EXAMINING THE DIFFERENTIAL EFFECTS OF COMPREHENSIBLE AND INCOMPREHENSIBLE INPUT ON SECOND LANGUAGE ACQUISITION: A PILOT CROSSOVER STUDY

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Abstract

This pilot study will investigate the various impressions of comprehensible and incomprehensible input on second language acquisition. A crossover design was used with two intermediate level learners being exposed to the two types of inputs randomly, to complete comprehension, listening and reading activities. Quantitative outcomes showed that there was a steady decline in performance at the incomprehensible input stage, and mean values of comprehension, listening and reading scores were lower. Qualitative commentaries mentioned that incomprehensible input was accompanied by more cognitive load and effortful processing whereas comprehensible input was seen as more efficient and pleasant to learn. These results confirm the Comprehensible Input Hypothesis proposed by Krashen who stated that the best way of learning a language is to have the input a little higher than the level of the learners but not too high as to be misunderstood. The paper also highlights the importance of a cognitive engagement in dealing with difficult input as the initial proof of the possible advantages of the properly designed incomprehensible text. Although the sample size and controlled environment are limited, the research gives some implications to the educators and curriculum developers on maximizing the quality of inputs to improve language learning results. Further studies with larger sample sizes, multi language modalities and longitudinal designs are ideal to explore the subtle impact of input comprehensibility.

1. Introduction

Learning a language is not a simplistic procedure, but an interactive process that is influenced by various brain processes and environmental influences, with language input being the key factor. In the context of second language acquisition (SLA), input nature and quality has been considered an important determinant of learning results. It is widely believed by some that the greatest theoretical approach towards this aspect is the Input Hypothesis of Stephen Krashen, which suggests that language learning is most productive when the input presented to the learner is slightly above the level they have currently acquired but still understandable.

Although the role of comprehensible input has been studied in depth in the literature on SLA, the role of incomprehensible input is a relatively understudied topic. A large part of the available literature has concentrated on the enabling role of intelligible input, and not necessarily on the possibility that exposure to unintelligible input can also lead to cognitive engagement or language acquisition. This gap points out the necessity of empirical studies that comparatively investigate the two types of inputs in regulated cultures.

Also, other theoretical approaches like the Noticing Hypothesis by Richard Schmidt indicate that a conscious focus on linguistic attributes is critical in acquiring language. In this sense, even something that is incomprehensible might contribute, since it will encourage learners to understand that there is something they do not know. Likewise, cognitive theories, such as the Cognitive Load Theory by John Sweller, focus on the role which greater muscularity of the input can have on cognitive processing and the effectiveness of learning.

With such contrasting views in mind, small-scaled empirical studies which can give early results regarding the influence of different types of input are still needed. Thus, the current research is a pilot crossover study aimed at understanding the dissimilar effect of comprehensible and incomprehensible input on the outcomes of second language acquisition.

This pilot study is informed by the following research question: What do comprehensible and incomprehensible input differentially do to the outcomes of second language acquisition? The answer to this question will allow the study to add preliminary evidence to the current theoretical debate and guide the new large-scale research in SLA.

2. Literature Review

The concept of second language acquisition (SLA) has been broadly construed as the process of mastering the language skills of an individual other than the original language, including linguistic, communicative and pragmatic skills. In this domain, the input factor has been repeatedly singled out as a key determinant of language development.

One prevailing theoretical approach to SLA is the Input Hypothesis of Stephen Krashen, which suggests that language learning is possible when students are presented with input that is a little further ahead of their current competence, but not completely unintelligible. This idea of i + 1 has had a considerable impact on methodologies of language teaching and has been pleasantly substantiated in empirical studies. Nevertheless, the hypothesis has also been criticized as being limited in its interactions with cognitive processes and with learner variability.

However, other schools of thought place emphasis on mental interaction and conscious awareness to the learner during the acquisition process. According to the Noticing Hypothesis by Richard Schmidt, one must consciously attend to linguistic forms in order to acquire them. In this light, incomprehensible input can also play an indirect role in learning, as it encourages learners to become aware of what they know and do not know and then process this information at a deeper level.

In a similar vein, cognitive theories like John Sweller Cognitive Load Theory provide additional information about the correlation between input complexity and learning results. This theory also states that unnaturally complex/incomprehensible input could place undue cognitive strain on the learners and thus negatively affect the understanding and memory. Meanwhile, an intermediate degree of difficulty can excite cognitive work and, in this case, appears to indicate that even incomprehensible input can contribute to the learning process under some conditions.

Findings on the incomprehensible input are inconclusive. Although there is a body of research referring to the unique significance of comprehensible input as a successful acquisition technique, other studies may indicate that the exposure to more demanding input may facilitate/stimulate learner interest, promote strategies of inferencing and encourage the active construction of meaning. These conflicting results suggest that

the correlation between the input comprehensibility and language acquisition is sophisticated and needs to be explored further.

In spite of these contributions, a pronounced absence of small, controlled, experimental studies, which directly compares the effects of comprehensible and incomprehensible input in the same group of participants is observable. Much of the available literature is based on theoretical argument, or on large-scale observational studies, so there is a gap to be filled by exploratory, pilot-level studies that can give some early empirical results.

To address this gap the current study uses a pilot crossover design to investigate the difference between the role of comprehensible and incomprehensible input in language learning outcomes. Combining the input-based, cognitive, and awareness-based views, the current study attempts to add some initial evidence to the existing debate on the input role in SLA.

3. Research Methodology

3.1 Study Design

In this study, a pilot crossover design was used to study the effects of comprehensible and incomprehensible input on the second language learning. Each of the two participants received exposure to these two input conditions in a randomized order to make within-participant comparisons and decrease individual variability. The subjects were involved in controlled language learning exercises and input in each intervention was either comprehensible or unintelligible. The effects of each type of inputs were measured using quantitative measures such as proficiency and fluency measures.

3.2 Selection of Participants.

The subjects were chosen according to strict inclusion criteria in order to guarantee homogeneity: the subjects needed to have equal language proficiency, had to be of similar age, educational background and without prior exposure to the content of the study. These criteria were to control possible confounding variables and to increase internal validity. The study participants signed their informed consent and knew that they could withdraw at any point in the study.

3.3 Order Randomization

The order of the input types was randomized to reduce the effects of order. In the example, Participant A started with comprehensible input and followed by incomprehensible input in comprehension exercises, and vice versa in listening and reading activities. Participant B followed the opposite order. Randomization was done to ensure that the possible biases that come with task order could be well spread among the participants.

3.4 Data Collection Methods

The participants were asked to complete three written tests, each with 10 questions: comprehension, listening, and reading. The outcome measures were the accuracy of responses and their response time. Pre- and post-intervention tests permitted an assessment of the changes in language proficiency. Furthermore, this study used qualitative reflections in the form of open-ended written responses, which gave an insight into the subjective experiences of the participants with each type of input.

3.5 Theoretical Framework

The research is based on what is known as the Comprehensible Input Hypothesis (Krashen, 1985b) which postulates that the most effective way of language acquisition occurs when the inputs are of a level just above the current level of the learner in understanding. The crossover design of the study allows examining the potential

impacts of incomprehensible input to address gaps in the current literature and to develop what Krashen has proposed further by testing whether difficult input has an indirect impact on learning in terms of greater cognitive involvement.

4. Results and Findings

The research used both quantitative and qualitative data to obtain a complete picture of differentiating the effects of comprehensible and incomprehensible input. These findings show that the decline in performance was steady throughout the incomprehensible input phase and therefore the importance of comprehensibility in the acquisition of the second language.

4.1 Quantitative Data Analysis

In comprehensible input stage, the scores of Participant A were 8/10 in comprehension, 7/10 in listening, and 9/10 in reading. These scores dropped to 6/10 comprehension, and 5/10 listening and reading in the incomprehensible input phase. Under comprehensible input, participant B scored 8/10 in comprehension, 7/10 in listening and 9/10 in reading, but scored the same 7/10 in comprehension, 6/10 in listening and 5/10 in reading under incomprehensible input.

The mean differences between input phases:

Participant A: Comprehension 2, Listening 2, Reading 2 Mean difference = 2.0.

Participant B: Comprehension 1, Listening 1, Reading 4 Mean difference = 2.0.

These findings show that comprehension and task performance of both subjects have significantly gone down during the incomprehensible input stage.

4.2 Qualitative Insights

Written reflections of the participants exposed valuable information about their experiences:

Participant A complained about frustration and inability to follow the incomprehensible input, saying that they preferred comprehensible input which was more fun and more productive.

Participant B did recognize the difficulty of not understanding input but reported active attempts at making inferences, which points to more cognitive involvement.

The two participants reported an increased perception of cognitive load when using incomprehensible input tasks, which was accompanied by the reduction of scores. The following qualitative speculations correspond well with the quantitative findings.

4.3 Interpretation as It applies to Comprehensible Input Hypothesis by Krashen.

The results agree with Krashen (1985c) that language learning is best when input is marginally above the learners level of proficiency yet comprehensible. The drop in the comprehension, listening and reading scores under incomprehensible input are evidence that too much difficulty can interfere with natural and automatic language acquisition, again supporting the relevance of comprehensible input in supporting meaningful learning outcomes.

4.4 Conclusions on the Theories of language learning Theories

The results, beyond Krashen, have to do with more general SLA models:

Zone of Proximal development (ZPD) Vygotsky Zone of Proximal Development (ZPD): Learning is most effectively promoted when the tasks a learner is engaged with are within their comprehension, but somewhat challenging (Vygotsky, 1978).

This is the Cognitive Load Theory: A high level of difficulty exerts more cognitive load, which can limit instant understanding and fluency (Sweller, 1988).

These are the lessons that the quality of the input is essential to successful language acquisition, not the exposure itself; the instructional materials must be challenging enough but understandable enough by students.

4.5 Limitations

The main limitation of this pilot study is that the sample size is small, and it can be limited to the generalization. Moreover, the use of written understanding, listening, and reading exercises can fail to reflect the complexity of the language acquisition process that involves speaking and interactive communication. Lastly, the controlled study environment might not be representative of the real world of language learning. Further studies are needed with larger and diverse samples, more modalities and longitudinal designs to confirm and expand these results.

5. Conclusion

The pilot crossover study examined the differences in effects of comprehensible and incomprehensible input on acquisition of a second language. Quantitative data showed a steady decline in understanding, listening and reading levels in the incomprehensible input stage, and qualitative commentaries indicated that there was higher mental load and difficulty in dealing with complex information. The experiences of participants indicated that comprehensible input proved to be more effective and enjoyable as compared to incomprehensible input that though cognitively challenging, was extremely difficult.

The results favor the Comprehensible Input Hypothesis put forward by Krashen, which states that the most efficient way to acquire a language is when the input is a little above the current level of the learners and yet comprehensible. In addition, the findings expand knowledge on second language learning by demonstrating that incomprehensible input can play an indirect role by causing greater mental effort and attention, and is consistent with the learner-awareness and cognitive-engagement theories.

The research has general implications on theories of language learning as well. It supports the significance of quality of input in facilitating successful language acquisition and concurs with the Zone of Proximal Development (ZPD) and Cognitive Load Theory where learning is best facilitated by tasks being challenging and not beyond the capability of the learner to accomplish.

Recommendations

Based on the findings of the current study, several avenues for future research and recommendations for subsequent studies in the field of second language acquisition can be explored

- Investigate the impact of comprehensible and incomprehensible input across a broader range of language modalities, including speaking and interactive communication.
- Include speaking activities in the study design to investigate how comprehensible and incomprehensible input affects oral proficiency.
- Conduct comparative studies across different age groups to examine whether the impact of comprehensible and incomprehensible input varies among children, adolescents, and adults
- Investigate the cognitive processes involved in language processing during exposure to both comprehensible and incomprehensible input.

- Compare the impact of comprehensible and incomprehensible input from different sources, including authentic materials, teacher-provided input, and technology-based resources.

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