم احساس رضایت می کنم	1	2	3	4 5
3. سعی می کنم بازی های ورزشی را به خوبی انجام دهم	1	2	3	4 5
4. مشکلات را سریع حل می کنم	1	2	3	4 5
5. وقتی به هدفی دست نمی‌یابم غمگین می‌شوم	1	2	3	4 5
6. اگر بچه‌های دیگر گریه کنند یا ناراحت باشند سعی می‌کنم حالشان را بهتر کنم	1	2	3	4 5
7. سعی می کنم چیزهایی را بگویم و کارهایی را انجام دهم که بقیه بچه‌ها را علاقه‌مند کند	1	2	3	4 5
8. درباره ی چیزها با بزرگترها گفت و گو می کنم	1	2	3	4 5
9. وقتی از عهده‌ی کار چالش‌برانگیزی برنمی‌آیم کلافه می شوم	1	2	3	4 5
10. در انجام بیشتر کارها خیلی خوب هستم	1	2	3	4 5
11. وقتی موفق می‌شوم، هیجان‌زده می‌شوم	1	2	3	4 5
12. تلاش می‌کنم فعالیت‌های بدنی را به خوبی انجام دهم، حتی اگر چالش برانگیز باشند	1	2	3	4 5
13. وقتی در کاری موفق نشوم کلافه می شوم	1	2	3	4 5
14. تکالیف مدرسه را انجام می‌دهم، حتی اگر به وقت زیادی نیاز داشته باشند	1	2	3	4 5
15. سخت تلاش می‌کنم که بزرگسالان را به فعالیت‌هایم علاقه‌مند کنم	1	2	3	4 5
16. بعد از شکست در کاری که برای انجام دادن آن سخت سعی کردم اعتراض می کنم	1	2	3	4 5
17. تلاش می‌کنم همه‌ی گام‌های مورد نیاز برای حل یک مشکل را بفهمم	1	2	3	4 5
18. وقتی چیزی را میفهمم هیجان‌زده می‌شوم	1	2	3	4 5
19. سعی می کنم بزرگترها نقطه نظرم را درک کنند	1	2	3	4 5
20. کارهایی انجام می‌دهم که برای کودکی به سن من دشوار است	1	2	3	4 5
21. وقتی مشکلی را بعد از تلاش فراوان حل می‌کنم، احساس رضایت می‌کنم	1	2	3	4 5

		اصلاً شبیه من نیست				دقیقاً شبیه من است
22.	سخت تلاش می‌کنم بزرگسالان من را درک کنند	1	2	3	4	5
23.	مدتی طولانی کار می‌کنم تا کاری چالش‌انگیز را انجام دهم	1	2	3	4	5
24.	وقتی تلاش می‌کنم ولی نمی‌توانم کاری را انجام دهد، به چشمان مردم نگاه نمی‌کنم	1	2	3	4	5
25.	تلاش می‌کنم بچه‌های دیگر را درک کنم	1	2	3	4	5
26.	مهارت‌هایی ورزشی را آنقدر تکرار می‌کنم تا بتوانم آن‌ها را انجام دهم	1	2	3	4	5
27.	بیشتر کارها را بهتر از بچه‌های هم سنم انجام می‌دهم	1	2	3	4	5
28.	سخت تلاش می‌کنم با بچه‌های دیگر دوست شوم	1	2	3	4	5
29.	مدت زیادی تلاش می‌کنم که یک مسئله برای مدرسه را حل کنم	1	2	3	4	5
30.	وقتی در کاری که برای انجام آن سخت سعی کردم موفق می شوم لبخند می زنم	1	2	3	4	5
31.	چیزها را به خوبی می‌فهمم	1	2	3	4	5
32.	وقتی بقیه بچه های کاری انجام می دهند سعی می کنم به آنها ملحق شوم	1	2	3	4	5
33.	تلاش می‌کنم بفهمم بزرگسالان چه چیزی دوست دارند و چه چیزی دوست ندارند	1	2	3	4	5
34.	وقتی برای کاری تلاش می‌کنم ولی موفق نمی‌شوم، رو بر می‌گردانم	1	2	3	4	5
35.	وقتیکه با بچه‌های دیگر بازی می‌کنم تلاش می‌کنم زمان بازی را طولانی‌تر کنم	1	2	3	4	5
36.	سخت تلاش می‌کنم در ورزش بهتر شوم	1	2	3	4	5
37.	سخت تلاش می‌کنم که احساسات بزرگسالان را بفهمم	1	2	3	4	5
38.	سخت تلاش می‌کنم تا مهارت‌های خود را با توپ بهتر کنم	1	2	3	4	5
39.	بعد از اینکه سعی می کنم ولی موفق نمی شوم صرف نظر می کنم	1	2	3	4	5
40.	تلاش برای مشکلات چالش برانگیز را به آسان ترجیح می دهم	1	2	3	4	5
41.	اگر بعد از تلاش فراوان نتوانم کاری را انجام دهم، عصبانی می‌شوم	1	2	3	4	5

Questionário Motivação - Crianças de 6 a 24 meses de Idade

ID da criança_____Idade_____Circule: □Menino □Menina
Data de hoje _____ Anos_____Meses
Grau de parentesco com a criança: Mãe_____Pai_____Outro (por favor, especifique) ____
_____

Por favor, CIRCULE o número que melhor indica quão típico é cada afirmação do comportamento recente desta criança. As crianças variam; a maioria está motivada a fazer algumas coisas, mas não outras. Observe que alguns itens podem não ser típicos para a idade da sua criança; portanto, não há problema em usar uma classificação "nem um pouco como esta criança". Tente responder a todas as perguntas, mesmo se você não tiver certeza.

		NEM UM POUCO COMO ESTA CRIANÇA				EXATA-MENTE COMO ESTA CRIANÇA
1.	Repete uma nova habilidade até que ele/ela consiga fazê-la.	1	2	3	4	5
2.	Sorri abertamente depois de terminar algo.	1	2	3	4	5
3.	Tenta fazer bem atividades físicas.	1	2	3	4	5
4.	Aprende as coisas rapidamente em comparação com crianças da idade dele/dela.	1	2	3	4	5
5.	Mostra-se incomodado(a) se não consegue fazer alguma coisa.	1	2	3	4	5
6.	Tenta fazer outras crianças se sentirem melhor, se elas choram ou parecem tristes.	1	2	3	4	5
7.	Tenta fazer coisas que mantêm outras crianças interessadas.	1	2	3	4	5
8.	“Conversa” com adultos e tenta mantê-los interessados.	1	2	3	4	5
9.	Fica frustrado(a) quando não é capaz de concluir uma tarefa desafiadora.	1	2	3	4	5
10.	Está se desenvolvendo mais rápido que outras crianças da idade dele/dela.	1	2	3	4	5
11.	Bate palmas ou mostra entusiasmo quando ele/ela é bem sucedido(a).	1	2	3	4	5
12.	Tenta fazer bem as atividades físicas, mesmo quando elas são difíceis.	1	2	3	4	5
13.	Fica frustrado(a) quando não tem sucesso imediatamente.	1	2	3	4	5
14.	Tenta fazer as coisas mesmo que leve muito tempo.	1	2	3	4	5
15.	Tenta muito despertar o interesse dos adultos para brincar com ele/ela.	1	2	3	4	5
16.	Grita ou bate nas coisas depois de falhar em algo.	1	2	3	4	5
17.	Explora todas as partes de um objeto ou brinquedo.	1	2	3	4	5
18.	Fica empolgado(a) quando ele/ela descobre alguma coisa.	1	2	3	4	5
19.	Tenta influenciar a brincadeira comigo ou com outros adultos.	1	2	3	4	5

		NEM UM POUCO COMO ESTA CRIANÇA				EXATA-MENTE COMO ESTA CRIANÇA
20.	Faz coisas que são difíceis para crianças da idade dele/dela.	1	2	3	4	5
21.	Enquanto brinca com um brinquedo, ele/ela sorri ou fica empolgado(a).	1	2	3	4	5
22.	Tenta fazer com que os adultos o(a) entendam.	1	2	3	4	5
23.	Esforça-se por um longo tempo tentando fazer alguma coisa desafiadora.	1	2	3	4	5
24.	Tenta muito brincar com brinquedos de causa e efeito (ex. brinquedos musicais, caixa de atividades).	1	2	3	4	5
25.	Tenta entender outras crianças.	1	2	3	4	5
26.	Repete habilidades relacionadas a mobilidade até que ele/ela consiga fazê-las.	1	2	3	4	5
27.	Faz a maioria das coisas melhor do que outras crianças da idade dele/dela.	1	2	3	4	5
28.	Tenta muito interagir com outras crianças conhecidas quando está perto delas.	1	2	3	4	5
29.	Esforça-se por muito tempo tentando abrir alguma coisa.	1	2	3	4	5
30.	Sorri quando ele/ela faz alguma coisa acontecer.	1	2	3	4	5
31.	Entende melhor as coisas do que crianças da idade dele ou dela.	1	2	3	4	5
32.	Tenta se incluir quando outras crianças estão brincando.	1	2	3	4	5
33.	Tenta descobrir o que os adultos gostam e não gostam.	1	2	3	4	5
34.	Fica com raiva se não consegue fazer algo depois de tentar.	1	2	3	4	5
35.	Tenta iniciar brincadeiras com outras crianças.	1	2	3	4	5
36.	Repete habilidades motoras a fim de fazê-las bem.	1	2	3	4	5
37.	Tenta muito entender meus sentimentos.	1	2	3	4	5
38.	Tenta muito pegar de volta objetos.	1	2	3	4	5

Questionário de Motivação – Pré-escolar

ID da criança_____Idade_____Anos Meses
Circule: □ Menino □ Menina Data de hoje _____
Grau de parentesco com a criança: Mãe_____Pai_____
Outro (por favor, especifique) _____

Por favor, CIRCULE o número que melhor indica quão típico é cada afirmação do comportamento recente desta criança. As crianças variam; a maioria está motivada a fazer algumas coisas, mas não outras. Observe que alguns itens podem não ser típicos para a idade da sua criança; portanto, não há problema em usar uma classificação "nem um pouco como esta criança". Tente responder a todas as perguntas, mesmo se você não tiver certeza.

		NEM UM POUCO COMO ESTA CRIANÇA				EXATAMENTE COMO ESTA CRIANÇA
1.	Repete uma nova habilidade até que ele/ela consiga fazê-la.	1	2	3	4	5
2.	Sorri abertamente depois de terminar alguma coisa.	1	2	3	4	5
3.	Tenta fazer bem as atividades motoras.	1	2	3	4	5
4.	Resolve problemas rapidamente.	1	2	3	4	5
5.	Parece triste ou envergonhado(a) quando não cumpre um objetivo.	1	2	3	4	5
6.	Tenta muito fazer outras crianças se sentirem melhor se elas choram ou parecem tristes.	1	2	3	4	5
7.	Tenta fazer e dizer coisas que mantêm outras crianças interessadas.	1	2	3	4	5
8.	Quando conversa com adultos, tenta mantê-los interessados.	1	2	3	4	5
9.	Fica frustrado(a) quando não é capaz de concluir uma tarefa desafiadora.	1	2	3	4	5
10.	É muito bom/boa em fazer a maioria das coisas.	1	2	3	4	5
11.	Demonstra empolgação quando ele/ela tem sucesso.	1	2	3	4	5
12.	Tenta fazer bem as atividades físicas, mesmo quando desafiadoras.	1	2	3	4	5
13.	Fica frustrado(a) quando não faz alguma coisa muito bem.	1	2	3	4	5
14.	Tenta finalizar tarefas, mesmo que leve muito tempo para terminar.	1	2	3	4	5
15.	Tenta muito despertar o interesse dos adultos para brincar com ele/ela.	1	2	3	4	5
16.	Reclama depois de falhar em alguma coisa.	1	2	3	4	5
17.	Tenta completar jogos como quebra-cabeças, mesmo que seja necessário muito empenho.	1	2	3	4	5
18.	Fica empolgado(a) quando ele/ela descobre alguma coisa.	1	2	3	4	5
19.	Fica com raiva se não consegue fazer alguma coisa depois de se esforçar muito.	1	2	3	4	5

		NEM UM POUCO COMO ESTA CRIANÇA				EXATAMENTE COMO ESTA CRIANÇA
20.	Faz coisas que são difíceis para as crianças da idade dele/dela.	1	2	3	4	5
21.	Fica feliz quando ele/ela resolve um problema desafiador.	1	2	3	4	5
22.	Tenta muito fazer com que os adultos o(a) entendam.	1	2	3	4	5
23.	Esforça-se por muito tempo tentando fazer alguma coisa desafiadora.	1	2	3	4	5
24.	Não olha as pessoas nos olhos quando tenta fazer algo, mas não consegue.	1	2	3	4	5
25.	Tenta entender outras crianças.	1	2	3	4	5
26.	Repete habilidades como pular ou correr até que ele/ela possa fazê-las.	1	2	3	4	5
27.	Faz a maioria das coisas melhor do que outras crianças da idade dele/dela.	1	2	3	4	5
28.	Tenta muito fazer amizade com outras crianças.	1	2	3	4	5
29.	Esforça-se por muito tempo tentando montar alguma coisa.	1	2	3	4	5
30.	Sorri quando ele /ela consegue fazer alguma coisa acontecer.	1	2	3	4	5
31.	Entende bem as coisas.	1	2	3	4	5
32.	Tenta se incluir quando outras crianças estão brincando.	1	2	3	4	5
33.	Tenta descobrir o que os adultos gostam e não gostam.	1	2	3	4	5
34.	Desvia o olhar quando tenta fazer alguma coisa, mas não consegue.	1	2	3	4	5
35.	Tenta manter a brincadeira com outras crianças por muito tempo.	1	2	3	4	5
36.	Esforça-se muito para melhorar as habilidades físicas.	1	2	3	4	5
37.	Tenta muito entender os meus sentimentos e os de outros adultos.	1	2	3	4	5
38.	Tenta muito melhorar a habilidade dele/dela de arremessar ou chutar.	1	2	3	4	5
39.	Afasta-se depois de tentativas sem sucesso.	1	2	3	4	5

Questionário Motivação Idade Escolar

(Por um adulto)

ID da criança_____Idade_____Anos Meses
Circule: □ Menino □ Menina Data de hoje _____
Grau de parentesco com a criança: Mãe_____Pai_____
Outro (por favor, especifique) _____

Por favor, CIRCULE o número que melhor indica quão típico é cada afirmação do comportamento recente desta criança. As crianças variam; a maioria está motivada a fazer algumas coisas, mas não outras. Observe que alguns itens podem não ser típicos para a idade da sua criança; portanto, não há problema em usar uma classificação "não como esta criança". Tente responder a todas as perguntas, mesmo se você não tiver certeza.

		NEM UM POUCO COMO ESTA CRIANÇA				EXATAMENTE COMO ESTA CRIANÇA
1.	Esforça-se em um novo problema até que ele/ela consiga resolvê-lo.	1	2	3	4	5
2.	Fica feliz consigo mesmo (a) quando termina algo desafiador.	1	2	3	4	5
3.	Tenta fazer bem atividades físicas (ex. correr, saltar).	1	2	3	4	5
4.	Resolve problemas rapidamente.	1	2	3	4	5
5.	Parece triste ou envergonhado (a) quando ele/ela não cumpre um objetivo.	1	2	3	4	5
6.	Tenta muito fazer com que outras crianças se sintam melhor se elas parecem tristes.	1	2	3	4	5
7.	Tenta dizer e fazer coisas que mantêm outras crianças interessadas.	1	2	3	4	5
8.	Frequentemente conversa sobre assuntos com adultos.	1	2	3	4	5
9.	Fica frustrado (a) quando não é capaz de concluir uma tarefa desafiadora.	1	2	3	4	5
10.	É muito bom/boa em fazer a maioria das coisas.	1	2	3	4	5
11.	Fica empolgado (a) quando ele/ela tem sucesso.	1	2	3	4	5
12.	Tenta fazer bem as atividades físicas, mesmo quando desafiadoras.	1	2	3	4	5
13.	Fica frustrado (a) quando não faz alguma coisa bem.	1	2	3	4	5
14.	Termina a tarefa escolar, mesmo que leve muito tempo.	1	2	3	4	5
15.	Tenta muito despertar o interesse dos adultos nas atividades dele/dela.	1	2	3	4	5
16.	Reclama depois de falhar em alguma coisa que tentou muito fazer.	1	2	3	4	5
17.	Tenta descobrir todas as etapas necessárias para resolver um problema.	1	2	3	4	5
18.	Fica empolgado(a) quando ele/ela descobre alguma coisa.	1	2	3	4	5
19.	Tenta conseguir que os adultos entendam o ponto de vista dele/dela.	1	2	3	4	5

		NEM UM POUCO COMO ESTA CRIANÇA				EXATAMENTE COMO ESTA CRIANÇA
20.	Faz coisas que são difíceis para as crianças da idade dele/dela.	1	2	3	4	5
21.	Fica feliz quando ele/ela resolve um problema depois de se esforçar muito.	1	2	3	4	5
22.	Tenta muito fazer com que os adultos o (a) entendam.	1	2	3	4	5
23.	Esforça-se por muito tempo tentando fazer alguma coisa desafiadora.	1	2	3	4	5
24.	Não olha as pessoas nos olhos quando tenta fazer algo, mas não consegue.	1	2	3	4	5
25.	Tenta muito entender outras crianças.	1	2	3	4	5
26.	Repete habilidades esportivas até que ele/ela possa melhorá-las.	1	2	3	4	5
27.	Faz a maioria das coisas melhor do que outras crianças da idade dele/dela.	1	2	3	4	5
28.	Tenta muito fazer amizade com outras crianças.	1	2	3	4	5
29.	Esforça-se por muito tempo tentando resolver um problema para a escola (ex. atividades de para casa).	1	2	3	4	5
30.	Sorri quando consegue fazer alguma coisa que ele ou ela tentou muito.	1	2	3	4	5
31.	Entende bem as coisas.	1	2	3	4	5
32.	Tenta se incluir quando outras crianças estão fazendo alguma coisa.	1	2	3	4	5
33.	Tenta descobrir o que os adultos gostam e não gostam.	1	2	3	4	5
34.	Desvia o olhar quando tenta fazer alguma coisa, mas não consegue.	1	2	3	4	5
35.	Tenta permanecer na brincadeira com outras crianças por muito tempo.	1	2	3	4	5
36.	Tenta muito melhorar nos esportes.	1	2	3	4	5
37.	Tenta muito entender os sentimentos de adultos.	1	2	3	4	5
38.	Tenta muito melhorar as habilidades dele/dela em jogos com bola.	1	2	3	4	5
39.	Afasta-se depois de tentativas sem sucesso.	1	2	3	4	5
40.	Prefere tentar problemas desafiadores do que fáceis.	1	2	3	4	5
41.	Fica com raiva se não consegue fazer alguma coisa depois de tentar muito.	1	2	3	4	5

Questionário Motivação Idade escolar

Sua ID _____ Idade _____ Anos

Circule um: □ Masculino □ Feminino Data de hoje_____

Por favor, CIRCULE o número que melhor indica quanto parece você cada item, considerando informações recentes sobre você. Meninos (as) variam; a maioria está motivado a fazer algumas coisas, mas não outros. Observe que algumas perguntas não são típicas de meninos (as) da sua idade; portanto, não há problema em usar uma classificação "não como eu". Tente responder a todas as perguntas, mesmo se você não tiver certeza.

		NEM UM POUCO COMO EU				EXATAMENTE COMO EU
1.	Eu me esforço em um novo problema até que eu possa resolvê-lo.	1	2	3	4	5
2.	Fico feliz comigo mesmo (a) quando termino algo desafiador.	1	2	3	4	5
3.	Eu tento fazer bem as atividades físicas (ex. correr, saltar).	1	2	3	4	5
4.	Eu resolvo problemas rapidamente.	1	2	3	4	5
5.	Eu fico triste ou envergonhado quando não cumpro um objetivo.	1	2	3	4	5
6.	Eu tento muito fazer com que outras crianças se sintam melhor se elas parecem tristes.	1	2	3	4	5
7.	Eu tento dizer e fazer coisas para manter outras crianças interessadas.	1	2	3	4	5
8.	Eu frequentemente converso sobre assuntos com adultos.	1	2	3	4	5
9.	Eu fico frustrado (a) quando não sou capaz de concluir uma tarefa desafiadora.	1	2	3	4	5
10.	Eu sou muito bom em fazera maioria das coisas.	1	2	3	4	5
11.	Eu fico empolgado quando eu tenho sucesso.	1	2	3	4	5
12.	Eu tento fazer bem atividades físicas, mesmo quando desafiadoras.	1	2	3	4	5
13.	Eu fico frustrado (a) quando não faço alguma coisa bem.	1	2	3	4	5
14.	Eu termino minha tarefa escolar, mesmo que leve muito tempo.	1	2	3	4	5
15.	Eu tento muito despertar o interesse dos adultos em minhas atividades.	1	2	3	4	5
16.	Eu reclamo depois de falhar em alguma coisa que tentei muito fazer.	1	2	3	4	5
17.	Eu tento descobrir todas as etapas necessárias para resolver um problema.	1	2	3	4	5
18.	Eu fico empolgado(a) quando descubro alguma coisa.	1	2	3	4	5
19.	Eu tento conseguir que os adultos entendam meu ponto de vista.	1	2	3	4	5
20.	Eu faço coisas que são difíceis para crianças da minha idade.	1	2	3	4	5

		NEM UM POUCO COMO EU				EXATAMENTE COMO EU
21.	Eu fico feliz quando resolvo um problema depois de me esforçar muito.	1	2	3	4	5
22.	Eu tento muito conseguir que os adultos me entendam.	1	2	3	4	5
23.	Eu me esforço por muito tempo tentando fazer alguma coisa desafiadora.	1	2	3	4	5
24.	Eu não olho as pessoas nos olhos quando tento fazer algo, mas não consigo.	1	2	3	4	5
25.	Eu tento muito entender outras crianças.	1	2	3	4	5
26.	Eu repito as habilidades esportivas até faze-las bem.	1	2	3	4	5
27.	Eu faço a maioria das coisas melhor do que outras crianças da minha idade.	1	2	3	4	5
28.	Eu tento muito fazer amizade com outras crianças .	1	2	3	4	5
29.	Eu me esforço por muito tempo para tentar resolver um problema para a escola (ex. atividades de para casa).	1	2	3	4	5
30.	Eu sorrio quando consigo alguma coisa que tentei muito fazer.	1	2	3	4	5
31.	Eu entendo bem as coisas.	1	2	3	4	5
32.	Eu tento me incluir quando outras crianças estão fazendo alguma coisa.	1	2	3	4	5
33.	Eu tento descobrir o que os adultos gostam e não gostam.	1	2	3	4	5
34.	Eu desvio o olhar quando tento fazer algo, mas não consigo.	1	2	3	4	5
35.	Eu tento permanecer na brincadeira com outras crianças por muito tempo.	1	2	3	4	5
36.	Eu tento muito melhorar nos esportes.	1	2	3	4	5
37.	Eu tento muito entender os sentimentos dos adultos.	1	2	3	4	5
38.	Eu tento muito melhorar as minhas habilidades nos jogos com bola.	1	2	3	4	5
39.	Eu me afasto depois de tentativas sem sucesso.	1	2	3	4	5
40.	Eu prefiro tentar problemas desafiadoras do que fáceis.	1	2	3	4	5
41.	Eu fico com raiva se não consigo fazer alguma coisa depois de tentar muito.	1	2	3	4	5

Chestionar: motivaţia copiilor de vârstă şcolară

(completat de adult)

Numele, prenumele_____ Încercuţi: □ fată □ băiat
Data _____
Vârsta _____ (ani)
Relaţia cu copilul: mamă _____ tată_____ pedagog _____ alta (concretizaţi) _____

Încercuiţi cifra care caracterizează cel mai exact comportamentul recent al copilului. Toţi copiii sunt diferiţi; majoritatea sunt motivaţi să facă unele lucruri şi demotivaţi să facă alte lucruri. Unele întrebări nu sunt tipice pentru vârsta copilului - în acest caz, încercuiţi "nu este deloc aşa". Încercaţi să răspundeţi la toate întrebările, chiar dacă nu sunteţi sigur(ă) în privinţa unora dintre ele.

	COPILUL NU ESTE DELOC AŞA				COPILUL ESTE EXACT AŞA
1. Lucrează asupra unei probleme până îi reuşeşte.	1	2	3	4	5
2. Simte satisfacţie când termină cu bine să facă ceva dificil.	1	2	3	4	5
3. Încearcă să fie bun la jocurile sportive.	1	2	3	4	5
4. Rezolvă problemele repede.	1	2	3	4	5
5. Pare triste sau ruşinat când nu-şi atinge scopul.	1	2	3	4	5
6. Încearcă din greu să-i înveselească pe ceilalţi copii când îi par trişti.	1	2	3	4	5
7. Încearcă sa spună şi să facă lucruri care să capteze interesul altor copii.	1	2	3	4	5
8. Deseori discută cu adulţii.	1	2	3	4	5
9. Este frustrat când nu reuşeşte să ducă la bun sfârşit o sarcină dificilă.	1	2	3	4	5
10. Este foarte bun la majoritatea lucrurilor.	1	2	3	4	5
11. Se bucură foarte mult când are parte de succes.	1	2	3	4	5
12. Încearcă să fie bun la activităţile fizice chiar dacă sunt complicate.	1	2	3	4	5
13. Este frustrat când nu este bun la ceva.	1	2	3	4	5
14. Îşi face toate temele, chiar dacă îi ia mult timp.	1	2	3	4	5
15. Încearcă din greu să-i facă pe adulţi să se intereseze de activităţile sale.	1	2	3	4	5
16. Protestează când nu-i reuşeşte ceva, în pofida tuturor eforturilor.	1	2	3	4	5
17. Încearcă să identifice toţi paşii necesari pentru rezolvarea unei probleme.	1	2	3	4	5
18. Se bucură foarte mult când reuşeşte să înţeleagă ceva.	1	2	3	4	5
19. Încearcă să-i facă pe adulţi să-i înţeleagă punctul de vedere.	1	2	3	4	5

	COPILUL NU ESTE DELOC AŞA				COPILUL ESTE EXACT AŞA
20. Face lucruri care sunt dificile pentru copiii de vârsta sa.	1	2	3	4	5
21. Este mulţumit când reuşeşte să rezolve o problemă după ce a muncit mult la ea.	1	2	3	4	5
22. Încearcă din greu să-i facă pe adulţi să-l înţeleagă.	1	2	3	4	5
23. Lucrează mult timp când încearcă să facă ceva dificil.	1	2	3	4	5
24. Nu-i priveşte pe oameni în ochi când încearcă să facă ceva, dar nu-i reuşeşte.	1	2	3	4	5
25. Încearcă din greu să-i înţeleagă pe alţi copii.	1	2	3	4	5
26. Persistă în lucrul asupra abilităţilor sportive până îi reuşeşte mai bine.	1	2	3	4	5
27. În majoritatea cazurilor, este mai bun decât alţi copii de vârsta sa.	1	2	3	4	5
28. Încearcă din greu să se împrietenească cu alţi copii.	1	2	3	4	5
29. Lucrez mult timp când încearcă să rezolve o problemă pentru şcoală.	1	2	3	4	5
30. Zâmbeşte, când îi reuşeşte ceva la ce a muncit mult.	1	2	3	4	5
31. Întelege lucrurile bine.	1	2	3	4	5
32. Încearcă să se implice şi el când alţi copii fac ceva.	1	2	3	4	5
33. Încearcă să afle ce le place şi ce nu le place adulţilor.	1	2	3	4	5
34. Îşi ascund privirea când încearcă să facă ceva, dar nu-i reuşeşte.	1	2	3	4	5
35. Când se joacă cu alţi copii, încearcă să facă astfel, încât jocul să continue.	1	2	3	4	5
36. Încearcă din greu să devină mai bun/ă în sport.	1	2	3	4	5
37. Încearcă din greu să înţeleagă sentimentele adulţilor.	1	2	3	4	5
38. Încearcă din greu să devină mai bun/ă la jocurile cu mingea.	1	2	3	4	5
39. Se retrage după ce nu-i reuşeşte ceea ce a încercat să facă.	1	2	3	4	5
40. Preferă să încerce să rezolve probleme dificile, şi nu cele uşoare.	1	2	3	4	5
41. Se înfurie dacă încearcă din greu să facă ceva şi nu-i reuşeşte.	1	2	3	4	5

Chestionar: motivaţia copiilor de vârstă şcolară

Numele, prenumele: _____ Vârsta _____(ani)

Încercuiţi: □ fată □ băiat Data: _____

Încercuieşte cifra care te caracterizează cel mai exact, bazându-te pe experienţa recentă. Toţi copiii sunt diferiţi; majoritatea sunt motivaţi să facă unele lucruri şi demotivaţi să facă alte lucruri. Unele întrebări nu sunt tipice pentru vârsta ta - în acest caz, încercuieşte varianta "nu sunt deloc aşa". Încearcă să răspunzi la toate întrebările, chiar dacă nu eşti sigur în privinţa unora dintre ele.

	nu sunt deloc aşa				**sunt exact aşa**
1. Lucrez asupra unei probleme până îmi reuşeşte.	1	2	3	4	5
2. Simt satisfacţie când termin cu bine să fac ceva complicat.	1	2	3	4	5
3. Încerc să fiu bun la jocurile sportive.	1	2	3	4	5
4. Rezolv problemele repede.	1	2	3	4	5
5. Simt tristeţe sau ruşine când nu-mi ating scopul.	1	2	3	4	5
6. Încerc din greu să-i înveselesc pe ceilalţi copii când îmi par trişti.	1	2	3	4	5
7. Încerc sa spun şi să fac lucruri care să capteze interesul altor copii.	1	2	3	4	5
8. Deseori discut cu adulţii.	1	2	3	4	5
9. Sunt frustrat/ă când nu reuşesc să duc la bun sfârşit o sarcină dificilă.	1	2	3	4	5
10. Sunt foarte bun/ă la majoritatea lucrurilor.	1	2	3	4	5
11. Sunt foarte bucuros/ă când am parte de succes.	1	2	3	4	5
12. Încerc să fiu bun/ă la activităţile fizice chiar dacă sunt complicate.	1	2	3	4	5
13. Sunt frustrat/ă când nu sunt bun la ceva.	1	2	3	4	5
14. Îmi fac toate temele, chiar dacă îmi ia mult timp.	1	2	3	4	5
15. Încerc din greu să-i fac pe adulţi să se intereseze de activităţile mele.	1	2	3	4	5
16. Protestez când nu-mi reuşeşte ceva, în pofida tuturor eforturilor.	1	2	3	4	5
17. Încerc să identific toţi paşii necesari pentru rezolvarea unei probleme.	1	2	3	4	5
18. Sunt foarte bucuros/ă când reuşesc să înţeleg ceva.	1	2	3	4	5
19. Încerc să-i fac pe adulţi să-mi înţeleagă punctul de vedere.	1	2	3	4	5
20. Fac lucruri care sunt dificile pentru copiii de vârsta mea.	1	2	3	4	5
21. Simt satisfacţie când reuşesc să rezolv o problemă după ce am muncit mult la ea.	1	2	3	4	5
22. Încerc din greu să-i fac pe adulţi să mă înţeleagă.	1	2	3	4	5

	nu sunt deloc așa				sunt exact așa
23. Persist mult timp când încerc să fac ceva complicat.	1	2	3	4	5
24. Nu-i privesc pe oameni în ochi când încerc să fac ceva, dar nu-mi reușește.	1	2	3	4	5
25. Încerc din greu să-i înțeleg pe alți copii.	1	2	3	4	5
26, Persist în lucrul asupra abilităților sportive până îmi reușește mai bine.	1	2	3	4	5
27. În majoritatea cazurilor, sunt mai bun decât alți copii de vârsta mea.	1	2	3	4	5
28. Încerc din greu să mă împrietenesc cu alți copii.	1	2	3	4	5
29. Persist mult timp când încerc să rezolv o problemă pentru școală.	1	2	3	4	5
30. Zâmbesc, când îmi reușește ceva la ce am muncit mult.	1	2	3	4	5
31. Înțeleg lucrurile bine.	1	2	3	4	5
32. Încerc să mă implic și eu când alți copii fac ceva.	1	2	3	4	5
33. Încerc să aflu ce le place și ce nu le place adulților.	1	2	3	4	5
34. Îmi ascund privirea când încerc să fac ceva, dar nu-mi reușește.	1	2	3	4	5
35. Când mă joc cu alți copii, încerc să fac astfel, încât jocul să continue.	1	2	3	4	5
36. Încerc din greu să devin un sportiv mai bun.	1	2	3	4	5
37. Încerc din greu să înțeleg sentimentele adulților.	1	2	3	4	5
38. Încerc din greu să devin mai bun la jocurile cu mingea.	1	2	3	4	5
39. Mă retrag după ce nu-mi reușește ceea ce am încercat să fac.	1	2	3	4	5
40. Prefer să încerc să rezolv probleme complicate, și nu cele ușoare.	1	2	3	4	5
41. Mă înfurii dacă încerc din greu să fac ceva și nu-mi reușește.	1	2	3	4	5

Анкета для оценки мотивации детей школьного возраста

(заполняется взрослым)

Идентификационный номер ребенка Возраст лет

Обведите кружком пол ребенка: Мужской Женский

Сегодняшняя дата ____

Кем вы относитесь ребенку: мать отец учитель другое (укажите)

Пожалуйста, обведите кружками числа, которые лучше всего описывают то, какой ребенок в последнее время. Все дети - разные; большинство любят заниматься одними вещами и не любят - другими. Обратите внимание, что некоторые вопросы не относятся к типичным для детей возраста вашего ребенка, поэтому, отвечая на них, отметьте «это совсем не похоже на этого ребенка». Пожалуйста, постарайтесь ответить на все вопросы, даже если вы не уверены в своем ответе.

		ЭТО СОВСЕМ НЕ ПОХОЖЕ НА ЭТОГО РЕБЕНКА				ЭТОТ РЕБЕНОК ИМЕННО ТАКОЙ
1.	Бьётся над новой задачей пока не справится с ней.	1	2	3	4	5
2.	Доволен собой, когда доводит до конца что-то сложное.	1	2	3	4	5
3.	Старается добиваться успехов в спортивных играх.	1	2	3	4	5
4.	Решает задачи быстро.	1	2	3	4	5
5.	Выглядит грустным или пристыженным, когда не достигает поставленной цели.	1	2	3	4	5
6.	Очень старается сделать так, чтобы другие дети почувствовали себя лучше, если они кажутся грустными.	1	2	3	4	5
7.	Пытается заинтересовать других детей своими словами или действиями.	1	2	3	4	5
8.	Часто разговаривает на разные темы со взрослыми.	1	2	3	4	5
9.	Расстраивается, когда не может выполнить сложную задачу.	1	2	3	4	5
10.	Большинство вещей делает очень хорошо.	1	2	3	4	5
11.	Он/она в восторге, когда добивается успеха.	1	2	3	4	5
12.	Старается добиваться успехов в том, что касается физической активности, даже когда это сложно.	1	2	3	4	5
13.	Расстраивается, когда у него что-то не получается.	1	2	3	4	5
14.	Доводит до конца школьные задания, даже если это занимает много времени.	1	2	3	4	5
15.	Очень старается заинтересовать взрослых тем, чем он занимается.	1	2	3	4	5
16.	Возмущается если у него/нее ничего не получается, хотя он/она и очень старался.	1	2	3	4	5

		ЭТО СОВСЕМ НЕ ПОХОЖЕ НА ЭТОГО РЕБЕНКА				ЭТОТ РЕБЕНОК ИМЕННО ТАКОЙ
17.	Пытается выяснить все шаги, необходимые для решения задачи.	1	2	3	4	5
18.	Радуется, когда ему/ей удается что-то понять.	1	2	3	4	5
19.	Пытается донести до взрослых свою точку зрения.	1	2	3	4	5
20.	Делает вещи, которые с трудом даются другим детям его возраста.	1	2	3	4	5
21.	Бывает доволен, когда ему/ ей удается, после многих усилий, решить поставленную задачу.	1	2	3	4	5
22.	Очень старается, чтобы взрослые его/ ее поняли.	1	2	3	4	5
23.	Работает долгое время, когда пытается сделать что-то сложное.	1	2	3	4	5
24.	Не смотрит людям в глаза, когда пытается что-то сделать, но у него не получается.	1	2	3	4	5
25.	Очень старается понять других детей.	1	2	3	4	5
26.	Работает над своими спортивными навыками, пока у него/нее не начинает получаться хорошо.	1	2	3	4	5
27.	Справляется с задачами лучше, чем большинство других детей его возраста.	1	2	3	4	5
28.	Очень старается подружиться с другими детьми.	1	2	3	4	5
29.	Долго бьётся над школьными задачами, пытаясь их решить.	1	2	3	4	5
30.	Улыбается, когда у него получается что-то, над чем он/ она много работал/а.	1	2	3	4	5
31.	Хорошо понимает разные вещи.	1	2	3	4	5
32.	Пытается присоединиться к другим детям, когда они что-то делают.	1	2	3	4	5
33.	Пытается выяснить, что нравится и не нравится взрослым.	1	2	3	4	5
34.	Не смотрит в глаза, когда пытается что-то сделать, но у него не получается.	1	2	3	4	5
35.	Старается поддержать игру, когда играет с другими детьми.	1	2	3	4	5
36.	Старается стать лучше в спорте.	1	2	3	4	5
37.	Очень старается понять чувства взрослых.	1	2	3	4	5
38.	Старается улучшить свои навыки игры в мяч.	1	2	3	4	5
39.	Отстраняется, если его попытки безуспешны.	1	2	3	4	5
40.	Предпочитает решать сложные задачи, а не простые.	1	2	3	4	5
41.	Злится, если у него/неё что-то не получается, хотя он/она и очень старается.	1	2	3	4	5

Анкета для оценки мотивации детей школьного возраста

Имя _____ Возраст _____ лет
Обведи кружком твой пол: □ Мужской □ Женский
Сегодняшняя дата_____

Пожалуйста, обведи кружками числа, которые лучше всего описывают то, какой ты в последнее время. Все дети – разные; большинство любят заниматься одними вещами и не любят – другими. Обрати внимание, что некоторые вопросы не относятся к типичным для детей твоего возраста, поэтому, отвечая на них, отметь «это совсем не похоже на меня». Пожалуйста, постарайся ответить на все вопросы, даже если ты не уверен в своем ответе.

		ЭТО СОВСЕМ НЕ ПОХОЖЕ НА МЕНЯ				Я ИМЕННО ТАКОЙ/ ТАКАЯ
1.	Я бьюсь над новой задачей пока не справлюсь с ней.	1	2	3	4	5
2.	Я доволен собой, когда довожу до конца что-то сложное.	1	2	3	4	5
3.	Я стараюсь добиваться успехов в спортивных играх.	1	2	3	4	5
4.	Я решаю задачи быстро.	1	2	3	4	5
5.	Мне грустно или стыдно, когда я не достигаю цели.	1	2	3	4	5
6.	Я очень стараюсь сделать так, чтобы другие дети почувствовали себя лучше, если они мне кажутся грустными.	1	2	3	4	5
7.	Я пытаюсь заинтересовать других детей своими словами или действиями.	1	2	3	4	5
8.	Я часто разговариваю на разные темы со взрослыми.	1	2	3	4	5
9.	Я расстраиваюсь, когда не могу выполнить сложную задачу.	1	2	3	4	5
10.	Большинство вещей я делаю очень хорошо.	1	2	3	4	5
11.	Я в восторге, когда добиваюсь успеха.	1	2	3	4	5
12.	Я стараюсь добиваться успехов в том, что касается физической активности, даже когда это сложно.	1	2	3	4	5
13.	Я расстраиваюсь, когда у меня что-то не получается.	1	2	3	4	5
14.	Я довожу до конца школьные задания, даже если это занимает много времени.	1	2	3	4	5
15.	Я очень стараюсь заинтересовать взрослых тем, чем я занимаюсь.	1	2	3	4	5
16.	Я возмущаюсь, если у меня ничего не получается, хотя я и очень старался/ась.	1	2	3	4	5
17.	Я пытаюсь выяснить все шаги, необходимые для решения задачи.	1	2	3	4	5
18.	Я радуюсь, когда мне удается что-то понять.	1	2	3	4	5

		ЭТО СОВСЕМ НЕ ПОХОЖЕ НА МЕНЯ				Я ИМЕННО ТАКОЙ/ ТАКАЯ
19.	Я пытаюсь донести до взрослых свою точку зрения.	1	2	3	4	5
20.	Я делаю вещи, которые трудные для детей моего возраста.	1	2	3	4	5
21.	Я доволен, когда мне удается, после многих усилий, решить поставленную задачу.	1	2	3	4	5
22.	Я очень стараюсь, чтобы взрослые поняли меня.	1	2	3	4	5
23.	Я работаю долгое время, пытаясь сделать что-то сложное.	1	2	3	4	5
24.	Я не смотрю людям в глаза, когда пытаюсь что-то сделать, но у меня не получается.	1	2	3	4	5
25.	Я очень стараюсь понять других детей.	1	2	3	4	5
26.	Я работаю над своими спортивными навыками, пока у меня не начинает получаться хорошо.	1	2	3	4	5
27.	Я справляюсь с задачами лучше, чем другие детей моего возраста.	1	2	3	4	5
28.	Я очень стараюсь подружиться с другими детьми.	1	2	3	4	5
29.	Я долго бьюсь над школьными задачами, пытаясь их решить.	1	2	3	4	5
30.	Я улыбаюсь, когда у меня получается что-то, что я изо всех сил старался/старалась сделать.	1	2	3	4	5
31.	Я хорошо понимаю разные вещи.	1	2	3	4	5
32.	Я пытаюсь присоединиться к другим детям, когда они что-то делают.	1	2	3	4	5
33.	Я пытаюсь выяснить, что нравится и не нравится взрослым.	1	2	3	4	5
34.	Я не смотрю в глаза, когда пытаюсь что-то сделать, но не могу.	1	2	3	4	5
35.	Я стараюсь поддержать игру, когда играю с другими детьми.	1	2	3	4	5
36.	Я стараюсь стать лучше в спорте.	1	2	3	4	5
37.	Я очень стараюсь понять чувства взрослых.	1	2	3	4	5
38.	Я стараюсь улучшить свои навыки игры в мяч.	1	2	3	4	5
39.	Я отстраняюсь, если мои попытки безуспешны.	1	2	3	4	5
40.	Я предпочитаю решать сложные задачи, а не простые.	1	2	3	4	5
41.	Я злюсь, если у меня что-то не получается, хотя я и очень стараюсь.	1	2	3	4	5

Cuestionario de Motivación del Infante

Identificación del niño _____Edad (Meses) _____Marque uno: □ Niño □ Niña

Fecha _____Relación del calificador con el niño: Madre _____ Padre _____

Otro (especifique) _____

ENCIERRE el número que mejor indica cuán típica es cada oración respecto del comportamiento reciente de este niño. Los niños son variados; muchos están motivados a hacer cosas, pero otros no. Tenga en cuenta que algunos de estos ítems pueden no ser típicos de un niño de esa edad, por lo que es normal usar una calificación de "no como este niño". Intente responder todas las preguntas, incluso si no está seguro.

		PARA NADA COMO ESTE NIÑO				EXACTA-MENTE COMO ESTE NIÑO
1.	Repite una nueva habilidad hasta que logra realizarlo.	1	2	3	4	5
2.	Sonríe ampliamente después de finalizar una actividad.	1	2	3	4	5
3.	Intenta realizar actividades físicas satisfactoriamente y cumplirlas.	1	2	3	4	5
4.	Aprende cosas rápidamente en comparación con niños/as de su edad.	1	2	3	4	5
5.	Se rinde fácilmente si no puede hacer algo.	1	2	3	4	5
6.	Intenta que otros/as niños/as se sientan mejor si estos lloran o parecen tristes.	1	2	3	4	5
7.	Intenta hacer cosas que interesen a otros niños/as.	1	2	3	4	5
8.	"Habla" con adultos y trata de mantener el interés de estos.	1	2	3	4	5
9.	Se molesta cuando no puede completar una tarea desafiante.	1	2	3	4	5
10.	Se está desarrollando más rápido que otros niños/as de su edad.	1	2	3	4	5
11.	Aplaude o se emociona cuando tiene éxito.	1	2	3	4	5
12.	Intenta realizar actividades físicas y resolverlas incluso cuando son difíciles.	1	2	3	4	5
13.	Se frustra cuando no tiene éxito inmediato.	1	2	3	4	5
14.	Intenta hacer cosas aun cuando lleven mucho tiempo.	1	2	3	4	5
15.	Se esfuerza generar interés en los adultos para que jueguen con él o ella.	1	2	3	4	5
16.	Grita o golpea cosas si no logra realizar algo con éxito.	1	2	3	4	5
17.	Explora todas las partes de un objeto o juguete.	1	2	3	4	5
18.	Se emociona cuando resuelve algo.	1	2	3	4	5
19.	Intenta jugar conmigo u otros adultos.	1	2	3	4	5

	PARA NADA COMO ESTE NIÑO				EXACTA-MENTE COMO ESTE NIÑO
20. Hace cosas que son difíciles para los niños/as de su edad.	1	2	3	4	5
21. Mientras juega con un juguete, sonríe y/o se emociona.	1	2	3	4	5
22. Intenta que los adultos le entiendan.	1	2	3	4	5
23. Trabaja por largo tiempo intentando hacer algo desafiante.	1	2	3	4	5
24. Se esfuerza con juguetes de causa y efecto como un cubo didáctico.	1	2	3	4	5
25. Intenta entender a otros/as niños/as.	1	2	3	4	5
26. Repite habilidades relacionadas con mantenerse activo hasta que pueda realizarlas.	1	2	3	4	5
27. Hace la mayoría de cosas mejor que otros/as niños/as de su edad.	1	2	3	4	5
28. Se esfuerza por interactuar con otros/as niños/as conocidos cuando están cerca.	1	2	3	4	5
29. Está dispuesto/a a trabajar por un largo tiempo tratando de abrir un objeto.	1	2	3	4	5
30. Sonríe cuando logra que algo suceda.	1	2	3	4	5
31. Entiende las cosas mejor que otros niños/as de su edad.	1	2	3	4	5
32. Intenta participar cuando otros/as niños/as están jugando.	1	2	3	4	5
33. Intenta averiguar lo que les gusta y no les gusta a los adultos.	1	2	3	4	5
34. Se enoja si no puede hacer algo después de intentarlo.	1	2	3	4	5
35. Trata de iniciar juego con otros/as niños/as.	1	2	3	4	5
36. Practica habilidades motoras para realizarlas bien.	1	2	3	4	5
37. Se esfuerza por entender mis sentimientos.	1	2	3	4	5
38. Se esfuerza por recuperar objetos.	1	2	3	4	5

Cuestionario de Motivación Preescolar

Identificación del niño _____ Edad (Años y Meses) _____ Marque uno: □ Niño □ Niña

Fecha _____Relación del calificador con el niño: Madre _____ Padre _____

Otro (especifique) _____

ENCIERRE el número que mejor indica cuán típica es cada oración respecto del comportamiento reciente de este niño. Los niños son variados; muchos están motivados a hacer cosas, pero otros no. Tenga en cuenta que algunos de estos ítems pueden no ser típicos de un niño de esa edad, por lo que es normal usar una calificación de "no como este niño". Intente responder todas las preguntas, incluso si no está seguro.

		PARA NADA COMO ESTE NIÑO				EXACTA-MENTE COMO ESTE NIÑO
1.	Repite una nueva habilidad hasta que puede realizarla.	1	2	3	4	5
2.	Sonríe ampliamente después de finalizar algo.	1	2	3	4	5
3.	Intenta hacer bien las actividades motoras.	1	2	3	4	5
4.	Resuelve problemas con rapidez.	1	2	3	4	5
5.	Parece triste o avergonzado cuando no logra una meta.	1	2	3	4	5
6.	Intenta que otros niños/as se sientan mejor si estos/as lloran o parecen tristes.	1	2	3	4	5
7.	Intenta hacer y decir cosas que mantienen el interés de otros niños/as.	1	2	3	4	5
8.	Cuando habla con adultos, intenta mantener el interés de estos.	1	2	3	4	5
9.	Se molesta cuando no puede completar una tarea desafiante.	1	2	3	4	5
10.	Es muy bueno haciendo la mayoría de las cosas.	1	2	3	4	5
11.	Demuestra emoción cuando logra algo.	1	2	3	4	5
12.	Intenta realizar actividades físicas satisfactoriamente incluso cuando son desafiantes.	1	2	3	4	5
13.	Se frustra cuando no es exitoso en una tarea.	1	2	3	4	5
14.	Intenta completar tareas, incluso si se demora en terminarlas.	1	2	3	4	5
15.	Se esfuerza por generar interés en los adultos para que jueguen con él o ella.	1	2	3	4	5
16.	Protesta si no tiene éxito en algo.	1	2	3	4	5
17.	Intenta completar juguetes como rompecabezas incluso si requieren mucho trabajo.	1	2	3	4	5
18.	Se emociona cuando resuelve algo.	1	2	3	4	5
19.	Se enoja si no logra realizar algo después de esforzarse.	1	2	3	4	5
20.	Hace cosas que son difíciles para los niños/as de su edad.	1	2	3	4	5

		PARA NADA COMO ESTE NIÑO				EXACTA-MENTE COMO ESTE NIÑO
21.	Se muestra satisfecho cuando resuelve un problema difícil.	1	2	3	4	5
22.	Se esfuerza para que los adultos le entiendan.	1	2	3	4	5
23.	Trabaja por largo tiempo intentando hacer algo desafiante.	1	2	3	4	5
24.	Cuando intenta algo y no lo logra, no mira a los ojos de las personas.	1	2	3	4	5
25.	Intenta entender a otros niños/as.	1	2	3	4	5
26.	Repite habilidades como saltar o correr hasta que puede realizarlas.	1	2	3	4	5
27.	Hace la mayoría de las cosas mejor que otros niños/as de su edad.	1	2	3	4	5
28.	Se esfuerza por hacerse amigo/a de otros niños/as.	1	2	3	4	5
29.	Está dispuesto a trabajar por largo tiempo tratando de encastrar algo.	1	2	3	4	5
30.	Sonríe cuando logra que algo suceda.	1	2	3	4	5
31.	Entiende bien las cosas.	1	2	3	4	5
32.	Intenta participar e incluirse cuando otros/as niños/as están jugando.	1	2	3	4	5
33.	Intenta averiguar lo que les gusta y no les gusta a los adultos.	1	2	3	4	5
34.	Aparta la mirada cuando trata pero no puede realizar algo.	1	2	3	4	5
35.	Intenta que el juego con otros/as niños/as se mantenga por largo tiempo.	1	2	3	4	5
36.	Se esfuerza por mejorar sus habilidades físicas.	1	2	3	4	5
37.	Se esfuerza por entender mis sentimientos y los de otros adultos.	1	2	3	4	5
38.	Se esfuerza por mejorar su habilidad para lanzar y patear.	1	2	3	4	5
39.	Se rinde después de intentar algo sin éxito.	1	2	3	4	5

Cuestionario de Motivación del Infante

Identificación del niño _____ Edad _____ Marque uno: □ Niño □ Niña
Fecha _____ Meses
Relación del calificador con el niño: Madre _____ Padre _____
Otro (especifique) _____

ENCIERRE el número que mejor indica cuán típica es cada oración respecto del comportamiento reciente de este niño. Los niños son variados; muchos están motivados a hacer cosas, pero otros no. Tenga en cuenta que algunos de estos items pueden no ser típicos de un niño de esa edad, por lo que es normal usar una calificación de "no como este niño". Intente responder todas las preguntas, incluso si no está seguro.

		PARA NADA COMO ESTE NIÑO				EXACTA-MENTE COMO ESTE NIÑO
1.	Repite una nueva habilidad hasta que puede hacerlo.	1	2	3	4	5
2.	Sonríe ampliamente después de finalizar algo.	1	2	3	4	5
3.	Intenta realizar actividades físicas satisfactoriamente.	1	2	3	4	5
4.	Aprende cosas rápidamente en comparación con niños de su edad.	1	2	3	4	5
5.	Se rinde fácilmente si no puede hacer algo.	1	2	3	4	5
6.	Intenta que otros niños se sientan mejor si estos lloran o parecen tristes.	1	2	3	4	5
7.	Intenta hacer cosas que mantienen el interés de otros niños.	1	2	3	4	5
8.	"Habla" con adultos y trata de mantener su interés.	1	2	3	4	5
9.	Se molesta cuando no puede completar una tarea retadora.	1	2	3	4	5
10.	Se está desarrollando más rápido que otros niños de su edad.	1	2	3	4	5
11.	Aplaude o muestra emoción cuando tiene éxito.	1	2	3	4	5
12.	Intenta realizar actividades físicas satisfactoriamente incluso cuando son difíciles.	1	2	3	4	5
13.	Se frustra cuando no tiene éxito inmediato.	1	2	3	4	5
14.	Intenta hacer cosas incluso si se demora mucho.	1	2	3	4	5
15.	Se esfuerza por interesar a los adultos para que jueguen con él o ella.	1	2	3	4	5
16.	Grita o golpea cosas si no tiene éxito en algo.	1	2	3	4	5
17.	Explora todas las partes de un objeto o juguete.	1	2	3	4	5
18.	Se emociona cuando resuelve algo.	1	2	3	4	5
19.	Intenta jugar conmigo u otros adultos.	1	2	3	4	5

		PARA NADA COMO ESTE NIÑO				EXACTA-MENTE COMO ESTE NIÑO
20.	Hace cosas que son difíciles para los niños de su edad.	1	2	3	4	5
21.	Mientras juega con un juguete, él o ella sonríe o se emociona.	1	2	3	4	5
22.	Intenta que los adultos le entiendan.	1	2	3	4	5
23.	Trabaja por largo tiempo intentando hacer algo retador.	1	2	3	4	5
24.	Se esfuerza con juguetes de causa y efecto como busy box.	1	2	3	4	5
25.	Intenta entender a otros niños.	1	2	3	4	5
26.	Repite habilidades relacionadas con mantenerse activo hasta que pueda realizarlas.	1	2	3	4	5
27.	Hace la mayoría de cosas mejor que otros niños de su edad.	1	2	3	4	5
28.	Se esfuerza por interactuar con otros niños conocidos cuando están cerca.	1	2	3	4	5
29.	Está dispuesto a trabajar por un largo tiempo tratando de abrir un objeto.	1	2	3	4	5
30.	Sonríe cuando logra que algo suceda.	1	2	3	4	5
31.	Entiende las cosas mejor que los niños de su edad.	1	2	3	4	5
32.	Intenta incluirse cuando otros niños están jugando.	1	2	3	4	5
33.	Intenta averiguar lo que les gusta y no les gusta a los adultos.	1	2	3	4	5
34.	Se enoja si no puede hacer algo después de intentarlo.	1	2	3	4	5
35.	Trata de iniciar juego con otros niños.	1	2	3	4	5
36.	Repite habilidades motoras a fin de realizarlas bien.	1	2	3	4	5
37.	Se esfuerza por entender mis sentimientos.	1	2	3	4	5
38.	Se esfuerza por recuperar objetos.	1	2	3	4	5

Cuestionario de Motivación Preescolar

Identificación del niño _____ Edad _____ Marque uno: □ Niño □ Niña
Fecha _____ Años Meses
Relación del calificador con el niño: Madre _____ Padre _____
Otro (especifique) _____

ENCIERRE el número que mejor indica cuán típica es cada oración respecto del comportamiento reciente de este niño. Los niños son variados; muchos están motivados a hacer cosas, pero otros no. Tenga en cuenta que algunos items pueden no ser típicos de un niño de esa edad, por lo que es normal usar una calificación de "no como este niño". Intente responder todas las preguntas, incluso si no está seguro.

		PARA NADA COMO ESTE NIÑO				EXACTA-MENTE COMO ESTE NIÑO
1.	Repite una nueva habilidad hasta que puede hacerlo.	1	2	3	4	5
2.	Sonríe ampliamente después de finalizar algo.	1	2	3	4	5
3.	Intenta hacer bien las actividades motoras.	1	2	3	4	5
4.	Resuelve problemas con rapidez.	1	2	3	4	5
5.	Parece triste cuando no logra una meta.	1	2	3	4	5
6.	Intenta que otros niños se sientan mejor si estos lloran o parecen tristes.	1	2	3	4	5
7.	Intenta hacer y decir cosas que mantienen el interés de otros niños.	1	2	3	4	5
8.	Cuando habla con adultos, intenta mantener su interés.	1	2	3	4	5
9.	Se molesta cuando no puede completar una tarea retadora.	1	2	3	4	5
10.	Es muy bueno haciendo la mayoría de cosas.	1	2	3	4	5
11.	Demuestra emoción cuando tiene éxito.	1	2	3	4	5
12.	Intenta realizar actividades físicas satisfactoriamente incluso cuando son retadoras.	1	2	3	4	5
13.	Se frustra cuando no realiza algo satisfactoriamente.	1	2	3	4	5
14.	Intenta completar tareas, incluso si se demora en terminarlas.	1	2	3	4	5
15.	Se esfuerza por interesar a los adultos para que jueguen con él o ella.	1	2	3	4	5
16.	Protesta si no tiene éxito en algo.	1	2	3	4	5
17.	Intenta completar juguetes como rompecabezas incluso si es trabajoso.	1	2	3	4	5
18.	Se emociona cuando resuelve algo.	1	2	3	4	5

		PARA NADA COMO ESTE NIÑO				EXACTA-MENTE COMO ESTE NIÑO
19.	Se enoja si no puede hacer algo después de esforzarse.	1	2	3	4	5
20.	Hace cosas que son difíciles para los niños de su edad.	1	2	3	4	5
21.	Se muestra complacido cuando resuelve un problema difícil.	1	2	3	4	5
22.	Se esfuerza porque los adultos le entiendan.	1	2	3	4	5
23.	Trabaja por largo tiempo intentando hacer algo retador.	1	2	3	4	5
24.	No mira a las personas a los ojos cuando intenta pero no puede realizar algo.	1	2	3	4	5
25.	Intenta entender a otros niños.	1	2	3	4	5
26.	Repite habilidades como saltar o correr hasta que pueda realizarlas.	1	2	3	4	5
27.	Hace la mayoría de cosas mejor que otros niños de su edad.	1	2	3	4	5
28.	Se esfuerza por hacer amigos con otros niños.	1	2	3	4	5
29.	Está dispuesto a trabajar por largo tiempo tratando de encajar algo.	1	2	3	4	5
30.	Sonríe cuando logra que algo suceda.	1	2	3	4	5
31.	Entiende bien las cosas.	1	2	3	4	5
32.	Intenta incluirse cuando otros niños están jugando.	1	2	3	4	5
33.	Intenta averiguar lo que les gusta y no les gusta a los adultos.	1	2	3	4	5
34.	Aparta la mirada cuando trata pero no puede hacer algo.	1	2	3	4	5
35.	Intenta que el juego con otros niños se mantenga por largo tiempo.	1	2	3	4	5
36.	Se esfuerza por mejorar sus habilidades físicas.	1	2	3	4	5
37.	Se esfuerza por entender mis sentimientos y los de otros adultos.	1	2	3	4	5
38.	Se esfuerza por mejorar su habilidad para lanzar y patear.	1	2	3	4	5
39.	Desiste después de intentar algo sin éxito.	1	2	3	4	5

Cuestionario de Motivación de Edad Escolar
(por adulto)

Identificación del niño _____ Edad _____ Marque uno: □ Masculino □ Femenino
Fecha _____ años
Relación del calificador con el niño: Madre _____ Padre _____ Profesor _____
Otro (especifique) _____

ENCIERRE el número que mejor indica cuán típica es cada oración respecto del comportamiento reciente de este niño. Los niños son variados; muchos están motivados a hacer cosas, pero otros no. Tenga en cuenta que algunas de las preguntas pueden no ser típicas de un niño de esa edad, por lo que es normal usar una calificación de "no como este niño". Intente responder todas las preguntas, incluso si no está seguro.

		PARA NADA COMO ESTE NIÑO				EXACTA-MENTE COMO ESTE NIÑO
1.	Trabaja en un problema hasta que puede resolverlo.	1	2	3	4	5
2.	Está satisfecho consigo mismo cuando finaliza algo retador.	1	2	3	4	5
3.	Intenta tener un buen desempeño en juegos atléticos.	1	2	3	4	5
4.	Resuelve problemas con rapidez.	1	2	3	4	5
5.	Parece triste cuando no logra una meta.	1	2	3	4	5
6.	Se esfuerza porque otros niños se sientan mejor si estos parecen tristes.	1	2	3	4	5
7.	Intenta hacer y decir cosas que mantienen el interés de otros niños.	1	2	3	4	5
8.	A menudo discute asuntos con adultos.	1	2	3	4	5
9.	Se molesta cuando no puede completar una tarea retadora.	1	2	3	4	5
10.	Es muy bueno haciendo la mayoría de cosas.	1	2	3	4	5
11.	Se emociona cuando tiene éxito .	1	2	3	4	5
12.	Intenta realizar actividades físicas satisfactoriamente incluso cuando son retadoras.	1	2	3	4	5
13.	Se frustra cuando no realiza algo satisfactoriamente.	1	2	3	4	5
14.	Termina las tareas escolares, incluso si se demora mucho.	1	2	3	4	5
15.	Se esfuerza por interesar a los adultos en sus actividades.	1	2	3	4	5
16.	Protesta si no tiene éxito en algo por lo que se esforzó.	1	2	3	4	5
17.	Intenta descubrir todos los pasos necesarios para resolver un problema.	1	2	3	4	5
18.	Se emociona cuando resuelve algo.	1	2	3	4	5

		PARA NADA COMO ESTE NIÑO				EXACTA-MENTE COMO ESTE NIÑO
19.	Intenta que los adultos vean su punto de vista.	1	2	3	4	5
20.	Hace cosas que son difíciles para los niños de su edad.	1	2	3	4	5
21.	Le complace resolver un problema después de trabajar duro en él.	1	2	3	4	5
22.	Se esfuerza porque los adultos le entiendan.	1	2	3	4	5
23.	Trabaja por largo tiempo intentando hacer algo retador.	1	2	3	4	5
24.	No mira a las personas a los ojos cuando intenta pero no puede realizar algo.	1	2	3	4	5
25.	Se esfuerza por entender a otros niños.	1	2	3	4	5
26.	Repite habilidades deportivas hasta que las puede realizar de mejor forma.	1	2	3	4	5
27.	Hace la mayoría de cosas mejor que otros niños de su edad.	1	2	3	4	5
28.	Se esfuerza por hacer amigos con otros niños.	1	2	3	4	5
29.	Está dispuesto a trabajar por largo tiempo intentando resolver un problema para la escuela.	1	2	3	4	5
30.	Sonríe cuando tiene éxito en algo por lo que se esforzó.	1	2	3	4	5
31.	Entiende bien las cosas.	1	2	3	4	5
32.	Trata de que lo incluyan cuando otros niños están haciendo algo.	1	2	3	4	5
33.	Intenta averiguar lo que les gusta y no les gusta a los adultos.	1	2	3	4	5
34.	Aparta la mirada cuando trata pero no puede hacer algo.	1	2	3	4	5
35.	Intenta que el juego con otros niños dure por mucho tiempo.	1	2	3	4	5
36.	Se esfuerza por mejorar en los deportes.	1	2	3	4	5
37.	Se esfuerza por entender los sentimientos de los adultos.	1	2	3	4	5
38.	Se esfuerza por mejorar sus habilidades en juegos de pelota.	1	2	3	4	5
39.	Desiste después de intentar algo sin éxito.	1	2	3	4	5
40.	Prefiere intentar resolver problemas difíciles en lugar de fáciles.	1	2	3	4	5
41.	Se enoja si no puede hacer algo después de esforzarse.	1	2	3	4	5

Cuestionario de Motivación de Edad Escolar

Tu identificación _____ Edad _____

Marca uno: □ Masculino □ Femenino Fecha _____ años

ENCIERRA el número que mejor indique cuánto se parece cada oración con tu forma de ser recientemente. Los niños son variados; muchos están motivados a hacer cosas, pero otros no. Ten en cuenta que algunas de las preguntas no son típicas de niños de tu edad, por lo que está bien usar una calificación de "no como yo". Intente responder todas las preguntas, incluso si no está seguro.

		NO SE PARECE EN NADA A MÍ				EXACTA-MENTE COMO MI
1.	Trabajo en un problema hasta que puedo resolverlo.	1	2	3	4	5
2.	Estoy satisfecho conmigo mismo cuando finalizo algo retador.	1	2	3	4	5
3.	Intento tener un buen desempeño en juegos atléticos.	1	2	3	4	5
4.	Resuelvo los problemas con rapidez.	1	2	3	4	5
5.	Estoy triste cuando no logro una meta.	1	2	3	4	5
6.	Me esfuerzo por hacer que otros niños se sientan mejor si parecen estar. tristes	1	2	3	4	5
7.	Intento decir y hacer cosas para mantener el interés de otros niños.	1	2	3	4	5
8.	A menudo discuto asuntos con adultos.	1	2	3	4	5
9.	Me molesto cuando no puedo completar una tarea retadora.	1	2	3	4	5
10.	Soy muy bueno haciendo la mayoría de cosas.	1	2	3	4	5
11.	Me emociono cuando tengo éxito.	1	2	3	4	5
12.	Intento realizar actividades físicas satisfactoriamente incluso cuando son retadoras.	1	2	3	4	5
13.	Me frustro cuando no realizo algo satisfactoriamente.	1	2	3	4	5
14.	Termino las tareas escolares, incluso si se demora mucho.	1	2	3	4	5
15.	Me esfuerzo por interesar a los adultos en mis actividades.	1	2	3	4	5
16.	Protesto si no tengo éxito en algo por lo que me esforcé.	1	2	3	4	5
17.	Intento descubrir todos los pasos necesarios para resolver un problema.	1	2	3	4	5
18.	Me emociono cuando resuelvo algo.	1	2	3	4	5
19.	Intento que los adultos vean mi punto de vista.	1	2	3	4	5
20.	Hago cosas que son difíciles para niños de mi edad.	1	2	3	4	5

		NO SE PARECE EN NADA A MÍ				EXACTA-MENTE COMO MI
21.	Me complace resolver un problema después de trabajar duro en él.	1	2	3	4	5
22.	Me esfuerzo porque los adultos me entiendan.	1	2	3	4	5
23.	Trabajo por largo tiempo intentando hacer algo retador.	1	2	3	4	5
24.	No miro a las personas a los ojos cuando intento pero no puedo realizar algo.	1	2	3	4	5
25.	Me esfuerzo por entender a otros niños.	1	2	3	4	5
26.	Repito habilidades deportivas hasta que las puedo realizar bien.	1	2	3	4	5
27.	Hago la mayoría de cosas mejor que otros niños de mi edad.	1	2	3	4	5
28.	Me esfuerzo por hacer amigos con otros niños.	1	2	3	4	5
29.	Estoy dispuesto a trabajar por largo tiempo intentando resolver un problema para la escuela.	1	2	3	4	5
30.	Sonrío cuando tengo éxito en algo por lo que me esforcé.	1	2	3	4	5
31.	Entiendo bien las cosas.	1	2	3	4	5
32.	Trato de que me incluyan cuando otros niños están haciendo algo.	1	2	3	4	5
33.	Intento averiguar lo que les gusta y no les gusta a los adultos.	1	2	3	4	5
34.	Aparto la mirada cuando trato pero no puedo hacer algo.	1	2	3	4	5
35.	Intento que el juego con otros niños dure.	1	2	3	4	5
36.	Me esfuerzo por mejorar en los deportes.	1	2	3	4	5
37.	Me esfuerzo por entender los sentimientos de los adultos.	1	2	3	4	5
38.	Me esfuerzo por mejorar mis habilidades en juegos de pelota.	1	2	3	4	5
39.	Desisto después de intentar algo sin éxito.	1	2	3	4	5
40.	Prefiero intentar resolver problemas difíciles en lugar de fáciles.	1	2	3	4	5
41.	Me enojo si no puedo hacer algo después de esforzarme.	1	2	3	4	5

Türkçe Okul Öncesi Motivasyon Anketi

Çocuğun Numarası _____Yaş _____
Birini işaretleyin: □ Erkek □ Kız
Bugünün tarihi_____ Yıl Ay

Formu dolduran kişinin çocukla ilişkisi: Anne _____ Baba _____
Başkası (lütfen belirtiniz) _____

Lütfen, her soru için çocuğun son zamanlardaki davranışlarının ne kadar tipik olduğunu en iyi ifade eden rakamı daire içine alin. Çocuklar birbirinden farklıdır. Çoğu çocuğun bazı şeyleri yapmaya motivasyonu vardır, bazı şeyleri yapmaya ise hiç motivasyonu yoktur. Bazı soruların çocuğun yaşına uygun olamayacağını göz önünde bulundurun, bu yüzden "hiç onun gibi değil" seçeneğini seçebilirsiniz. Lütfen emin olmasanız bile her soruyu cevaplamaya çalışın.

		HİÇ ONUN GİBİ DEĞİL				TAM ONUN GİBİ
1.	Yeni bir beceriyi yapabilene kadar tekrar eder.	1	2	3	4	5
2.	Bir şeyi bitirdikten sonra yüzünü kocaman bir gülümseme kaplar.	1	2	3	4	5
3.	Fiziksel faaliyetlerde başarılı olmaya çalışır.	1	2	3	4	5
4.	Problemleri hızlı çözer.	1	2	3	4	5
5.	Bir hedefe ulaşamadığında üzgün gözükür.	1	2	3	4	5
6.	Başka çocuklar ağlarsa veya üzgün gözükürse, kendilerini daha iyi hissetsinler diye çok çalışır.	1	2	3	4	5
7.	Başka çocukların ilgisini çekecek şeyler yapar veya söylemeyi dener.	1	2	3	4	5
8.	Yetişkinlerle konuştuğu zaman, onların ilgilisini üzerinde tutmaya çalışır.	1	2	3	4	5
9.	Zor bir görevi tamamlayamadığında üzülür.	1	2	3	4	5
10.	Birçok şeyi çok iyi yapar.	1	2	3	4	5
11.	Başarılı olduğunda sevincini belli eder.	1	2	3	4	5
12.	Zor dahi olsa fiziksel faaliyetleri iyi yapmak için çalışır.	1	2	3	4	5
13.	Bir şeyi iyi yapamadığı zaman kendine kızar.	1	2	3	4	5
14.	Bitirmesi uzun zaman alsa bile, başladığı işi tamamlamaya çalışır.	1	2	3	4	5
15.	Yetişkinlerin kendisiyle oynamasını sağlamak için çok çaba gösterir.	1	2	3	4	5
16.	Bir şeyde başarısız olduğunda itiraz eder.	1	2	3	4	5
17.	Yapboz gibi oyuncakları çok uğraşsa bile tamamlamaya çalışır.	1	2	3	4	5
18.	Bir şeyi anladığında heyecanlanır.	1	2	3	4	5
19.	Çok uğraşmasına rağmen bir şeyi yapamazsa kızar.	1	2	3	4	5

		HİÇ ONUN GİBİ DEĞİL				TAM ONUN GİBİ
20.	Kendi yaşındaki çocuklara zor gelebilecek şeyleri yapar.	1	2	3	4	5
21.	Zor bir problemi çözdüğü zaman memnun olur.	1	2	3	4	5
22.	Yetişkinlerin onu anlaması için çok çaba sarf eder.	1	2	3	4	5
23.	Zor olan bir şeyi yapmak için uzun süre çalışır.	1	2	3	4	5
24.	Bir şeyi yapmaya çalışıp yapamadığında insanların gözünün içine bakmaz.	1	2	3	4	5
25.	Diğer çocukları anlamaya çalışır.	1	2	3	4	5
26.	Zıplama veya koşma gibi becerileri yapabilene kadar tekrar eder.	1	2	3	4	5
27.	Birçok şeyi kendi yaşındaki diğer çocuklardan daha iyi yapar.	1	2	3	4	5
28.	Diğer çocuklarla arkadaş olmak için çok çaba gösterir.	1	2	3	4	5
29.	Bir şeyi yapmayı denerken çok uzun süre çalışır.	1	2	3	4	5
30.	Bir işi başardığında gülümser.	1	2	3	4	5
31.	Birçok şeyi iyi anlar.	1	2	3	4	5
32.	Başka çocuklar oynarken oyuna dahil olmaya çalışır.	1	2	3	4	5
33.	Yetişkinlerin neyi sevip neyi sevmediklerini anlamaya çalışır.	1	2	3	4	5
34.	Bir şeyi deneyip başaramadığında bakışlarını kaçırır.	1	2	3	4	5
35.	Başka çocuklarla uzun süre oynamaya çalışır.	1	2	3	4	5
36.	Fiziksel becerilerde daha iyi olmak için çok çaba gösterir.	1	2	3	4	5
37.	Benim ve diğer yetişkinlerin duygularını anlamaya uğraşır.	1	2	3	4	5
38.	Atma veya tekmeleme becerisini geliştirmek için çok çalışır.	1	2	3	4	5
39.	Denedikten sonra başaramadığında geri çekilir.	1	2	3	4	5

In "Assessing Mastery Motivation in Children Using the Dimensions of Mastery Questionnaire (DMQ)," an international network provides a historical overview of almost 40 years of research on mastery motivation and extends this body of work to educational and clinical practice. The authors describe the development of the DMQ and then focus on the current version, DMQ 18, summarizing its availability, use, reliability, and validity in 11 countries, 12 languages, and all the continents, except Antarctica. The chapters present cross-cultural and developmental research, examining age changes in mastery motivation from infancy to adolescence and implications for children's success in school. The researchers calculate preliminary norms for children developing typically and then use these norms to estimate what DMQ 18 scale scores could be considered atypical; the tables with these values will aid clinicians. Furthermore, the authors suggest employing the minimally detectable change (MDC) index to evaluate the effectiveness of interventions that use the DMQ as an outcome measure. The final chapter provides a model for best practices in translating and adapting questionnaires, such as DMQ 18, into different languages and cultures.

The two ideas of intervention and diverse samples provide potent tools for researchers interested in understanding behavior…The reader should be impressed by the scope and quality of this long-term research program and challenged by the opportunities it has created. (**Nancy Busch Rossnagel, Fordham University, USA**)

George Morgan has been at the forefront of attempts to measure mastery motivation, a key construct in developmental psychology. He, and a group of international researchers, have now produced a resource that will be immensely useful to practitioners and other researchers in this field. This book provides invaluable information for those interested in using the DMQ and includes evidence of the utility of the DMQ across cultures, languages, and with children with typical or atypical development. (**Monica Cuskelly, University of Tasmania, Australia**)

Exciting and at the same time systematic journey for the reader to understand what an enormous intellectual task it is to prepare a method than can reliably measure children's motivation in very different cultural contexts. (**Márta Fülöp, Institute of Cognitive Neuroscience and Psychology, Budapest, Hungary, Secretary General of the International Association for Cross-Cultural Psychology**)

A practical toolbook for early intervention professionals to understand the important mechanism of child development. I strongly recommend that professionals have this book on their bookshelf. (**Shih-Heng Sun, National Taichung University of Education, Taiwan Association of Child Development and Early Intervention, Taiwan**)

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