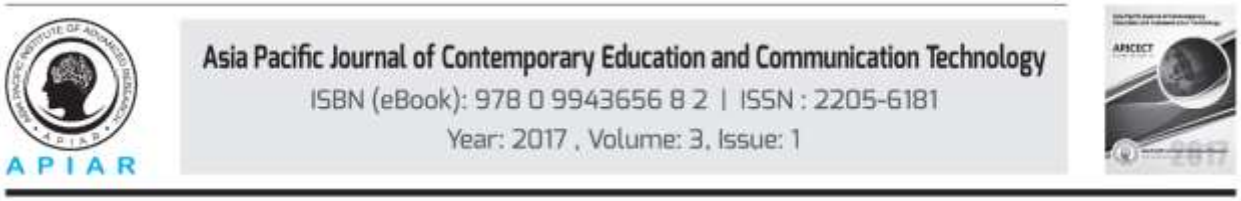
Asia Pacific Journal of Contemporary Education and Communication Technology (APJCECT)
ISBN: 978 0 9943656 82; ISSN: 2205-6181
Year: 2017, Volume: 3, Issue: 1
www.apiar.org.au



METACOGNITIVE STRATEGY INSTRUCTION AND IELTS LISTENING PERFORMANCE: A COMPARISON BETWEENUSING MPS AND CALLA INSTRUCTION MODELS

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Abstract

Among the challenges instructors face when presented with the task of teaching, metacognitive strategies in ESL listening is the choice of instruction models to be adopted. This paper presents the findings of a research that compares the use of two instruction models to teach metacognitive strategies in L2 listening; the Metacognitive Pedagogical Sequence (MPS) and the Cognitive Academic Language Learning Approach (CALLA). A quasi-experimental research was carried out to compare their effects on the listening comprehension performance of Malaysian ESL learners (N=50) at a tertiary institution in Malaysia, using IELTS listening tests. The study aims to investigate if the two models would result in improvements to listeners' listening comprehension performance across three levels of listening proficiency (high, intermediate and low). Posttest results show that listening comprehension performance using both models improved significantly compared to their pretest scores. However, when comparing between MPS and CALLA, there was no significant difference between their pretest -posttest improvements. In terms of listening proficiency levels, listeners in the intermediate and low levels made the most improvement and benefited the most from metacognitive strategy instruction. The paper concludes by making several recommendations with regard to their suitability of use in teaching L2 listening and their practical applications in teaching L2 unidirectional listening, as tested in IELTS and MUET.

Keywords: CALLA, ESL/IELTS Listening, Metacognitive Strategy Instruction, MPS

1. Introduction

Research, from as far back as 1929, has shown that 47% of verbal communication is devoted to listening as compared to 29% on speaking, 17% on reading and 7% on writing (Rankin, 1930; Feyten, 1989). In second language learning (L2), listening comprehension competency is important as it facilitates for language acquisition and the emergence of other language skills (Richards, 2005; Rost, 2002; Vandergrift & Goh, 2012). However, despite its importance, it is generally a neglected skill in the language classrooms and research. As such, listening has become known as the Cinderella of language skill (Vandergrift, 2007; Nunan, 1997).

This neglect is similarly experienced in the Malaysian ESL context. In the formal assessment of English language competency, listening is not given a place in Malaysian public examinations up to the level of Sijil Pelajaran Malaysia (SPM), which is a CambridgeOLevel equivalent. In an

Asian society that places great value on academic achievement, this omission can compound to the neglect as resources will not be dispensed on teaching a skill seen as not bearing weight on overall academic grades. This neglect leads to serious ramifications for post-SPMstudents who are directly enrolled for tertiary studies. In institutions where English is used as a medium of instruction, poor ESL listening skills become a liability as a considerable amount of knowledge is transmitted via listening in lectures, workshops and seminars. Thus, the dilemma that arises for ESL teaching practitioners at these Malaysian tertiary institutions would be how to improve their students' ESL listening skills and if remedial actions can be expediently effective within a limited time period. These are of particular urgency as English is no longer accorded as much prominence as compared to other subjects at the tertiary level. For institutions tasked with producing business, technical and vocational graduates, English is relegated to playing second fiddle as a supporting subject. The answer for both issues could lie with metacognitive strategy instruction.

2. Literature Review

The concept of metacognition is often attributed to Flavell (1976) and Brown (1977). In simple terms, metacognition refers to "knowledge about one's own cognition" (Brown, 1977) or "being aware of our own thinking as we perform specific tasks and then using this awareness to control what we are doing" (Marzano et al., 1988). Flavell's 1976 definition of metacognition consists of two components; '*knowledge concerning one's own cognitive processes*' (knowledge component) and '*the active monitoring and consequent regulation and orchestration of these processes*' (action component) – or what is known as the twin component of metacognition (Paris & Winograd, 1990b; Goh, 2010; Veenman et al., 2006). Embedded within Flavell's twin components of metacognition is an overarching suggestion of self-awareness and the subsequent autonomous decision-making ability. As these are preludes to actions that facilitate learning (Brown, 1977; Paris & Winograd, 1990a), the instruction of metacognitive strategy for L2 listening is promisingsince tertiary level students would be expected to possess such qualities. As metacognition leads to an empowered, self-awareself-directed listener, it is seen as being fundamental to all learning activities (Victori & Lockhart, 1995; O'Malley & Chamot, 1990; Hacker et al., 2009).

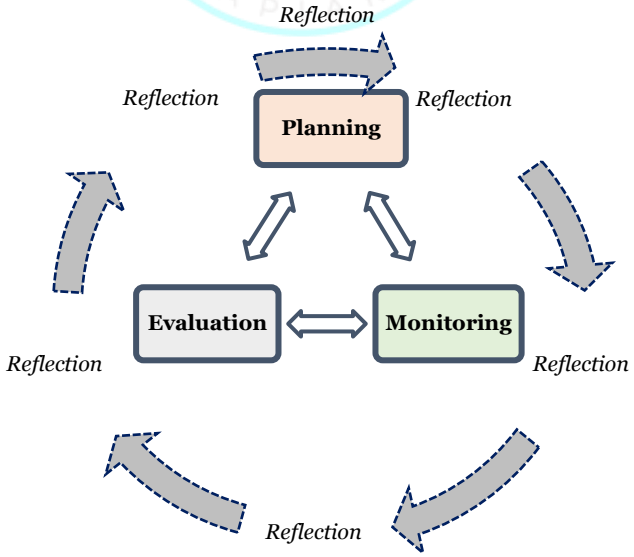

Figure 1: Metacognitive Strategies and the Integral Role of Reflection

A 'metacognitively aware' listener is able to use and orchestrate metacognitive strategies to manage his or her listening experiences (Wenden, 1998; O'Malley et al., 1989; Baker & Brown, 1980). These strategies revolve around *planning, monitoring* and *evaluation* strategies and are contingent upon learners having adequate *task, person* and *strategy* knowledge. These, together with the deployment of appropriate metacognitive strategies, are facilitated by metacognitive judgment when learners reflect on their listening experiences. Such reflections have been described as "the forerunners of actions" (Paris & Winograd, 1990a) and are crucial in the instruction of metacognitive strategies.

Metacognitive Strategy Instruction Models: MPS and CALLA

Metacognitive instruction is any instructional procedures that increase the learners' awareness of the listening process by way of developing their person, task and strategy knowledge (Vandergrift & Goh, 2012). Therefore, any instructional procedures that work towards this goal can be used for metacognitive strategy instruction. Despite the degrees of freedom accorded by this explanation, teaching practitioners who have just become acquainted with metacognitive strategy may face an issue with regard to the instruction model to be adopted. The present study looks at two such instruction models; the Metacognitive Pedagogical Sequence (MPS) (Vandergrift, 1999)and the Cognitive Academic Language Learning Approach (CALLA) (Chamot & O'Malley, 1994).

In what is termed as "methodological issues", Chamot (1990) addressed the case of whether strategy instruction should be embedded or direct (explicit). In embedded strategy instruction, students are guided through a series of listening activities that require the use of learning strategies, but they are neither informed of the strategies nor of the transferability of strategy use outside the particular listening lessons. In contrast, direct strategy instruction requires that listeners be explicitly and clearly informed of the use and benefits of the strategies, be given instruction on their use, as well as be informed and guided on the transferability of the strategies beyond the listening classroom.

The MPS,is an example of a model that uses embedded strategy instruction. It is a process-based approach primarily aimed at increasing L2 learners' awareness of the processes in unidirectional listening (Vandergrift & Goh, 2012). In this approach, L2 listeners are guided to repeatedly experience the metacognitive processes of planning, monitoring, evaluation and problem-solving as they attempt to reconstruct the listening text from multiple listening. Due to the nature of this approach, the type of listening in MPS is also known as discovery listening (Wilson, 2003). In MPS, the listening topic and text type are first communicated to the learners and they are invited to predict the words and content they think will be mentioned (*Planning & Predicting* stage). This is then followed by students listening to the text at least twice, making revisions to their predictions and attempting to reconstruct the text (*1st listening/verification stage, 2nd listening/verification* stage) after each listening. The listening text is listened to for the third time for a final verification of their text reconstruction, but it can be alternatively substituted by the reading of audio tapescript to aid word recognition (*3rd listening/verification* stage). This stage is designed to address deficiencies in bottom-up processing or perceptual processing, a problem faced mainly by weak L2 listeners (Goh, 2000). The pedagogical sequence ends with the *Reflection/Goal-setting* stage where listeners reflect on their listening processes and set goals for their next listening task.

As opposed to MPS's embedded approach to L2 listening instruction, CALLA adopts a direct and explicit approach towards strategy instruction. CALLA was designed with the purpose of

shortening the amount of time students need to develop academic language skills in English (Chamot & O'Malley, 1994). In CALLA, learning strategies are explicitly named, explained and taught to students. The instruction of learning strategies is carried out via five recursive stages. In the *preparation* stage, students are prepared for strategy instruction by drawing their attention to possible prior strategy use in their learning experiences. Following this stage, the strategy to be taught is named and explained in the *presentation* stage. This is followed by students practicing the use of strategy in the *practice* stage and reflecting and evaluating the use of strategy in the *evaluation* stage. To ensure that the learning is consolidated and transferred to the subsequent learning tasks, the teacher either encourages further reflection or sets new learning tasks where the strategy can be applied (*expansion* stage).

Metacognitive Strategy Instruction Using MPS and CALLA in L2 Listening

Research on metacognitive strategy instruction using the MPS instruction model has generally yielded positive results in L2 learners' listening comprehension performance, especially for listeners categorized as less skilled (Bozorgian, 2015; Cross, 2011; Vandergrift & Tafaghodtari, 2010). Cross conducted their studies on advanced EFL learners while Bozorgian and Vandergrift & Tafaghodtari carried out their study on intermediate L2 learners. Despite different contexts and listening proficiency levels, results show that students who underwent metacognitive strategy training not only outperformed their counterparts in the control group, but also made significant improvements in their listening test scores. Moreover, between the skilled and less skilled listeners within their respective category of listening levels, it is the latter that made greater improvements. In explaining the positive results, all the researchers concurred and attributed the significant improvement in the less skilled listeners to the guide and support afforded by the pedagogical cycle in MPS by helping listeners to predict, plan, problem-solve and monitor their listening. By doing so, listeners are taught the process of listening which in turn helped to enlarge their working memory capacity and focus more on language chunks rather than individual words for processing.

In contrast to the conclusive results shown by the three researches using MPS, studies using CALLA show mixed results (Ahmadi et al., 2014; Chen, 2010; Coşkun, 2010). In all the three studies, there were variations to the individual metacognitive strategies taught to their listeners. While Ahmadi et al. and Chen taught planning and its subsidiary planning strategies (advanced organisation, directed attention and selective attention), as well as monitoring and evaluation strategies, Coşkun took a different approach. Rather, his instruction focused on planning, monitoring, evaluation and problem-solving strategies, which are the same metacognitive processes advocated in MPS.

Ahmadi, et al.'s study showed that although the experimental group performed better than those in the control group, the difference was not statistically significant. As for Chen, there was no significant improvement in the adult EFL listeners' posttest scores. On the other hand, Coşkun's study yielded positive results; where EFL undergraduates in the experimental group outperformed those in the control group with a statistically significant difference. As opposed to the first two study, Coşkun also made use of the Metacognitive Awareness Listening Questionnaire (MALQ) to aid the retention of metacognitive strategies. This use of the questionnaire could possibly lead to Coşkun's positive results.

3. The Present Study

This study seeks to compare whether metacognitive strategy instruction using MPS and CALLA leads to improvements in ESL listening comprehension. Focusing on Malaysian ESL students studying at the tertiary level, the study aims to answer the following research questions:

1. Does metacognitive strategy instruction using the MPS and CALLA instruction models result in improvement in the listening comprehension performance of high, intermediate and low listening proficiency listeners?
2. Is there a difference in the listening comprehension performance of high, intermediate and low listening proficiency listeners between metacognitive strategy instruction using the MPS instruction model and the CALLA instruction model?

Research Design

The study adopts a quasi-experimental research design with two randomly assigned intact groups, each receiving metacognitive strategy training either using the MPS (n=25) or CALLA (n=25) instruction models. Both groups received five weekly 90-minute class sessions of strategy instruction which are spread over a period of five weeks using the same listening training audio materials. A listening pretest was administered before treatment for a baseline reading of the participants' listening proficiency levels. Their listening proficiency levels were categorised based on the listening score guide provided in *Cambridge English: IELTS 8* (2011).

Table 1: Categorisation of Listening Proficiency Levels

Listening Proficiency Level	Listening Pretest Score	Description in *Cambridge English: IELTS 8* (2011)
High	Between 28 – 40	"Likely to get an acceptable score under examination conditions"
Intermediate	Between 12 – 27	"May get an acceptable score under examination conditions"
Low	Between 0 – 12	"Unlikely to get an acceptable score under examination conditions"

Participants

50 male and female participants, aged between 19-21 years old were selected for the study. These are post-SPM Malaysian students studying at a university college in Penang, Malaysia. Metacognitive strategy instruction was provided during regular classroom lessons of an IELTS (International English Language Testing System) preparatory course at the institution.

Instruments

Both the listening pretest and posttest are parallel listening test questions taken from the book *Cambridge English: IELTS 8* (2011), which consists of authentic IELTS (International English Language Testing System) examination papers prepared by Cambridge ESOL.IELTS is widely recognized as a good assessment of language ability and its listening test consists of four sections, with a total of 40 questions. As each correct question is scored 1 mark, the highest and lowest possible score for the test is '40' and '0' respectively.

Training Materials

The listening audio for metacognitive strategy instruction was the same for both MPS and CALLA. They were taken from the book *Cambridge English: IELTS 9* (2013). The length of the

original audio materials were edited to between 55 seconds and 2.26 minutes, fitting the time parameters recommended by Bozorgian (2015), Rost (2002) and Thompson & Rubin (1996) as suitable for the training of L2 listening.

Lesson procedures

A reflection is integral in metacognitive strategy instruction, a pre-strategy instruction handout with questions prompting reflections of learning and listening experiences, listening strategy use and learning expectations was given. The handout was given to students in both treatment groups to encourage and familiarize students with the process of reflection.

Listeners in both groups listen to the same audio materials for the same number of times. Under strategy instruction using MPS, the audio recordings were used for text reconstruction as prescribed in the five instructional stages of the model. Text reconstruction listening activities used for lessons were as prescribed in Vandergrift & Goh (2012)'s book *Teaching and Learning Second Language Listening: Metacognition in Action*.

For strategy instruction using CALLA, a total of nine metacognitive strategies, subset to the metacognitive strategies of planning *(advanced organisation, self-management, directed attention* and *selective attention)*, monitoring (*comprehension monitoring* and *double-check monitoring)* and evaluation (*performance evaluation, strategy evaluation* and *problem identification)* were individually taught to students. Strategy instruction was delivered as prescribed in *The CALLA Handbook: Implementing the Cognitive Academic Language Learning Approach* (Chamot & O'Malley, 1994) and *The Learning Strategies Handbook*(Chamot et al., 1994). As the lessons progressed, participants were increasingly encouraged to make independent decisions on the combination of metacognitive strategies that they think would help them in their listening tasks.

Data Analysis

Data analysis was conducted using SPSS (Version 23.0). The listening pretest scores were first subjected to exploratory data analysis to establish normality. Data was subsequently subjected to parametric test analysis of paired-samples T test, independent-samples T test and analysis of covariance (ANCOVA) to establish if there were significant differences between the pretest and posttest scores of both groups (MPS and CALLA). Unless otherwise mentioned, the significance level for all tests was set at a 95% confidence level.

4. Results and Discussion

A test of normality was run to evaluate if the listening pretest scores for both treatment groups (MPS and CALLA) are normally distributed. The Kolmogorov-Smirnov and Shapiro-Wilk statistics for normality for both treatment groups show values greater than .05, indicating that data are normally distributed (see Table 2). Levene's test of equality resulted in a value of $p=.326$; $p>.05$; so variances for both groups were assumed as equal at a 95% confidence. With these results, it is concluded that both treatment groups are homogenous in terms of listening proficiency levels before undergoing training for metacognitive strategies.

Table 2: Tests of Normality for Pretest Scores (MPS and CALLA)

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Treatment	Statistic	df	Sig.	Statistic	df	Sig.
Pretest score	MPS	.127	25	.200*	.959	25	.387
	CALLA	.093	25	.200*	.974	25	.757

The descriptive statistics for a comparison of pretest and posttest results were next generated. As indicated in Table 3, there is an increase in the number of listeners who improved to a higher category of listening proficiency levels for both MPS and CALLA (i.e. more students in the high and intermediate levels after treatment). In comparison, there is a drop in the number of listeners categorised as weak listeners after strategy training.

The listening pretest means scores for MPS (M=14.40) and CALLA (M=14.28) were roughly the same before treatment. After strategy training, the posttest mean scores jumped to 19.88 for MPS and 19.20 for CALLA, with a respective mean scores improvement of 5.48 and 4.92, indicating that metacognitive strategy training using both instruction models did indeed result in improvements in listening comprehension performance. Although there were improvements in posttest mean scores across three listening proficiency levels, the greatest improvement in MPS was made by low proficiency listeners (M=2.13), followed by intermediate (M=1.68) and high (M=1.00) proficiency listeners.

In contrast, it was the intermediate listeners who made the greatest improvement in their posttest scores (M=2.59) in CALLA as compared to their low proficiency counterparts (M=0.03). No mean scores comparison was made for the high listening proficiency level for CALLA as there were no listeners categorised as having this level before the treatment period. However, as can be seen in Table 3, while there were no listener categorised as having this listening proficiency level before treatment, there are two after training.

Table 3: Descriptive Statistics for MPS and CALLA (pre- and posttest scores)

		Pretest score			Posttest score		
Treatment		Mean	N(%)	Std. Deviation	Mean	N (%)	Std. Deviation
MPS	High	30.00	2 (8%)	2.828	31.00	4 (16%)	2.944
	Intermediate	17.50	10 (40%)	2.677	19.18	17 (68%)	3.812
	Low	9.62	13 (52%)	3.501	11.75	4 (16%)	.957
	Total	14.40	25	6.770	19.88	25	6.547
CALLA	High		0 (0%)	3.040	28.50	2 (8%)	.707
	Intermediate	18.08	13 (52%)	2.980	20.67	18 (72%)	3.049
	Low	10.17	12 (48%)	4.996	10.20	5 (20%)	2.387
	Total	14.28	25	3.040	19.20	25	5.766

Paired-samples Ttest was subsequently run to determine if postest improvements and the ensuing change in their categorisation of listening proficiency levels as a result of metacognitive strategy trainingin MPS and CALLA were statistically significant.

As shown in Table 4 below, the difference in the MPS listeners' pretest and posttest mean scores was statistically significant (p=.000; p<.03) at a 97% confidence level. Likewise, the difference

in the categorical improvement in listening proficiency levels was also statistically significant (p=.001; p<.03).

Table 4: Paired-samples Ttest (MPS)

		Paired Differences (MPS)					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	97% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pretest score - Posttest score	-5.480	4.492	.898	-7.552	-3.408	-6.100	24	.000
Pair 2	Pretest level - Posttest level	.440	.583	.117	.171	.709	3.773	24	.001

The same pattern is also observed for listeners in the CALLA treatment group (see Table 5), with a significant improvement in their posttest listening scores (p=.000; p<.03) and categorical improvement of proficiency levels (p=.009; p<.03).

Table 5: Paired-samples T test (CALLA)

		Paired Differences (CALLA)					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	97% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pretest score - Posttest score	-4.920	5.722	1.144	-7.282	-2.558	-4.299	24	.000
Pair 2	Pretest level - Posttest level	.360	.638	.128	.066	.654	2.823	24	.009

Table 6 shows the results of independent-samples T test analysis to examine if there is a significant difference between using MPS and CALLA for strategy instruction on listeners' posttest mean scores. Assumption of homegeneity has not been violated as shown by Levene's test of homegeneity of variances (p=.308; p>.05). Therefore, the value generated by this test as a means of comparison can be interpreted. The significant value of p=.698 (p<.05) shows that there is no significant difference between the posttest mean scores of MPS and CALLA.

Table 6: Independent-samples T test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Posttest score	Equal variances assumed	1.064	.308	.390	48	.698	.680	1.745	-2.828	4.188
	Equal variances not assumed			.390	47.247	.698	.680	1.745	-2.830	4.190

Table 7 shows the results after controlling for any initial differences in the participants' listening ability using ANCOVA. Pretest scores were used as the covariate, with posttest score as the dependent variable and treatment (MPS, CALLA) as the independent variable. The posttest mean values for MPS and CALLA were 19.88 and 19.20 respectively (see Table 3). After controlling for the initial differences in listening ability, this difference in posttest mean scores is not statistically significant (F=.194, η^2=.004, p=.662; p<.05), suggesting that metacognitive strategy instruction using MPS and CALLA did not result in variance in posttest scores between the two treatment groups. The η^2=.004 value suggests a weak effect (Cohen, 1988) in terms of the differences in between the two treatments (models). In addition, by reading this together with significant t-test values of the pre- and posttest paired-samples comparisons for MPS (p=.000; p<.03) and CALLA (p=.000; p<.03), this suggests that although there were statistically significant improvements made in the posttest scores, the difference of improvement made between the MPS and CALLA cohort groups is not statistically different.

Table 7: Listening Posttest Scores as a function of treatment with Pretest as a covariate

Source	df	F	Sig.	Partial Eta Squared
Corrected Model	2	15.867	.000	.403
Intercept	1	31.218	.000	.399
Pretest	1	31.485	.000	.401
Treatment	1	.194	.662	.004
Error	47			
Total	50			
Corrected Total	49			

Conclusion

In answering the first research question, data show that there are significant improvements to listeners' posttest scores after metacognitive strategy instruction. Listeners across all three listening proficiency levels in both MPS and CALLA treatment groups recorded improvements, albeit in varying degrees. In MPS, it was the weak listeners that improved the most, followed by the intermediate and good listeners. In contrast, it was the intermediate listeners who improved the most. Although there were improvements in the mean scores of weaklisteners in CALLA, it was marginal.

These results suggest that weak listeners benefit more from MPS instruction compared to CALLA. This could be due to the improvements made to the regulation of metacognitive processes and word recognition ability. For weak L2 listeners, comprehension breakdown often occurs at the initial stage of listening; with speech rate, lexical features, pronunciation and the inability to recognize key words in the listening text inhibiting successful decoding (Kurita, 2012; Field, 1998). Through multiple listening and the reading of audio tapescript in MPS, these

weaknesses in bottom-up processing are addressed, thus becoming a likely contributor to their improved listening scores.

On the other hand, it is listeners at the intermediate listening proficiency level that benefit the most from instruction using CALLA. This group of listeners sits in between the two other listening levels. While their bottom-up processing is more developed than the weak listeners, their strategy use may not be as developed as those in high listening level group. Therefore, it is likely that they could benefit more from the explicit instruction of strategies advocated in this model.

Although there is an increase in the number of students who moved up to the category of high listening proficiency level after MPS and CALLA strategy instruction, there is insufficient data to provide conclusive results. Compared to the low and intermediate proficiency levels, available data suggest lesser degrees of improvements for this group. This parallels Cross' (2011) findings on his advanced EFL listeners in Japan, who suggests that skilled listeners had reached a certain level of efficient bottom-up processing and strategy use; and therefore would not benefit as much from strategy training.

As for the second research questions on whether there was a significant difference to the overall improvements made between the MPS and CALLA models, data suggest no such difference in the listeners' posttest scores. In considering this with findings made in the first research question, the choice of instruction models to be adopted is likely to depend on L2 listeners' listening proficiency levels in order to provide targeted help. It is posited that weaker listeners would initially benefit more from MPS and as their listening proficiency level improves, instruction could graduate to explicit strategy instruction advocated in CALLA.

The results of the study offer a potentially promising solutionto improve Malaysian ESL listeners' listening proficiency levels but more research will be needed. There issome evidence to support the possibility that a combination of instruction models may benefit listeners across different proficiency levels. While the current study was carried out using IELTS as a measure of students' listening ability, the findings have practical applications in teaching unidirectional listening that is employed in MUET.

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