

STRUCTURED INPUT ON THE ACQUISITION OF 'ED' ENDING PAST-TENSE VERBS AMONG RURAL INDIAN YOUNG LEARNERS

Litto Mathew^{1*} and Tannistha Dasgupta²

^{1,2} VIT-AP University, Andhra Pradesh, India

mathew.22phd7070@vitap.ac.in¹ and dasgupta.tannistha@vitap.ac.in²

*correspondence: mathew.22phd7070@vitap.ac.in

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Abstract

The study examines how the Structured Input (SI) component of Processing Instruction facilitates the acquisition of past tense verbs ending in 'ed' among ESL learners, aged ten, in rural India. No studies on Processing Instruction have specifically focused on Indian ESL learners of this age group to date. Studies on Processing Instruction predominantly compared SI activities with alternative instructional methods, typically utilizing pretest-posttest comparisons for evaluation. In contrast, this study examines the impact of SI activities on a group of 24 learners through intra-activity comparison. The SI intervention comprised Referential and Affective activities. This study forgoes pretest-posttest assessments and focuses on the comparative analysis of the scores of Referential activities, that are designed as test-like worksheets comprising ten questions each. While some may observe the absence of pre-tests and post-tests as a limitation, this approach is justified by the inherently evaluative nature of the Referential activities themselves. The results of the paired t-Test and ANOVA revealed a significant enhancement in learners' ability to interpret sentences in the simple past tense with 'ed' ending verbs through SI activities, which demonstrates its effectiveness in improving input processing among ESL learners.

Keywords: input processing, processing instruction, referential and affective activity, structured input

Introduction

Input processing refers to the cognitive procedures through which language learners initially establish form-meaning connections within linguistic input. It explains how learners derive meaningful linguistic input from the language they encounter by establishing these initial form-meaning connections, in both spoken and written form (Lee & Benati, 2009). During internalization, due to learners' limited capacity of processing information (Benati, 2025) and the use of non-optimal strategies, turning input into intake gets reduced (Benati, 2022; Ouli & Konta, 2025; VanPatten, 1996). Bill VanPatten (1996) attributed the reduced intake and the subsequent delay in comprehending linguistic features, to learners' non-optimal processing strategies. Optimal strategies refer to approaches that maximize



learning efficiency, while non-optimal strategies are less effective or inefficient processing techniques.

Input Processing Theory (VanPatten, 1996) argues that language learners subconsciously apply non-optimal processing strategies to process language inputs for meaning before focusing on form which influences the acquisition of grammatical structures (Benati & Schwieter, 2017). The theory is concerned with how learners perceive and process input (VanPatten, 1996, 2003) and considers two major principles of processing strategies; the First Noun Principle and the Primacy of Meaning Principle (Benati, 2022; Lee & Benati, 2009); each having further subprinciples. The First Noun Principle suggests that the learner depends on the word order to establish the meaning of the input, which often leads them to misinterpret the first noun as the subject of the action. For example, in the sentence '*Sandeep was hit by Naveen*', the learner might interpret the meaning of the sentence as Sandeep did hit Naveen despite the real meaning Naveen hit Sandeep. This is because, to identify who did what to whom, the learner primarily relies on the word order by assigning the role of the subject to the first noun of the sentence. This leads to misinterpretation and delay in language acquisition (Benati, 2005).

The Primacy of Meaning Principle suggests that when learners attempt to derive meaning through processing the input, they attend lexical references before verbal inflections (Benati, 2022). This might develop an incomplete understanding that hinders the ability to form appropriate form-meaning connections. Benati (2023b) states that the form-meaning connection is the relationship a learner makes between the referential meaning and its linguistic encoding. In the case of interpreting past tense sentences having 'ed' ending verbs, learners rely on the Primacy of Meaning Principle and fail to establish appropriate relationship between the referential meaning and its linguistic encoding. When the learner listens to the sentence '*I played cricket with my friends*', a form-meaning connection is made through understanding that the inflection '-ed' in the verb 'played' signifies the pastness of the action. However, in the sentence '*Yesterday, I played cricket with my friends*', the content word 'yesterday' also expresses the pastness of the action along with the inflected verb 'played'. Given that the learner processes content words for pastness before verbal inflections, the inflection '-ed' might remain unattended. In this case, when the learner relies on the temporal adverb 'yesterday' to denote pastness, instead of tagging the verb 'played', inappropriate form-meaning connections might occur. In sentences like "*I have played cricket many times*," where such adverbs are not present, it is harder to interpret the meaning. Besides, in more complex sentences with multiple action descriptions, reliance on content words can lead to confusion.

Literature Review

Processing Instruction (PI) is the form-focused pedagogical intervention for explicit grammar instruction, predicated on Bill VanPatten's model of Input Processing Theory (Benati & Schwieter, 2017; Lee & Benati, 2009; VanPatten, 1996, 2003, 2015). PI facilitates learners to process the input better and to establish form-meaning connections during comprehension. The components of PI include explicit information about a linguistic structure or form, information on a particular processing problem that negatively affects comprehension, and the Structured Input (SI) that is manipulated in ways to push learners to become dependent on form to

get the meaning (Lee & Benati, 2009). Being the major component of PI, SI activities are designed in particular ways to push learners away from non-optimal processing strategies and are effective in altering ineffective processing strategies of the learners that delays language acquisition (Benati, 2023b; VanPatten, 1996; Zhong & Benati, 2024). VanPatten (2015) distinguishes SI activities from mere noticing as they, more than making aware of the form, modify the way learners interpret the meaning of the input for better intake for processing. This intake will improve the processing competence of the learner.

There are two components and task types of SI activities; Referential and Affective, representing two distinct types of processing. In Referential activities, learners engage in referential content of the language for interpretation. They are structured for the learners to focus on the meaning of the words, phrases, or sentences. Moreover, there is a right or wrong answer for the Referential activity and the learner must depend on the target grammatical form to answer. In Affective activities, learners are asked to give their opinions or beliefs in the form of affective responses to process information regarding the world around them (Benati, 2023b). These input-based, form-meaning oriented activities enable learners to notice and process the input.

Effects of structured input activities

Initial research on PI focused on its effectiveness over other modes of intervention and proved effective in facilitating learners in interpreting the input (Benati 2001; Cadierno, 1995; VanPatten & Cadierno, 1993). Modirkhamene et al. (2018) investigated the effectiveness of PI in the acquisition of simple past tense with 'ed' ending verbs comparing with Traditional Instruction (TI). For their study, 40 female elementary-level learners of ESL, between the ages of 15 and 20, were assigned to two groups receiving PI (n=20) and TI (n=20). Both, in the immediate and delayed post-tests, the PI group outperformed the TI group in interpretation. Studies also identified that SI activities are the main factor impacting the Processing Instruction treatment (VanPatten & Oikkenon, 1996). VanPatten and Oikkenon (1996) investigated the role of each component in Processing Instruction. Fifty-nine subjects were divided into 3 groups, one receiving full Processing Instruction, the second receiving only explicit information without SI activities and a third group only receiving SI activities without explanation. It was observed that SI learners outperformed the other two groups and concluded that SI activities alone are the causative factor for the gain. Further classroom-based investigations that were carried out to measure the effectiveness of SI activities gave clear indication of its role on correct, effective, and appropriate language processing (Benati, 2005, 2023a; Kim & Nam, 2017; Lee & Benati, 2007; VanPatten, 2015; VanPatten & Uludag, 2011; Wong, 2003; Zeng et al., 2024; Zhong & Benati, 2024). Benati (2022) studied the effectiveness of SI activities excluding explicit information on 52 adult learners with English passive forms indicating that the learners achieved significant accuracy without explicit information on the target form. Another study of Zhong and Benati (2024) compared the effect of Referential and Affective activities of the SI component, and they found that Referential activities improved learners' understanding of English causative forms.

Studies over a variety of linguistic structures and target languages indicates the effectiveness of PI over traditional instructional methods in improving learners'

comprehension of input. The studies consistently highlight that Structured Input is the critical component of PI showing the observed gains made by learners. Also, it is the referential activities that predominantly contribute to these improvements. These findings emphasize on the prioritization of referential activities within SI to maximize the effectiveness of PI and provide a strong foundation for its implementation in language learning contexts.

This study investigated young Indian rural ESL learners' ability to adopt PI to address processing difficulties in interpreting past tense sentences with 'ed' ending verbs. Classroom investigations that inquired the effect of PI treatment on the acquisition of simple past tense 'ed' ending verbs have invariably favoured its effectiveness over other modes of treatment (Marsden & Chen, 2011). However, a gap is identified with Indian rural young ESL learners in exploring the effectiveness of SI activities in mitigating their processing difficulties. PI treatments at sentence level and discourse level interpretation and production skill have been proved effective in altering processing problems of the learners through pretest-posttest comparative studies (Lee & Benati, 2007; VanPatten, 2015; VanPatten & Uludag, 2011; Wong, 2003; Zeng et al., 2024; Zhong & Benati, 2024). This investigation focused on the sentence-level interpretation skill of the learners by employing intra activity comparison instead of pre-test-post-test comparison to closely examine learners' promptness in responding to the SI activities. The test-natured referential activities of the SI treatment component justify forgoing the pretest-post-test comparison, as the inherently evaluative nature of referential activity scores of the SI treatment would impact the results of the pretest-posttest comparison. Explicit information on the processing problem has been avoided in the study based on the existing findings (Zeng et al., 2024; Benati, 2022) that it is the SI activities alone contribute towards the improvement. Based on these, the following research questions were formulated for the study.

1. Do the Structured Input activities of Processing Instruction have an impact on young Indian ESL learners to interpret 'ed' ending simple past sentences?
2. Can the intra-activity comparison of Structured Input activities bring in a statistically significant difference in the learners' ability to interpret 'ed' ending simple past sentences?

Method

The classroom intervention was carried out to identify the impact of SI activities on the interpretation of 'ed' ending past tense sentences among the young rural Indian ESL learners. SI activities always address a processing problem (Benati (2023b). A pretest was conducted one week prior to the intervention to identify the learners' processing problem, as this constitutes a crucial step in the SI treatment. It was a sentence level interpretational test with twenty multiple choice questions to interpret past tense sentences with 'ed' ending verbs. Participants who scored above 60 percent were excluded from the study. The actual intervention was made a week later and lasted an hour. Participants were given SI activity worksheets of Referential and Affective activities without explicit instruction. Apart from the SI activities no further tests were administered. A written consent was obtained from the concerned authority to conduct the classroom intervention.

Participants

The participants of the study were 24 young learners of age 10 from Grade V of Mary Matha High School, a rural school in the village of Thullur, Andhra Pradesh. Participation was voluntary and complied with ethical procedures. Participants gave their informed consent along with the parental approval for inclusion in the study. All the participants were L1 speakers of Telugu with very low proficiency levels in English although they have been exposed to learning English from class I. They were from a rural background and had very little exposure to English language apart from their English textbooks and limited classroom interactions in English. Participants demonstrated difficulty with processing the 'ed' ending simple past tense constructions were selected from an initial pool of 39 students. This selection was based on the results of the pre-test designed to assess comprehension of simple past sentences containing 'ed' ending verbs. Students who achieved a score above 60% on this test ($n = 15$) were excluded from the study.

Test material

Structured Input activities were prepared adhering to the guidelines presented by VanPatten and Sanz (1995) (Benati, 2023b). These activities excluded explicit instruction based on the previous findings that the Referential and Affective activities contributed to the gains by the learners in Processing instruction (Zeng et al., 2024; Benati, 2022; Lee & Benati, 2009). Explicit instruction is a set of information on the processing principle of the target form. This study excluded the explicit instruction also on the grounds that the learners had prior knowledge on the target form. The SI activities included both Referential and Affective activities. Examples of the Referential and Affective activities employed in the study are shown as worksheets in Figure 1.

Activity 1: Ramesh's Dasara Holidays

Ramesh is a class 5 student and he is studying in Class 5A in your school. The following sentences describe the things that Ramesh did last Dasara Holidays or what he does every day. Listen to each sentence and decide if each activity took place last Dasara holidays or takes place every day.

No.	Activity	Last Dasara Holidays	Everyday
1	Visited uncle's house		
2	Lives with his parents		
3	Watched a movie		
4	Plays cricket with friends		
5	Washes his dress		
6	Travelled to Vijayawada		
7	Studies English textbook		
8	Played in the park		
9	Helps amma to do housework		
10	Painted a beautiful picture		

Activity 2: Your Teacher

Listen to the sentences saying what your teacher did during summer holidays. Decide if you did the same activities last summer holidays. If you did, put a tick in the spaces provided and check with your friends.

Step 1

No.	I	During my summer holidays
1	Travelled to the town	<input type="checkbox"/>
2	Studied some Telugu words	<input type="checkbox"/>
3	Painted a beautiful picture	<input type="checkbox"/>
4	Danced with friends	<input type="checkbox"/>
5	Visited friends house	<input type="checkbox"/>
6	Cooked many food items	<input type="checkbox"/>
7	Watched some cartoons	<input type="checkbox"/>
8	Finished reading a story	<input type="checkbox"/>
9	Planted many trees	<input type="checkbox"/>
10	Helped a poor man	<input type="checkbox"/>

Step 2

Now discuss with classmates and how many of you had the same activities during last summer holidays.

Figure 1. Examples of referential and affective activities

After the completion of the intervention there were no separate tests administered as the study was intended to have intra-activity comparisons of SI activities. The Referential activities of SI were test-natured and the participants had to mark correct answers on the worksheets for the given statements. Three sets of Referential and Affective activities were alternatively given, with 10 statements in each. In the case of Referential activity, the participant had to answer the correct option with a tick mark. The Affective activity contained 10 statements in the target form and it was administered after every Referential activity in order to reinforce form-meaning connections established during Referential activities (VanPatten, 1996, 2003, 2015). The number of correct answers made by the participants for each Referential activity analyzed and compared with the previous results to discern the effectiveness of the method.

The vocabulary used for creating the statements for the activities was consciously chosen from the participants' previous class textbook and ensured that the syntax adhered to their level of proficiency. Each set of Referential and Affective activities was printed on paper for the young learners to notice easily. The instructor read out each statement in each activity once and paused for a moment for the participants to mark their answers on the right side of the activity sheet. The instructor read out the correct answers for the participants to verify but did not provide the reasons for correct or wrong answers. The worksheets were collected after each activity.

The entire intervention lasted for an hour. It was ensured that the participants were not getting help from their fellow participants for the Referential activities. For the Affective activities, the participants were allowed to discuss with their peers to decide upon the statements given on the sheet. This permission aligns with the guidelines of SI activities. The three Referential activities with 10 questions each were considered as the interpretation task. The scoring followed a binary criterion, where a wrong or no response received 0 points and the correct response received 1 point.

Findings and Discussion

Findings

A paired t-test was conducted, with the scores obtained from the three Referential activities administered, to draw answers to each research question of the study. Table 1 shows the descriptive statistics of the score obtained by the participants for the three Referential activities used for collecting data. The results are indicative of progress made by the learners with each of the activities aiming to interpret accurate 'ed' ending verbs to denote past tense. Paired t-tests examined these scores further to check the significance of the differences in the scores attained. Activity 1 was paired with activity 2 and Activity 2 with activity 3 and finally, activity 1 was paired with activity 3.

Table 1. Descriptive statistics of the 3 referential activities

Variable	A1	A2	A3
Mean (\bar{x})	6.208333333	7.083333333	7.541666667
Variance(σ)	7.650365217	2.949275363	2.95471
Sample (N)	24	24	24

Table 2. T-test result for activity 1 and activity 3

T	df	P. Value	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
-2.4817	23	0.0208	-1.3333	-2.4447	-0.2219

The obtained results shows that the PI strategy employing SI activities to acquire 'ed' ending verbs to process past tense sentences among young ESL learners of age 10 was effective. This is also in tune with the descriptive statistics indicating the gradual progress through Referential activities. The significant difference in the means between activity 1 and activity 3 gives enough evidence to claim the significance of the treatment where the P. value is 0.02080, which is less than the significance level of 0.05 (table 2). Although the P. values of the test results of activities 1 and 2 (0.1075), and activity 2 and 3 (0.217) do not carry significant evidence to argue the effectiveness of the treatment, the P. value 0.02080 of the result of the test for activity 1 and 3 is a clear indication of the gradual effect of PI. The result is convincing as it indicates the gradual gain achieved throughout the instruction.

A single-factor ANOVA test was also performed with the results of activities 1 and 3 to further ensure the significant difference in the means of the two groups (Table 3). The result sheds light on the variability in the data and provides insights into the potential differences between Activity 1 and Activity 3. The p-value (0.051) is close to the conventional threshold of 0.05 and the calculated F-statistic exceeds the critical F-value (4.05) suggesting that there is a statistical significance.

Table 3. Single factor ANOVA test of activities 1 and 3

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	21.33	1	21.33	4.02	0.051	4.05
Within Groups	243.92	46	5.30			
Total	265.25	47				

Discussion

The study aimed to identify the impact of Structured Input component of PI on young ESL learners' acquisition of the past tense with 'ed' structure and the possibility of intra-activity comparison of Referential activities of Structured Input to gauge the improvement of learners to process the target form in the given input. Previous findings reported that Structured Input has a positive effect on learners' input processing in terms of establishing form-meaning connection thereby strengthening the acquisition process in a second language (Benati, 2019, 2022; 2023a; Kim & Nam, 2017; Modirkhamene et al., 2018; VanPatten, 1996; VanPatten & Uludag, 2011; Zeng et al., 2024). Based on the construct of input processing and PI, the finding of our study provides insights for our research questions.

To answer the first research question which aimed to find out if the Structured Input activities of Processing Instruction have an impact on young Indian ESL learners to interpret 'ed' ending simple past sentence, it is observed that the young ESL learners of age 10 improved their ability to interpret English past tense sentences with 'ed' ending verbs with exposure to the Structured Input activities of the Processing Instruction. It shows that Structured Input activities are successful

in gaining the attention of the learners to the input and facilitating the processing of the input effectively even in young learners.

The second research question, can the intra-activity comparison of Structured Input activities bring in a statistically significant difference in the learners' ability to interpret 'ed' ending simple past sentences? is answered affirmatively. The focus on intra-activity comparison of Referential activities instead of the pre-test post-test comparison could be indicative of the significant difference in learners' ability to interpret 'ed' ending simple past sentences. The comparison among activities 1 and 3 demonstrated a significant improvement, while gradual improvements were observed in the interpretations between activities 1 and 2, as well as 2 and 3. These findings suggest that structured input activities, especially when compared internally, can effectively enhance learners' skills in interpreting 'ed' ending simple past sentences.

The significant progress made by the learners with the short exposure to SI activities in their sentence interpretation process, points towards adopting Processing Instruction as an effective technique in addressing processing problems. Since the learners showed progress in their ability to comprehend the meaning, it can be said that Structured Input activities help ESL learners to process sentences with past tense structure with 'ed' ending verbs. The result also goes in line with the findings of the previous studies.

However, this study has not considered the impact of Processing Instruction and Structured Input on the production skill of the learners. The study also excluded any post-tests for comparative analysis, and instead considered each Structured Input referential activity to mark the progress. Hence the result is obtained from the scores given to the three Referential activities administered to the learners. Therefore, the result only observes the progression in the interpretation skill of the learners by processing the sentences given as activities.

Conclusion

The study found that SI activities of PI in the classroom intervention among the rural Indian young ESL learners of age 10 resulted progressively in facilitating learners to notice and process the target form while interpreting the meaning in sentences. This short-term impact of SI activities also positively indicates the efficacy of the technique. Future research on Processing Instruction may investigate other factors that influence the Processing Instruction. Although the absence of post-tests and delayed post-tests does not impact the research questions of this study, any affirmative conclusions cannot be made without them. A comparative study of pretest-post-test result and intra-activity result would give more affirmative results. However, consecutive referential Structured activities themselves remain proof of the progress of the learner in processing the target form. Hence, Processing Instruction can be implemented to effectively acquire grammatical form for learners with processing problems.

Also, the participants were young ESL learners of age 10 and their limited ability to carry the cognitive load may affect the gain achieved when compared to adult learners. Therefore, the short-term effect can only be conditionally appreciated. Hence, the partially supportive result of this study needs future investigation. Future studies at various proficiency levels and different target structures are to be made to have more reliable results.

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