Measuring Indonesian EFL Learners' Beliefs about English Language Learning: A Stochastic Modeling Approach

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Abstract

This research sought to assess the validity and reliability of the Indonesian translation of the Beliefs About Language Learning Inventory (BALLI) and using it to measure Indonesian English as a Foreign Language (EFL) learners' Beliefs About Language Learning (BALL). Data were collected by administering BALLI to 58 conveniently sampled English department students at a state higher education institution in Indonesia. Data analyses were conducted within a stochastic modeling approach using the Rasch analysis method. The results show that the inventory meets the psychometric property criteria of a valid and reliable instrument for a meaningful measurement of BALL within a stochastic modeling approach. The majority of the participants believed that everyone can learn to speak English, some languages are easier than others, the most important part of learning English is learning new words, it is important to practice a lot, and they wanted to learn to speak English well.

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Introduction

Language learners' beliefs about language learning (BALL) play an important role in the whole process of their learning, and consequently, impact on the results. Research shows that language learners' BALL are correlated to, among others, their language learning strategy use (Abedini, Rahimi, & Zare-ee, 2011; Mokhtari, 2020; Ergen, 2021), engagement in out-of-class learning (Shibata, 2019), levels of syntactic complexity used of the language learned (Kovačević, 2017), English proficiency (Al Momani, & Al-oglah,2021; Li & Liang, 2012), perceived linguistic self-confidence (Jee, 2017), English academic achievements (Hayati, 2020), and emotional intelligence (Ghanadi & Ketabi, 2014). In this light, it is imperative for language educators to be aware of their students' BALL as they contribute to the students' learning behaviors and outcomes (Saito & Maeda, 2018).

Studies on foreign language learners' BALL have been conducted in different native (L1) and target language (L2) contexts and mostly approached quantitatively using the Beliefs About Language Learning Inventory (BALLI) which was originally developed in English by Horwitz (1987). For that purpose, BALLI has been modified and translated into, for example, Persian (Saeb & Zamani, 2013), Turkish (Tan, 2010), Thai (Apairach & Vibulphol 2015), Arabic (Daif-Allah, 2012), Chinese (Manfred, 2008), and Hungarian (Rieger, 2009). All shared a similar reason for using a translated version of BALLI, i.e. to ensure a full understanding of the inventory by the respondents of different language backgrounds. Most of these studies also assessed the validity and reliability of their versions of BALLI prior to further data analyses. In Indonesian context, study on BALL is still scarce. Only few studies have been conducted, mainly on English learners, ad used the original BALLI (e.g., Amrullah,Vianty & Fiftinova, 2018; Hayati, 2020; Rahmawati, 2020; Febriani, 2017; Iswati, 2020; Inayati & Emaliana, 2017). Yet, so far, only one study (Taufiqurrohman, 2016) has been identified to have used an Indonesian translation of BALLI. However, evaluation of the psychometric properties, including the validity and reliability of the translated version of the inventory has been overlooked in the study.

Furthermore, most quantitative studies on BALL, including ones conducted in Indonesian context, were approached with a deterministic modeling approach. In this approach, variables, like a learner's BALL, are predicted "from a given set of circumstances" (Taylor & Karlin, 1998, p.2), and are assumed to be "uniquely determined by parameters in the model and by sets of previous state of these variables. Therefore, deterministic models perform the same way for a given set of parameters and initial conditions and their solution is unique." (Renard, Alcolea, & Ginsbourger, 2013, p.1). This approach is prone to instability as small deviations in the parameters and the initial conditions can lead to significant changes in the results of measurement (Renard, Alcolea, & Ginsbourger, 2013). An alternative that can be used to address the problem is the stochastic approach which "predicts a set of possible outcomes weighted by their likelihoods, or probabilities." (Taylor & Karlin, 1998, p.2). In this approach, parameters and variables are not described by a single value, but by probability distributions. Thus, the results of measurements come in the form of a series of likely solutions, and this make it possible to evaluate   the extent to which measures of the variables being studied are certain (Renard, Alcolea, & Ginsbourger, 2013, p.2). In addition, the

stochastic approach was adopted in present study because   beliefs are dynamic and subject to changes overtime (Hoogland, 2015), and BALL are of no exception (Özmen, 2012; Fujiwara, 2015). However, research on BALL with stochastic approaches is hardly available, and one that is conducted in Indonesia using an Indonesian translation of BALLI is still absent. In light of the aforementioned gaps, the present study sought to fill the voids by trying out an Indonesian version of BALLI, assessing its validity and reliability and, and using it to measure the BALL of the participating Indonesian EFL learners.

Particularly, the present study used Rasch analysis (Rasch,1980; Bond & Fox, 2013), a method under stochastic modeling approach, to meet its objectives. The method: 1) enables conversion of   the inventory's non-linear ordinal responses   into interval data and measure them on a common linear logit scale (Wright, 2000); 2) provides information on idiosyncrasies of items and respondents' responses in the form of unique values of individual thresholds among categories in each   item of polytomous data. Thus, specific   information about the characteristic of the variable under question are available for evaluation (Bond & Fox, 2001); 3) is robust to missing responses; 4) presents the results of analysis in the form of graphical summaries of   population and detailed individual profiles that could be easily understood and interpreted by non-specialist audiences (Wright, 2000); and 5) is robust to small sample size (Wright, 1996). Specifically, the present study sought to answer the following research questions: (1) To what extent does the Indonesian translation of BALLI meet the psychometric criteria of a valid and reliable instrument for measuring BALL within a stochastic modeling approach? (2) What are the Indonesian EFL learners' belief about English language learning?

Literature Review

This section discusses the concepts and understandings of BALL and studies that have been conducted on it. The development of theories related to BALL are chronologically highlighted, and relevant selected research findings are discussed.

Beliefs about language learning

Attention to BALL started to grow in the 80s. Ever since, scholars have proposed different approaches to the understanding of it based on their perspectives on the nature and relationship between beliefs and knowledge. Some (e.g., Horwitz, 1985, 1987,1988; Bell, 2005; Levine, 2003) see beliefs as a cognitive entity that language learners have in their mind. Others (e.g., Flavel, 1987; Ryan,1984; Schommer, 1990, 1993) sees BALL as part of metacognitive knowledge that determines one's epistemological beliefs and intellectual performance. From this perspective, BALL comprises learners' conceptions about themselves as learners, their learning needs and objectives (Flavel,1987).

On the contrary, although concurs with the concept of metacognitive knowledge, Wenden (1999) sees beliefs as a distinct construct independent from metacognitive knowledge because they are value-related and can be strongly held by their believers. While, metacognitive knowledge, in her view, is "a system of related ideas, some accepted without question and other validated by their experience" (p. 436).Furthermore, proposing another perspective,

Kalaja and Barcelos (2003) conceptualise beliefs as a social constructs shaped by experiences and problems one goes through in their life. They see BALL principally concern the nature of language and language learning and conceptualise it as "opinions and ideas that learners (and teachers) have about the task of learning a second/foreign language" (p. 1). The present study refers to this understanding of BALL.

Reseach on BALL

The most widely used instrument to measure BALL is the Beliefs About Language Learning Inventory, henceforth called BALLI, which was constructed by Horwitz (1985, 1987). BALLI was intended "to assess student opinions on a variety of issues and controversies related to language learning" (Horwitz, 1988).The inventory was developed based her logical conceptualization that BALL is comprised of beliefs in 5 major aspects: 1) difficulty of language learning; 2) foreign language aptitude; 3) the nature of language learning; 4) learning and communication strategies; and 5) motivation and expectation. These 5 areas of BALL are represented by 34 items of statement. Except for 2 items, the other 34 items have a 5-point Likert scale responses.Interestingly, BALLI is not purported to produce a composite score as most other inventory are. Rather, it is meant to produce descriptions of individual students' BALL.

A great number of studies, some have been mentioned in the previous sections of this report, used either the original or translated versions of BALLI. Based on their purposes, the studies can be distinguished into those that focus on (1) measuring learners' BALL; (2) the structural dimensions of learners' BALL; and (3) the relationship between learners' BALL and other factors of L2 learning (Cui, 2014). Studies that focus on measuring learners' BALLS in different L1 and L2 contexts showed variations in the beliefs. Researching the BALL of 143 Turkish learners of English, French, and German in one study, Ariogul, Unal, and Onursal (2009) found that the learners held different beliefs in the level of the difficulty of the L2 they were learning. The majority of the French and German learners perceived the L2 were difficult to learn, which was in contrast to the majority of their English counterparts who saw English not a difficult language to learn. They also showed dissimilar beliefs on the importance of learning the culture of the L2, grammar, translation, and vocabulary. However, regarding the foreign language aptitude, learning and communication aspects, all the learners agreed that there are people with innate ability to learn foreign languages, practicing with audio materials is important. Pertaining to the motivations and expectations aspect, most of the learners believed that L2 mastery would help them find a better job and get to know the speaker of L2 better. Other researchers (Mohebi & Khodadady, 2011), who studied 423 Iranian learners of English found that the majority of the learners disagreed on the importance of learning grammar, L2 to L1 translation, but agreed on the importance of learning new vocabulary, excellent pronunciation, practicing with audio materials. They also believed that:1) English mastery would help them find a good job and get to know English native speaker better, 2) they had an aptitude for learning English; 3) English is not a difficult language to learn; 4) Learning English is different from other subjects; 5) they should not say anything in English until they could say it correctly, indicating their greater belief in the importance of accuracy; and 6) everyone could learn to speak English.

In Indonesian context, studying 75 learners of English at a university, Amrullah, Vianty, and Fiftinova, (2018) found that, in general, the learners held comparatively stronger beliefs on the Nature of Language Learning and Motivations and Expectations aspects than the other three aspects. Specifically, they strongly believed that:1) everyone can learn to speak English; 2) they will learn to speak English very well; 3) learning new vocabulary and practicing a lot are important;and 4) they wanted to learn to speak English well. Another study (Rahmawati, 2020), on 144 Indonesian learners of English at university as well, found that the learners strongly believed that: 1) everyone can learn English; 2) practicing and learning new vocabulary are important; 3) they would finally speak English very well; and 4) if they speak English fluently, they will have many chances to use the language.

As Horwitz (1987) developed BALLI based on her logical conceptualization of BALL, several researchers, mostly using the deterministic modeling approach, have studied the validity and the structural dimensions of the 5 aspects of it. The results varied across different L1 and L2 contexts. For example, using Principal Component Analysis (PCA) technique, Hong's (2006) studies on 428 university students who spoke Korean and another 420 who spoke both Chinese and Korean resulted in 10 latent variables. In contrast, in a study on 432 Iranian university students, Ghobadi (2009) found 5 components, while Khodadady and Hashemi's (2010) study, using Principal Axis Factoring (PAF) technique and a Persian translation of BALLI, on Iranian 418 university students found 14 components. Furthermore, Similar to Horwitz's (1987) conceptions, Rieger's (2009) study with a Hungarian version of BALLI also yielded 5 components, but with different item loadings on each of the components. These instances illustrate how the construct validity of BALL varied across different contexts of study.

Research that evaluates the validity of the original BALLI or translations of it with a stochastic approach is hardly available. So far, only one available, i.e. LI & LI (2015). Using Rasch analysis technique, this study confirmed the multidimensionality of the Chinese translation of inventory, or in other words BALLI measures more than one aspect. This study also identified one item, i.e. Item 15, did not fit the model well. In addition, other 13 items were also found to fail to meet the criteria for a meaningful measurement in Rash analysis because they had disordered categories. Thus, overall, 14 items were removed from the inventory, leaving 20 items for further analysis of which a better reliability measure was reported. Nevertheless, one issue that needs to be addressed in the study is its treatment of BALLI multidimensional data with Rasch analysis that is purported to identify and work with the unidimensional ones (Linacre, 2011). Although the study confirmed the multidimensionality of the data, the subsequent analysis seemed to have overlooked that fact. This might have led to the findings and removal of the 14 items. Alternatively, the analyses could be separately conducted on data from individual aspects or dimensions to meet Rasch analysis unidimensional characteristics, as employed in the present study.

Studies on the relationship of learners' BALL and other factors of L2 learning showed that they were correlated to the learners' related variables and the external ones. For example, Studying 250 Iranian English major students, Daif-Allah (2012) found significant differences in the students' BALL aspects of language aptitude,' learning and communication strategies, and motivations and expectations. However, such variations as well as those of age and L2 proficiency were not al identified in Arslan and Kafes's (2021) study of 242 Turkish EFL

learners.Furthermore, other studies show that relationship between language learners' BALL and their second language anxiety (Tandang, & Arif, 2019); perceived linguistic self-confidence (Jee, 2017); emotional intelligence (Ghanadi & Ketabi, 2014); pedagogical beliefs (Inayati & Emaliana, 2017); self-efficacy beliefs (Genc, Kulusakli, & Aydin, 2016), and level of education (Khodadady, 2009). Overall, these studies support Horwitz's (1999) suggestions on the influences of cultural and situational backgrounds on learners' BALL.

Methodology

This section presents the design of the study, the participants, method of data collection, Instrument, data analysis technique. Where deemed necessary, reasons for the use of specific research techniques are also given.

Design and participants

This study drew on a quantitative design. In particular, it used survey technique to gather the data. The design and technique were suited to the objectives of the study that sought to assess the validity and reliability of the Indonesian translation of BALLI using Rasch Analysis, and measure the Indonesian EFL learners' BALL using the Indonesian translation of the inventory. This study involved 58 conveniently sampled English department students of a state higher education Institution in Indonesia who responded voluntarily to an online survey for data collection. 39 of them were female and 19 were male. They were in their 6th semester and part of 71 of the total population of the semester.

Data collection

The data for the present study were collected online through the administration of an Indonesian translation of the Belief About Language Learning Inventory (Horwitz, 1987) using Google Form application. The administration of the Indonesian version of the inventory was opted for in order to ensure a full understanding of the inventory by the participants. The distribution of the of inventory to the participants was conducted by sending the form's URL to the participants' class WhatApp groups. The 58 participants responded to the inventory within one week.

Instrument

The Indonesian translation version of the BALLI used for collecting the data consisted of three parts. The first part contained an explanation of the purposes of the study and invitation to participate in it with an assurance that their personal information would be kept confidential. The second part was the consent form where the prospective participants indicated their agreement to voluntarily participate in the study. This part also informed that the participants' personal information would be kept confidential during and after the study. The third part contain the inventory items. Resembling the order items of the original BALLI, the inventory measures the five aspects of the beliefs, i.e. 1) Foreign Language Aptitude, 2) The Difficulty of Language Learning, 3) The Nature of Language

Learning, 4) Learning and Communication Strategies, and 5) Motivations and Expectations. The distribution items that the five aspects comprised of are as follows: The data for the present study were collected online through the administration of an Indonesian translation of the Belief About Language Learning Inventory (Horwitz, 1987) using Google Form application.The distribution items that the five aspects comprised of are as follows:

Table 1. *BALLI's items distribution*

Aspects	Item	Number of Item
1. Foreign Language Aptitude	1,2,6,10,11,16,19,30,33	9
2. The Difficulty of Language Learning	3,4,15,25,34	5
3. The Nature of Language Learning	8,12,17,23,27,28	6
4. Learning and Communication Strategies	7,9,13,14,18,21,22,26	8
5. Motivations and Expectations	5,20,24,29,31,32	6

Except for items 4 and 15, all the other items had a 5-point Likert scale response category, with which the participants rated their agreement to the statements of the items by choosing either 5 =strongly agree, 4= agree,3= neutral, 2=disagreement and 1=strongly disagree. As for item 4 that asked the participants to rate the level of difficulty of English, the response categories were: 1=very difficult, 2=difficult, 3 =medium difficult, 4= easy, and 5=very easy. For item 15 that reads "If someone spent 1 hour a day learning English, how long would it take them to speak the language very well", the response categories were 1= less than a year, 2=1-2 years,3= 3-5 years, 4=5-10 years, and 5= you can;t learn a language in 1 hour per day. The accuracy of the Indonesian translation of the inventory was ensured by conducting a back-translation procedure whose results were then evaluated by two competent lecturers of English. Both evaluators agreed on the accuracy and appropriateness of the translation to be used in the present study. In addition, to suit the inventory with the participants of the study, i.e. Indonesian EFL learners, some necessary word addition and replacements were also made on a few items. For example, item 1 that originally reads *"It is easier for children than adults to learn a foreign language"* was modified into *"It is easier for children than adults to learn English".*

Data analysis

To assess the validity of the inventory, the data were analysed for their *Item Polarity* as indicated by the value of *Point Measure Correlation* that shows the extent to which the items represent the construct being measured, i.e. BALL, and *Item Fit Statistics,* particularly the *Infit Mean Square* (INFITMNSQ), that shows the direction of the representation. As BALLI is multidimensional, assessment of validity was also conducted by examining the dimensionality of the inventory which refers to the extent to which the items measure a single dimension at a time (Bond & Fox, 2001). This was performed by using PCA on the residuals, with eigenvalue >2.0 of unexplained variance explained by the first factor indicating the presence of an extra dimension as the criterion (Linacre, 2006). Assessment of the reliability of the instrument was performed by examining *Item Separation Index* that shows the extent to which the items were separated in terms of their increasing agreeability, and *Item Reliability Index* that indicates the reproducibility of the item separation when the inventory is administered on a

group of other participants with similar characteristics as those participated in present study (Bond & Fox, 2013). Investigation of the participants' beliefs about language learning was conducted by examining the *item measure* that indicates the agreeability of an item to the participants. The lower the measure of an item, the more agreeable the item is to the participants, or in other words, the item received more agreement than items with higher measures. Hence, the lower the measure of an item, the stronger the magnitude of the participants' belief measured by the item and vice versa. As BALLI is not meant to produce a composite score (Horwitz, 1985; Hong, 2006), data analysis, interpretation and presentation of results related to the participants' BALL were conducted on individual item and aspects of the beliefs.

Findings

This section presents the results of data analysis on the validity and reliability of the Indonesian version of the inventory, and the participants' beliefs about language learnimg. The findings of the latter are presented under each of the five aspects of the beliefs.

Overall validity and reliability of the Indonesian version of BALLI

Although BALLI is not meant to produce a composite score (Horwitz, 1985; Hong, 2006), it is important to assess the overall validity and reliability of the Indonesian version of the inventory which was used in the present study. This is because the inventory was designed to measure a single construct, i.e. beliefs about language learning. Thus, theoretically, all the items it contains must align with the construct and the measures it produces should be reliable.

Regarding validity, drawing on the criterion that all items should have a positive Point Measure Correlation (PTMEACORR) value (Linacre, 2006), the values (Table. 2) show that Item 3 (Some languages are easier than others) of the Difficulty of Language Learning aspect and Item 21 (I feel shy speaking English with other people) of the Learning and Communication Strategies aspect had a negative value of -.08 and -.06 respectively. These indicate that the two items were not representing the construct. Furthermore, with the criterion of acceptable value-range of 0.5 to 1.5 (Linacre, 2006), examination of INFITMNSQ (Table 2) found that Item 12 (It is best to learn English in an English speaking country) of the Nature of Language Learning aspect and Item 15 (If someone spent 1 hour a day learning a language, how long would it take them to speak the language very well?) of the Difficulty of Language Learning aspect had a value of 3.44 and 1.77 respectively, which are outside the range. This indicates that the two item were not contributing to the measurement in a meaningful way. Furthermore, the result of PCA on residuals showed an eigenvalue of 3.4 (4.3%), slightly larger than 2.0, indicating possible presence of another dimension. Thus, the inventory is possibly multidimensional as it is designed to be. As for reliability, Item Separation Index had a value of 6.19, suggesting that the item could be categorised into six agreeability levels. In addition, the data also had a very high reliability index of .97, suggesting that similar order of item agreeability will be produced if the inventory is administered on a group of other participants with similar characteristics as those participated in present study (Bond & Fox, 2013). Pertaining to items with negative polarity, Linacre (2006) suggested that

they should be removed from the instrument as they may distort the results of the measurement. While for misfitting items, Smith (1991) suggested that up to 5% of items may misfit by chance. This could be   due to variations in respondents' demography (Bond & Fox 2001). Therefore, further examination on misfitting items should be conducted in terms of their wordings and instrument administration errors. In the present study, the suggestions had been conducted and found no such issues. However, as the inventory was not purported to produce a composite score (Horwitz, 1985; Hong, 2006), and all the items would also be individually analysed within their respective aspect, the two items with negative polarity, i.e. Item 3 and Item 21, and other two misfitting items, i.e Item 12 and Item 15 were retained for the analyses that would also focus on the issues of validity and reliability.

Table 2. *Items statistics*

Items	Measure	PTMEACORR	INFITMNSQ
3	.06	-.08*	.96
21	1.62	-.06*	1.42
4	1.38	.01	.85
15	2.04	.07	3.44**
9	2.15	.14	1.26
2	.22	.20	1.16
34	.83	.20	1.07
14	.50	.23	.77
11	2.04	.25	.91
12	-.18	.27	1.77**
33	-1.71	.28	1.31
19	1.38	.28	.64
8	-.02	.29	1.22
6	.24	.29	.90
1	-.57	.30	1.17
23	.16	.32	.80
26	-.54	.32	.56
22	.14	.32	.97
32	-1.48	.33	.79
28	.29	.35	.78
7	-1.05	.36	.86
30	.27	.37	1.08
29	-1.08	.38	1.00
13	-.51	.38	.68
16	.65	.38	.72
17	-1.12	.39	.97
27	-.63	.40	.61
18	-2.48	.40	.76
10	.27	.41	.74
31	-2.25	.42	.97
25	.11	.44	1.03
5	-1.23	.48	.79
24	.63	.50	.83
20	-.12	.50	.63

Separation: 5.77   Reliability: .97

Notes: *: Negative Polarity; **:Misfitting

Indonesian EFL learners beliefs about English language learning

This section presents the results of data analysis pertaining to the participants' BALL. The results of analysis for each item are presented under the headings of their respective aspects. The main focus is on their measures that indicate the magnitude of the participants' beliefs in them. Then, the items PTMEASCORR, fit statistics, and reliability indices are also analysed to further address the issue of validity and reliability. Considering the limitation of the space of this report, only the main features of the results are highlighted.

Foreign language aptitude

Table 3 shows that all the 9 items of Foreign Language Aptitude aspect have positive values of PTEMEACOR and are within the range of 0.5 to 1.5 of INFITMNSQ values. These indicate that all the items measure the aspect in a meaningful way. Furthermore, the item separation of 5.73 indicates that the items can be grouped into almost 6 levels of agreeability. The reliability index of .97 was also very high. Table 3 also shows that Item 33 (Everyone can learn to speak English), Measure=-2.17 was the most agreeable item of the aspect, indicating that most of the participants had a strong belief in the possibility of everybody learning the language. Most of the participants also seemed to have a strong belief that "It is easier for children than adults to learn English (Item 1, Measure=-1.04) .On the contrary, Item 11 (People who are good at math or science are not good at English), Measure=2. was the item that got the fewest agreement from the participant. This indicates that the participants did not strongly hold such a belief. They also did not believe that "Women are better than men at learning English" (Item 19, Measure=1.26).

Table 3. *Items statistics for foreign language aptitude*

Items	Measure	PTMEACORR	INFITMNSQ
11	2.27	.35	1.52
19	1.26	.51	.70
16	.32	.47	.79
10	-.14	.40	.87
30	-.14	.54	1.02
6	-.17	.44	.88
2	-.20	.49	1.04
1	-1.04	.36	1.16
33	-2.17	.26	1.25
Separation: 5.73 Reliability: .97			

The difficulty of language learning

Results of the first run of data analysis (Table 2) showed that Item 3 (Some languages are easier than others) had a negative PTMEACORR value of -.08 and Item 15 (If someone spent 1 hour a day learning a language, how long would it take them to speak the language very

well?) had an INFITMNSQ value of 3.39 which is outside the acceptable range of 0.5 to 1.5 (Linacre, 2006). The second run of analysis that was conducted within it respective aspect only showed that Item 3 had a positive PTMEACORR value of .54 and an INFITMNSQ value of .79. Thus, this item was retained for further analysis. However, Item 15 had an INFITMNSQ of 2.05 which was still outside the acceptable range, Therefore, the item was not included in the further analysis. The removal left the other 4 items for the third run of analysis.

The third run of analysis for The Difficulty Language Learning aspect (Table 4) shows that all the items had a positive PTMEACORR value and a very high reliability index of .93. These indicate that the remaining 4 items measured the aspect and yielded the results in a meaningful way. Furthermore, The Item Separation Index of 3.64 indicates that each of the items almost had their own unique level of agreeability. Item 3 (Some languages are easier than others), Measure=.74 was the most agreeable item of the aspect followed by Item 25 (It is easier to speak than understand English), Measure=-.67 as the second most agreeable item, indicating that most of the participants hold the beliefs reflected in the two items. Comparably, the participants seemed to have lesser beliefs in "It is easier to read and write English than to speak and understand it" (Item 34, Measure=.31). Most importantly, Item 4, that measured the participants' belief of the level of difficulty of learning English yielded a Measure=1.11, the highest among the four items, suggesting that the participants believed that English was a relatively difficult foreign language to learn.

Table 4. *Items statistics for difficulty of language learning*

Items	Measure	PTMEACORR	INFITMNSQ
4	1.11	.54	.79
34	.31	.49	1.21
25	-.67	.51	1.20
3	-.74	.54	.76
Separation: 3.64 Reliability: .93			

The nature of language learning

Results of data analysis for the items that came under the Nature of Language learning aspect (Table 5) showed that all the six items had a positive PTMEACORR value and measure within the range of 0.5 to 1.5. The items were separated into 2.82 levels of agreeability with a high index of reliability of .89.

Item 17 (The most important part of learning English is learning new words), Measure=-1.07 turned out to be the belief that most of the participants strongly held, followed by Item 27 (Learning English is different than learning other academic subjects), Measure=-.46. Comparatively, the participants seemed to have less strong beliefs that "It is best to learn English in an English speaking country" (Item 12, Measure=.09) and that "It is necessary to learn about English speaking cultures to speak English" (Item 8, Measure=.28). Furthermore, most of the participants also seemed to be against the beliefs that "The most important part of learning a foreign language is learning grammar" (Item 23, Measure=.50) and that "The most important part of learning English is learning how to translate from

Indonesian" (Item 28, Measure=.66). The two item received the least agreement from the participants.

Table 5. *Items statistics for nature of language learning*

Items	Measure	PTMEACORR	INFITMNSQ
28	.66	.49	.85
23	.50	.59	.71
8	.28	.58	1.05
12	.09	.44	1.89
27	-.46	.60	.57
17	-1.07	.54	.92
Separation: 2.82	**Reliability: .89**		

Learning and communication strategies

Examination of PTMEACORR and INFITMNSQ of the 8 items that came under the Learning and Communication Strategies aspect of the inventory (Table 6) showed that all of them had a positive value and fit statistics that were within the range of 0.5 to 1.5. The items were of 7.75 levels of agreeability with an almost perfect reliability index of .98. Principally, Table 6 shows that the strongest beliefs held by the participants regarding the aspect was that "It is important to repeat and practice a lot" (Item 18, Measure=-3.16). Most of them also seemed to believe that "It is important to speak English with an excellent pronunciation" (Item 7, Measure=-1.33) which was contrary to their majority disagreement with Item 9 (You shouldn't say anything in English until you can say it correctly), Measure=2.61. The majority of participants also felt "...shy speaking English with other people" (Item 21, Measure=2.02).

Table 6. *Items statistics for learning and communication strategies*

Item	Measure	PTMEACORR	INFITMNSQ
9	2.61	.48	1.16
21	2.02	.35	1.24
14	.75	.36	.85
22	.30	.55	1.01
13	-.57	.52	.84
26	-.61	.16	.94
7	-1.33	.39	1.18
18	-3.16	.52	.75
Separation: 7.75	**Reliability: .98**		

Motivations and expectations

All the 6 items under this aspect (Table 7) had a positive PTMEACORR value and a INFITMNSQ value that was within the range of 0.5 to 1.5. The items were separated into 5.88 level of agreeability with a very high reliability index of .97. The results suggested that the

participants' most prominent motivation in learning English was "...to learn to speak English well" (Item 31, Measure=-2.02) with a dominant expectation of having "...native speaker of English friends" (Item 32, Measure=-.95). However, these seemed to be contrary to their responses to two items that got their least agreement, i.e. Item 24 (I would like to learn English so that I can get to know   better), Measure=2.67 and Item 20 (People in my country feel that it is important to speak English) Measure=1.25 which also dealt with similar motivation and expectation expressed by Item 31 and Item 32.

Table 7. *Items statistics for motivations and expectations*

Item	Measure	PTMEACORR	INFITMNSQ
24	2.67	.59	1.31
20	1.25	.68	.78
29	-.36	.56	1.16
5	.59	.52	.94
32	-.95	.56	.81
31	2.02	.59	.70
Separation: 5.88 Reliability: .97			

To sum up, the results of data analysis showed that when the data from the Indonesian version of BALLI were analysed in an omnibus manner, 4 items had either negative polarity or infit mean square values that did not meet the criteria for a meaningful Rasch measurement. Hence, they were a threat to the validity of the instrument. However, when the data were analysed separately under their respective aspects, only 1 item, i.e. Item 15 (If someone spent 1 hour a day learning a language, how long would it take them to speak the language very well?) of the Difficulty of Language Learning aspect still exhibited a negative polarity and, therefore, was removed from further data analysis. Furthermore, separate data analyses under each of the 5 aspects showed that the participants mostly believed that : 1) Everyone can learn to speak English; 2) Some languages are easier than others; 3) The most important part of learning English is learning new words; 4) It is important to repeat and practice a lot; and 5) they wanted to to learn to speak English well.

Discussion

Using a stochastic approach, the present study confirmed the multidimensionality of the Indonesian version of BALLI. This concurs with LI and LI's (2015) finding with their Chinese translation of the inventory that was also analysed using a stochastic approach. In fact, Item 15 which was found to misfit in the present study was also found to behave identically in LI and LI's (2015) study. However, their study continued with the removal of 14 misfitting items, including Item 15, resulting from their omnibus initial data analysis, leaving only 20 items for further analysis. In the present study, the initial omnibus data analysis also yielded 4 misfitting items. But, as the inventory was meant to measure a multidimensional construct and, hence, not to produce a composite score(Horwitz, 1985; Hong, 2006), removal of misfitting items was not performed. Rather, further assessments of validity and reliability were conducted under each aspects of BALL measured by BALLI. The results showed that, except

for Item 15, the other 3 misfitting items   actually did not misfit when analysed under their respective aspect and all showed a very high reliability index.

To some extent, the findings of the present study that pertain to the participants' BALL were partly similar to and different from the findings of previous similar studies on Indonesian learners of English   that used deterministic modeling approaches. For instance, the finding that the majority of the participants believed that vocabulary is the most important part in learning English was also identified by Amrullah, Vianti, and Fiftinova (2018), Rahmawati (2020) and Iswati (2020). The strongly held belief of the importance of practice,that some languages are easier to learn, and that learners wanted to learn English well were also found in one or two of the mentioned studies. However, the belief that everyone can learn to speak English which was strongly held by the participants of the present study was not a predominant belief in   Amrullah, Vianti, and Fiftinova (2018), Rahmawati (2020) and Iswati (2020). Furthermore, the belief that they will eventually can speak English very well that was strongly held by participants in Rahmawati   (2020) and Iswati (2020) was not evident in the present study.

Variations in the BALL held by Indonesian learners of English across different contexts and research approaches, including the present study, discussed above seem to suggest that a generic typology of Indonesian language learners' BALL is not yet possible to draw. The variations   also signify the   suggestions made by Horwitz (1999) on the influences of contexts and situations on language learners' BALL.

Conclusions, implications, and suggestions

The present study shows that, after a close examination and revision, the Indonesian translation of BALLI used to collect the data meets the psychometric property criteria   of a valid and reliable instrument   for   a meaningful measurement of BALL within a stochastic modeling approach, especially Rasch analysis technique. Thus, it can be used for future similar study research, not only on those learning English, but also other languages. In addition, the fact that some items that had a negative polarity and misfitted in the initial omnibus data analysis turned out to be valid and reliable when analysed under their respective separate aspects seems to suggest that when using a stochastic approach in measuring BALL   using BALLI it is important to assess the construct validity of the items under their respective aspects before deciding removal. It is also suggested that future research using BALLI takes attention on Item 15 of the difficulty of language learning aspect as it was not proven to reflect BALL.

Most importantly, as studies have shown that BALL   also impact language learners' thinking, and actions in learning a language and eventually their language learning achievements, language educators' awareness of the issue is important in order to understand and respond to relevant recurring phenomena in language classrooms. Finally, as the sample of the present study was limited in terms of size and variations of demographic variables, the results may not apply for generalization beyond its context. Therefore, future research with bigger sample size and demographic variations   is also suggested.

Disclosure statement

The author certifies that he has no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this paper.

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