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Assessing Students' Conceptual Understanding of an Islamic Financial System Course Using the Rasch Wright Map

Mohd Rahim Khamis[1], *Mohd Faizal Kamarudin[1], Nur Afizah Muhammad Ariffin[1], Mohd Faizan Mohd Afandi[2]
[1]Department of Economics and Financial Studies, Universiti Teknologi MARA, Puncak Alam, Selangor, Malaysia
[2]Assistant Vice President, Al-Rajhi Bank, Malaysia
Email: *mfk@uitm.edu.my
Corresponding Author: Mohd Faizal Kamarudin

Abstract: The rapid growth of Islamic finance has increased the need for effective assessment methods that accurately evaluate students' conceptual understanding of Islamic financial principles beyond the traditional score-based approaches. This study examines the application of the Rasch Wright Map in assessing students' conceptual understanding of the Islamic financial system course. A quantitative research design was employed involving 84 first-year Islamic Banking students at Universiti Teknologi MARA (UiTM). Data were collected using a nine-item Exit Survey Test (EST) designed to measure students' general understanding and practical knowledge of the Islamic financial system. Rasch Model analysis using WINSTEPS 3.71.0.1 demonstrated strong psychometric properties, with item reliability recorded at +0.86 and person reliability at +0.68. The Wright Map provided a visual representation of students' conceptual mastery by simultaneously mapping person ability and item difficulty along a single logit scale. The findings revealed that 61% of the students demonstrated good conceptual understanding and could apply their knowledge in practical contexts. However, several items related to Islamic capital markets, Islamic money markets, takaful, and retakaful were identified as challenging. The study concludes that the Rasch Wright Map is an effective psychometric tool for evaluating conceptual understanding in Islamic finance education and offers valuable implications for curriculum enhancement and instructional improvement.

Keywords: *Conceptual understanding, Islamic Financial System, Rasch Model, Wright Map*

1. Introduction

The global expansion of Islamic finance has transformed it from a niche sector into a significant component of the international economic landscape. Yet, this growth has revealed a critical need for a deeper conceptual understanding of its unique ethical and legal foundations. Governed by Shariah principles—such as the prohibition of *Riba* (interest), *Gharar* (uncertainty), and *Maysir* (gambling)—the system requires practitioners and students to master complex risk-sharing mechanisms and contract structures that differ fundamentally from conventional finance (Khamis & Hashim, 2025). This development has increased the demand for graduates who possess not only theoretical knowledge but also a comprehensive conceptual understanding of Islamic financial principles and their practical applications. Consequently, higher education institutions play a critical role in preparing future professionals who can operate effectively within the increasingly sophisticated Islamic finance industry.

Despite the growing importance of Islamic finance education, assessing students' conceptual understanding remains a significant challenge. Many higher education institutions still primarily rely on traditional exams and raw-score evaluations for their assessment procedures. As a result, educators are not given enough diagnostic data to determine which areas need more instructional intervention. These restrictions impede ongoing teaching and learning improvement and lessen the efficacy of curriculum evaluation. Hence, a significant issue persists in how this understanding is measured; traditional assessment methods typically rely on raw scores, which fail to distinguish between an individual's actual competency and the inherent difficulty of the questions. This "measurement gap" often results in an inaccurate profile of learner ability, as standard tests cannot pinpoint exactly which *Shariah* concepts, such as *Murabahah* or *Sukuk*, act as the primary cognitive hurdles for learners (Akbar et al., 2023).

This study utilizes the Rasch Measurement Model and its central diagnostic tool, the Wright Map, to provide a more rigorous and linear evaluation of conceptual mastery. The Wright Map allows for the simultaneous plotting of person ability and item difficulty on a single logit scale, creating a visual "competence continuum"

that reveals how well the assessment instrument aligns with the actual knowledge level of the respondents (Boone, 2016). The primary aim of this study is to assess Islamic banking students' understanding of the fundamental concepts underpinning the Islamic financial system.

Using a Rasch-based Exit Survey Test (EST), this study generates empirical evidence on students' mastery of specific curriculum areas while identifying concepts that continue to pose learning challenges. By diagnosing these gaps and aligning items with learner ability, the study aims to enhance the validity of Islamic financial education and provide empirical evidence to guide more effective curriculum development and professional training (Khamis & Hashim, 2025).

2. Literature Review

The development of Islamic finance education has not always been accompanied by equivalent growth in students' conceptual understanding. Although students generally demonstrate positive attitudes toward Shariah-compliant banking, empirical studies indicate that their functional literacy in Islamic finance remains relatively limited compared to conventional finance (Bley & Kuehn, 2009). This literacy gap is largely attributed to the complexity of Arabic terminology and the lack of standardized curricula integrating Islamic jurisprudence (*Fiqh Muamalah*) with modern financial practices.

Bley and Kuehn (2009) indicate that student understanding of Islamic finance is often lower than their understanding of conventional systems. For example, research among university students in the UAE found that while knowledge of conventional banking terms was relatively high, Islamic banking terminology was poorly understood. This is because some factors contribute to this situation, such as student understanding of Islamic financial systems is multifaceted, involving a complex interplay between personal values and academic exposure. While literature identifies religious commitment as the primary driver for choosing Islamic banking services, it is paradoxically not a reliable predictor of technical knowledge; students may favor the system ideologically without grasping its operational mechanics (Bley & Kuehn, 2009). A significant cognitive barrier is the specialized Arabic terminology—such as *Mudarabah* (profit-sharing) and *Gharar* (uncertainty)—which often remains inaccessible even to students in Muslim-majority regions due to its dense, legalistic nature (Yuslem et al., 2023). Furthermore, while students majoring in finance naturally outperform their peers in other disciplines, a pervasive "literacy gap" persists across the academic spectrum, suggesting that current pedagogical approaches are not yet sufficient to achieve broad-based proficiency (Bley & Kuehn, 2009).

Recent empirical evidence further highlights this educational deficit. Saputra and Rahmatia (2021) reported that the Islamic financial literacy index among students in Indonesia was only 9.14%, significantly lower than conventional financial literacy levels. According to Yuslem et al. (2023), deficiencies in foundational Islamic financial knowledge and religious-financial belief systems remain the primary challenges in Islamic financial literacy.

Despite the growing interest in Islamic finance, research into effective assessment methodologies for evaluating conceptual understanding remains relatively nascent (McGregor & Alghamdi, 2024). Khan and Watson (2003) stated that students frequently find abstract Islamic concepts difficult to understand, particularly when the curriculum incorporates normative frameworks like those found in Islamic economics and finance. Effectively evaluating conceptual understanding is therefore essential in Islamic education, especially in universities where Islamic finance and economics are becoming more popular (Dusuki, 2008).

There are still few standardized and diagnostic evaluation instruments available, even with the expansion of Islamic finance education. The majority of assessments currently in use mainly rely on summative techniques, such as assignments, final exams, and midterms, without sufficiently gauging how well students have internalized the underlying ideas. Moreover, traditional test construction often lacks psychometric validation, thereby limiting the reliability and interpretability of assessment outcomes.

While the evaluation of students' conceptual understanding has been thoroughly examined in the fields of science and engineering education, Islamic Finance has not received as much attention. The capacity to create mental models, synthesize information, and apply concepts to novel situations are all components of

conceptual understanding, which extends beyond factual recall (Smith, 2005). Given the ethical and axiological pillars that support the field, such comprehension is essential in the context of Islamic finance.

Consequently, while various scholars have developed instruments to gauge Islamic financial literacy using multi-item scales, many existing methods rely solely on raw scores, such as true/false questions and multi-item scales, to capture various facets of Islamic finance (Ahmad et al., 2020). Therefore, Nawi et al. (2018) mentioned some methods to measure understanding by just giving points for correct answers in questionnaires and then classifying literacy levels as low, medium, or high. This is not the best method to assess conceptual understanding among students of the Islamic finance aspect. This is because the level of understanding is just based on total marks received by asking questions in a questionnaire. Each correct answer earns points, and the total score is used to determine the student's literacy level. Based on the score achieved, the student may be classified as having low, medium, or high literacy. This approach is insufficient for assessing true conceptual understanding, as it merely classifies literacy levels (low, medium, or high) based on total points without accounting for the relationship between item difficulty and student ability.

Conceptual understanding goes beyond the simple recall of factual knowledge or procedural execution; it represents a learner's ability to organize operational knowledge into coherent mental models, grasp underlying principles, and transfer these frameworks to novel contexts (Smith, 2005). In the domain of Islamic finance education, true conceptual mastery requires students to comprehend complex Shariah logic, such as risk-sharing structures and ethical prohibitions (e.g., Riba, Gharar), rather than merely memorizing Arabic terminology or formulas. Traditional raw-score evaluations treat assessment items as equal additions to a cumulative total, masking whether a student possesses a coherent conceptual framework or merely guessed easy factual questions. Measuring conceptual understanding, therefore, requires a psychometric construct that can order learning concepts hierarchically along a continuum of cognitive difficulty, enabling educators to observe where a student's mental model falters. This structural necessity makes the Rasch Measurement Model particularly suitable. This is because the Rasch Measurement Model offers a more sophisticated approach to educational assessment. The model assumes that the probability of a correct response depends on the interaction between person ability and item difficulty (Linacre, 1999). The Wright Map visually represents this interaction by placing persons and items on a single continuum, thereby allowing researchers to identify easy and difficult items as well as high- and low-performing students (Kay, Bundy, & Clemson, 2008).

Previous studies have demonstrated the usefulness of the Rasch Model in educational assessment. Abdullah, Noranee, and Khamis (2017) applied the Rasch Wright Map to assess conceptual understanding in electricity studies and found that the approach effectively differentiated students' levels of understanding. Similarly, Khamis and Hashim (2025) demonstrated the applicability of the Rasch Model in assessing conceptual understanding in Islamic economics education. The study found that the Rasch Wright map can improve the evaluation process and make it possible to assess student learning in a more complex and insightful way. This is because the Wright map can classify students into several categories based on their ability and understanding. The study showed that the Rasch Measurement model can be applied in various scope studies.

By using the Rasch Wright Map in an Exit Survey Test administered to Islamic banking students, this study extends the application of Rasch measurement to Islamic financial system education by examining students' conceptual understanding through a psychometrically validated assessment instrument.

3. Research Methodology

This study employed a quantitative research design to assess students' conceptual understanding of the Islamic Financial System course using the Rasch Measurement Model. The Rasch Measurement Model was selected as it provides interval-level measurement by transforming ordinal responses into logit measures, enabling more accurate interpretation than conventional raw-score analysis (Bond & Fox, 2015; Linacre, 1999). The study involved 84 first-year undergraduate students enrolled in the Islamic Banking program at Universiti Teknologi MARA (UiTM). The use of a single cohort was appropriate because the study focused specifically on assessing students' conceptual understanding of the Islamic Financial System course at the same stage of academic exposure and within a common curriculum context. Focusing on a single cohort also helped ensure greater consistency in terms of course content, learning outcomes, and instructional exposure, thereby allowing the

Rasch analysis to provide a more focused assessment of students' conceptual understanding. Data were collected using the Exit Survey Test (EST), consisting of nine assessment items designed to measure students' conceptual understanding of the Islamic Financial System course. The assessment items were developed based on the official course learning outcomes and course syllabus to ensure alignment between the instrument and the intended learning objectives. The data were analyzed using WINSTEPS version 3.71.0.1. Respondents were selected through a simple random sampling technique to minimize selection bias and provide an unbiased representation of the student population.

The EST instrument consisted of two sections:

Section 1: General Understanding of Islamic Financial System (Items 1–3)
Section 2: Practical Knowledge of Islamic Financial System (Items 4–9)

Rasch Measurement Model

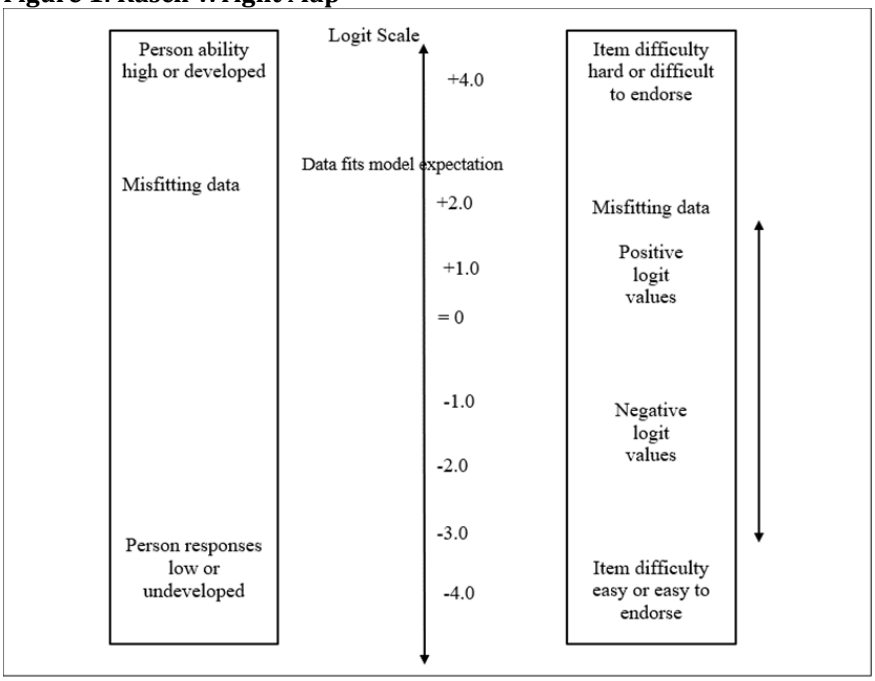
Based on a shared latent characteristic, the Rasch Measurement Model illustrates the connection between a person and an object. It can forecast the probability that a person with a particular ability will correctly answer a question with a particular degree of difficulty. The difference between an individual's ability and the item's difficulty determines the likelihood of success (Bond & Fox, 2015). Two essential theorems form the basis of the Rasch Measurement Model:

- An easier question is more likely to be answered correctly by everyone, and
- A more capable person is more likely to answer all of the questions correctly.

To put it another way, the Rasch Model assumes that an individual's ability determines the item difficulty estimates, whereas the item difficulty is the attribute that influences the individual's responses (Linacre, 1999). A common scale (logit) could be used to predict a person's relationship with an item. Both the person and item positions can be charted using WINSTEPS version 3.71.0.1, the software used in the Rasch Model.

Rasch modelling transforms ordinal scores into linear measures, thereby enabling a more precise interpretation of respondents' performance along a common measurement scale (Sick, 2009). In this framework, persons and items are positioned along a continuum that reflects the interaction between respondent ability and item difficulty. As illustrated in the Wright Map, items are arranged on one side according to their level of difficulty, while respondents are positioned on the other side based on their estimated level of competency (Kay, Bundy, & Clemson, 2008; Jacobs et al., 2014). The Wright Map presented in Figure 1 simultaneously displays person ability and item difficulty on a single logit scale, forming a visual representation of a competence continuum. Items located at the upper end of the map indicate greater difficulty, whereas items positioned at the lower end represent concepts that are easier for respondents to endorse or answer correctly. Conversely, respondents positioned higher on the map demonstrate stronger competency in relation to the measured constructs. In the context of assessing conceptual knowledge in the Islamic Financial System course, the Rasch Wright Map provides a useful diagnostic tool for identifying areas of student mastery as well as concepts that require further instructional reinforcement.

Figure 1: Rasch Wright Map



Source: Bond and Fox (2015)

4. Results

An appraisal of the data fit was conducted to evaluate the extent to which students' responses to the Exit Survey Test (EST) were consistent across all assessment items, thereby determining the overall quality and reliability of the instrument (Smith, 2005). Table 1 presents the summary statistics of the Rasch analysis based on responses from 84 first-year Islamic Banking students to the nine-item EST. The findings indicate that the instrument demonstrated satisfactory psychometric properties for assessing students' conceptual understanding of the Islamic Financial System course.

As presented in Table 1, the EST achieved an item reliability of 0.86**,** which is classified as very good according to Fisher (2007). The index describes the assessment task as being able to discriminate between students' abilities and the difficulty of the assessment task for understanding the conceptual understanding of an Islamic Financial System course. While, the person reliability was 0.68, representing a good level of reliability, suggesting that the measurement was capable of distinguishing students with different levels of conceptual understanding of Islamic Financial System and that they were consistent in their responses.

In addition, the Cronbach's Alpha (KR-20) value of 0.70 indicates acceptable internal consistency, demonstrating that the items consistently measured the same underlying construct. According to Azrilah (2009), a reliability coefficient of 0.70 suggests that respondents would exhibit relatively stable ability estimates if assessed using another instrument measuring the same construct. Collectively, these reliability indices confirm that the EST is a psychometrically sound instrument capable of differentiating students according to their conceptual understanding of the Islamic Financial System. The findings also support the suitability of the instrument for subsequent Wright Map analysis, as the reliability values indicate sufficient measurement precision to interpret both person ability and item difficulty with confidence.

Table 1: Summary Statistics

SUMMARY OF 84 MEASURED Person

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	38.5	9.0	58.27	6.04	.99	-.04	.99	-.04
SD	3.2	.0	10.83	.75	.42	1.15	.43	1.14
MAX.	44.0	9.0	83.72	10.53	2.08	2.16	2.06	2.14
MIN.	29.0	9.0	24.30	5.45	.11	-3.71	.11	-3.69

REAL RMSE 6.54 TRUE SD 8.63 SEPARATION 1.32 Person RELIABILITY .64
MODEL RMSE 6.09 TRUE SD 8.96 SEPARATION 1.47 Person RELIABILITY .68
S.E. OF Person MEAN = 1.19

Person RAW SCORE-TO-MEASURE CORRELATION = .99
CRONBACH ALPHA (KR-20) Person RAW SCORE "TEST" RELIABILITY = .70 SEM = 1.79
STANDARDIZED (50 ITEM) RELIABILITY = .92

SUMMARY OF 9 MEASURED Item

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	359.3	84.0	50.00	1.95	.98	-.15	.99	.02
SD	13.6	.0	5.30	.11	.20	1.46	.17	1.13
MAX.	382.0	84.0	56.75	2.16	1.27	1.88	1.30	1.92
MIN.	341.0	84.0	41.03	1.86	.67	-2.36	.73	-1.59

REAL RMSE 2.03 TRUE SD 4.90 SEPARATION 2.41 Item RELIABILITY .85
MODEL RMSE 1.96 TRUE SD 4.93 SEPARATION 2.52 Item RELIABILITY .86
S.E. OF Item MEAN = 1.87

Item Fit

The analysis to identify item fit includes three indicators such as point measure correlation value (PtMea Corr), mean square (MNSQ), and Z-standardized (ZSTD). According to Azrilah (2011), there are three criteria to be considered in examining the outfit data. The item is considered to be a misfit with the model if the point measure correlation (PtMea Corr) is larger than 0.4 and less than 0.85 (0.4 <PtMea Corr < 0.85), the outfit mean square (MNSQ) is larger than 0.5 and less than 1.5 (0.5<MNSQ<1.5), and the outfit Z-standard (ZSTD) is larger than -2 and less than +2. The three criteria must be fulfilled in identifying the outfit or outliers in the data. Hence, the item fit as shown in Table 2, revealed that all 9 items were constructed with a positive value of the point measure correlation coefficient (PtMea Corr), indicating that all items measured were in the same direction in the development of the construct. For item misfit, none of the 12 items were identified as misfits, as they did not fulfil the three criteria of misfit responses. This indicated that all the respondents' responses fit with the Rasch Measurement Model.

Table 2: Item Misfit

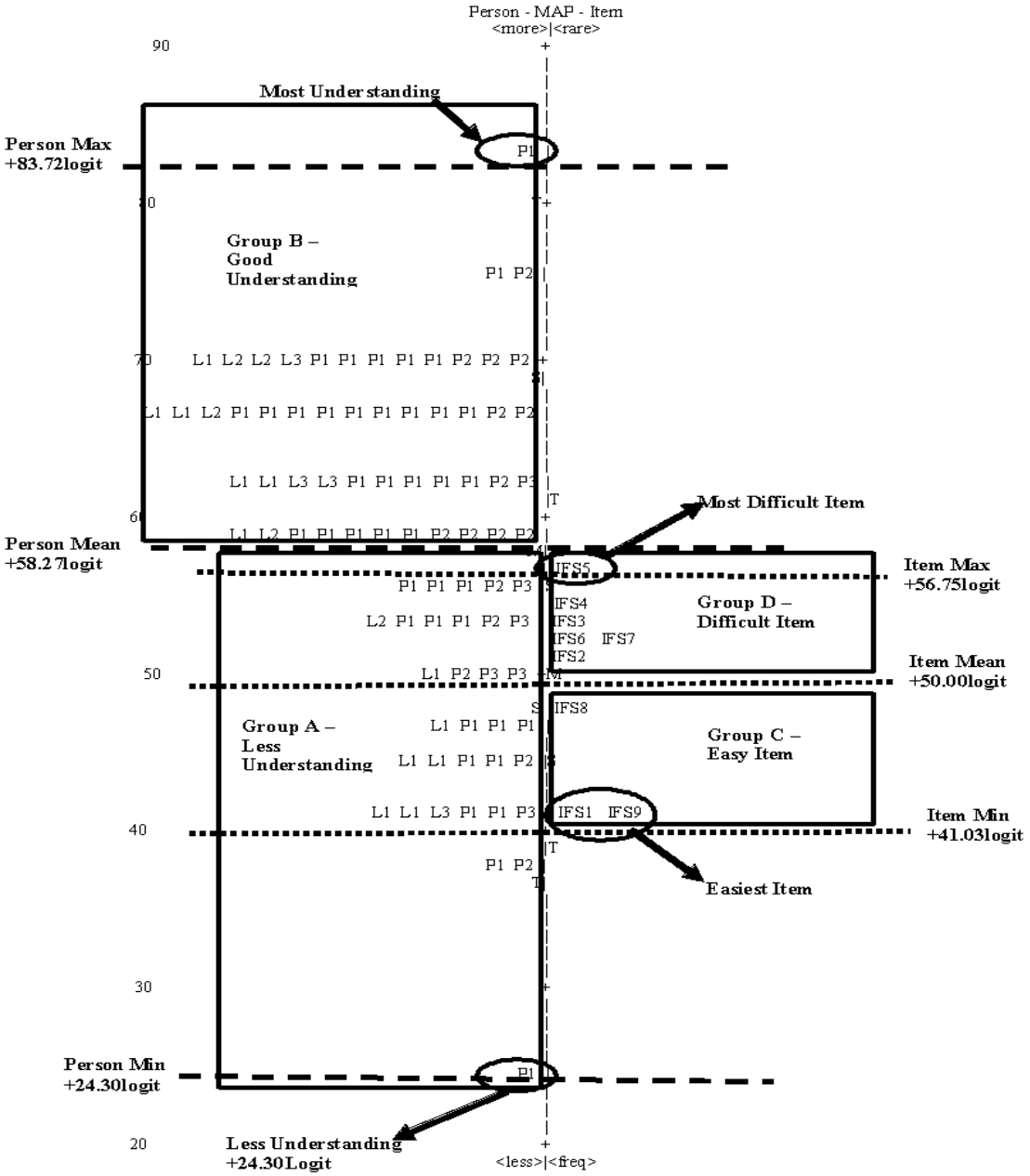
Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	JMLE MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTMEASUR-AL CORR.	PTMEASUR-AL EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	Item
8	366	84	47.75	1.97	1.27	1.88	1.30	1.92	A .41	.54	53.6	61.1	IFS8
4	348	84	54.32	1.87	1.24	1.75	1.21	1.49	B .57	.54	47.6	56.1	IFS4
7	355	84	51.84	1.90	1.11	.82	1.09	.66	C .46	.54	51.2	57.9	IFS7
5	341	84	56.75	1.86	1.08	.61	1.07	.56	D .52	.54	53.6	55.7	IFS5
2	356	84	51.48	1.90	.95	-.37	.94	-.40	E .51	.54	56.0	58.1	IFS2
6	353	84	52.55	1.89	.91	-.64	.91	-.63	d .57	.54	65.5	56.0	IFS6
3	351	84	53.26	1.88	.89	-.85	.87	-.94	c .65	.54	56.0	56.1	IFS3
9	382	84	41.03	2.16	.69	-2.20	.83	-.93	b .56	.52	75.0	68.6	IFS9
1	382	84	41.03	2.16	.67	-2.36	.73	-1.59	a .63	.52	75.0	68.6	IFS1
MEAN	359.3	84.0	50.00	1.95	.98	-.15	.99	.02			59.3	59.8	
P.SD	13.6	.0	5.30	.11	.20	1.46	.17	1.13			9.6	5.0	

Student performance in EST according to the Wright Map

In order to evaluate the conceptual understanding of students of the Islamic financial system, it can be shown through the Rasch Wright Map as Figure 1 below. From the table 1 shows that the mean item was at +50.00logit and the mean person was at +58.27logit. The table also shows that the person's maximum value was +83.72logit, and the minimum was +24.30logit, while the maximum item value was +56.75logit, and the minimum value was +41.03logit. Since the mean person value is positive, it can be confidently said that the 9 items in EST were not too challenging for these respondents, since the mean value for the items is slightly lower than the mean value for the person. By observing the items on the right of the map and taking note that the items above the mean value are the most difficult ones, it can be said that the 9 items can be categorized as easy and difficult based on their location on the map.

Figure 2: Wright Map



As stated in Figure 2, items can be categorized into two categories: easy and difficult items, while persons can also be categorized into two groups: good understanding and less understanding. The locations for easy items are located below the item mean value, while difficult items are located above the item mean value. Meanwhile, the location for good understanding is located above the person mean value, and less understanding is below the person mean value.

Easy Items

- 3 items in **group C** (**IFS1, IFS8 and IFS9),** which are located below the mean value, are the easy items for the students to endorse. This is an indication that the majority of the students had no difficulty in understanding the concept and practical knowledge of the Islamic financial system.
- Item **IFS1,** which is an item dealing with understanding the concept of the Islamic financial system became the easiest item for the students to endorse. This shows that the students had no problem explaining the function of the Islamic financial system. This is not surprising because students already have knowledge related to the concept of the financial system that has been studied previously.
- Items **IFS8 and IFS9** are from the section on practical knowledge of the Islamic financial system. **IFS9 is one** of the easiest items for the students to endorse. This is because this section describes the importance of instruments in the Islamic financial system and the challenges and opportunities faced by the Islamic financial system.

Difficult Items

- 6 items in **group D** were located above the mean value and considered difficult to agree with due to lower endorsability by the students. 2 items (**IFS2 and IFS3**) represent section 1 (understanding the concept of the Islamic financial system) and 4 items (**IFS4, IFS5, IFS6 and IFS7**) represent section 2 (practical knowledge on the Islamic Financial System).
- 2 items (**IFS2 and IFS3**) were located above the mean value. They measured the students' ability to understand the concept of the Islamic financial system, narrate the development of the Islamic financial system, the organization of modern banking operations within the Islamic framework, and how to bridge between surplus and deficit entities and many more. Even though the students had learned about the financial system previously, especially from a conventional perspective, when it comes to the Islamic perspective, it's slightly different. Some of them find it hard to understand how to combine Islamic aspects into the financial system.
- Item **IFS5** on the top part of the map (above item max +56.75logit), indicating that it was considered challenging because the students did not have enough practical knowledge and understanding of the Islamic financial system. Without a good understanding of principles, it becomes the biggest obstacle for students to understand the basic discussion on the Islamic financial system and they become difficult to practice in the future.
- Items **IFS4**, **IFS5**, **IFS6** and **IFS7** related to practical knowledge on the Islamic financial system were also considered difficult. They measured the students' ability to discuss the money market of the Islamic financial system, the importance of the capital market especially in the Islamic financial system, the function of takaful and retakaful within the framework of the Islamic financial system and the types of risks exposed by Islamic financial institutions. The majority of students feel that the practical aspect is challenging for them to understand.

Category of Students

The Wright Map, as shown in Figure 1, reveals that students could be divided into two categories: those who have a good understanding of the Islamic financial system and those who have less understanding based on the $Person_{Mean}$ indicator and their location on the map. Students who are above the $Person_{Mean}$ constitute the group who have a good understanding of the Islamic financial system (**group B**). Conversely, the students below $Person_{Mean}$ constitute the group who are less understanding of the Islamic financial system, and probably some section of EST did not contribute to that (**group A).**

Group "A" has 33 students, or 39 percent (33/84 x 100), who have less understanding of the Islamic financial system and EST probably did not influence them to enhance their understanding and knowledge about the Islamic financial system. One student (P1) indicated low agreement on the items measuring the understanding of the Islamic financial system because it was stated at the bottom of the map (person Min +24.30logit).

Group **B** has 51 students or 61 percent (51/84 x 100) who have a good understanding of the Islamic financial system because they have the ability to understand the concept and practical knowledge of the Islamic financial system. Among 51 students, 1 student was placed at the top of the map (above Person Max +83.72logit), indicating that the student showed good conceptual understanding of the Islamic financial system and the student has the ability to practice the knowledge about the Islamic financial system.

Discussion

The results of this study highlight how useful the Rasch Wright map is for identifying and differentiating students' comprehension of the Islamic financial system. Educators have a powerful tool to improve curriculum design and instructional strategies when they can visualize item difficulty and student competency on a common scale. The instrument demonstrated robust psychometric properties, as evidenced by an item reliability of +0.86 and person reliability of +0.68, indicating its effectiveness in distinguishing varying degrees of conceptual mastery among students.

The Wright Map analysis further revealed that although the majority of students demonstrated satisfactory understanding of the fundamental concepts of the Islamic Financial System, several technical topics—including the Islamic money market, Islamic capital market, takaful, and retakaful—remained relatively challenging. This suggests that students are generally able to comprehend theoretical concepts but experience greater difficulty when applying these concepts in practical or professional contexts. Similar observations have been reported by Bley and Kuehn (2009), who found that students possessed positive perceptions of Islamic finance but demonstrated weaker technical knowledge. Similarly, Saputra and Rahmatia (2021) found that university students demonstrated relatively low levels of Islamic financial literacy, particularly in areas requiring the application of Islamic financial principles. Consistent with these findings, the present study revealed that students encountered greater difficulty with technical topics, such as the Islamic money market, Islamic capital market, takaful, and retakaful, compared with foundational concepts. This suggests that while students possess adequate theoretical knowledge, they require a deeper conceptual understanding and greater ability to apply Islamic finance principles in practical contexts.

Overall, the study demonstrates that the Rasch Wright Map provides valuable evidence for curriculum evaluation and instructional improvement. By identifying both students' competency levels and the relative difficulty of individual concepts, the model enables educators to make evidence-based decisions regarding curriculum design, teaching strategies, and assessment practices. Consequently, the Rasch Measurement Model represents a valuable assessment approach for enhancing the quality of Islamic finance education and promoting continuous improvement in student learning outcomes.

5. Managerial Implications and Recommendations

The study revealed that students generally performed well in foundational and introductory concepts of the Islamic financial system. However, technical areas such as Islamic capital markets, Islamic money markets, takaful, and retakaful posed significant challenges. These findings indicate the need for improved pedagogical approaches that emphasize practical applications, higher-order thinking, and contextual learning in Islamic finance education. Educators may benefit from incorporating case studies, simulations, and problem-based learning strategies to strengthen students' understanding of complex Islamic financial instruments. For example, a case study on takaful could present a realistic scenario involving a participant seeking protection against a specified financial risk, requiring students to identify the appropriate takaful structure, explain the underlying Shariah principles, and distinguish the arrangement from conventional insurance. Such a case-based activity could help students connect the theoretical concepts of takaful with their practical application. Students with weaker conceptual understanding may require additional academic support and targeted interventions. The categorization of students into high- and low-performing groups further highlights the importance of differentiated instruction. Students with weaker conceptual understanding may require additional academic support and targeted interventions.

Conclusion

Overall, this study demonstrates that the Rasch Measurement Model is an effective tool for assessing students' conceptual understanding of the Islamic Financial System course. By simultaneously measuring person ability

and item difficulty, the Rasch Wright Map provides more meaningful diagnostic information than traditional raw-score analysis, enabling educators to identify students' strengths, learning gaps, and challenging course concepts more accurately. The findings support the integration of Rasch-based assessment into Islamic finance education to enhance curriculum evaluation, instructional improvement, and evidence-based decision-making. Nevertheless, this study was limited to first-year Islamic Banking students from a single institution, which may restrict the generalizability of the findings. Future research should involve larger and more diverse samples across multiple higher education institutions and employ longitudinal designs to examine the development of students' conceptual understanding over time. Further studies may also incorporate additional Rasch analyses, such as Differential Item Functioning (DIF) and item fit statistics, to build directly upon the gaps identified in this study—namely, the distinct conceptual difficulties students encountered with complex topics like the Islamic money market, capital markets, takaful, and retakaful (**IFS4–IFS7**. Specifically, item fit statistics should be conducted on revised or expanded test items to detect potential aberrant response patterns or item misfits when assessing these technical areas. Additionally, applying Differential Item Functioning (DIF) would clarify whether the observed difficulty in these specific practical modules stems from genuine conceptual hurdles or potential item bias across different student subgroups (e.g., prior academic background, gender, or previous exposure to conventional finance). Linking these psychometric analyses directly to topic-specific performance will enable researchers and educators to refine individual test items and ensure equitable assessment across diverse learner profiles

References

Abdullah, N., Noranee, S., & Khamis, M. R. (2017). The use of Rasch Wright map in assessing conceptual understanding of electricity. *Pertanika Journal of Social Sciences & Humanities*, 25, 81-92.

Ahmad, G. N., Widyastuti, U., Susanti, S., & Mukhibad, H. (2020). Determinants of Islamic financial literacy. *Accounting*, 6 (6), 961-966

Akbar, M., Akbar, A., Yaqoob, H. S., Hussain, A., Svobodová, L., & Yasmin, F. (2023). Islamic finance education: Current state and challenges for Pakistan. *Cogent Economics & Finance*, 11(1).

Azrilah, A. A. (2009). Rasch Model Fundamentals: Scale Construction and Measurement Structure. Penerbit Universiti Kebangsaan Malaysia

Azrilah, A. A. (2011). Rasch Model Fundamentals: Scale construction and measurement structure, Kuala Lumpur: Integrated Advance Planning Sdn Bhd.

Bley, J., & Kuehn, K. (2009). Conventional versus Islamic finance: Student knowledge and perception in the United Arab Emirates. *International Journal of Islamic and Middle Eastern Finance and Management*. URL

Boone, W. J. (2016). Rasch Analysis for Instrument Development: Why, When, and How? *CBE—Life Sciences Education*, 15(4).

Bond, T. G., & Fox, C. M. (2015). *Applying the Rasch Model: Fundamental Measurement in the Human Sciences* (3rd ed.). Routledge

Dusuki, A. W. (2008). Understanding the objectives of Islamic banking: a survey of stakeholders' perspectives. *International Journal of Islamic and Middle Eastern Finance and Management*, 1(2), 132-148

Fisher, W. P. J. (2007). *Rating scale instrument quality criteria*, Rasch Measurement, Transaction, 21(1), 1095.

Jacobs, M., Mhakure, D., Fray, T., Holtman, L., & Julie, C. (2014). Using Rasch analysis to identify how physics students' understanding develops in a conceptual test. *African Journal of Research in Mathematics, Science and Technology Education*, 18(2), 105–117.

Kay, L., Bundy, A., & Clemson, L. (2008). The use of the Rasch measurement model in the evaluation of learning outcomes: Implications for competency-based training in the health professions. *Advances in Health Sciences Education*, 13(4), 537–553.

Khamis, M. R., & Hashim, M. J. M. (2025). The Use of Rasch Wright Map in Assessing Conceptual Understanding of Islamic Economics. *International Journal of Research and Innovation in Social Science* (IJRISS), 10(2), 1142-1150.

Khan, M. A., & Watson, T. (2003). *Islamic Economics and Finance: A Glossary* (2nd Edition). Routledge

Linacre, J. M. (1999). *Understanding Rasch Measurement: Estimating Measures*. Rasch Measurement Transactions, 13(2), 675.

McGregor, S. L. T., & Alghamdi, A. K. H. (2024). Measuring Islamic Financial Literacy. *Financial Planning Research Journal*, 10(1).

Nawi, F. A. M., Daud, W. M. N. W., Ghazali, P. L., Yazid, A. S., & Shamsuddin, Z. (2018). Islamic Financial Literacy: A Conceptualization and Proposed Measurement. *International Journal of Academic Research in Business and Social Sciences*, 8(12).

Saputra, A. D., & Rahmatia, A. (2021). Islamic Financial Literacy Index Of Students: Bridging SDGs Of Islamic Finance. *Economics And Finance In Indonesia*, 67(1), 34.

Sick, J. (2009). Rasch measurement in language education: Part II. Shiken: *JALT Testing & Evaluation SIG Newsletter*, 13(2), 2–10.

Smith, E. V. (2005). Effects of item characteristics on test score validity: A Rasch perspective. *Educational and Psychological Measurement*, 65(5), 820–837.

Yuslem, N., Nurhayati, N., & Hasibuan, A. F. H. (2023). Analysis of The Problems of Islamic Financial Literacy For Muslim Scholars. *Jurnal Ekonomi & Keuangan Islam*, 9(1), 45-61.