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Development and Validation of the EFL Reading Questionnaire

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Abstract

This paper deals with the validation of an EFL reading questionnaire and presents the various stages in the validation process. The primary purpose of this study was to modify and validate a questionnaire of factors affecting enhancement in reading comprehension in EFL setting. A group of 212 undergraduate learners of English selected randomly from undergraduate students majoring English consented to participate in the study. The research procedures consist of two phrases as the first phase is the study on the factors related to reading comprehension enhancement by using theoretical basis, the second phase is the development and the verification of the causal model of factors that affect reading comprehension improvement with the empirical data. Exploratory factor analyses were carried out to determine emerging underlying categories of factors affecting reading comprehension improvement. The findings of the first phase were used as the variables for the second phase study. Applications of the measure are discussed.

Keywords: EFL Reading, reading strategy, motivations, epistemic beliefs

The ability to read is a key aspect of literacy and is often associated with academic success in learning English as a foreign language (EFL). Reading is quite axiomatic that students gain much knowledge by obtaining information from reading materials to be consolidated with other areas of language in EFL classes as well as exposing students on linguistics features from the reading texts, like sentence types, and dictions. Through reading,

students are acquired with study skills like summarizing, scanning, skimming which are pivotal to learning. These are benefits of reading that bring positive effects on learning English. As emphasized by Nordin, et al. (2013), reading had a positive effect on the educational achievement of EFL students.

Over the years, there has been accumulated evidence that emphasize the importance of reading and that students equipped with some factors improving their comprehension that may be more successful than others. As the aim of reading is to struggle for an understanding or comprehension of the reading materials (Dabarera, at al, 2014), ability to comprehend reading texts is often associated with, reading strategies, reading motivations, and students' beliefs (Anmarkrud & Bråten, 2009; Naseri & Zaferanieh, 2012 ; Ferguson et al., 2012). There is a growing body of evidence of showing that there is a correlation among reading strategy use, motivations, and students' beliefs in reading comprehension (Matsumoto at al., 2013) as factors that relate one to another to enhance students' comprehension over reading texts. It is generally considered that beliefs likely affect reading motivations (Bagherzadeh & Azizi, 2012), and that motivations are the most influential factors for the use of learning strategies (Guthrie, et al., 2007; Anmarkrud & Bråten, 2009; Bråten, et al., 2014).

Students' beliefs become pivotal foundations in learning English, which affect other factors affecting reading comprehension improvement. Bagherzadeh & Azizi's (2012) study proves that EFL students who possess stronger beliefs achieve better in learning EFL because they own higher learning motivations. Thoroughly, students' beliefs about EFL learning bring effect on students' cognitive, meta-cognitive, social, and affective language learning strategies (Zare-ee, 2010). Similarly, it has been reported that there are significant strong positive correlation between beliefs in reading and reading strategies use, namely cognitive, testing, meta-cognitive, and compensatory strategies (Naseri & Zaferanieh, 2012). Notwithstanding, the previous study done by Matsumoto et al. (2013) does not employ specific beliefs related to reading comprehension that later is found as one of its limitations of the study. Thus, to comprise a relevant factor affecting reading comprehension improvement, students' epistemic beliefs in EFL reading is selected as the basis.

Epistemic beliefs are beliefs about knowledge and knowing which are often connected with cognition and academic performance. In EFL setting, students with sophisticated epistemic beliefs are proven to own internal motivations, self efficacy, interest, self regulated learning, and goal orientation to reach high degree of academic achievement (Ulucinar, et al., 2012; Akbari & Karimi, 2013). In reading, sophistication of epistemic beliefs can be achieved by facilitating student to deeper level comprehension of multiple texts. Specifically, Ferguson et al. (2012; 2013) point out that students' sophisticated epistemic beliefs increase after they read multiple texts which are written by various authors and different stands. Sosu & Gray (2012) emphasize that students' motivations is enhanced when teachers help students to change simple primary beliefs to the sophisticated one. In other words, epistemic beliefs sophistication is expected to enhance students' motivation in reading.

Reading motivations provide several aspects that can affect students' reading comprehension enhancement. Originally, reading motivation aspects are developed by Wigfield & Gutrhrie (1997) which explore deeply about intrinsic motivation, extrinsic motivation, and reading efficacy. In relation to EFL setting, there are plenty of studies adopting reading motivation measure proposed originally by Gutrie et al (2004). Another study is done by Lau & Chan (2003) reveal that sophisticated cognitive and metacognitive strategies have strongest relation with reading comprehension, and specifically, intrinsic motivation and strategy attribution might facilitate reading development through their positive relations with strategy use. Besides, Dhanapala (2008) provides evidence that EFL reading motivation is multidimensional and that it resembles the general motivational constructs proposed by the first motivational theorists, Wigfield & Gutrhrie (1997). Therefore, in the present study, adopted aspects (dimensions) of reading motivation from Wigfield & Gutrhrie (1997) are employed.

While it has been reported that epistemic beliefs in reading influence EFL learning strategies use, motivational drives have also been found to influence EFL reading strategies use. In relation to this, Sheory & Mokhtari (2001) propose Survey of Reading Strategies (SORS) which are developed from metacognitive, cognitive, and support strategies use to measure ESL university students' perceived reading strategy use while reading academic

materials in English. Recently, Matsumoto et al. (2013) simplify these reading strategies to be four categories, namely adjusting, reasoning, monitoring, and main idea strategies. The present study adopts Matsumoto et al.'s (2013) reading strategies use as the other factor affecting reading comprehension improvement.

As stated above, several studies attempted to analyze factors affecting reading comprehension improvement albeit mostly focus discreetly on either students' beliefs, motivations, or reading strategies use. Recently, Matsumoto et al. (2013) show that those three factors are influential to students' reading comprehension improvement. However, students' beliefs should be more specific into reading, so epistemic beliefs in reading is chosen in this present study.

For the abovementioned reasons, studies should be conducted on what factors affect reading comprehension improvement, so a need to measure students' epistemic beliefs in reading, reading motivations and reading strategies use. This measure aimed at seeing students' current situation in relation to factors affects reading comprehension enhancement; thus, teachers can prioritize learning activities and set practice guidelines for more systematic and substantial development of students reading comprehension. Besides that, the results of previous studies also encourage the development of a new instrument, namely EFL reading questionnaire. While it is evident that the reliability and validity of the reading comprehension questionnaire in the previous study (Matsumoto et al., 2013) need further validation, it continues to be used in the measurement of reading comprehension in a variety of educational and professional settings in EFL context. With the growing interest in epistemic beliefs, it is imperative that valid and reliable instruments are highly needed. Two studies were carried out in the process of the development of the questionnaire: Firstly, an initial questionnaire version with partly new items was developed and its factorial structure, and reliability were investigated. Secondly, the relationship between the factors of the new questionnaire and the application of learning strategies was investigated.

RESEARCH METHODS

Participants

A sample of 212 undergraduate students majoring English department from four different classes from university of Brawijaya participated in this study. The students were in their fourth semester. They had reading class with reading study skills and reading classes which focus on some reading texts genre like expository and exposition.

Instruments

The primary instrument used in this study was epistemic beliefs in reading (Ferguson et al, 2012), reading motivations (Wigfield & Gutrhrie, 1997), and reading strategies use (Matsumoto, et al., 2013). The EFL reading questionnaire of 40 statements for which individuals respond using a 4-point Likert-type rating scale from strongly agree (4) to strongly disagree (1) to items concerning factor affect their reading comprehension improvement. As previously noted, reading epistemic beliefs was developed to measure three underlying constructs: personal justification, justification by authority, and justification by multiple sources. Reading motivation was developed under 11 constructs, including reading efficacy, reading challenge, reading involvement, importance of reading, reading work avoidance, competition in reading, recognition for reading, reading for grades, social reasons for reading, and compliance. Besides, reading strategies use consist of four construct, namely adjusting strategy, reasoning strategy, monitoring strategy, and main idea strategy.

Procedures

There are several procedures undergone in this study. First, students filled in each dimension of factor affecting reading comprehension improvement, as follow: 64 students filled in epistemic beliefs reading questionnaire, 40 students filled in reading motivations questionnaire, and 27 students filled in reading strategies use questionnaire. Second, after the data obtained, each dimension were analyze using exploratory factor analysis. This is aimed to have more effective items on the questionnaire by grouping sub dimensions into similar characteristics so that the numbers of items were reduced. Third, after getting the new factors on each dimension, the EFL reading questionnaire was developed. Fourth, try out upon the questionnaire was administered to see the validity and reliability of the EFL reading questionnaire towards 81 students.

The questionnaires were administered in the students' classes ten minutes before or after the class session, based on the teachers' convenience. Upon providing consent to participate in the questionnaires students were directed to respond to each item of the questionnaire. Completing the questionnaire was not part of the class requirements and no additional credit was given to students who completed them.

Data Analysis

The research uses exploratory factor analysis to analyze the data obtained. Sass (2010) states that confirmatory factor analysis procedures may be used to test the expected structure of an instrument. In its purest form, exploratory factor analysis serves to determine, through statistical exploration, the underlying constructs that influence responses to a given set of items. It is used when the researcher lacks clear a priori evidence about the number of factors, and is instead intending to generate theory (de Winter et al., 2009). When utilizing exploratory factor analysis, however, numerous decisions must be made to ensure the stability of the factor structure and interpretation (Sass, 2010). Regarding to sample size, de Winter et al. (2009) have indicated that sample size requirements vary according to observed communalities, strength of factor loadings, the number of variables per factor, and the number of extracted factors. Other considerations impacting the stability of the factor structure are the model fitting and estimation procedures used (Flora & Curran, 2004). The choice of the numbers of factors to extract (Sass, 2010), the method of factor extraction (de Winter et al., 2009), the correlation matrix, and the rotation method (Sass, 2010). According to Flora & Curan (2004), factor recovery improves through the increase emphasis on any of the above components. Failure to adequately consider each of these decision points may result in a factor structure that lacks sufficient validity and is thus unable to be replicated.

Exploratory analyses were conducted using PASW Statistics 18 (SPSS, 2010) to further examine the underlying dimensions of factor affecting reading comprehension improvement. The choice to utilize exploratory methods was considered appropriate, as exploratory factor analysis should be used to serve as an initial test of the latent structure underlying items on an instrument (Sass, 2010).

RESULTS

A principal component analysis was conducted on the each dimension of factor affecting reading comprehension enhancement with model fitting and estimation procedures using SPSS 19.

Epistemic Beliefs in Reading

The revised Ferguson et al.'s (2012) questionnaire was used. The wording is revised so that each item would be relevant to the participants and the context in this study. Considering the presence of numerous variables in this research could be effective, exploratory factor analysis is implemented.

A principal component analysis (PCA) was conducted on the 13 items with orthogonal rotation (Varimax) using SPSS. The Kaiser-Meyer-Olkin statistic indicated that the overall sampling adequacy was low (KMO = .465), and all KMO values were at least .57, which is above the generally acceptable cut-off of .50 (Kaiser, 1974), indicating that it was not appropriate to perform factor analysis. Bartlett's test of sphericity also indicated that correlations between items were not sufficiently large for the analysis (=.246, $p > .05$). Therefore, this resulting structure possesses the same number of factors as the model proposed by Ferguson et al. (2012). However, the items used were selected based on high validity value, as follow: namely personal justification (2 items), justification by authority (6 items), justification by multiple source (5 items).

Additional reliability analyses were performed to provide a more consistent instrument that is also more easily interpretable. Through SPSS 19, validity and reliability of the questionnaire were measured. Each item showed that the coefficient obtained was less than .05, so they were claimed valid. The internal consistency reliability coefficients of adopted epistemic beliefs in reading was determined by Cronbach's alpha (α) for the three dimensions were as follows: personal justification (α = .380), justification by authority (α = .514), justification by multiple source (α = .743). It means the questionnaire, particularly in reading epistemic beliefs part is reliable.

Reading Motivations

In order to evaluate the level of reading motivations, a modified and shorter version of Motivation for Reading Questionnaire (MRQ) from Guthrie, et al. (2007) was developed. Originally, there are 11 dimensions (53 items), but the usage of the shorter questionnaires considering the presence of numerous variables in this research could be effective.

A principal component analysis (PCA) was conducted on the 53 items with orthogonal rotation (Varimax) using SPSS. The Kaiser-Meyer-Olkin statistic indicated that the overall sampling adequacy was good (KMO = .740), and all KMO values were at least .57, which is above the generally acceptable cut-off of .50 (Kaiser, 1974), indicating that it was appropriate to perform factor analysis. Bartlett's test of sphericity also indicated that correlations between items were sufficiently large for the analysis (=.000, $p < .05$). Initial results produced three components with eigenvalues above Kaiser's (1974) criterion of 1.00, which together explained 64.8% of the variance.

Parallel analysis is an empirical method used to determine the number of underlying constructs that create the variance in a set of items and indicate the number of factors or components that should thus be retained (Kaiser, 1974). This is accomplished by comparing the observed eigenvalues against the eigenvalues (eigenvalue > 1). that would be expected to occur at random. For this study, parallel analysis identified three underlying constructs, or three potential components to be extracted. Table 2 provides an output of the results.

	Component		
	1	2	3
Reading efficacy	**.789**	.033	.005
Reading Challenge	**.625**	-.471	-.369
Reading Curiosity	**.536**	-.012	.021
Reading Involvement	.328	.034	**.738**
Importance of Reading	**.653**	-.340	.482
Reading work	**-.694**	.423	-.005

Competition in Reading	**.783**	-.006	.030
Recognition	**.791**	.203	.053
Reading for Grades	.337	**.834**	.224
Social reason	**.543**	.405	-.347
Complacency	**.638**	.193	-.466

Table 2. Component Matrix of Reading Motivations

This results different number of factors from Wigfield & Gutrhrie (1997) with different construct underlying the structure. There were 3 new dimensions, namely reading motivation in general (including reading efficacy, challenge, curiosity, importance of reading, reading work, competition in reading, recognition, social reason, and complacency), reading for grades, and reading involvement.

Upon determining that this three-factor structure was the best fit for the data, additional reliability analyses were performed to provide a more consistent instrument that is also more easily interpretable. During these reliability analyses, 15 items were selected to represent reading motivations domain, as follow: motivation in general (9 items), reading for grades (3 items), and reading involvement (3 items). The validity and reliability of the questionnaire is measured using SPSS 19. The item obtained coefficient less than .05 was valid, albeit some items showed values higher than .05 were not used to keep the validity of the questionnaire. Furthermore, to examine the internal consistency reliability coefficients of the adapted reading motivations dimensions, Cronbach's alpha coefficient (α) were computed for the three components, namely reading motivation in general (α = .545), reading for grades (α = .540), and reading involvement (α = .379). These statistical results are evidence of the reliability of the questionnaire in reading motivations part.

Reading Strategies

In order to measure the students' reading strategies use, the questionnaire was developed by analyzing previous students' reading strategies use. Following Matsumoto et al. (2013), there were four constructs (23 items)

Another principal component analysis (PCA) was conducted on the 23 items with orthogonal rotation (Varimax) using SPSS. The Kaiser-Meyer-Olkin statistic indicated that the overall sampling adequacy was good (KMO = .585), and all KMO values were at least .57, which is above the generally acceptable cut-off of .50 (Kaiser, 1974), indicating that it was appropriate to perform factor analysis. Bartlett's test of sphericity also indicated that correlations between items were sufficiently large for the analysis (=.033, $p < .05$). Initial results produced three components with eigenvalues above Kaiser's (1974) criterion of 1.00, which together explained 77.5% of the variance.

Parallel analysis is an empirical method used to determine the number of underlying constructs that create the variance in a set of items and indicate the number of factors or components that should thus be retained (Kaiser, 1974). This is accomplished by comparing the observed eigenvalues against the eigenvalues that would be expected to occur at random (eigenvalue > 1). For this study, parallel analysis identified three underlying constructs, or two potential components to be extracted. Table 3 provides an output of the results.

	Component	
	1	2
Reasoning	**.771**	-.425
Adjusting	**.738**	-.453
Main idea	.517	**.683**
Monitoring	**.653**	.473

Table 3. Component Matrix of Reading Strategies Use

Different number of factors from Matsumoto et al. (2013) with different construct underlying the structure was revealed. There were 2 new dimensions, namely deductive (identifying main ideas= 6 items) and inductive (including: summarizing, making inferences, and utilizing text organization= 6 items).

Additional reliability analyses were performed on determining that this two-factor structure was the best fit for the data in order to provide a more consistent instrument that is

also more easily interpretable. During these reliability analyses, 12 items were selected to represent reading strategies use domain, as follow: deductive (identifying main ideas= 6 items) and inductive (including: summarizing, making inferences, and utilizing text organization= 6 items). In addition, validity and reliability of the questionnaire were measured through SPSS 19. Each item showed that the coefficient obtained was less than .05, so they were claimed valid. The internal consistency reliability coefficients of adopted epistemic beliefs in reading was determined by Cronbach's alpha (α) for the three dimensions were as follows: deductive (identifying main ideas) (α =.516), inductive (including: summarizing, making inferences, and utilizing text organization) (α = .487). It means the questionnaire, particularly in reading strategies use part is reliable.

DISCUSSION

The main finding from this research is that the final 40 items version (see Appendix) of the questionnaire is a reliable measure and can be used in other contexts for both research and pedagogical purposes. The analyses to determine the reliability and validity of the questionnaire revealed its success in measuring the intended constructs, namely factor affecting reading comprehension enhancement. As expected, some items were discarded due to low levels of internal validity on the dimensions of factors affecting reading comprehension these deletions led to an increase in the overall reliability of the questionnaire. Furthermore, the exploratory factor analysis resulted in concise manner of EFL reading comprehension questionnaire, which comes from three dimensions, namely epistemic beliefs in reading (13 items), reading motivations (15 items), and reading strategies use (12 items), are respectable values for a new questionnaire with a small number of items.

Further evaluation and improvement of the questionnaire are needed. Potential users of this questionnaire will also need to collect and report evidence about the quality of the data they obtain using it because validity and reliability are relative and context dependent (Bachman, 2004; Weir, 2005). Such studies will contribute to further evaluation and improvement of the questionnaire because the validation study reported in the current study has been considerably revised based on its administration with a new sample of students in an EFL context. Preliminary analyses of the new version indicate even higher levels of reliability

and confirmation of the constructs.

One of the goals in carrying out this research was to describe the process of the development and validation of a questionnaire for use in EFL research. Even though the results indicate some success in measuring the intended constructs, there are many difficulties and challenges involved in defining and measuring preferences for different types of EFL language instruction. Support for this comes from qualitative data might be conducted to the future study. The future researchers are suggested to see the causal relationship among factor affecting reading comprehensions improvement to see the direction of influences and strong/weak relationship. Further the results of this questionnaire can be related to students' reading achievement to predict whether students who show strongly positive relationship on factors affecting reading comprehension improvement achieve better in reading comprehension or not.

The positive results of this validation study have led not only to the development of an expanded version of the students' questionnaire but also to a parallel questionnaire for teachers, both with more items to measure teaching techniques use related to students' improvement of epistemic beliefs sophistication, higher reading motivations, and effective learning strategies in reading. The next phase of our research includes a quasi-experimental study to investigate the effects of each factor affecting reading comprehension enhancement, whether the more sophisticated students' epistemic beliefs the better their achievement in reading. The experimental study should also prove whether students who own higher reading motivations will achieve better too in reading comprehension. Accordingly, the experimental study should examine which reading strategy is the most effective for students to use in order obtain better achievement in reading comprehension. The development of the EFL reading questionnaire has been shown to be a valid measure of factor affecting reading comprehension improvement gives the confidence to move forward in other studies.

CONCLUSION

It can be concluded, that with the EFL reading questionnaire, a step forward in the development of an instrument for measurement of factor affect reading motivation

improvement in EFL setting has been taken. The investigation of the psychometric properties of the instrument showed a stable factorial structure and satisfactory reliabilities. Further studies are encouraged to conduct based on implications of the questionnaires in pedagogy and research fields stated above in the discussion.

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APPENDIX

EFL Reading Questionnaire

1. I make use of what I know about the text type and organization (RS-F2-Main Idea)
2. I translate difficult parts into *bahasa Indonesia*. (RS- F1-Adjusting)
3. I predict what is going on in the text. (RS-F1-reasoning)
4. Just one source is never enough to decide what is right in reading materials (EB-F3-justification by multiple sources)
5. I search for a topic sentence representing the main idea in each paragraph. (RS-F2-Main Idea)
6. I check my overall understanding of the text. (RS-F1-monitoring)
7. I take an overall view of the text type and organization to understand the text. (RS-F2-Main Idea)
8. I can never be sure about a claim in a reading text until I have checked it with at least one other source (EB-F3-justification by multiple sources)
9. To decide whether something I read is correct, I have to check whether it is related to other things I have read in the same topic(EB-F3-justification by multiple sources)
10. I read to improve my grades (RM-F2-Reading Grades)
11. I believe that everything I read in reading texts is correct (EB-F2-Justification by authority)

12. I read to learn new information about topics that interest me (RM-F1- reading curiosity)
13. I take an overall view of the text content to see what it is all about. (RS-F2-Main Idea)
14. I check to see if my understanding of the text is correct after reading e.g by discussing it with friends (RS-F1-monitoring)
15. I learn more from reading than most students in the class (RM-F1-reading efficacy)
16. I guess the meaning of unfamiliar words (RS-F1-reasoning)
17. Things that are written in reading class module is correct (EB-F2-Justification by authority)
18. When I read reading materials that is based on scientific investigations, then I believe that it is correct (EB-F2-Justification by authority)
19. I believe in claims that are based on scientific research (EB-F2-Justification by authority)
20. If an expert writes that something is a fact, then I believe it (EB-F2-Justification by authority)
21. To detect incorrect claims in reading materials, it is important to check several information sources (EB-F3-justification by multiple sources)
22. If the project is interesting, I can read difficult material (RM-F1- reading challenge)
23. It is very important to me to be a good reader (RM-F1-importance of reading)
24. To be able to trust knowledge claims in reading materials, I have to check various knowledge sources (EB-F3-justification by multiple sources)
25. I look forward to finding out my reading grades (RM-F2-Reading Grades)
26. I go back and forth in the text searching for necessary information (RS-F1-Adjusting)
27. Complicated stories are NOT fun to read (RM-F1- reading work)
28. I am willing to work hard to read better than my friends (RM-F1- competition in reading)
29. My friends sometimes tell me I am a good reader(RM-F1- recognition)
30. I sometimes read to my parents (RM-F1- social reasons)
31. I read because I have to(RM-F1- complacency)
32. Grades are a good way to see how well you are doing in reading (RM-F2-Reading Grades)

33. I feel like I make friends with people in good books (RM-F3-Reading Involvement)
34. I read a lot of adventure stories (RM-F3-Reading Involvement)
35. I enjoy a long, involved story or fiction book (RM-F3-Reading Involvement)
36. I pay attention to the text type and organization of the text I read. (RS-F2-Main Idea)
37. I pay attention to the connections of key words to understand the main idea (RS-F2-Main Idea)
38. What is a fact in reading materials depends on one's personal views (EB-F1-Personal Justification)
39. Every student can have different opinions about content in reading materials because no completely correct answers exist (EB-F1-Personal Justification)
40. If the reading instructor says something is correct, then I believe it (EB-F2-Justification by authority)

The abbreviations for classification of questionnaire dimensions and factors were not included in the administration but added in this paper.

F1= factor 1, F2 = factor 2, F3 =factor 3, EB = Epistemic Beliefs in reading, RM = reading motivation, RS = reading strategies use

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