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Mathematics in the Marketplace: Unveiling Business Mathematics Skills Among Vendors and Consumers

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A B S T R A C T

This survey research aimed to determine the most essential learning competencies (MELCs) practiced by the people in the market. Respondents were ten (10) vendors and (10) consumers chosen purposively. Data-gathering instruments included a researcher-made checklist and interview guide. Data analysis techniques were frequency, mean, and standard deviation while thematic analysis was used to analyze qualitative data. The study revealed that the most frequently observed Most Essential Learning Competencies in Business Mathematics are: 1) giving real-life situations to illustrate fractions, decimals, and percent; 2) expressing fractions, decimals, and percent forms and vice versa; and 3) solving problems involving fractions, decimals, and percent. Vendors and consumers may actively consider incorporating the insights gained from this study into their work processes. Research to develop learning modules in mathematics and other subject areas may be undertaken.

Keywords: business mathematics, marketplace, most essential learning competency, survey research

1. Introduction

Mathematics plays an essential role in everyday life, with numerous applications in various fields, including business (Pratidiana et al., 2021). Studies suggest that mathematics is a subject individual often learn outside of the classroom. Carraher and Schliemann (2002) assert that individuals acquire mathematical skills, concepts, and techniques linked to measurement, geometry, and probability in everyday situations, even in the absence of formal schooling. This importance of mathematics is particularly evident within the business setting, where problem-solving emerges as a fundamental life-long skill. Most learners often lack an understanding of the practical significance of mathematics, as they struggle to address mathematical difficulties in their everyday life (Fadillah & Wahyudin, 2022). Given the above arguments, the researcher wanted to determine the Business Mathematics skills among vendors and consumers in the marketplace. This study sought to answer the question: What learning competencies in business mathematics are frequently observed by vendors and consumers in the market?

2. Methods

This study aimed to determine the most essential learning competencies in Business Mathematics observed by the vendors and consumers in the market, thus this study employed a survey research design.

Ten vendors and ten consumers within Pototan Public Market were included in this study. There are ten sections in the public market: fish, meat, dried fish, dry goods, grocery, rice/grain, fruits & vegetables, eatery, veterinary & agricultural, and general business (commercial). The researcher selected a representative vendor and consumer in each section, based on their length of experience for the vendors and their willingness to participate in the study. They were interviewed on the observable mathematics concepts they apply in everyday life. A follow-up interview was done with selected respondents to support the quantitative result.

The research instruments used were checklist and interview guide. The instruments were validated by experts.

The instruments were used to identify the most essential learning competencies in Business Mathematics used by the vendors and consumers in the market. The statistical tools were frequency count, mean, and standard deviations. Thematic analysis was used to analyze qualitative data.

3. Results and Discussions

There were thirty-five Most Essential Learning Competencies (MELCs) in Business Mathematics. During the interview with the vendors and consumers in the market, it was observed that the most essential learning competencies in Business Mathematics that were used in the market were the following:

giving real-life situations to illustrate fractions, decimals, and percent ranked first with a total score of 20. It was followed by "expressing a) fractions to decimal and percent forms, b) decimals to fractions and percent forms, c) percent to fractions and decimal forms" with a total score of 19. Solving problems involving fractions, decimals, and percent ranked 3rd with a total score of 18.

Responses from the respondents revealed the wide and practical use of mathematical concepts such as fractions, decimals, and percentages in everyday life. These findings align with the studies that associate formal math skills with improved market outcomes, highlighting the significance of mathematical abilities in market transactions (Undurraga et al., 2013).

For instance, Respondent A acknowledged the role of math in barter transactions, while Respondent B emphasized the use of mathematical principles in managing finances and allocating income for daily expenses. Additionally, many respondents noted the relevance of fractions, decimals and percentages in quantity measurement, pricing and negotiation and other practical applications. The results are consistent with the study that proficiency in these areas is considered foundational in mathematics education and is associated with mathematical achievement (Zhang et al., 2017; Resnick et al., 2019). Moreover, it was worth noting that the top three competencies belong to the same lesson.

4. Conclusion

Mathematical concepts such as fractions, decimals, and percentages are observable in the marketplace and regularly used by both vendors and consumers in their daily transactions.

Vendors and consumers may actively consider incorporating the insights gained from this study into their work processes. Vendors may explore training programs or workshops that further enhance their understanding of mathematics concepts relevant to their specific section. School heads, policymakers, and curriculum developers may consider providing training and support to teachers to effectively develop contextualized learning materials in the classroom. Research to develop learning modules in mathematics and other subject areas may be undertaken. A research study may also use and improve the research instruments.

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