Book Review

Assessing Children's Mastery Motivation using the Dimensions of Mastery Questionnaire (DMQ): Theoretical and Practical Consideration

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Bibliography of the reviewed book: Morgan, G. A., Liao, H.-F., & Józsa, K. (Eds.) (2020). Assessing Mastery Motivation in Children Using the Dimensions of Mastery Questionnaire (DMQ). Gödöllő: Szent István Egyetem. http://www.staff.u-szeged.hu/~jozsa/DMQbook.html

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Introduction

Prior to reviewing this book, I wondered about the term "dimensions of mastery motivation (DMQ)" in the book title. Particularly, what makes the DMQ a widely used assessment to predict children's mastery motivation and how valid is it? The desire to quench my curiosity is my motivation in reviewing this book. The authors in this book define mastery motivation as one's persistence in solving a problem and an affective reaction that one's showed.

I would like to describe how this book defines motivation's importance by the following sentence: "sense of motivation is the key to the various achievements of our lives". Mastery motivation is a key developmental concept in early childhood, defining childhood future competence and achievement (Shonkoff & Philips, 2000). Referring to the importance of mastery motivation, I agree that mastery motivation could be an important part of children's assessment (Morgan et al., 2017).

The focus of the book is on children's development of mastery motivation due to good development at an early age, which leads to better competence and achievement. To understand students' achievement and development, we need assessment tools. An assessment tool with strong psychometric evidence is necessary, i.e., DMQ. As such, it was reasonable that the title of the book is a combination of children, assessment, mastery motivation, and DMQ.

Authors in this book come from six continents around the world who are researchers in the area of mastery motivation. The editors have an important impact on the development of the assessment of children's mastery motivation. George A. Morgan is one of the researchers in the Leon J. Yarrow research group, a pioneer in the study of children's development. Krisztián Józsa and Hua-Fang Liao are professors in the area of children's development and mastery motivation. It is undoubtedly that the book has high quality input.

A book of mastery motivation focusing on origins, conceptualizations and applications was published in 1995 (MacTurk & Morgan, 1995). However, it was more than a decade ago, and researchers in this area need the newest version that compiles cross-cultural and cross-aged empirical research. Additionally, researchers recently require not only theoretical but also practical and/or empirical considerations. From this perspective, the book "Assessing Mastery Motivation in Children Using the Dimensions of Mastery Questionnaire" is recommended to be read, cited, and reviewed to gain complete and up-to-date knowledge regarding assessment of mastery motivation using DMQ from a theoretical and practical perspective. The book is available on the web http://www.staff.u-szeged.hu/~jozsa/DMQbook.html.

Review

This book is a well-structured overview of assessment in mastery motivation and is relevant for researchers in the assessment of motivation area. It is recommended since the authors describe the content in a reader-

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friendly manner, so it is especially suitable for a beginner researcher. I sought to read a scientific history of the invention of an assessment tool in mastery motivation, and I found all the answers to my curiosity in this book.

This book discusses several empirical cross-cultural and age groups studies, making it reliable in its comprehensive usefulness. It begins with theoretical and empirical approaches and follows in the implication of the results. This book is composed of nine consecutive and interdependent chapters. The first chapter describes the basic concept of mastery motivation and provides a critical review of several types of assessment in mastery motivation. The drawbacks, advantages, and the assessment solution are emphasized by the authors. Chapters 2 and 3 provide historical evidence of the development of DMQ-17 and DMQ-18 as cross-cultural and cross-age group assessment tool that is widely used. Chapters 4 and 5 organize a psychometric analysis of DMQ-17 and DMQ-18 using several methods among different countries and different ages of participants. Chapter 6 provides brief comparisons, differences, and similarities of empirical results across age and cultural studies. In chapter 7, readers will find the answer that DMQ can be applied to a wide variety of children's needs, including children with special needs, and come up with the proposed intervention in chapter 8. Chapter 9 discusses recommendations to adapting DMQ in cross-language by serving common issues. According to the short description of every chapter, we can see that the author tries to thoroughly explore the history, application, and issues in DMQ in supporting the assessment of mastery motivation.

Assessment of mastery motivation developed over time. The description of several assessments in mastery motivation with their advantages and disadvantages gives readers all the necessary information to decide the best assessment that could be applied. The free play assessment method is an ecological assessment, but it is difficult to control environmental factors. The behavioral mastery motivation task fills this gap. The authors' example helps readers to understand that this assessment utilizes a tool (e.g., a puzzle). However, it was evident that this method could not solve student cognitive differences. Hence, the proposed solution is developing a moderate challenge behavioral task that can control student cognitive differences. The task focuses on measuring persistence and emotional behavior. I agree with the authors' statement that the behavioral task is less filtered through the perception or bias of the rater, but it is more time-consuming and expensive to obtain. The authors' offer the solution of using a questionnaire that effectively measures mastery motivation for every age and cross-culture, called DMQ. DMQ attempts to fill the gaps by developing dimensions that were considered important in mastery motivation.

DMQ is continuously reviewed and updated to discover the best version of it. The early version is for mothers who rated their infant and preschool. They tried to broaden the use of DMQ by developing general scales, which provide measures of both the expressive and instrumental aspects of mastery motivation, called DMQ-G. It expanded with DMQ-E and included other potential domains, e.g., social and gross motor. The persistence of the authors and team to formulate the best version of DMQ cannot be doubted. They rescored DMQ-E based on previous studies to produce a conceptually and psychometrically more substantial questionnaire. They received five scales of DMQ for toddlers and preschoolers: 1) object-oriented persistence, 2) social/symbolic persistence, 3) gross motor persistence, 4) mastery pleasure, and 5) general competence. The additional scales in social (social persistence with children and adult) and negative reaction to failure was a new version of DMQ, called DMQ-ES. DMQ-ES is similar to DMQ-17, then improved as DMQ-18.

The continuous revision of DMQ gives evidence that DMQ provides a reliable, accessible, valid, and concrete picture of mastery motivation from infant (6 months) to teenager (19 years) in students with typical and atypical development. Hence, it helps educators, parents, and clinicians assess children's mastery motivation. Even DMQ comes with its newest improved version, researchers still encounter an issue regarding the inseparability of rater assessment from their beliefs or perception. As such, it would become a problem that they rate themselves rather than rate their children. The authors proposed a combination of DMQ rated by parents, teachers, and child/teen in this case in order for a comprehensive and valid assessment to be reached. However, it would be better if the authors combined more than two types of assessment (i.e., DMQ, behavioral task, and free play) that were missing in this book to receive an accurate picture of children's mastery motivation.

The DMQ-18 version was raised because of the main issues in DMQ-17 about the reverse coded item. 10-20% of raters did not rate accurately. Hence, 13 items were deleted, replaced by a number of newly developed items in DMQ-18. DMQ-18 has the same scales as DMQ-17, rated from 1 (not at all like this child) to 5 (exactly like this child). However, the negative reaction dimension was intended to be divided into two sub-scales: frustration/anger and shame/sadness. DMQ-18 has three current official languages: English, Chinese, and Hungarian. Then, it was translated into several more languages. DMQ-18 has four different age group versions: infant, preschool, school-age by adult rating, and school-age by self-rating versions. The authors describe the distribution of the items in every age group version wholly and briefly. In addition, the authors tried to describe

every cultural group sample characteristic that is easy to understand and several interesting publications using DMQ-18.

Good psychometric results always accompany a good assessment tool. The authors have described in detail the evidence of DMQ-17 and DMQ-18 reliability using a large sample size across age-group and cultural groups in 12 languages with 33 samples of infants, preschool, and school-aged children. They used several statistical analysis methods of reliability. The cross-cultural, cross-age groups, and cross-method reliability of DMQ-17 and DMQ-18 showed trustworthy results.

There is no significant age difference in the alpha reliabilities for parents and teachers rating DMQ-17. However, reliability for student self-ratings was somewhat higher for older age groups than younger age groups. The internal consistency of four instrumental scales was always greater than .80 in all rater groups.

The internal consistency and the test-retest reliability of DMQ-18 for all sample groups indicated acceptable-to-good reliability on all 6 scales. There was no apparent difference in alphas of different languages except 8-18-year-old samples for Iranian Persian speakers. There was also no clear difference in alphas for children developing typically and children developing atypically. However, a school-age sample had an unacceptable test-retest reliability for negative reactions to challenge. The effect of sample size was also discussed.

The validity of DMQ is highlighted from general theories and several methods. Several validity methods are only available for DMQ-17 which are predecessor studies of DMQ-18. The content of DMQ measured mastery motivation, supported by various researchers using several different languages and cultures. However, in my opinion, the discussion of the construct validity of DMQ is lacking in depth. The evidence of good convergent, discriminant, and criterion validities was described briefly following several research results. The factorial validity behaved differently in DMQ-17. It was also evident that self-report of DMQ-17 had lower factorial validity, and reverse items did not have strong loading factors. The factorial validity of DMQ-18 has not included reversed items, and it evidences better results from DMQ-17. The culture and translation process could affect the minimally acceptable factorial validity results.

This book always proposes solutions for detected issues. The authors discuss the successful tips that they applied in adapting, including the translation process of DMQ-18. The author refers to the International Test Commission (2017) guideline for test adaptation. In this part, the readers will receive useful knowledge since the authors contradict the opinion that adaptation is "a simple and easy process".

Two important things that need to be considered in adapting questionnaires in the cross-cultural study are psychometric appropriateness and invariance. It is necessary to ensure the adapted questionnaire has the same construct as the original version, no bias, and no overlap. Receiving consent from the questionnaire developer is a responsibility before the adaptation process. Forward and backward translation using "expert" translators is also an essential process. It is not easy to describe "expert". In this case, we need content and language experts from original and target languages. After the issue of translating is solved, ensuring the procedure appropriateness, piloting, and analyzing are the next steps. The sample size is an important factor that needs to be considered. The authors also provide the practical use of adaptation theory by giving a brief and well-structured example of adapting DMQ-18.

This prompts the question of is children's mastery motivation different across cultures and age-group? I found the answer in this book with a comprehensive explanation. Children's mastery motivation is different regarding their culture, setting, and age, and is influenced by extrinsic motivation. The difference revealed that parents in a specific culture tend to rate their children lower in a particular dimension. Another exciting study investigates three cross-cultural groups among age groups. The finding showed that more cross-cultural differences were found in the school-aged population rather than in the preschool population. However, the differences require more research using behavioral measures to help explain observed differences. The longitudinal study is vital to examine actual developmental change and stability in mastery motivation. Several researches that are reviewed in this book found little evidence of a significant decline in mastery pleasure with age.

Until now, I talked about mastery motivation in typical students. It does not imply that this book did not discuss mastery motivation in atypical students. I would like to state that family is the most substantial factor in enhancing atypical children's mastery motivation. However, several factors from the child themself (e.g., cognitive and social factors) influence atypical children's mastery motivation. This was discovered through empirical studies using DMQ-17 and DMQ-18. However, can DMQ be used for measuring atypically students? The evidence confidently stated DMQ had a good psychometric result in several empirical cross-culture studies for atypical children. However, parents of atypical students rated lower than parents with typical children. Surprisingly, according to the behavioral task, atypical children have no significant difference in mastery

motivation. The authors investigated the reasons behind this phenomenon, concluding that this is because they compared their children to typically developing children of their age. Since comparing two different things can lead to bias, balance comparison is suggested.

Then, how do we categorize atypical children using DMQ-18? The authors provide a fixed categorization based on the preliminary norm in a large sample size in 9 countries, 10 languages, followed by some examples. The results are beneficial for teachers, parents, clinicians, and researchers in this area to detect what area of mastery motivation (cognitive, affective, or social) has to be improved by atypical children. Hence, they can decide on a suitable intervention to enhance it.

The authors introduced an effective intervention, the 5-SEMM model, for atypical children. This program is based on children's independence to make a decision. However, age is also a consideration. The program uses a person-centered approach for older children, but for younger children, the family becomes a decision maker through family-centered practice. It emphasizes strength, promotes family control, and choice over desired resources, and develops a collaborative relationship between parents and professionals. By assessing and discussing the problem, practitioners propose and execute a motivational-enhancing strategy, which will be evaluated in the last phase using DMQ-18. The special part is that the authors provide theory application into practice. They give examples of the cases in early childhood and school-age with special needs and let the program solve these cases.

Conclusion

This book comprehensively discusses the theory in practice by raising some common issues and providing solutions. To develop a standardized tool in mastery motivation, DMQ-18, requires a long journey and the evaluation and future research still needs to be conducted continuously. DMQ-18 has proven a conceptually and psychometrically strong measure of children's mastery motivation. It is evidenced as a widely used questionnaire applied in cross-cultural, cross-age-groups, and for various children's development.

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