Exploring Listening Strategies Employed by EFL Learners

in Question and Response Tasks

Nirachorn Boonchukusol¹ & Dr. Nantikarn Simasangyaporn²

¹ School of Liberal Arts, Sripatum University at Chonburi, Chonburi, Thailand

² Language Institute, Thammasat University, Bangkok, Thailand

Correspondence: Nirachorn Boonchukusol, School of Liberal Arts, Sripatum University at Chonburi, Chonburi, Thailand. E-mail: Nirachorn.boonchu@gmail.com

Received: August 11, 2023	Accepted: September 13, 2023	Online Published: September 14, 2023
doi: 10.5539/elt.v16n10p13	URL: https://doi.org/10.5539/elt.v16n10p13	

Abstract

This study aimed to explore listening strategies EFL learners use when completing mock TOEIC listening tests; investigate listening strategies that lead to success in answering the test questions; and find out how differently high-, intermediate-, and low-proficiency learners use listening strategies in four different task types. A total of 23 participants were selected for stimulated recall protocol interviews. Verbal reports from each participant were coded using taxonomy, and each strategy participants used was grouped according to listening task type. The results from the stimulated recall protocol interviews revealed that participants employed identification of words and chunks, hypothesis formation, monitoring against the question and response part. Learners with the three levels of proficiency employed similar strategies in their listening test. However, the frequency and quality of the strategies used to help them arrive at their answers were completely different. Learners whose linguistic knowledge was automatic were able to comprehend the listening problems, whereas learners whose linguistic knowledge was automatic were able to comprehend the listening passage and apply appropriate strategies synchronously to solve listening problems.

Keywords: listening strategies, metacognitive and cognitive strategies, task types, EFL learners

1. Introduction

Listening in a foreign language is difficult because learners have to process real-time speech using linguistic and non-linguistic knowledge. Additionally, the fast speech of the speakers in the recording as well as the connected speech where words begin and end (e.g. weak forms, contractions, elision, and assimilation) causes learners, particularly learners with a low level of language proficiency, to struggle (Harmer, 2001; Renandya & Farrell, 2011). Listening is challenging because learners have only one opportunity to hear the recording, and they cannot ask that it be repeated. Thus, learners need to rely on their listening abilities to process real-time prompts and select the correct answers (IIMURA, 2018; Trew, 2007). Listening is even more difficult when learners attempt to complete a test such as Test of English for International Communication (TOEIC), The International English Language Testing System (IELTS), and Test of English as a Foreign Language (TOEFL)(Taladngoen & Esteban, 2022). There are four listening task types in TOEIC listening: photograph, question and response, short conversation, and short talk. In the question and response task in a mock TOEIC listening test, learners will hear questions or statements following the four three alternatives. Neither the questions nor the responses will be printed in the test book. Learners will have to choose one correct response that best answers the question and statement that they hear (Educational Testing Service, 2022). Learners need to have phonological and morphological knowledge to successfully answer the questions. Learners also need to understand the concept of sound, assimilation, and deletion in the listening part of phonological knowledge. Learners who have a wide amount of vocabulary knowledge will have an advantage in morphological knowledge. Therefore, learners of all proficiency levels are recommended to prepare themselves in advance with questions, alternatives, and distractors (Taladngoen & Esteban, 2022) and with listening strategies used to solve listening problems.

Limited studies have been conducted in listening comprehension and listening instruction in language classrooms. For example, Goh (1998) studied ESL learners' listening strategies and tactics in intensive English

language and academic programs in Singapore University. Goh's results showed that high-proficiency learners were able to use different strategies such as elaboration, inferencing, and prediction to solve listening problems. Rost (2011) and Oxford (1990) commented that listening strategies were needed for developing listening skills, so teachers should teach learners listening strategies. Vandergrift and Goh (2012) listed the following listening strategies: cognitive, metacognitive, and socio-affective. Graham, Santos, and Vanderplank (2008) investigated the methodologies related to listening strategies from two groups of proficiency; top linguistic knowledge learners and bottom linguistic knowledge (BLK) learners. Their results showed that top linguistic knowledge learners combined many listening strategies. For example, the former used prediction strategy with metacognitive strategy, whereas the latter used negative strategy when they could not hear anything. Few studies have been conducted on the use of listening strategies in the testing listening context. Research on listening strategies used in the testing context, particularly in the question and response task in the mock TOEIC listening test, is also scarce. One relevant study is Pan (2015), which explored Taiwanese university learners' listening strategies in the TOEIC. The results revealed that learners used different strategies depending on their language proficiency. For example, learners used planning strategy in the photograph task more often than in the short talk and question and response tasks. Moreover, Pan (2015) found that the strategies learners used depended on their proficiency. As previous studies showed, listening comprehension, listening instruction, and listening in the standardized test are limited because the methodological difficulties when examining the thinking processes of the learners taking a test (Yi'an, 1998) and use indirect method to measure complex processes (Rubin, 1994). Therefore, language teachers should prepare learners with listening strategies. The teacher should not only teach what listening strategies they use but should also emphasize how to use those strategies appropriately in different listening task types. In this study, the TOEIC listening in question and response task is chosen because questions and responses are not printed in the test book. This is in contrast to other tasks such as conversation and short talk, where learners can read the printed text beforehand and select the best responses. Thus, this study aims to explore listening strategies that learners of different proficiency levels employ when completing the question and response task in the mock TOEIC listening test. The results will be beneficial to both teachers and learners. The former will be aware of how to teach listening while focusing on learning strategies, and the latter can prepare themselves for a standardized listening test such as an exit exam or a job application exam. The research question in this study is as follows:

(1) What listening strategies do learners of different levels of proficiency use when completing the question and response task in the mock TOEIC listening test?

2. Method

The present study adopted a qualitative method to explore the listening strategies used in the question and response task in the mock TOEIC listening test. Participants were classified into high, intermediate, and low levels of proficiency according to the TOEIC listening mock test score. Participants with scores between 60 and 90 were classified into the high-proficiency group, participants with scores between 40 and 59 were classified into the intermediate-proficiency group, and participants with scores between 20 and 39 were classified into the low-proficiency group. Purposive sampling was used to select participants for stimulated recall protocol interviews. Seven participants were selected from the high-proficiency group, six participants were selected from the intermediate-proficiency group, and 10 participants were selected from the low-proficiency group. The study was conducted in a private university in Thailand, and third-year learners enrolled in a listening and speaking course and preparing for a proficiency test were recruited. They were English major and non-English major students, and the numbers of the years they had studied in an English courses, while English major students studied three to four of English courses, while English major students studied more than five English courses.

Before the stimulated recall interview, the teacher provided instructions on how to perform stimulated recall. The teacher showed participants a video and instructed them to verbalize their thoughts according to a stimulus such as a listening prompt, question, or choice. Participants would asked to stop the recording before saying what they thought out loud.

After the 23 participants finished their stimulated recall interviews, the researcher transcribed the interviews using Microsoft Word. Then, the researcher and listening expert employed and coded the metacognitive and cognitive taxonomy from previous studies (Santos, Graham, & Vanderplank, 2008; Simasangyaporn, 2016; Young, 1996) to cross-check the reliability of the coding. The coding was broken into smaller chunks, and the researcher typed the strategies learners used using the comment function in Microsoft Word. After the researcher finished the transcription and coding, the blank transcription was sent to the inter-rater for reliability checking. Last, the researcher created a strategy grid in Microsoft Excel to examine the strategies participants of different

levels of proficiency used to answer questions in each part of the listening test.

3. Results

According to the analysis of the listening test in the question and response task, the strategies that participants employed were identification of words and chunks, hypothesis formation, monitoring against the question, and matching lexis heard to lexis in the question.

3.1 Identification of Words and Chunks

The first example is from PH16, a high-proficiency participant who demonstrated that she was able to use numerous strategies to answer a single question.

Question 13. Where did you put the package for Ms. Sato?

(a) Ms. Sato is over there.

(b) They're on her desk.

(c) She packed her bags.

PH16

"The question starts with 'where.' The answer is B because it tells the position of the thing that is 'on her desk.' I think the answer is B, but can I listen again, please? I think I am so confident with the answer this time. I have heard 'Where did you put'... There is the word 'put,' means something needs to be placed there for sure. Choice A, I have heard the word 'Ms. Sato is over there,' which I think is not the correct answer because Ms. Sato is a human. So I would choose the same item that I chose before that, which is choice D, yes, 'on her desk.'"

PH16 identified the word "where" in the question. She formed a hypothesis and used selective attention to listen for the answer ("on the desk"). She eliminated other inappropriate choices. She finally confirmed her hypothesis and chose the "location of the thing" as her answer. She was able to retain information long enough to choose the answer.

The next example is from PL21, a low-proficiency learner who demonstrated that she could identify words and chunks from the question. However, the words she identified were not useful to answer the question.

Question 37: Is there a discount on this furniture?

(a) Yes, I can give you twenty-five percent off the regular price.

(b) Yes, we counted it last night.

(c) Yes, this is furniture.

PL21

"The answer is C because the question asks about 'furniture' or something, and I hear 'this is furniture.' For me, A is incorrect because the speaker says something about 25% off, and choice B has the word 'last night,' so I don't choose choices A and B, but C. I will choose choice C because it has the same word as in the question."

PL21 was able to identify the last word in the question, which was "furniture." From the responses, she identified "25% off" and "last night." Then, she formed the hypothesis that the correct answer was choice C without comprehending the meaning of the choices. She immediately eliminated the correct answer and matched the lexis heard in the question with the lexis in the choice that could lead to an incorrect answer. The ability to hear and understand the question between PH16 and PL21 could help detect high and low levels of proficiency in participants who are not able to go beyond the word level in the question and response task.

3.2 Hypothesis Formation

Hypothesis formation strategy cannot be used independently. It works well in combination with other listening strategies such as selective attention and monitoring against the question.

PH22 was a high-proficiency learner who employed hypothesis formation with other listening strategies to arrive at the correct answer.

Question 16: When can I call you?

(a) Tomorrow morning is a good time.

(b) Most people just call me Maria.

(c) My office is the best place to talk.

PH22

"I heard the question 'When can I call to you?' and the choices . . . When I listen, I think choice A and choice C are the possible answers. I think I will go for choice A because if I am not wrong, the speaker says something about 'tomorrow,' just like they are going to talk about tomorrow. And I will choose choice A as the answer. In the beginning, I think the answer is C because I have heard the speaker say something about 'talk,' 'talk' something."

PH22 identified the whole question "When can I call you?" Then, she used selective attention strategy to listen for the answer in the choices and chose the correct answer. She did not use hypothesis formation strategy to obtain the answer. Rather, she employed selective attention, monitoring against the question, and identification of words and chunks.

Next, PI11 was an intermediate-proficiency participant who applied the same strategies as PH22. PI11 used hypothesis formation in combination with other listening strategies.

Question 24: Where would you like to eat dinner?

(a) As soon as I finish typing this document.

(b) We could try that restaurant across the street.

(c) Yes, I would like that very much.

PI11

"The question is asking about 'where,' which means places. First of all, I eliminated choice C because the answer is about like or dislike. Then, there will be choices A and B left. I couldn't hear choice A clearly, but I don't think it's correct. In choice B, I hear the words 'restaurant' and 'street' or something. It's related to the place so the answer is choice B."

PI11 was able to identify the word "where" in the question and formed the hypothesis that if the question began with "where," the answer should be the "place." She used selective attention to listen for the correct choice, which was "restaurant." Finally, she confirmed her hypothesis. Even though she did not understand everything in the choices, as long as she could identify the important word, she could select the correct answer.

3.3 Monitoring Against the Question

Participants needed to understand and monitor the question being asked to select the correct answer. They had to rely on the recording because they had nothing to read during the listening. Therefore, if they were not able to monitor and understand the question, they would not know what the answer was. Moreover, this strategy could not be used alone. Successful participants used this strategy in combination with other listening strategies such as identification of words and chunks and hypothesis formation.

PH8 was a high-proficiency participant who was able to use listening strategies perfectly.

Question 24: Where would you like to eat dinner?

(a) As soon as I finish typing this document.

(b) We could try that restaurant across the street.

(c) Yes, I would like that very much.

PH8

"Where would you like to eat dinner?' That is the question. Stop."

Audio File: "As soon as . . . this document.' Stop."

"As soon as I finish typing this document,' which is not related to the question, right?"

Audio File: "We could try that . . . the street.' Stop."

"We could try that restaurant across the street.' I will keep this choice."

Audio File: "Yes, I would . . . very much. Stop."

"The answer should be 'across the street' because the last choice says 'Yes, I like them very much.' I don't think it is the answer to this question. It is supposed to be 'a restaurant across the street.""

PH8 was able to monitor and understand the question. He understood the whole question ("Where would you like to eat dinner?"). Then, he formed a hypothesis, used selective attention to listen for the answer, and eliminated choices that did not fit with the question. Finally, he confirmed his hypothesis when he learned that

the distractors did not relate to the questions.

PL19, a low-proficiency participant, was able to monitor the question using an identified word and without comprehending the question. She used inferencing, elaboration, and world knowledge strategies to help her answer the question.

Question 17: It's supposed to rain tomorrow.

(a) You were supposed to come yesterday.

(b) I'd better bring an umbrella.

(c) Tomorrow's train is on time.

PL19

"The question said something about 'rain' and I think it's about rain, so I will choose choice B because I hear the word 'umbrella.' I should bring an umbrella."

PL19 monitored the question and was able to identify one word ("rain") without understanding the question. She did not form a hypothesis, but she accidentally heard the word "umbrella." So, she used elaboration and background knowledge strategies to make sense of the question: namely, that if it rains, people carry umbrellas. The ability to hold longer and larger chunks of words could separate high- and low-proficiency participants. If the question had the word 'umbrella' in every choice, employing elaboration and background knowledge would not be enough to obtain the correct answer.

3.4 Matching Lexis Heard to Lexis in the Question

When participants did not understand what the question was, they matched the words they could hear with the words that appeared in the choices. Learners who did not monitor or comprehend the question ended up selecting the choice with the same word as in the question.

PL19, a low-proficiency participant, demonstrated that she could not monitor and comprehend the question. She just heard the last word in the question and matched it to the choice.

Question 18: Who is going to meet Mr. Contini at the airport?

(a) He's at the airport.

(b) Mrs. Garcia will pick him up.

(c) At ten o'clock.

PL19

"I have heard the word 'airport' because they are at the airport, so I would answer choice A because I have heard the word 'airport.' He is at the airport."

PL19 did not comprehend the question and the choices. She identified the last word in the question ("airport"), which was not important to answer the question. She then matched the last word she heard with the same lexis in the choice.

Next, PL12 employed match lexis heard to lexis in the question strategy without monitoring and understanding the question. She also matched the last word heard in the question with the answer.

Question 13: Where did you put the package for Ms. Sato?

(a) Ms. Sato is over there.

(b) They're on her desk.

(c) She packed her bags.

PL12

"I think the answer is A because I have heard the last word 'Ms. . . .' something, and choice A just repeated the same word as in the question."

PL12 did not monitor or comprehend the question and could only identify the last word ("Ms. Something"). The word she could identify was not useful to make further inferences, so she employed guessing to link the word in the question with the word in the choice.

In conclusion, learners at all levels of proficiency should be aware of match lexis heard to lexis in the question strategy because the test was designed to motivate low-proficiency learners to choose a distractor when they

were not able to monitor and comprehend the question. If learners matched what they heard without understanding the question, there was a high possibility of their choosing the wrong answer.

4. Discussion

The strategies that the high-, intermediate-, and low-proficiency learners employed in the question and response task in the mock TOEIC listening test were identification of words and chunks, hypothesis formation, monitoring against the question, and matching lexis heard to lexis in the question. Learners of all levels of proficiency employed similar listening strategies. However, the quality of the answers and how they coped with the answers were completely different.

High- and intermediate-proficiency learners were able to hold longer and larger sentences in both questions and choices. They could identify whole sentences in the question and use selective attention to listen for the answer. Field (2010) mentioned that learners with high linguistic knowledge could free up space to process incoming information with less demand and effort. They were able to identify words, chunks, and syntactic and semantic information. Further, they knew how to employ listening strategies in combination because some of the strategies cannot be used independently. For example, high-proficiency learners formed hypotheses and monitored the question at almost the same time. Simasangyaporn (2016) revealed that learners used hypothesis formation, monitoring against the question, selective attention, and inferencing. High-proficiency learners also adjusted their hypotheses and answers according to what they heard. Vandergrift (2003), who studied listening comprehension strategies in more skilled and less skilled learners, demonstrated that the former used comprehension monitoring more often than the latter.

Meanwhile, low-proficiency learners had different ways of coping with listening questions. They were able to identify some words in a sentence that could not be used to help them answer the questions. They were also not able to hold longer and larger chunks of the sentence compared to high- and intermediate-proficiency learners because of limitations in their linguistics knowledge (Field, 2010). Low-proficiency learners formed hypotheses or suggested possible answers based on identified words and tried to match the answers in the choices to the question. Additionally, they mentioned that they monitored the questions, but they never adjusted their answers and their understanding according to what they heard or to the listening prompts. When they did not understand the questions being asked and accidentally heard the last word, they immediately applied a compensatory strategy such as matching lexis heard to lexis in the question, background knowledge, and elaboration to obtain the answer before moving on to the next question. Therefore, matching lexis heard to the lexis in the question is a strategy that can be widely used among low-proficiency learners. There is a large gap in linguistics knowledge and comprehension knowledge among these learners and other learners. They thus use this strategy to compensate for missing information. They also use other available information such as background knowledge and common sense (Buck, 2003). Matching lexis heard to lexis in the question was observed in Graham, Santos, and Vanderplank (2008), who studied strategy clusters and knowledge in French L2 listening comprehension. Their results revealed that BLK learners applied match lexis heard to lexis in questions because they were not able to comprehend the questions.

The pedagogical implications of this study are as follows: Teachers can use this study's results to equip and prepare learners with listening strategies. It is beneficial for learners of all levels of proficiency to be taught these strategies, particularly low-proficiency learners. They need to learn how to apply these strategies intensively, systematically, and appropriately to solve listening problems in different listening task types. Teachers should at least point out that some strategies should be avoided in tests, such as matching lexis heard to lexis in the question, because of the high possibility of choosing an incorrect answer. Next, teachers should devote some time to teaching learners both bottom-up strategy (e.g., sounds, words, vocabulary, spoken language features) and top-down strategy (e.g., background knowledge, world knowledge, and experiences). Last, teachers should conduct listening practice, in which learners listen to different kinds of listening passages and perform different tasks. For high- and intermediate-proficiency learners, teachers should promote a systematic cycle of the metacognitive processes of planning, monitoring, and evaluation for the development of strategy use and listening awareness over time (Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006).

There are several limitations related to the participants in this study. First, the participants might not have provided accurate or truthful information, creating response bias. Second, the sample size for this study might have been relatively small to achieve generalizability of the findings to larger populations. Last, the study focused on the TOEIC, which restricted the applicability of the results to another standardized test.

Acknowledgments

I would like to thank my advisor whose academic guidance was instrumental throughout the research. The reviewers of the manuscript for their valuable comments that significantly improved the earlier version of this paper. Many thanks go to all participants for sharing important without them, this research would not have been possible. My family for all the supports during this journal, and my friends who recommended the journal for publication during the research. I am deeply grateful for your support and assistance in making this research a reality.

References

- Bowles, M. A. (2010). The think-aloud controversy in second language research: Routledge. https://doi.org/10.4324/9780203856338
- Brown, S. (2006). Teaching listening (Vol. 7): Cambridge University Press New York.
- Buck, G. (2003). Assessing Listening. 3rd printing. In: Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511732959
- Cohen, A. D. (2014). Strategies in learning and using a second language: Routledge. https://doi.org/10.4324/9781315833200
- EF English Proficiency Index. (2017). *EF English proficiency index EF education first*. https://www.ef.com/assetscdn/WIBIwq6RdJvcD9bc8RMd/cefcom-epi-site/reports/2017/ef-epi-2017-englis h.pdf.
- Ellis, R. (2003). Task-based language learning and teaching: Oxford University Press. In: USA.
- Examinee handbook. (2022). TOEIC redesigned Bridge S&W Examinee Handbook ETS. https://www.ets.org/pdfs/toeic/toeic-listening-reading-test-examinee-handbook.pdf.
- Field, J. (2010). Listening in the language classroom. *ELT journal*, 64(3), 331-333. https://doi.org/10.1093/elt/ccq026
- Gass, S. M., & Mackey, A. (2016). Stimulated recall methodology in applied linguistics and L2 research: Taylor & Francis. https://doi.org/10.4324/9781315813349
- Graham, S., Santos, D., & Vanderplank, R. (2008). Listening comprehension and strategy use: A longitudinal exploration. *System*, *36*(1), 52-68. https://doi.org/10.1016/j.system.2007.11.001
- Graham, S., Santos, D., & Vanderplank, R. (2010). Strategy clusters and sources of knowledge in French L2 listening comprehension. *Innovation in Language Learning and Teaching*, 4(1), 1-20. https://doi.org/10.1080/17501220802385866
- Gu. (2003). Vocabulary learning in a second language: Person, task, context and strategies. Tesl-Ej, 7(2), 1-25.
- Harmer, J. (2001). The practice of English language teaching. London/New York, 401-405.
- IIMURA, H. (2018). Distractor plausibility in a multiple-choice listening test. *JLTA Journal, 21*, 65-81. https://doi.org/10.20622/jltajournal.21.0_65
- Lynch, T., & Mendelsohn, D. (2002). Listening. An introduction to applied linguistics. N. Schmitt. London, Arnold.
- O'Malley, J. M., & Chamot, A. U. (1990). Learning strategies in second language acquisition: Cambridge university press. https://doi.org/10.1017/CBO9781139524490
- Oxford, R. L. (1990). *Language learning strategies: What every teacher should know/* by Rebecca L. Oxford. New York: Newbury House Publisher.
- Pan, Y.-C. (2010). Enhancing students' communicative competency and test-taking skills through TOEIC preparatory materials. *Tesol Journal*, *3*, 81-91.
- Renandya, W. A., & Farrell, T. S. (2011). 'Teacher, the tape is too fast!'Extensive listening in ELT. *ELT journal,* 65(1), 52-59. https://doi.org/10.1093/elt/ccq015
- Rost, M. (2011). *Teaching and Researching: Listening* (2nd ed.). New York: Routledge. https://doi.org/10.4324/9781315833705
- Rubin, J. (1994). A review of second language listening comprehension research. The modern language journal, 78(2), 199-221.

- Santos, D., Graham, S., & Vanderplank, R. (2008). Second language listening strategy research: Methodological challenges and perspectives. *Evaluation & Research in Education*, 21(2), 111-133. https://doi.org/10.1080/09500790802152183
- Simasangyaporn, N. (2016). The effect of listening strategy instruction on Thai learners' self-efficacy, English listening comprehension and reported use of listening strategies. University of Reading,
- Taladngoen, U., & Esteban, R. H. (2022). Assumptions on Plausible Lexical Distractors in the Redesigned TOEIC Question-Response Listening Test. *LEARN Journal: Language Education and Acquisition Research Network*, 15(2), 802-829.
- Teng, F. (2014). Assessing the Depth and Breadth of Vocabulary Knowledge with Listening Comprehension. *PASAA: Journal of Language Teaching and Learning in Thailand, 48,* 29-56.
- Tran, T. Q., & Duong, T. M. (2020). Insights into Listening Comprehension Problems: A Case Study in Vietnam. *PASAA: Journal of Language Teaching and Learning in Thailand, 59*, 77-100.
- Trew, G. (2007). Tactics for TOEIC: New York: Oxford.
- Vandergrift, L. (2003). Orchestrating strategy use: Toward a model of the skilled second language listener. Language learning, 53(3), 463-496. https://doi.org/10.1111/1467-9922.00232
- Vandergrift, L., Goh, C. C., Mareschal, C. J., & Tafaghodtari, M. H. (2006). The metacognitive awareness listening questionnaire: Development and validation. *Language learning*, 56(3), 431-462. https://doi.org/10.1111/j.1467-9922.2006.00373.x
- Vandergrift, L., & Goh, C. M. (2012). Teaching and learning second language listening: Metacognition in action: *Routledge*.
- Yi'an, W. (1998). What do tests of listening comprehension test?-A retrospection study of EFL test-takers performing a multiple-choice task. Language testing, 15(1), 21-44.
- Young, M.-Y. C. (1996). Listening comprehension strategies used by university level Chinese students learning English as a second language. University of Essex.

Appendix A

Taxonomy for Coding Metacognitive and Cognitive Listening Strategies

In general, an appendix is appropriate for materials that are relatively brief and that are easily presented in print format. Some examples of material suitable for an appendix are (a) a list of stimulus materials (e.g., those used in psycholinguistic research), (b) a detailed description of a complex piece of equipment, (c) a list of articles that provided the source data for a meta-analysis but are not directly referred to in any other way in an article, and (d) a detailed demographic description of subpopulations in the study and other detailed and/or complex reporting items suggested in the reporting standards section of this chapter.

If your manuscript has only one appendix, label it Appendix; if your manuscript has more than one appendix, label each one with a capital letter (Appendix A, Appendix B, etc.) in the order in which it is mentioned in the main text. Each appendix must have a title. In the text, refer to appendices by their labels: produced the same results for both studies (see Appendices A and B for complete proofs).

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (http://creativecommons.org/licenses/by/4.0/).