

IMPLICIT AND EXPLICIT LANGUAGE LEARNING TO FACILITATE SUBORDINATING CONJUNCTION IN DEVELOPMENTAL LANGUAGE DISORDERS

Rexsy Taruna*¹

¹Universitas MERCUBAKTIJAYA, Padang, Indonesia

*Corresponding Author, e-mail: rexsytaruna@mercubaktijaya.ac.id

Abstrak

Latar Belakang: *Priming* dan *recast approach* terbukti secara ilmiah dapat meningkatkan kemampuan produksi gramatikal. Namun, berdasarkan tinjauan literatur, tidak terdapat artikel yang menguji efektifitas *priming* dan *recast approach* dalam meningkatkan kemampuan gramatikal seperti *subordinating conjunctions*. **Tujuan:** Penelitian ini bertujuan untuk melihat efektivitas *priming* dan *recast approach* dalam meningkatkan *subordinating conjunctions* pada anak-anak dengan *developmental language disorders*. **Metode:** Penelitian ini menggunakan menggunakan kuasi-eksperimen, dengan *multiple baseline across behaviors design*. Penelitian ini melibatkan dua anak dengan diagnosis *developmental language disorders* berusia 5 tahun. Masing-masing partisipan dilatih untuk menggunakan *subordinating conjunctions* selama lima sesi, 30 menit per sesi. **Hasil:** Secara umum *priming* dan *recast approach* dapat meningkatkan kemampuan *subordinating conjunctions* pada anak-anak dengan *developmental language disorders*. **Kesimpulan:** Produksi gramatikal jenis *subordinating conjunctions* dapat dilatih menggunakan pembelajaran secara implisit maupun eksplisit.

Kata kunci: *priming*, *recast approach*, language disorder, terapi wicara, *subordinating conjunctions*

Abstract

Background: *Priming* and *recast approaches* are scientifically proven to improve grammatical production abilities. However, based on a literature review, there are no articles that test the effectiveness of the *priming* and *recast approach* in improving grammatical skills such as *subordinating conjunctions*. **Objectives:** This study aims to see the effectiveness of the *priming* and *recast approach* in improving *subordinating conjunctions* in children with *developmental language disorders*. **Methods:** This research uses a quasi-experiment, with *multiple baseline across behaviors design*. This research involved two children diagnosed with *developmental language disorders* aged 5 years. Each participant was trained to use *subordinating conjunctions* for five sessions, 30 minutes per session **Results:** In general, the *priming* and *recast approach* can improve the ability of *subordinating conjunctions* in children

*with developmental language disorders. **Conclusion:** Grammatical production of subordinating conjunctions can be trained using implicit or explicit learning.*

Keywords : *priming, recast approach, language disorder, speech therapy, subordinating conjunctions*

INTRODUCTION

Developmental language disorders are spoken language disorders and/or written language disorders that occur during development. This disorder is primary and affects communication and academic performance. The use of developmental language disorders terminology was agreed upon in 2016 (Bishop et al., 2016; Bishop et al., 2017), although some professionals use other terms to refer to this case, such as language disorders, specific language impairment, and primary language disorders (APA, 2013; Law et al., 2004; Owens, 2022).

The prevalence of children with developmental language disorders in Indonesia is not known with certainty, but in general, it is stated that at least 2 children in each class affect DLD, and 7.5% of children have developmental language disorders without associated biomedical conditions (Norbury et al., 2008, 2016). Developmental language disorders is not caused by neurological conditions or lack of environmental stimulation such as screen time or lack of stimulation from parents (Bishop, 2006).

Children with developmental language disorders have three main features, in that they have significant difficulties with semantic, grammatical, and discourse abilities (e.g., narrative abilities) (APA, 2013). Paul et al. (2018) explained that morphosyntactic (grammatical) disorders are the most visible and typical main features in children with developmental language disorders. These grammatical or morphosyntactic disorders can occur due to weaknesses in semantic abilities, weaknesses in morphosyntax itself, or a combination of semantic and morphosyntactic disorders (van der Lely, 2005).

The recast approach is one of the key teaching strategies used specifically by speech therapists to model appropriate utterance to children with language disorders in facilitating correct grammatical production. This strategy is explicit learning (explicit language learning). In its implementation, the speech therapist provides feedback on the child's incomplete utterance by repeating part or all of the child's utterance while adding some information or target language (eg, use of affixes) without changing the basic meaning of the child's initial utterance. In a meta-analysis study, it was found that recasts have proven effective in improving grammatical abilities in children with DLD ($d = .97$) (Cleave et al., 2015).

A recent study explains that the use of structural priming and recasts approaches is effective in improving the ability of subject and object focused relative clauses in children with DLD (Wada et al., 2020). Structural priming is a key teaching strategy that is implicit (implicit language learning), different from the recast approach. In implementing the structural priming, the speech therapist provides a model of the target language indirectly and then asks the child to produce the target language in different pictures.

Although the recast approach has a positive effect in facilitating the use of compound verbs, auxiliaries, reflexives, relative clauses, adjective + noun utterances, MLU, complex verbs, complex questions, third person singular, irregular past tense, and noun–noun semantic relations, there is no research that tests whether the recast approach is effective in improving micro narrative abilities from 1970 to 2015, such as subordinating conjunctions (Cleave et al., 2015).

Subordinating conjunctions are words or phrases that are usually used to connect two clauses, namely the main clause and the subordinate clause. San (2023) in his research found that there was a significant difference in the subordinating conjunction abilities of children with developmental language disorders when compared with those with typical development.

METHODS

Research Design

This research was developed using a single-subject experimental design, with multiple baseline across behaviors. In multiple baseline across behaviors (A1–B1–A2–B2), researchers choose two subordinating conjunctions to observe and measure during the research, namely (1) while and (2) because. In Phase A1, baseline abilities in each subordinating conjunctions were assessed, without any treatment given for 3 sessions (sessions 1, 2, and 3). In Phase B1, researchers provided treatment in five sessions, with a duration of 30 minutes (sessions 4 to 8). Phase B1 is carried out to improve the ability of subordinating conjunctions (while). At the end of the Phase B1 session, the researcher will measure the two subtest subtests (while and because) again.

After Phase B1 or after session 8, the researcher will enter sessions 9 to 11 (Phase A2). In Phase A2, the researcher measured the two subtests again, without any treatment given. Finally, after the 11th session, the researcher entered Phase B2 for five sessions (sessions 12 to 16). Phase B2, aims to improve the ability of subordinating conjunctions (because). At the end of the Phase B2 session, the researcher measured the two subtest subtests (while and because) again.

Participant

This study involved two children diagnosed with developmental language disorders without comorbidities. The first participant (ET) was male, 5 years old, lexical diversity (type token ratio) 0.4, mean length of utterance 3.5, subordinating conjunctions score of 0/3 nonverbal, nonverbal IQ of 105, and had received speech therapy sessions for 18 months.

The second participant (AR) was female, 5 years old, lexical diversity (type token ratio) 0.5, mean length of utterance 4.3, subordinating conjunctions score of 0/3, nonverbal IQ of 110, and had received speech therapy sessions for 9 months. Approval for this research has been obtained from the parents and is an inseparable part of the informed consent at the start of therapy.

Table 1. Participant Details

Participant	Gender	Age	Type-token ratio	MLU ¹	SC ²	Nonverbal IQ ³
ET	Male	5 years	0.4	3.5	0/3	105
AR	Female	5 years	0.5	4.3	0/3	110

¹mean length of utterance²subordinating conjunctions; does not use SC in language samples³WPPSI Subtest Performance Intelligence

Assessment

The assessment instruments used to measure subordinating conjunctions (eg, while, because) were constructed informally by researchers. Researchers divided the measurements into two, subtest 1 (while) and subtest 2 (because). Each subtest has five items. Each item is represented using a picture created using Canva. The assessment system for this instrument uses an assessment rubric (score 0, 1, 2), with a minimum total score of 0 and a maximum score of 10 for each subtest (Table 2).

Table 2. Subordinating Conjunction Assessment Rubric

Subordinating conjunctions	Scoring		
	0	1	2
"while"	No subordinating conjunctions (while)	Using subordinating conjunctions (while) with self correction	Using subordinating conjunctions (while) without self-correction
"because"	No subordinating conjunctions (because)	Using subordinating conjunctions (because) with self correction	Using subordinating conjunctions (because) without self-correction

Experimental Procedure

During treatment, the researcher prepared five pairs of sentences for each subordinating conjunctions. The approach used during the therapy process (Phases B1 and B2) is priming and recast approaches. The priming and recast approaches procedure in this research refers to Wada et al. (2020). Implementation of therapy begins with priming. In its implementation, the researcher provides an antecedent by showing a picture representing subordinating conjunctions, and then follows this with a utterance model given by the researcher (eg., anak perempuan itu menangis saat dia terjatuh dari sepeda/ the girl cried as she fell off her bike).

After providing the model, the researcher then showed a different picture (mis, anak perempuan itu menangis saat bonekanya rusak/the girl cried when her doll was broken) and asked the child to explain the picture. When the child's response is wrong or the child does not use subordinating conjunctions in his utterance, the next researcher uses the recast

approach as an alternative antecedent. In its implementation, the therapist provides direct feedback in the form of direct modeling.

RESULTS AND DISCUSSION

Participant ET

Based on the research results, participants received a score of 0/10 for the "while" target and 2/10 for the "because" target before the intervention was given. In Phase B1, the target "while" received a score of 4 at the beginning of the session and a score of 8 at the end of the session after priming with a combination of recast approach. In Phase B1, the target "because" did not show an increase in score when compared to Phase A1.

In Phase A2, the "while" target still has a score that tends to be reliable, a score of 8 in the ninth session and a score of 9 in the 10th to 11th sessions, while the "because" target still does not show an increase in score when compared to Phase A1. Finally, in Phase B2, when the priming and recast approach was focused on the target "because", this ability increased with a score of 6 in the 12th session, and a score of 9 in the 16th session.

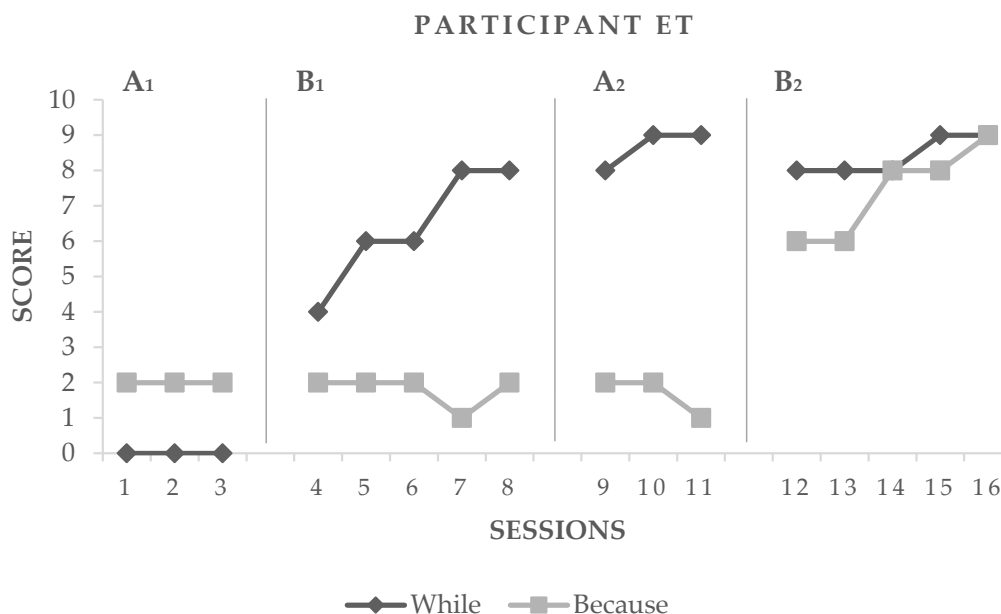


Figure 1. Intervention Progression of ET

Participant AR

Based on the research results, there is an increase in the score for the "while" target when comparing Phase A1 with Phase B1. Similar findings were also found in AR participants, that the target "because" still did not show an increase in scores if not given direct intervention, and an increase in scores was seen in sessions 12 to 16 after being given priming with a combination of recast approach.

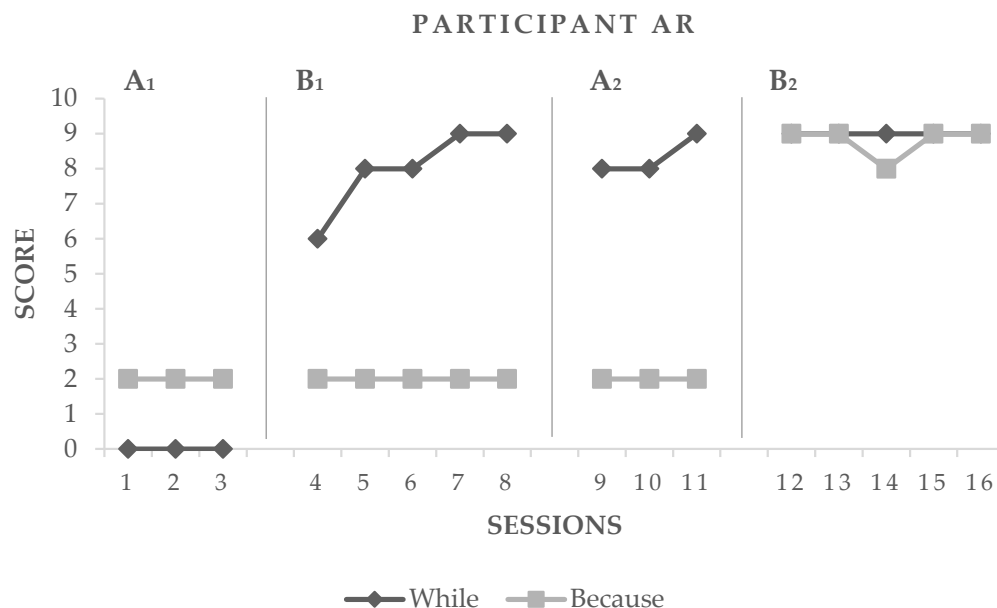


Figure 2. Intervention Progression of AR

Subordinating conjunctions are a specific language skill that is very important in children's ability to use language more complexly. Subordinating conjunctions play an important role in combining clauses to create hierarchical grammatical relationships between clauses. This ability is a very difficult ability for children with DLD to develop independently, which ultimately affects their ability to use more complex grammar, making it difficult for them to use correct grammar when speaking.

This research has provided information regarding several things. Firstly, priming in combination with the recast approach can facilitate the ability of children with DLD to use subordinating conjunctions in the utterances produced. Second, the effect on the use of the "while" target remains reliable even though in Phase B2, the priming and recast approach focuses more on the "because" target rather than "while".

Referring to this, it can be seen that the effects of priming and recast approach remained for both participants. Furthermore, this study also shows evidence that subordinating conjunctions increase if given direct intervention and do not increase if no

direct intervention is given. This finding is in line with other research which explains that grammatical production targets will increase when these targets are trained directly in preschool children with DLD (Fey & Loeb, 2002; Gillum et al., 2003).

The intervention duration of 30 minutes per session is thought to be one of the success factors in the intervention process in this study. Based on scientific evidence, the duration of using the recasts approach varies greatly, starting from 15 minutes per session (Leonard et al., 2004, 2006), 25 minutes per session (Gillum et al., 2003), 30 minutes per session (Fey & Loeb, 2002; Yoder et al., 2005) and 60 minutes per session (Smith-Lock et al., 2013; Tyler et al., 2011).

CONCLUSION

This quasi-experimental research provides initial evidence regarding the effectiveness of priming and recast approaches in facilitating the use of subordinating conjunctions in children with developmental language disorders in Indonesia. This research has several weaknesses such as the instrument not having evidence of a reliability coefficient, no control group due to the effect of the type of experiment, and a very limited sample size.

REFERENCE

- APA. (2013). *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition: DSM-5*. American Psychiatric Publishing.
- Bishop, D. V.M., Snowling, M. J., Thompson, P. A., Greenhalgh, T., Adams, C., Archibald, L., Baird, G., Bauer, A., Bellair, J., Boyle, C., Brownlie, E., Carter, G., Clark, B., Clegg, J., Cohen, N., Conti-Ramsden, G., Dockrell, J., Dunn, J., Ebbels, S., ... Whitehouse, A. (2016). CATALISE: A multinational and multidisciplinary Delphi consensus study. Identifying language impairments in children. *PLoS ONE*, 11(7), 1–26. <https://doi.org/10.1371/journal.pone.0158753>
- Bishop, D.V.M. (2006). What causes specific language impairment in children? *Current Directions in Psychological Science*, 15, 217–221.
- Bishop, Dorothy V.M., Snowling, M. J., Thompson, P. A., Greenhalgh, T., Adams, C., Archibald, L., Baird, G., Bauer, A., Bellair, J., Boyle, C., Brownlie, E., Carter, G., Clark, B., Clegg, J., Cohen, N., Conti-Ramsden, G., Dockrell, J., Dunn, J., Ebbels, S., ... Whitehouse, A. (2017). Phase 2 of CATALISE: a multinational and multidisciplinary Delphi consensus study of problems with language development: Terminology. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 58(10), 1068–1080. <https://doi.org/10.1111/jcpp.12721>
- Cleave, P. ., Becker, S. D., Curran, M. K., Van Horne, A. J. O., & Fey, M. E. (2015). The Efficacy of Recasts in Language Intervention: A Systematic Review and Meta-Analysis. *American Journal of Speech-Language Pathology*, 24(2), 237–255.
- Fey, M. E., & Loeb, D. F. (2002). An evaluation of the facilitative effects of inverted yes-no questions on the acquisition of auxiliary verbs. *Journal of Speech, Language, and Hearing Research*, 45, 160–174.
- Gillum, H., Camarata, S., Nelson, K. E., & Camarata, M. (2003). A comparison of naturalistic and analog treatment effects in children with expressive language disorder and poor

- preintervention imitation skills. *Journal of Positive Behavior Interventions*, 5, 171–178.
- Law, J., Garrett, Z., & Nye, C. (2004). The efficacy of treatment for children with developmental speech and language delay/disorder: A meta-analysis. *Journal of Speech, Language, and Hearing Research*, 47, 924–943.
- Leonard, L. B., Camarata, S. M., Brown, B., & Camarata, M. N. (2004). Tense and agreement in the speech of children with specific language impairment: Patterns of generalization through intervention. *Journal of Speech, Language, and Hearing Research*, 47, 1363–1379.
- Leonard, L. B., Camarata, S. M., Pawlowska, M., Brown, B., & Camarata, M. N. (2006). Tense and agreement morphemes in the speech of children with specific language impairment during intervention: Phase 2. *Journal of Speech, Language, and Hearing Research*, 49, 749–770.
- Norbury, C. F., Gooch, D., Baird, G., Charman, T., Simonoff, E., & Pickles, A. (2016). Younger children experience lower levels of language competence and academic progress in the first year of school: evidence from a population study. *Child Psychol Psychiat*, 57.
- Norbury, C. F., Tomblin, J. B., & Bishop, D. V. M. (2008). *Understanding Developmental Language Disorders: From Theory to Practice*. Psychology Press.
- Owens, R. E., J. (2022). *Language disorders: A Functional Approach to Assessment and Intervention in Children* (Seventh Ed). Plural Publishing, Inc.
- Paul, R., Norbury, C., & Gosse, C. (2018). *Language Disorders from Infancy through Adolescence Listening , Speaking , Reading , Writing , and Communicating*. Elsevier, Inc.
- San, N. . (2023). Subordination in Turkish Heritage Children with and without Developmental Language Impairment. *Languages*, 8, 239.
- Smith-Lock, K. M., Leitaio, S., Lambert, L., & Nickels, L. (2013). Effective intervention for expressive grammar in children with specific language impairment. *International Journal of Language & Communication Disorders*, 48, 265–282.
- Tyler, A., Gillon, G., Macrae, T., & Johnson, R. (2011). Direct and indirect effects of stimulating phoneme awareness vs. other linguistic skills in preschoolers with co-occurring speech and language impairments. *Topics in Language Disorders*, 31, 128–144.
- van der Lely, H. K. . (2005). Domain-specific cognitive systems: insight from Grammatical-SLI. *Trends Cogn Sci*, 9(2).
- Wada, R., Gillam, S. ., & Gillam, R. . (2020). The Use of Structural Priming and Focused Recasts to Facilitate the Production of Subject- and Object-Focused Relative Clauses by School-Age Children With and Without Developmental Language Disorder. *American Journal of Speech-Language Pathology*, 29, 1883–1895.
- Yoder, P., Camarata, S., & Gardner, E. (2005). Treatment effects on speech intelligibility and length of utterance in children with specific language and intelligibility impairments. *Journal of Early Intervention*, 28, 34–49.