

Assessing Banks' Service Quality and Customer Satisfaction: An Analytical Framework

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Abstract

The paper aims to develop and validate an analytical framework to assess the service quality and customer satisfaction and hence customer loyalty in banks. We develop a multivariate probit model for the evaluation of service quality and customer satisfaction and an ordered logit model for the rating of customer service of the most frequently used bank. To validate the models, we conduct a survey of 1107 customers from the branches of eight banks in three major cities of the peninsular Malaysia in 2013. The validation was carried out in two stages. First, we analyze the customers' satisfaction on the core and relational dimension of service quality using multivariate probit model. In the second stage, we analyze the customers' overall service rating on their most frequently used bank using ordered logit model. The proposed framework can be used by banks to assess service quality and customer satisfaction and identify customers who are likely to switch. This would prove extremely beneficial to banks in the formulation of segment specific customer retention strategies. The framework would also assist regulators to gauge the level of customer confidence in the individual banking institution and intervene as and when necessary to maintain stability in the banking system.

Keywords: Service quality; Customer satisfaction; Service loyalty; Banks; Competition.



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1. Introduction

The service quality and customer satisfaction have a significant influence on the intentions of customers in their purchase decisions. The exact specification of the relationship between the service quality and customer satisfaction is not conclusive (Chronin and Taylor, 1994). In contrast with product quality, service quality is abstract because of its features like heterogeneity and intangibility. Moreover, the inseparability of production and consumption make service a unique construct (Parasuraman *et al.*, 1985). Garvin (1983) argues that service quality is a form of attitude and, though related, it is not equivalent to satisfaction. According to Oliver R. (1981), attitude is the reflection of an enduring orientation of a customer towards a product or process (for example, customer service). Satisfaction, to the contrary, is consumption or transaction specific. Unlike satisfaction, as defined in the consumer satisfaction literature (Gronroos, 1982; Sasser *et al.*, 1976), expectations, in the literature on service quality, are viewed as what the consumers feel the service provider should offer rather than what they would offer. Parasuraman *et al.* (1985) find that individuals may be satisfied with a particular service but do not rate the provider of service as high quality and suggest that perception of service quality is the result of a consistent experience of satisfaction over a period of time. They further argue that the notion of service quality in the mind of the customer arises out of the perceived gap between the expectation and actual performance of the service provider.

However, Brown *et al.* (1993), Chronin and Taylor (1994), Teas (1994) and Smith (1995) contradict this argument. Caruana (2002) finds that education and age of customers play a vital role in determining the interrelationship between service quality, customer satisfaction, and service loyalty. Ganguli and Roy (2011) identify four dimensions of service quality which have an impact on the quality of customer service in banks. The authors argue that the convenience of technology and customer satisfaction have direct bearing on the loyalty of bank customers. Salinas and Schinzano (2014) use survival analysis to assess customer loyalty.

In the present paper, we aim at evolving a framework to evaluate the service quality, customer satisfaction, and hence service loyalty in the context of commercial banks. In section 1.2 we present a brief literature survey to serve as the background of our work. In section 2, we describe the methodology and specify the framework. We use the primary survey of 1107 bank customers from the branches of banks in three states in peninsular Malaysia for our analysis. We present our findings and validate the robustness of our framework. We conclude in section 4.

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2. Literature Review

There is a significant debate in the literature about various facets of service quality. [Gronroos \(1984\)](#) argue that service expectation and service perception are two variables that determine the service quality. [Swan and Comb \(1976\)](#) propose that the perceived performance of a product can be further divided into instrumental performance and expressive performance. Authors argue that satisfactory instrumental performance of a product is the necessary but not sufficient condition for customer satisfaction; expressive performance is equally important. A bank may perfectly manage the affairs of a customer reflecting satisfactory instrumental performance, but due to dissatisfaction with the front-line staff or the manager or the ATM, he will remain unhappy. [Anderson et al. \(1976\)](#), [Michel and Thomas \(1988\)](#), [Thwaites and Vere \(1995\)](#) suggest that location plays a significant role in the selection of a bank and its branches by the customers.

[Gronroos \(1984\)](#) further argue that there are two dimensions of quality. The technical quality which addresses what a customer gets but how he gets it answers the functional quality of the service. Perceived service is a combination of these service dimensions including the brand image of the institution. The author concludes that functional quality is a key dimension of perceived service and the challenge to the firm is to match the expected with perceived service to ensure customer satisfaction.

[Parasuraman et al. \(1988\)](#) develop a 22-item instrument SERVQUAL to assess customer perception of the quality of service in retail and service organisations. Tangibility, reliability, responsiveness, assurance, and empathy are the five dimensions in SERVQUAL. [Levesque and McDougall \(1996\)](#) argue that there are the two dominant facets of service quality: the core or outcome aspect and the relational or process aspect of service quality. In retail banking, competitiveness of the product features, convenience, and accessibility have a direct bearing on the level of overall customer satisfaction. After evaluating 17 items relating to service quality and its features through factor analysis, authors identify that the relational and core dimensions of service quality and service features like competitive interest are the key determinants of customer satisfaction in retail banking. They also find that customer's propensity to switch banks is driven by service problems and the ability of banks to respond to the service problems encountered by its customers. The components of the model on service quality by [Rust and Oliver \(1994\)](#) are service product (which reflects technical quality), service delivery (which reflects functional quality), and service environment. [Brady and Cronin Jr \(2001\)](#) conceptualise service quality as multidimensional and hierarchical in nature and find that the concept of service quality conforms to a factor model of third-order which integrates perceptions of service quality with unique actionable dimensions. Based on their study of respondents of bank customers in Cyprus, argue that service quality could be conceptualized as a four-dimensional concept consisting of service environment, quality of interaction, reliability, and empathy of the bank.

[Jamal and Naser \(2002\)](#) report that both relational and core dimension of service quality are linked to customer satisfaction. [Mihelis et al. \(2001\)](#) argue that there is a need to translate customer satisfaction into measurable parameters directly linked to the job concerned to make it intelligible and amenable to intervention when needed. The authors use principles of multi-criteria modeling and preference disaggregation to determine critical service dimensions and customer segmentation with unique preferences and expectations. [Yavas et al. \(2004\)](#) find that to a female retail banking customer, the tangible elements of services quality are more closely related to the positive word of mouth. However, timeliness of service delivery is more positively associated with customer satisfaction, complaint and customer switching behavior. The relational delivery of service has a crucial impact on the satisfaction of Russian male customers and to the contrary, core service delivery is the driver of satisfaction of Russian female customers. The continuing ability of banks to deliver the needs as mentioned above of its present clients poses a significant challenge for retail banks.

Service loyalty is arguably one of the fundamental concepts in the realm of services marketing. Brand loyal customers portray lower probability of switching their allegiance as they have a higher level of satisfaction ([LaBarbera and Mazursky, 1983](#)). [Caruana \(2002\)](#) argues that service quality leads to customer satisfaction and customer satisfaction is the mediator in linking service quality and loyalty. The author finds that age and education of customers play a key role in determining the interrelationship between service quality, customer satisfaction, and service loyalty.

Experience suggests that worldwide customers of banks are becoming more demanding and less loyal. [Kapferer \(2005\)](#) argue that even the most satisfied customers defect to the competitors. The formation of loyalty is an ascending evolutionary process as a customer moves from the stage of cognitive (logical) to affective(emotional) to conative(commitment) and finally to the stage of action loyalty. [Oliver R. L. \(1999\)](#) argues that despite the strong nature of action loyalty, customers remain vulnerable to the information about the products and services of the competitors. There is therefore a need to study the relationship between loyalty and satisfaction. [Bolton \(1998\)](#), [Rundle-Thiele \(2005\)](#) and [Garcia del los Salmones et al. \(2009\)](#) found a positive relationship between loyalties measured in terms of the duration of the relationship and customer satisfaction. [Fraering and Minor \(2013\)](#) report that loyal customers are satisfied and possess the fortitude [Oliver R. L. \(1999\)](#) to maintain their accounts with their primary financial services provider despite being exposed to the poaching efforts of the competitors.

With the increasing assimilation of technology in the banking business, the online banking platform has now become one of the key drivers of the business of banking. There is correspondingly increasing attention in the literature regarding customer's satisfaction in the online services of banks. [Casaló et al. \(2008\)](#) find that previous experiences of satisfaction of customers with the website of banks had a positive effect both on customer loyalty and the spread of word of mouth. [Yoon \(2010\)](#) finds that past experiences of Chinese customers with the online service of banks in terms of speed, design, information content, online support, and security have significant impacts on customer satisfaction but not so with the ease of use. The increasing customer involvement in online banking

platform result in enhanced customer satisfaction and hence promote loyalty. Trust also has a major influencing factor to ensure customer loyalty. [Zavareh et al. \(2012\)](#) find a positive correlation between the E-SERVQUAL developed by the authors and e-Service Satisfaction amongst the internet banking users of banks in Iran. [Rosmaini et al. \(2013\)](#) report that to provide ATM services by banks, behavioral dimensions of customers like cost, convenience, and security are the key drivers. To find support regarding the association of cost, convenience, and security with online banking service delivery in Malaysian banking. Using SERVQUAL model, the impact of select variables like representing service quality have a bearing on the overall level of customer satisfaction in the private and in the government-owned banks in India. In their study on the service gaps in Malaysian banking industry, [Tan et al. \(2017\)](#) found that the problems related to customer service in Malaysian banking can be traced to the knowledge and skill gap of the employees including their resistance to respond to the changing needs of the environment. [Moghavvemi et al. \(2018\)](#) find that competencies and knowledge of bank staff including convenience at bank branches of Malaysian banks are the key determinants of customer satisfaction. In comparison, image and internet banking facilities of foreign banks result in a higher level of customer satisfaction.

3. Methodology

We have adopted “speed and efficiency of services” of banks as the measure of the core component of service quality and “employee responsiveness”, “customer orientation” and “administrative and supervisory effectiveness” to measure the relational aspects of service quality. The opinion of each customer about his/her satisfaction was sought in a four a point scale ranging from “excellent” to “good” to “average” to “poor”. They were also requested to rate the “new products and services” of banks on the same four-point scale as mentioned above. Customers were also requested to specify the reasons that best describes his/her preference for the most frequently used bank and then compare the customer service of most frequently used bank vis-à-vis other banks in which they have accounts. In all, a survey of 1107 customers from the branches of eight commercial and Islamic banks was carried out in three major cities of Peninsular Malaysia in 2013.

The analysis is carried out in two stages. First, we analyze the customers’ satisfaction with the core and relational dimension of service quality banks using a multivariate probit model. In the second stage, we analyze the customers’ overall service rating on their most frequently used bank as compared to other bank using an ordered logit model to gauge service loyalty. The survey of 1107 bank customers from eight local commercial and Islamic banks in three major cities of Peninsular Malaysia were conducted based on personal interviews using a set of questionnaire.

3.1. Specification of the Multivariate Probit Model

Customer satisfaction is measured in terms of ‘zero’ (to denote unsatisfied) and ‘one’ (to denote satisfied). Thus, there are five probit equations with potentially correlated error terms. Following [Cappellari and Jenkins \(2003\)](#), we have the following multivariate probit model:

$$\begin{aligned} y_{im}^* &= \beta_m' X_m + e_{im} & (1) \\ y_{im} &= 1 \text{ if } y_{im}^* > 0, \text{ and } 0 \text{ if } y_{im}^* \leq 0 & (2) \end{aligned}$$

The y^* represents the underlying satisfaction and the y is observed outcome (1 if satisfied and 0 if otherwise); m represents the equations ($m=5$) and i represents the observations. The error terms of e_{im} are distributed as multivariate normal and are correlated to each other, with the variance-covariance matrix of . The log-likelihood function of a sample of n respondents is:

$$\ln L = \sum_{i=1}^n w_i \log \Phi_5(\mu_i; \Omega) \quad (3)$$

The w_i is a weight (equal weight is used in the present paper) for each respondent and Ω is the multivariate standard normal distribution with and , where with $K_{im}=2y_{im}-1$, for each i , $m=1,2,\dots,5$. The method of simulated maximum likelihood (SML) is used to estimate the 5-equation probit models, with Geweke-Hajivassiliou-Keane (GHK) simulator. We perform likelihood ratio test on the correlation among the error terms to justify the use of a multivariate probit model.

3.2. The Ordered Log It Model

The respondents rate the relative customer service of their most frequently used bank as compared to other banks in four ordered categories: worse than, similar, slightly better and much better. This ordered dimension justifies the use of an ordered logit model. Assuming that there is a latent variable that represents a respondent’s underlying relative satisfaction on the customer service provided by his or her most frequently used bank. Let y^* represent this latent variable and assume that y^* is linearly related to the X (independent variables), the following equation is obtained:

$$y^* = \beta' X + \mu \quad (4)$$

Assume that the observed outcome of the relative rating (y) is related to the y^* and also the four boundary parameters, μ_j , where $j=0,1,2,3$ and . If the error term is distributed logically, the probability that the respondents rate their relative rating is given as below:

$$P_{ij} = \Pr Pr(x) = \Lambda(\mu_j - x\beta) - \Lambda(\mu_{j-1} - x\beta) \quad (5)$$

The Λ is the cumulative logistic distribution function. The maximum likelihood parameter estimates (MLE) are obtained by maximizing the log-likelihood function with respect to β and μ ,

$$LF(\beta, \mu) = \sum_{i=1}^n \sum_{j=1}^J z_{ij} \ln(P_{ij}) \quad (6)$$

The z_{ij} is an indicator variable equal to unity if respondent i rank the satisfaction category of j and zero otherwise. The model is estimated with the robust variance estimates (Huber/White/sandwich estimator of variance) to accommodate the potential heteroskedastic error terms.

4. Results and Analysis

The socio-demographic profile of the customers interviewed indicates that the average age of the respondents is about 34 years belonging to a household size of about 5 members with about 2 working members and nearly 4 sources of income.

The frequency and percentage distribution of most frequently used banks by the respondents in the sample suggest that overall; respondents use 15 banks in Malaysia. However, of these banks, six banks (Alliance, Muamalat, Citibank, Affin, AlRajhi, and Standard Chartered) are having usage of less than 10. Using the criteria of a sample size of above 30 as large sample, there are seven banks that fulfil this criterion: MBB, CIMB, BIMB, PBB, RHB, AMMB, and HLB. Of these seven banks, five (MBB, CIMB, PBB, RHB, and HLB) are the large domestic banks in Malaysia, AMMB is a smaller domestic bank and BIMB is the largest domestic Islamic bank in the country. The analysis in the subsequent stages focuses on these seven banks.

4.1. Profile of Customer satisfaction

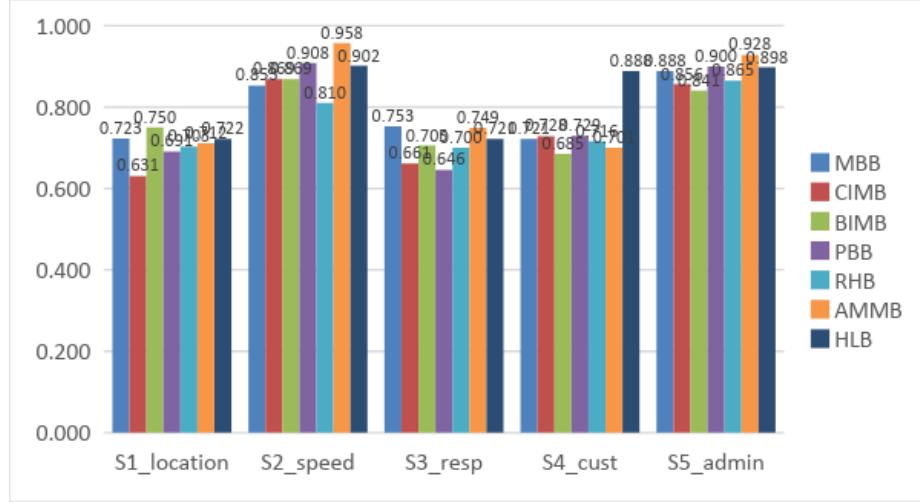
It was found that on an overall basis, the majority of the customers (more than 70%) are found to be satisfied with the location, and the accessibility of bank branches in Malaysia. While 87.4 percent of customers are satisfied with the speed and efficiency of services, the core component of the service quality but in terms of employee responsiveness, and customer orientation, about 72 percent customers are found to be satisfied. The said percentage was 87.8 percent in terms of administrative and supervisory effectiveness, the third component of the relational aspect of service quality used in the study.

In order to probe further into the relative challenge faced by banks in customer retention, we combine the "slightly better" and "better" as positive, and "same" and "worse" as negative and then rank the most frequently used bank based on these measurements. Customers who have rated the service quality of their most frequently used banks as much better and slightly better are likely to stay with this bank. On the other hand, who have rated the service quality as either the same and worse are likely to switch to other banks. We rank the most frequently used bank based on these measurements. MBB is found to have the largest percentage (69 percent) of customers that will continue to stay with the Bank followed by CIMB (66.3 percent), AMMB (60.9 percent). It is noticed that even in the case of the top-ranked bank, MBB, nearly one-third of its customers who use the Bank most frequently are not satisfied with the quality of service provided by MBB. The situation is worse in the case of BIMB, where fifty percent of the most frequent users are found to be not happy.

4.2. The Results of the Estimated Multivariate Probit Models

The overall fit test of the estimated multivariate probit models for service satisfaction on location, speed & efficiency, employee responsiveness, customer orientation, and administrative & supervisory effectiveness is found to be significant with a p-value of almost zero. The likelihood ratio test of the correlated error terms is also found to be significant with a p-value of almost zero, and this justifies the use of the multivariate probit models.

To gain further insight, we estimate the predicted probability of being satisfied with the services quality provided by the bank branches, based on the estimated models as mentioned above. Figure-1 depicts these predicted probabilities. By comparing the five dimensions of service quality, the location of branches, speed, and the administrative effectiveness are found to be the highest dimensions (probability of satisfaction is more than 0.8).

Fig-1. The estimated probability of satisfaction with the service provided

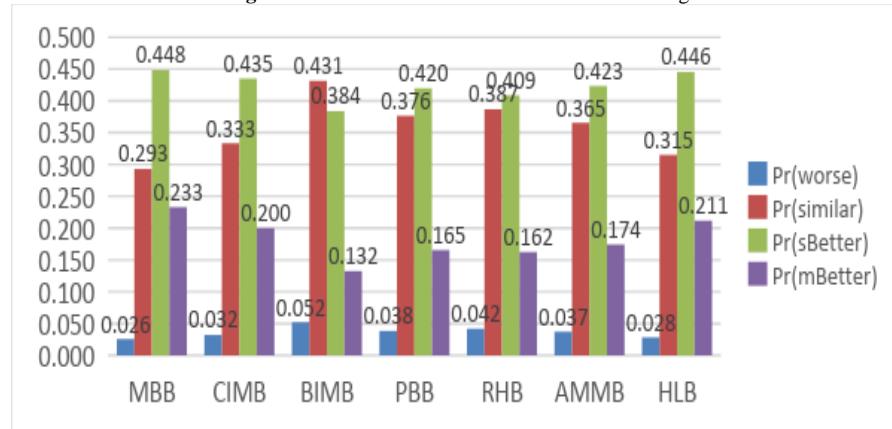
We rank the banks by the predicted probabilities across the five dimensions as mentioned above (Table-1). The said table indicates that in terms of the branch location, the BIMB tops on the list with an estimated probability of satisfaction of 0.75, whereas the CIMB is at the bottom (0.631). By branch speed of service, the PBB tops the list (0.958), and RHB is at the bottom (0.81). By branch's responsiveness, the PBB again top on the list (0.753), and the MBB is at the bottom (0.646). Relating to customer orientation of the branches of Malaysian banks, RHB is at the top of the list (0.888) and CIMB is at the bottom (0.685). In terms of the administrative effectiveness, BIMB tops the list (0.928) and CIMB at the bottom of the list (0.841).

Table-1. The ranking in terms of five dimensions of customer satisfaction

S1_location			S2_speed			S3_resp			S4_cust			S5_admin		
Bank	Pr(S)	Rank	Bank	Pr(S)	Rank	Bank	Pr(S)	Rank	Bank	Pr(S)	Rank	Bank	Pr(S)	Rank
BIMB	0.75	1	PBB	0.958	1	PBB	0.753	1	RHB	0.888	1	BIMB	0.928	1
MBB	0.723	2	AMMB	0.908	2	BIMB	0.749	2	MBB	0.729	2	MBB	0.9	2
HLB	0.722	3	CIMB	0.902	3	RHB	0.721	3	AMMB	0.728	3	RHB	0.898	3
AMMB	0.712	4	MBB	0.869	4	CIMB	0.705	4	PBB	0.721	4	PBB	0.888	4
RHB	0.703	5	HLB	0.869	5	HLB	0.7	5	HLB	0.716	5	HLB	0.865	5
PBB	0.691	6	BIMB	0.853	6	AMMB	0.661	6	BIMB	0.701	6	AMMB	0.856	6
CIMB	0.631	7	RHB	0.81	7	MBB	0.646	7	CIMB	0.685	7	CIMB	0.841	7

4.3. The Estimated Ordered Log It Model

Respondent customers rate the service of their most frequently used bank as compared to other banks in four ordered categories: worse than, similar, slightly better and much better. We use the ordered logit model to estimate the predicted probability for these four categories in Figure 2. It can be seen from Figure-2 that the percentage of worse, $\text{Pr}(\text{worse})$, range from 0.026 to 0.052, however, the percentage of similar, $\text{Pr}(\text{similar})$, range between 0.293 to 0.431.

Fig-2. Probabilities of relative customer service rating

We combine the worse than and similar as negative, and slightly better and much better as a positive outcome. MBB is found to be the top bank with a predicted probability of positive rating (slightly better and much better) of 0.681. BIMB is at the bottom of the list (0.484). We find that 48.4 percent of the customers of BIMB, who are the most frequent user of the Bank, rate BIMB as 'worse than' or 'just similar' to other banks. This implies that a substantial number of bank customers of BIMB could move to other banks. MBB is at the top of the list with 68.1 percent of the most frequent user of the said bank indicating that the service quality of the Bank is either much better

or better than other banks. However, 31.9 percent of its customers predicted MBB as ‘worse than’ or ‘just similar’ to other banks.

5. Conclusions

In this paper, we aim at evolving a systematic approach for the evaluation of service quality and the level of customer satisfaction of bank customers and also to identify the customer group who are more prone to switch banks. We interview 1107 customers of various banks in peninsular Malaysia covering three states to validate our framework.

Our results suggest that the level of customer satisfaction across five dimensions of service quality vary across various social demographic groups of customers. This is also true across various new products and services of banks. Age is found to have a significant relationship with the customer satisfaction. The location of branches, speed, and the administrative effectiveness are found to be the main determinants of service quality. The estimated multivariate probit model results on service satisfaction suggest that customers who have expressed convenience, location, or better interest rate as reasons for their choice of the most frequently used bank, are more satisfied with the speed. Moreover, customers who have indicated speed or other factors as reasons for their choice of most frequently visited bank, are more satisfied with administrative effectiveness. The ranking of the estimated probabilities of satisfaction across five dimensions of service quality used in the study shows that each bank has own strengths and weakness. We use ordered logit model to estimate the predicted probability of the relative quality of customer service of the most frequently used bank by their customers. We argue that customers who have rated the service quality of their most frequently used banks as much better and slightly better are likely to stay with this bank. Using the customers of Maybank as a reference point, we find that CIMB customers less satisfied with the location, employee responsiveness, and administrative effectiveness. On the other hand, the AMMB customers are more satisfied with speed; HLB customers are more satisfied with customer orientation. BIMB is found to be most vulnerable concerning potential switch of its customers. The results of our analysis highlight that banks in Malaysia need to pay more attention to working out appropriate customer retention strategies to strengthen their position in the marketplace.

Malaysian Banking industry is undergoing significant transformation as the economy gets adjusted to the new normal in the commodity prices. In this new era of intense competition, banks would necessarily aim to differentiate themselves in the service quality delivery and ensure customer satisfaction in their effort to maintain a competitive edge to ensure a loyal customer base. The proposed analytical framework to evaluate services quality and customer satisfaction would prove extremely beneficial for banks in crafting their individual strategies to ensure customer loyalty. The framework would also prove helpful to the policy planners in any country to assess the underlying drivers of ‘confidence’ of customers of individual banks, which is the signpost to initiate appropriate interventions to ensure stability in the banking system. However, it needs to be mentioned that the non-linear simulated maximum likelihood estimation method used in the study works better for a large sample, *ceteris paribus* (Green, 2008). The framework could be expanded to incorporate the intervening effects of variables. The underlying assumptions of the multivariate normal distribution and proportional odds as are used in our framework are possible limitations of the approach that may be addressed in future studies.

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