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Research Article

Development and Validation of an Assessment Instrument for Mentoring and Technical Assistance Skills of Master Teachers

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ABSTRACT

Master teachers in the Philippines play a vital role in guiding and supporting fellow teachers through mentoring, coaching, and providing technical assistance; thus, they are expected to remain updated and skilled to effectively help colleagues meet classroom challenges. Since no standardized instrument currently exists to measure their skills, this study designed a validated tool that would accurately evaluate these. This mixed-method study utilizing the exploratory sequential design involved 17 participants for the qualitative phase, and a larger group of respondents for the quantitative phase. In the qualitative phase, teacher-mentees shared their experiences and described how master teachers provide mentoring and technical assistance. These insights served as the foundation for developing the initial items of the instrument. In the quantitative phase, the crafted tool underwent Rasch analysis to test its reliability and validity. The results showed acceptable levels of reliability (person reliability = 0.84; item reliability = 0.97) and validity (variance explained = 62.5%; CVI = 0.96; Infit/Outfit MNSQ = 0.54–1.14), confirming that the instrument effectively measured the intended constructs. The findings suggest that the developed MenTeASk Questionnaire was both valid and reliable in assessing the master teachers' mentoring and technical assistance skills; hence, its use is recommended particularly in the Division of Aklan, Philippines.

Keywords: *Mentoring and technical assistance, Assessment instrument, Master teachers, Rasch Model, Thematic analysis*

Background

Master teachers play a crucial role in the learning and development of a child, collaborate with their colleagues about effective teaching strategies, and develop research and innovations that could help address the identified learning gaps. To keep teachers strong and knowledgeable, they must be ready to face the

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challenges in the classroom. Because of the continuous development and changes in the educational system in our country, master teachers must be skilled and updated on the trends in the said system. They are also expected to provide technical assistance through demonstration teaching, mentoring, coaching, class monitoring, and observation.

According to Skidmore and Masters (2022), master teachers (MTs) are persons who are skilled in the fundamentals of instruction, go above and beyond to ensure that every learner has a great experience, and share their expertise with the larger learning community. They are highly qualified professional educators who collaborate with the school administration team to share significant leadership responsibilities and authority. Their primary duty is to collaborate with the principal, examine learners' data, and develop and implement an academic achievement strategy for the school. In addition to leading cluster groups and coaching and team-teaching with other instructors, master teachers often teach demonstration lessons. To improve student performance, they work together to create and decide on adopting learning resources and evidence-based practices.

The teaching career ladder in the Philippines begins with being a classroom teacher. Those who exhibit excellence in every aspect of the teaching-learning process are given these roles, and they are also given the chance to advance as master teachers—a job with a variety of functions and responsibilities within the Department of Education. Master teachers encourage, mentor, and provide technical assistance to their peers to improve their learning and practice while working cooperatively with them.

With the continuous change and innovation in the curriculum towards producing globally competent educators, master teachers should not be taken for granted, for they are among the most critical people in the Department of Education, specifically in the Division of Aklan. Despite many expectations placed upon them, a study has yet to be conducted on measuring the mentoring and technical assistance skills they provide to their mentees - the teachers, since there is no instrument provided on how to measure these skills. To address this gap, a reliable and valid instrument that could describe and measure the skills of master teachers in the Division of Aklan was crafted as a final output.

Specifically, this study sought answers to the following questions: Phase 1 (Qualitative) – How do the teacher-mentees describe the mentoring and technical assistance skills provided by master teachers; and Phase 2 (Quantitative) – What valid and reliable instrument could measure the mentoring and technical assistance skills of master teachers; what key dimensions or components of mentoring and technical assistance skills emerge from the analysis of the data; how do experts assess the clarity, relevance, and overall content validity of the developed instrument; to what extent does the instrument accurately measure the intended constructs based on the results of the Rasch analysis; and, how reliable and consistent are the results of the instrument in assessing the mentoring and technical assistance skills of master teachers.

Methods

This study was anchored on the Constructivist Theory and the Five-Factor Model of Hudson (2004), which supports mentoring within field experiences, helping mentees build on prior understanding to develop teaching knowledge and skills, and identifies five key factors in effective mentoring: (1) personal attributes for constructive dialogue, (2) system requirements aligned with curriculum directives and policies, (3) pedagogical knowledge for articulating effective teaching practices, (4) modeling of efficient and effective practice, and (5) feedback for reflection and improvement.

On the other hand, exploratory sequential design begins with qualitative data collection and analysis, which then leads to the development of a quantitative instrument (Creswell & Clark, as cited in Subedi, 2016).

Research Design

An exploratory sequential mixed-methods design was used to develop a valid and reliable

instrument to evaluate the mentoring and technical assistance skills of master teachers. Figure 1 illustrates the two-phased process in data gathering and processing.

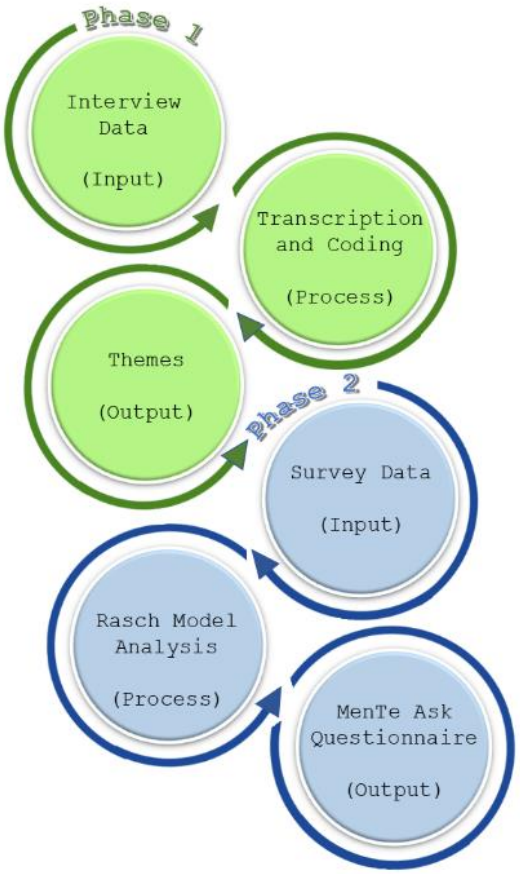

Figure 1. The flow of the research using the Input-Process-Output model

Sampling and Participant Selection

Phase 1 (Qualitative):

Participants were teacher-mentees selected through purposive sampling based on their direct mentoring experiences with master teachers. They came from six districts within the Schools Division of Aklan. Before participation, approval was secured from the Schools Division Superintendent, District Supervisors, and School Principals. Interviews were conducted via Google Meet and other online platforms for convenience.

Phase 2 (Quantitative):

The respondents consisted of a larger sample of teacher-mentees from the same division. The researcher-developed questionnaire was distributed through Google Forms with a 10-day response period. Data were collected with the assistance of the Division Information Technology Officer (ITO).

Data Collection

Phase 1

The qualitative phase gathered insights through interviews using a researcher-made interview guide. The recorded responses were transcribed and coded, and themes were generated through thematic analysis. These themes served as the foundation for drafting the initial items of the assessment tool.

Phase 2

The quantitative phase used a 15-item questionnaire developed from Phase 1 findings. The draft instrument underwent expert validation by six professionals, including university professors, district supervisors, head teachers, and master teachers who have experience in research and mentoring.

Data Analysis

Thematic Analysis

Thematic analysis, as defined by Caulfield (2019), involves identifying recurring ideas and patterns in qualitative data. ATLAS.ti software was used to code and categorize interview transcripts, forming themes that reflected the teacher-mentees' experiences of mentoring and technical assistance.

Rasch Model Measurements

The Rasch Model was applied to test the validity and reliability of the instrument. The analyses included:

a. Person-Item Reliability: Items are considered reliable when coefficients ≥ 0.70;
b. Item Fit: Evaluated using Infit and Outfit Mean Square (MNSQ) (Linacre, 2008), where: 2.0 – distorts measurement; 1.5–2.0 – unproductive for construction; 0.5–1.5 – productive for measurement; and, <0.5 – less productive but acceptable;
c. Unidimensionality: Determined through variance explained by measures (>60%), unexplained variance (<15%), and eigenvalue (0.9–2.0);
d. Point Measure Correlation (PTMEA): Acceptable values >0.20; negative correlations indicate poor item alignment (Bond & Fox, 2015); and,
e. Item Local Independence: Residual correlations between items should not exceed 0.70 (Linacre, 2005).

Ethical Considerations

Before data collection, the researcher obtained written permissions from the Schools Division Superintendent, District Supervisors, School Principals, and the respondents. Likewise, participants provided informed consent and were assured of confidentiality and voluntary participation.

Results and Discussions

Phase 1 (Qualitative)

The identified themes that emerged from the respondents' responses to the questions were the roles of mentors and the benefits of the master teachers.

Table 1. Themes and Sub-categories Developed from Narratives

Themes	Sub-categories
A. Roles of Mentors	• As Guide • As a Role Model • As Friend and Mentor
B. Benefits from the Master Teachers	• Personal and Professional Growth and Development • Time and Self-Management

A. Roles of Mentors

As Guide. An effective mentor guides the mentee professionally while maintaining a friendly and supportive relationship. The teacher-mentees described the mentoring skills of master teachers as guides—assisting newly appointed or transferred teachers in adjusting to new grade levels and subjects, helping them plan lessons, select appropriate strategies suited to their learners, and encouraging reflection on teaching practices.

Mentors also served as motivators, inspiring teachers to continue learning and stay open to feedback for professional and personal growth. As one teacher shared, mentoring helped rekindle her passion for teaching and reminded her of her original goals.

As Adviser. Mentors encourage collaboration among teachers, guide them in completing reports efficiently, and offer advice on managing time and priorities. They also extend personal guidance, including managing finances and handling stress.

As a Role Model. Master teachers serve as models of professionalism and commitment. They demonstrate efficiency, organization, and responsibility—qualities that mentees aim to emulate. Mentees observed that master teachers "practice what they preach," showing consistency between their words and actions.

As a Friend and Mentor. They are approachable, supportive, and always ready to provide help when needed—both personally and professionally. They monitor mentees' progress, conduct LAC sessions for coaching, and ensure continuous professional growth.

B. Benefits from the Master Teachers

Teacher-mentees described the technical assistance skills of master teachers as beneficial for both personal and professional development. Through regular classroom observations and constructive feedback, mentors helped them improve instruction, manage paperwork efficiently, and strengthen confidence and decision-making skills.

Teachers also appreciated guidance in balancing classroom instruction with administrative tasks, especially in handling ICT-related reports. Mentoring enabled them to improve time management, prioritize tasks, and deliver outputs efficiently despite workload pressures.

Phase 2 (Quantitative)

Based on the Phase 1 qualitative result, a valid instrument labelled as the MenTeASk Questionnaire was developed. This instrument was crafted to describe and assess the Master Teacher's mentoring and technical assistance skills, particularly in the Division of Aklan.

An initial 15-item Version 1 of the MenTeASk Questionnaire was first evaluated for reliability and validity using the Rasch Model. The result showed that the instrument was valid and reliable but was revised because of issues in unidimensionality and item fit. After refinement, Version 2, consisting of 10 items, achieved strong reliability and validity in all Rasch statistics.

Table 2. Rasch Analysis Results

Key Rasch Statistics

Rasch Indicator	Description / Criteria	MenTeASk Version 1	MenTeASk Version 2	Interpretation
Person Reliability	≥ 0.70 indicates acceptable reliability	0.89	0.84	Reliable
Item Reliability	≥ 0.70 indicates acceptable reliability	0.95	0.97	Reliable
Item Fit (Infit MNSQ)	0.5–1.5 = productive for measurement	0.5-2.0 (acceptable range)	0.81–1.14	Acceptable Fit
Item Fit (Outfit MNSQ)	0.5–1.5 = productive for measurement	0.4-1.59 (acceptable range)	0.54–1.03	Acceptable Fit
Unidimensionality	Variance explained by measures > 60%; unexplained < 15%	59.7%; 1st contrast = 2.5 (6.7%)	62.5%; 1st contrast = 1.9 (6.4%)	Unidimensional after revision
PTMEA Correlation	Values > 0.20 indicate good correlation	0.71–0.83	0.77–0.83	Valid
Item Local Independence	Residual correlation < 0.70	< 0.70	< 0.70	Independent

Table 3. Summary of MenTeASk Questionnaire

Validation Results

Version	No. of Items	Person Reliability	Item Reliability	Validity Indicators (Unidimensionality, PTMEA, Fit, Local Independence)	Decision
Version 1	15	0.89	0.95	Met some validity criteria but needs revision (slightly below unidimensionality threshold; some misfitting items)	Revise
Version 2	10	0.84	0.97	Fully met validity and reliability criteria (acceptable fit, unidimensional, valid, independent items)	Finalized

The instrument is psychometrically sound and unidimensional, and has achieved strong person and item reliability as it has met all Rasch validity indicators.

The Rasch model considered both the difficulty level of each item and the respondents' ability levels, ensuring accurate measurement of mentoring and technical assistance constructs.

Figure 1. The MenTeASk Questionnaire

Conclusion

Based on the descriptions and characterizations of the master teachers (MTs) by the teacher-mentees, it is apparent that in the Division of Aklan, they are performing their duties as expected of their position—not only as teachers but as guides in pedagogy, motivators for personal and professional development, and advisers in addressing classroom challenges. Teacher-mentees have consistently described MTs as role models inside and outside the school, dependable friends who are always ready to help, and mentors who offer assistance and encouragement when teachers face difficulties.

These narrative themes align with the expected outcomes for Master Teachers as Highly Proficient Teachers under the Results-Based Performance Management System – Philippine Professional Standards for Teachers (RPMS-PPST).

With these positive impressions, MTs are expected to continue upholding their reputation as reliable mentors and technical advisors, as they should provide personalized guidance, constructive feedback, and continuous support to help teachers grow in their practice. Instead of merely pointing out weaknesses, MTs who explain, demonstrate, and guide teachers toward improvement create lasting professional growth.

The findings also affirm that continuous participation in professional development programs allows MTs to sustain their mentoring and technical skills—not only for their own growth but also as "elder siblings" to teachers under their care. Collaboration and teamwork among teachers, MTs, and administrators were

likewise identified as vital in achieving better learning outcomes for students.

Quantitative results affirm these qualitative findings. The developed MenTeASk Questionnaire was proven to be both valid and reliable in measuring the mentoring and technical assistance skills of Master Teachers. Its person reliability value based on Rasch analysis was 0.84, indicating a high level of consistency among respondents. The item reliability value of 0.97 suggests that the items were stable and reliable across administrations. The Infit and Outfit Mean Square (MNSQ) values, which ranged from 0.54 to 1.14, fall within the acceptable range, confirming that the items appropriately measured the intended constructs. Its unidimensionality result, with a variance explained of 62.5% also shows that the instrument measured a single underlying construct. In addition, the content validity index (CVI) value of 0.96 indicates that the experts found the items to be clear, relevant, and appropriate.

Overall, the Rasch analysis confirms that the *MenTeASk Questionnaire* is both a reliable and valid tool for assessing the mentoring and technical assistance skills of Master Teachers. This makes it a timely and meaningful innovation in monitoring and evaluating teacher competencies, not only for the Division of Aklan but also for possible adoption in the broader basic education system.

In alignment with the Department of Education's MATATAG Agenda, particularly the component that aims to "give support to teachers to teach better", it is recommended that a regular conduct of retooling and retraining on mentoring and technical assistance skills of Master Teachers by the Schools Division Office be conducted through Learning Action Cell (LAC) sessions.

Likewise, an evaluation and review of the master teachers' accomplishments should be conducted to guide the preparation of a continuous enhancement training plan. School administrators may design training and seminars focused on mentoring and providing technical assistance to sustain the professional growth of MTs.

Further, a revisit of the hiring guidelines at the elementary level is suggested to ensure that the criteria align with the current needs of schools and applicants.

Consequently, the Division may adopt the MenTeASk Questionnaire as an official assessment tool for Master Teachers' mentoring and technical assistance skills. Further studies using the MenTeASk tool may be conducted among teachers from different disciplines and grade levels to determine its wider applicability.

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