جامعة الملك سعود
King Saud University

Journal of Research in Language & Translation

Issue No. 2 Vol. 2 (2022)

Impact of Ambiguity Tolerance on Effective Use of Learning Strategies: A Case Study of EFL Qassim University Students

Fatima A MuhammedZein

Qassim University, College of Sciences &Arts, Burayda, KSA
F.MuhammedZein@qu.edu.sa

Received: 28/2/2022; Revised: 7/7/2022; Accepted: 31/10/2022

الملخص

يعزى الاهتمام الذي حظي به تحمل الغموض لإمكانيته في تعزيز النجاح في عدة مجالات. في كثير من النواحي، يؤدي عدم تحمل الغموض والقيود التي يواجهها متعلمي اللغة الإنجليزية كلغة أجنبية في إتقان اللغة الإنجليزية إلى ضعف الأداء المعرفي والاستخدام غير الكافي لاستراتيجيات التعلم. لذلك، تبحث هذه الورقة في كيفية تعزيز تحمل الغموض الاستخدام الفعال لاستراتيجيات تعلم اللغة الإنجليزية كلغة أجنبية كما هو مبني على تصنيف أكسفورد (1990) وتعلم اللغة أومالي وشاموت (1990). وفقًا لذلك، شارك 123 طالبًا من طلاب اللغة الإنجليزية كلغة أجنبية من جامعة القصيم في الإجابة على استبيان عبر الإنترنت، تم إجراؤه باستخدام مقياس التسامح مع الغموض الخاص بـ بندر (1990) وتم تحليل مستندات الطلاب أيضًا. يكشف التحليل الإحصائي للبيانات عن علاقة ذات دلالة إحصائية بين تحمل الغموض والاستخدام الناجح لاستراتيجيات التعلم. في ضوء النتائج تمت اقتراحات التحسين في الصف الدراسي والبحث في اللغة الإنجليزية كلغة أجنبية.

Journal of Research in Language & Translation

Issue No. 2 Vol. 2 (2022)

Abstract

The global interest that ambiguity tolerance has gained is due to its remarkable potential in maximizing success in many fields. In many respects, the intolerance of ambiguity and the constraints that EFL learners encounter in mastering English lead to poor cognitive functioning and inadequate use of learning strategies. Therefore, this paper investigates how tolerance of ambiguity bolsters the potent use of EFL learning strategies as is premised on Oxford's (1990) and O'Malley & Chamot's (1990) taxonomy of language learning. Accordingly, 123 EFL students from Qassim University participated in answering an online questionnaire, administered using Budner's (1962) Tolerance of Ambiguity Scale and an analysis of students' documents as well. The statistical analysis of data reveals a significant relationship between ambiguity tolerance and successful use of learning strategies. In the light of the findings certain amendments have been suggested in EFL classroom and research.

Keywords: ambiguity; EFL learning; intolerance; learning strategies; tolerance.

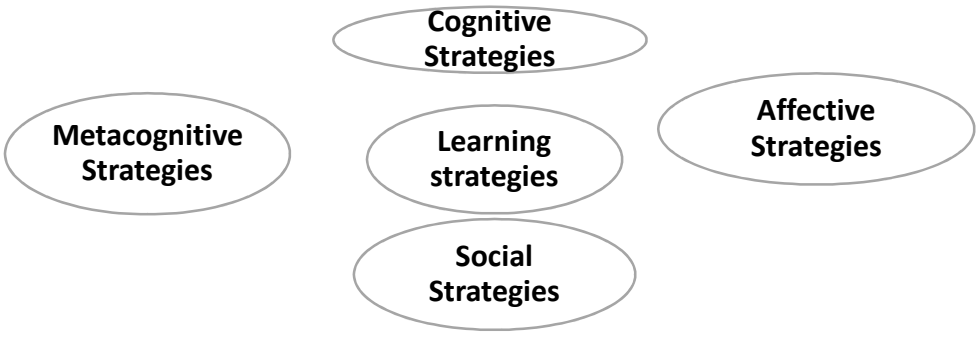
Introduction

In recent times Psychology has become an essential part of education in which learning-based assumptions and pedagogical constructs are being assessed through research. One of these notions or constructs is the concept of ambiguity. Historically, psychologists studying ambiguity intolerance were traced back to the work of Frenkel-Brunswik (1950) on the authoritarian personality. Lately, Bunder (1962) conceptualized the construct into tolerance and intolerance of ambiguity, giving a distinction for each one; tolerant individuals' perception of ambiguity is desirable, whereas intolerance renders the individual in a state of uncertainty and threat to approach ambiguous situations. Ambiguity tolerance analysis has an established literature in language learning research (Bunder,1962; Brown,1994; Larsen & Long, 1991; Zehentner, 2022 - to cite only a few). In one situation, tolerant individuals were found to possess the capacity and will to accept ambiguity (Larsen & Long, 1991; Ellis, 1994). Moreover, this tolerance is also seen a source of pleasure for individuals (Bunder,1962; Brown,1994) besides, learners are identified as being "open-minded" to accept ideologies, events, and facts that “contradict their views" (Brown,1994, P. 119) and they will develop flexibility of thinking (Sternberg, 1988). In fact, these learner characteristics of tolerance of ambiguity consolidate predispositions for successful use of learning strategies to meet the requirements of language learning. In other situations, intolerant individuals are described as: “Others, more close-minded, more dogmatic, tend to reject items that are contradictory or slightly incongruent with their existing system; they wish to see every proposition fits into an acceptable place in their cognitive organization, and if it does not fit, it is rejected" (Brown,1994, P. 119). These intolerance aspects put individuals in a state of uncertainty (Larsen& Long, 1991), stress and unwillingness to accept new ideas; consequently, such individuals do employ strategic avoidance of ambiguous stimuli (Furnham & Rbchester,1995; Merrotsy, 2013). Therefore, for Qassim EFL learners, and probably for other EFL learners as well, assessment of ambiguity tolerance in language learning is a prerequisite for fostering learning strategies.

Ambiguity Tolerance and Learning Strategies

Strategies are specific modes of approaching a task or a problem for manipulating and controlling specific information. This discussion is based on Oxford (1990) and O'Malley & Chamot's (1990) taxonomies of language learning strategies. These are metacognitive, cognitive, social/affective strategies.

Figure 1
Learning Strategies



Metacognitive strategies enable learners to plan and monitor their learning progress during the learning process; besides, learners are able to evaluate their learning after task completion. Cognitive strategies that "operate directly into incoming information" (O'Malley & Chamot,1990, p. 44), enable the learners to manipulate the learning materials or tasks to enhance comprehension and acquisition, via practicing various tasks and activities through reasoning, analyzing, synthesizing, and summarizing. Precisely, ambiguity tolerance "concerns the degree to which people are cognitively willing to tolerate ideas and propositions that run counter to their belief system or structure of knowledge" (Brown,1994, p.19). As regards Bochner's (1965) categorization of intolerant attributes of early selection and maintenance of one solution in an ambiguous situation, premature closure, and closed, mindedness, it is difficult if not impossible for such intolerant learners to use cognitive and metacognitive strategies appropriately. That is, they may use strategies in a random, unconnected, and uncontrolled manner (Chamot et al., 1996). Reversely, since tolerant learners are patient and open-minded, they are able to use cognitive and metacognitive strategies powerfully. Affective strategies concern the mental control over personal affects that interferes with learning, such as lack of certainty and anxiety. Using affective strategies allows the learner to lower anxiety and encourage one-self. Social strategies involve using social interactions to assist learners to work with others to understand language and culture, through asking questions and conversing with native speakers (Murica, 2001), and to "manage interactional opportunities" (Fillmore,1979, in Ellis, 1985, p.164). In terms of the cognitive domain, Zehentner (2022) examined the role of ambiguity avoidance in syntactic alternations in English. The result showed significant relation between the morphological, semantic, and pragmatic ambiguity, and the rise of the English dative alternation structures. He pointed towards some improvement due to the use of disambiguation strategies. Ambiguity tolerance leads to creativity (Zenasni et al., 2008), but intolerance of ambiguity leads to poor ability of abstract reasoning (O'Connor, 1952). Concerning the social domain, Achimova et al. (2021) studied the analysis of ambiguity resolution during brief communicative exchanges and found that tolerant individuals communicated well. Yu, et al. (2022) examined the role of ambiguity tolerance and resilience in students' engagement, and found significant relation between students' tolerance of ambiguity and resilience to active engagement. Mahpudz, et al. (2020) found that when learners were trained to tolerate ambiguity, they developed social skills and improved understanding. In the same line, Qingzong (2020) studied the effect of tolerance of ambiguity on the selection of FL learning strategies and found students with high ambiguity tolerance tended to select appropriate strategies in conducting ambiguous learning tasks.

Herman, et al. (2010) used Budner's (1962) scale after reducing 4 items and adding 5 items to improve internal consistency. The total number of the new items was 17, and the internal consistency was 0.73. The participants were 2351 from different countries, including students and other people with different life experiences. Dollinger (1983) examined the tolerance ambiguity of 79 entrepreneurs, using Budner's scale, and he found significant relation between tolerance ambiguity trait and entrepreneurial activity. This paper examined learners' ambiguity tolerance in respect to Oxford and O'Malley and Chamot's (1990) taxonomies of language learning strategies. A questionnaire-based on Budner's (1962) Tolerance of Ambiguity Scale has been used. To address the above issues, the following research question has been posed: How does language ambiguity tolerance influence learners' use of learning strategies?

Methods

Participants and Research Procedures

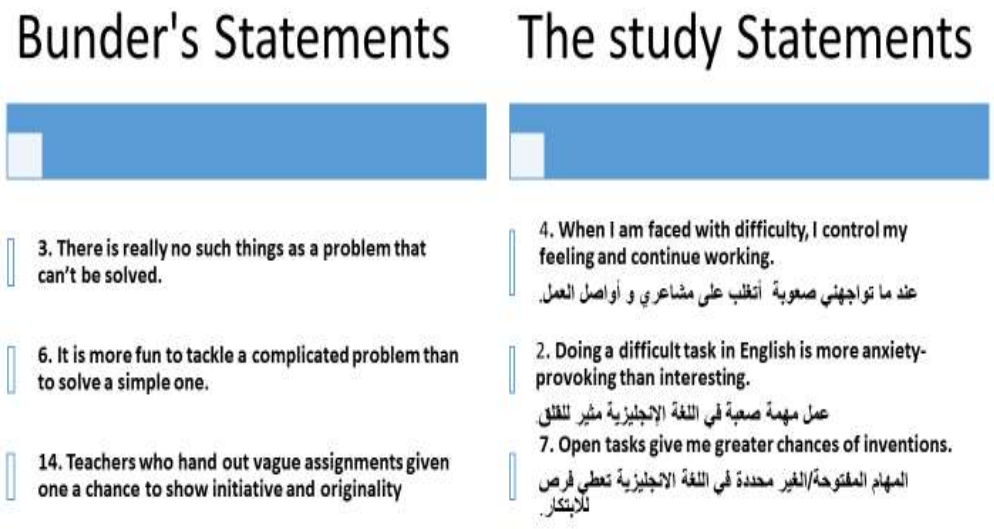
Data about ambiguity tolerance in this study, in addition to the above literature review, was elicited through a questionnaire administered online, based on Budner's (1962) Tolerance of Ambiguity scale. Besides, a document analysis was also conducted. The first group comprising of 123 undergraduate participants of similar linguistic and EFL learning background were randomly selected from Qassim University; their ages ranged from 17 to 22 approximately. The second group consisting of 38 final year students from Qassim University had their documents analysed. The documents were assignments submitted in the course of 'Issues & Problems in Translation' (Eng. 479, for semester 431, 2021-2022) with students' results added.

Research Instrument 1: Questionnaire

Budner's (1962) 'Tolerance of Ambiguity Scale' has been used to survey the participants' opinions, feelings, and strategies in tolerating language ambiguity. Herman et al. (2010), and Dollinger (1983) used Budner's (1962) scale and found significant relationship. However, Budner's (1962) scale was criticized as being difficult to understand by non-speaking English learners, and hence, having low-reliability consistency. However, Okhomina (2021) argued that "The prevailing strength of Budner's scale over the others is that, it was designed to measure three dimensions of ambiguity: the complexity, novelty, and insolubility of a situation." (p. 8). Herman et al. (2010) reported that Bunder (1962) argued that the complex nature of the multidimensional ambiguity construct is the cause of low or average reliability. The researcher found that the statements of this scale match concrete areas in EFL ambiguity tolerance more precisely than the 'Second Language Tolerance of Ambiguity scale'. Therefore, 8 statements from Budner's 16 items scale were adapted, translated into Arabic/the native language of the respondents, and included within the study's questionnaire. Some examples are provided below in (Figure 2).

Figure 2

Examples of Statements



Questionnaire statements were categorized into two themes to answer the study question. (A copy of the questionnaire has been provided in (Appendix A). Questionnaire reliability has been calculated below and validity has been strengthened by triangulation. A pilot study was conducted for 30 students from Qassim University. The result in Table 1 shows that Cronbach's Alpha is .734 and Spearman-Brown Coefficient is .818. This result means that reliability has been achieved.

Table 1

Reliability Statistics

Case Processing Summary			
		N	%
Cases	Valid	30	100.0
	Excluded [a]	0	.0
	Total	30	100.0

Reliability Statistics		
	N of Items	
Cronbach's Alpha	16	.734
Spearman-Brown Coefficient	16	.818
Guttman Split-Half Coefficient	16	.811

Research Instrument 2: Document Analysis

Document analysis was used in this study to gain more knowledge, ideas, and understanding of cognitive learning strategies (Bowen,2009). The text is provided below:

'Translate the following text and discuss ONE strategic problem/issue confronting the translator, and outline the strategy you used to deal with it.' إن الحياة زرع دائم وحصاد دائم. فالزمان لا يزرع ولا يغرس ولا يحصد ولا يجني ولكنه شاهد لا أكثر. وأما الزارعون والغارسون والحاصدون والجانون فنحن

Procedures and Analysis

Table 2

A Rubric for Analysing Errors Cognitive Strategies

Code	Error	Freq.	%	Code	Correct form	Freq.	%
	wrong word			C	correct word		
Wo	wrong word order			Co	correct word order		
Wsv	wrong sub-v agreement			Ci	correct issue		
Wi	wrong issue			Cs	correct strategy		
Ws	wrong strategy				no strategy		

(Based on appendix B data)

Table 3

Statistics of Reasoning (Thinking and Guessing Meaning)

Code	Word choice	Frequency	N	Percentage
C	Correct	17	131	12.9770
W	wrong	114	131	87.0229

Table 4

Statistics of Synthesizing (Word Order + S-V Agreement)

Code	Word order	Freq.	N	%	Code	S-V agreement	Freq.	N	%
Co	correct	31	38	81.5789	Csv	correct	22	40	55%
Wo	wrong	7	38	18.4210	Wsv	wrong	18	40	45%

Table 5

Statistics of Analysing (The Issue/ The Problem + Strategy Solution)

Code	Issue	Freq.	N	%	Code	Strategy	Freq.	N	%
Ci	correct	37	38	97.3684	Cs	correct	29	38	76.3157
Wi	wrong	1	38	2.6315	Ws	wrong	4	38	10.5263
						none	5	38	13.1578

Results

How does language ambiguity tolerance influence learners' use of learning strategies?

Part 1 Document Analysis (based on the data in section 2, Tables 3, 4, and 5)

Table 6

Statistics of Demographic Data of Cognitive Strategies

Error type		Error Freq.	N	Percentage
Reasoning (Thinking &Guessing meaning)-wrong word choice		114	149	76.5100
Synthesizing wrong order 7/25%=18%	S-V agreement 18/25=72%	25	149	16.7785
Analysing Issue, Strategy 1+ 9		10	149	6.7114

Table 6 shows that the cognitive process of 'Reasoning' in which students had to think and select from their repertoire the appropriate words gained the highest percentage of errors (76.5100%). The percentage of the wrong choice of word was 87.0229%, compared to the correct choice that gained only 12.9770, in Table 3. This evidences incompetence of students to use the cognitive strategy of 'Reasoning' to manipulate the text successfully. Perhaps, they did not tolerate the difficulty of lexis to employ strategic thinking to workout equivalent meaning in Arabic. Dogmatism influences manipulation of ambiguous information (Brown, 1994). Added to that, the intolerance of ambiguity impedes the ability of abstract reasoning (O'Connor, 1952). In the text, students' intolerance was manifested in the tendency to escape the difficulty of the referent core words by choosing inappropriate lexical items in incorrect lexical forms, for example, using words such as "agriculture, farming, grow, cultivated", and

“to crop” to be equivalent of the Arabic noun زَرعٌ. The Arabic word الزمان was translated inappropriately into "era, period, present". In Table 6, synthesizing errors appears to receive a low percentage (16.7785%) of the total errors. Most of these errors were in subject-verb agreement (72%), whereas, word order errors seemed to be low (28%). Examples of subject - verb-agreement errors: Life are, time don’t, time neither plant or harvest. The least percentage (6.7114%) had been in "Analysing The Issue &Strategy". Nearly all of the subjects were able to identify the issue (synonyms repetition), and the strategies for a solution such as merging and retention of the same repetition in ولا ...لا... to be into doesn't……*doesn't*, for the purpose of emphasis. In Table 5, 13.1578 % of the learners employed the strategy of avoidance of ambiguous stimuli (Zehentner, 2022; Furnham & Rbchester, 1995; Merrotsy, 2013). Other problems that evidenced MT influence were also recognized, and these were reduction of the verb *to be*, auxiliary *do*, the article *a*, and addition of the article "the". The article 'The' was excessively been added 28 times to the proper nouns: life and time, producing errors such as the life, the time, following Arabic proper noun formation.

Part 2 Questionnaire Result: Analysis of Strategies

Table 7

Descriptive Statistics

		Frequency	Percent	Valid Percent	Cumulative Percent
q1	Disagree	2	1.6	1.6	4.1
	Agree	38	30.9	30.9	45.5
q2	Agree	18	14.6	14.6	21.1
	Disagree	37	30.1	30.1	68.3
q3	Disagree	58	47.2	47.2	70.7
	Agree	10	8.1	8.1	96.7
q4	Disagree	4	3.3	3.3	5.7
	Agree	55	44.7	44.7	70.7
q5	Disagree	15	12.2	12.2	16.3
	Agree	54	43.9	43.9	70.7
q6	Disagree	32	26.0	26.0	41.5
	Agree	29	23.6	23.6	84.6
q7	Agree	8	6.5	6.5	10.6
	Disagree	54	43.9	43.9	63.4
q8	Agree	18	14.6	14.6	16.3
	Disagree	43	35.0	35.0	75.6
q9	Agree	21	17.1	17.1	20.3
	Disagree	35	28.5	28.5	65.0
q10	Agree	16	13.0	13.0	15.4
	Disagree	46	37.4	37.4	83.7
q11	Agree	12	9.8	9.8	11.4
	Disagree	46	37.4	37.4	73.2
q12	Disagree	14	11.4	11.4	13.0
	Agree	46	37.4	37.4	74.0
q13	Agree	35	28.5	28.5	42.3
	Disagree	24	19.5	19.5	82.1
q14	Agree	2	1.6	1.6	2.4
	Disagree	50	40.7	40.7	53.7
q15	Disagree	46	37.4	37.4	41.5
q16	Disagree	15	12.2	12.2	13.8
	Agree	37	30.1	30.1	79.7

Table 8

Mean and Std. Deviation of Strategies

	N	Mean		Std. Deviation	Variance
	Statistics	Statistics	Std. Error	Statistics	Statistics
Affective	123	15.76	.226	2.503	6.264
Cognitive	123	14.95	.242	2.679	7.178
Social	123	13.50	.227	2.513	6.318
Meta-cognitive	123	14.60	.174	1.932	3.733
Valid N (listwise)	123				

Table 9

Mean and Std. Deviation of Questions

Questions	N	Mean		Std. Deviation	Variance
	Statistics	Statistics	Std. Error	Statistics	Statistics
1. Doing easy tasks in English is more interesting than doing difficult tasks.	123	4.33	.082	.911	.831
2. Doing a difficult task in English is more anxiety-provoking than interesting**.**	123	3.66	.112	1.247	1.555
3. When I face a problem in English I leave it unresolved.	123	2.20	.090	1.000	.999
4. When I am faced with difficulty, I control my feeling and continue working.	123	3.95	.083	.922	.850
5. I like to use English in class, but I fear making mistakes.	123	3.82	.100	1.109	1.230
6. I do not like to share in activities where I meet new people and new ideas.	123	2.98	.119	1.321	1.745
7. Open tasks give chances of inventions.	123	4.02	.094	1.044	1.090
8.I like to do the tasks that explore thinking behind the questions	123	3.66	.095	1.054	1.112
9. I do not like it when the teacher asks me to explain answer to a question.	123	3.75	.108	1.198	1.436
10. I like to do tasks in which the teacher asks me to connect ideas.	123	3.52	.090	.995	.989
11.I like discussion.	123	3.78	.091	1.004	1.009
12. I like to ask questions to learn.	123	3.75	.092	1.021	1.043
13.I do not like to work in groups	123	2.99	.120	1.327	1.762
14. I like to plan before I do a task.	123	4.30	.071	.789	.622
15. It is helpful when the teacher gets students to correct themselves.	123	4.54	.052	.576	.332
16. It is worrying when the teacher gets students to comment on their work.	123	3.55	.090	1.002	1.003
Valid N (listwise)	123				

Table 8 shows that affective strategies gain the greatest mean (15.76), and this indicates the effect of ambiguity tolerance on students' use of affective strategies. The lowest mean (13.50) is gained by social strategies, which means that there was less effect of ambiguity

tolerance on students' use of social strategies. However, for both cognitive and meta-cognitive strategies the mean is 14.60. Table 7 shows detailed results. To test affective strategies, questions 1,2,4,5 have been used. In question 1,30.9 % students agree and 1.6 %disagree to do easy tasks (q1 M=4.33), and in question 5, 12.2% disagree and 39.9 % agree not to use English in class for fear making mistakes (M=3.82). Intolerant individuals feel inconvenient and uncertain (Larsen & Long, 1991.). But, in question 4, 3.3% disagree and 44.7% agree to control their feeling and continue working on a difficult task (M= 3.95). In question 2, 14.6% agree and 30.1% disagree that doing a difficult task is anxiety-provoking. The tendency to approach and tackle difficulties proves learners' tolerance of ambiguity (Furnham & Rbchester, 1995). Therefore, ambiguity tolerance affects students' use of affective strategies. To test social strategies questions 6,11,12,13 have been used: In question 6, 26% disagree and 23.6% to "I do not like to share in activities where I meet new people and new ideas" (M=2.98, Q6). Moreover 37.4% agree and 11.4% disagree that asking questions help them learn (M= 3.75). Conversing and asking questions indicate learners' use of social strategies (Murica,2001). But, in question 11, 37.4% disagree and 9.8% agree to do discussion. In question 13, 28.5% agree and 19.5% disagree to 'I do not like to work in groups' (M= 2.99). Intolerant individuals are described as more close-minded and dogmatic (Brown, 1994). Concerning meta-cognitive strategies questions 3,14,15,16 have been used. In question3, 47.2% disagree and 8.1% agree to leave the problems unresolved (M=2.20). In question 14, 40.7% disagree and 1.6% agree to plan before doing a task. In question 15, 37.4 disagree to correct themselves. In question 16, 30.1% agree and 12.2 disagree that it is worrying to comment on their work (M=3.55). This means they were unable to use metacognitive strategies to resolve ambiguity, or they may have used strategies in a random uncontrolled manner (Chamot et al., 1996).

Discussion

The study investigates the significance of ambiguity tolerance in using effective learning strategies. The discussion is based on the taxonomies of language learning strategies proposed by Oxford (1990) and O'Malley & Chamot (1990). The results agree with Qingzong, (2020) observations that ambiguity tolerant learners are competent to select appropriate learning strategies. This, too, supports the findings of Achimova, et al. (2021) that emphasize social conversation to resolve ambiguity. It also agrees with Yu, et al. (2022), who found ambiguity tolerance correlates with students' active engagement. It also agrees with the finding of Mahpudz, et al., (2020), that tolerant individuals use social skills and understanding. Document analysis is also conducted to examine cognitive strategies. The finding is in line with Zehentner's (2022), who found an increase in English dative alternation structures due to the morphological, semantic, and pragmatic ambiguity.

Conclusion

The central concern of the study was to discuss effect of tolerance of ambiguity on successful selection of learning strategies used by Qassim University students. The focus was mainly on cognitive, metacognitive, affective, and social strategies. On this basis, a critical discussion of the reviewed literature, document analysis, and questionnaire results, were done. The main findings of the study revealed that learners' strategy use was influenced by ambiguity tolerance. So, in the light of the findings and the suggested implications, Qassim university students' ambiguity tolerance should be substantially developed to properly use learning strategies. This could be through providing challenges that develop learners' ambiguity

tolerance, cognitive structure, and intrinsic motivation to be more striving and willing to learn and use language competently. It is also important to resolve mother-tongue transfer problems using authentic contextualization of language items that helps disambiguate language structure in this EFL setting.

Limitation

There is, however, one limitation regarding Bunder's (1962) tolerance of ambiguity scale. Twelve items from the scale have been shortened, disambiguated, and used by the researcher, yet, Cronbach's Alpha showed low reliability. However, after translating the questions into Arabic the test showed good reliability. The other limitation is that results cannot be generalized unless samples from both males and females at different EFL institutions are included.

Future Recommended Implications

Bunder's (1962) scale is likely to gain significant research interest within EFL studies of tolerance/intolerance in language ambiguity; this is especially effective if some of scale's items are modified to achieve internally consistent assessment. The scale's statements concretely cover the actual state of affairs relevant to ambiguity tolerance of EFL language learning contexts, as the researcher has found out. It is also recommended to use Herman, et al. (2010) scale and the modified version of Bunder's (1962) scale which has gained acceptable reliability. Another issue is that gender variable helps explore many complex trends that would be a base for future EFL educational policies. Furthermore, to examine language ambiguity encountered by EFL teachers is part of the answer to students' problem of intolerance of language ambiguity.

Bio

Fatima MuhammedZein is an assistant professor in applied linguistics, she has some contributions to the field of the English language at international conferences. In addition, she has some published papers. Her interests lie in linguistics, particularly semantics, pragmatics, sociolinguistics, and applied linguistics.

References

Achimova, A., Scontras, G., Stegemann-Philipps, C., Lohmann, J., & Butz, M. V. (2022, Jan,1). Learning about others: Modelling social inference through ambiguity resolution. *Cognition,218*,104862. https://doi.org/10.1016/j.cognition.2021.104862

Bochner, S. (1965). Defining intolerance of ambiguity. Psychological Record, 15(3), 393–400

Bochner, S. (2017, May,29). Defining Intolerance of Ambiguity. *Psycholgy, Rec 15*, 393– 400. https://doi.org/10.1007/BF03393605

Brown, D. (1994). *Principles of language teaching and learning*. Prentice-Hall.

Budner, N. Y. (1962, March). Intolerance of ambiguity as a personality variable. *Journal of Personality*, *30*(1), 29-50. https://doi.org/10.1111/j.1467- 6494

Budner, N. Y (1962). Tolerance of Ambiguity Scale. Supervisor Core Ohio Child Welfare Training Program June ,2018. http://www.ocwtp.net, October.2nd,2021

Chamot, A.U., and J.M. Omalley (1996). *Implementing the academic language learning approach*. (CALLA). *Learning strategies around the world.* OUP

Dollinger, M. J. (1983). Use of Budner's intolerance of ambiguity measure for entrepreneurial research. Psychology Reports, *53,* 1019-1021. *Sage Journals,* https://doi.org/10.2466/pr0.1983.53.3.1019

Ellis, R. (1985). *Understanding Second Language Acquisition*. OUP. Ellis, R. (1994). *The study of second language acquisition*. OUP.

Fillomre, W. (1979). Individual Differences in Second Language Acquisition. In Ellis, R. (1985). *Understanding Second Language Acquisition*. OUP

Frenkel.B. E. (1949). Intolerance of Ambiguity as an Educational and Perceptual Personality Variable. Journal of personality, *18*,108-143

Furnham, A., & Ribchester, T. (1995). Tolerance of ambiguity: A review of the concept, its measurement, and applications. *Journal of Current Psychology*, *14*(10), 179-199

Herman, J. L., Stevens, M.J., Bird, A., Mendenhall, M., and Oddou, G. (2010). The Tolerance for Ambiguity Scale: Towards a more refined measure for international management research. *International Journal of Intercultural Relations.34* (2010) 58–65

Larsen, F D. and Long, M. H. (1991). *An introduction to second language acquisition research*. Longman.

Mahpudz, A., Jamaludin, and Palimbong, A. (2020, January). Tolerance Learning to Develop Students' Social Skills in the 21st Century. https://doi.org/10.2991/assehr.k.200803.022

Merrotsy, P. (2013, May,17). Tolerance of Ambiguity. A trait of the Creative Personality? *Creativity Research Journal*. *25*(2):232-237

Murica, M. C. (2001). *Teaching English as a Second or Foreign Language*. Heinle & Heinle.

O'Connor, P. (1952). Ethnocentrism, "intolerance of ambiguity," and abstract reasoning ability. *The Journal of Abnormal and Social Psychology ,47*(2),526-530

Okhomina, D. (2021). Entrepreneurial orientation and psychological traits: The Moderating influence of supportive environment. *Journal of Behavioural Studies, Studies,* 10.1.1.366.2518_2

O'Malley, J.M. and Chamot, A.U. (1990). *Learning Strategies in Second Language Acquisition*. Cambridge University Press.

Oxford, R. L. (1990). *Language learning strategies*: What every teacher should know. Harper Collins.

Qingzong, Z. (2020). Effects of tolerance of ambiguity on the selection of language Learning strategies. www.cnki.com.cn

Sternberg, R.J. (1988). A three-facet model of creativity. In R.J. Sternberg (ed.), *The nature of creativity: contemporary psychological perspectives*. (125-147) Cambridge University Press.

Yu, M. Wang, H., and Xia, G (2022, Jaunary,13). The Review on the Role of Ambiguity of Tolerance and Resilience on Students' Engagement. https://doi.org/10.3389/fpsyg.2021.828894

Zehentner, E. (2022) Ambiguity avoidance as a factor in the rise of English dative alternation. *Journal of Cognitive Linguistics*,*33* (1),3-33

Zenasni, F., Besancon, M. Lubart, B. (2008). Creativity and Tolerance of Ambiguity. *Journal of Creative Behaviour* Creative Education Foundation, 42 (1), pp.61-72

Appendix A

Questionnaire Link

https://docs.google.com/forms/d/18CpkaMYngOrbtO3sCIrIVChDmY3D07LVe227hjRhURI/prefill - Search

Appendix B

Data of Cognitive Strategies

	N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
W		8w	5w	5w	3w	2w	4w	2w	4w	3w	3w	0w	3w	6w	2w	3w	3w	4w	5w	3w	5w	4w	4w	2w		2w	5w	1w	1w	5w	1w	4w	3w	0	2w	1w	4w	4w	5w	3w
Wo		0	0	1wo	1wo	0	wo	0	0	0	0	0	1wo	0	1wo	0	0	wo	0	0	0	0	0	0		0	0	0	0	0	0	0	wo	0	0	0	0	0	0	0
wsv		0	0	wsv	0	0	wsv	0	2wsv	1wsv	2wsv	0	wsv	0	0	wsv	2wsv	0	0	0	0	0	Wsv	0		0	wsv	0	3wsv	0	wsv	wsv	0	Wsv	0	0	wsv	0	0	0
wi		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	wi	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ws		0	ws	0	0	0	0	0	0	0	0	0	0		0	0		0	0	0	ws	0	0	0		0	0	0	0		0		0	0	0	0	0		ws	ws

Appendix C

Samples of Students Documents

C:\Users\DELL\Desktop\386a967b-f54d-41fd-b639-423d0057a925.jpg