

The Socio-Cognitive Concept of Natural Pedagogy as a tool for Oral Learning and Teaching

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Abstract: Oral language development has always played one of the most primary roles in the English foreign language learning process, as one of the primary skills in language; its proficiency is considered a major goal for foreign language teachers and learners alike. Furthermore, several linguistic theories have been devised and formulated in regards to language acquisition and learning and teaching processes. This paper explores the socio-cognitive concept of natural pedagogy as a method that can be implicitly found under numerous linguistic theories that deal with language acquisition and the learning and teaching processes. Unremarkably, its focus extends to several goals; the most prominent are conversational and communicative goals. Moreover, natural pedagogy engages adaptive complex human learning behaviours. The study conducted explicitly uses most of the basic tools of social interactions; such as body movements, gestures, facial expressions, eye contact, head movement, imitation, intonation, proxemics, observation, and specifically native-like language from the teacher. The current experiment includes a sample of 4 oral expression classrooms that were monitored, 2 of them with unchosen teachers that relied on the traditional presentation and peer-review fuelled methods. The other 2 classrooms with chosen teachers with native-like English speaking that were instructed to emphasize on including natural pedagogy tools. The findings of this study show that natural pedagogy classrooms outperformed the traditional ones in communication, in addition to showing more motivation and holding conversations in a more native-like manner.

Keywords: Natural Pedagogy, Oral development, Learning and teaching

Introduction

This article presents research proposing the concept of Natural Pedagogy as a tool applied to teaching and learning English as a foreign language. It stems from the social and cognitive sciences, in which the natural pedagogy theory confirms that adaptive human behaviour is more complex and non-transparent to learn through observation, imitation, and trial and error alone. Natural pedagogy exploits the human's remarkable "hyperprosocial" capacity for interaction such as body movement, gestures, gaze, facial expression, head movement, and language. Natural pedagogy also appears in the hominin lineage, most likely in the predated humans; therefore, it is most likely the original form of teaching-based learning in existence. In this research, natural pedagogy is correlated with one of the four basic skills of learning languages in schooling, the oral production module. One of the main goals this research has to offer is pushing EFL learners to be as fluent as possible with native-like language and exploring which aspects of natural pedagogy are the most influential on learners' speaking fluency and production. Proving that natural pedagogy can be used not only in developmental psychology and the study of prelinguistic infants but also in adult learning and EFL environments. Besides, this research

attempts to find whether there is a need to look into the thought of adopting native foreign language teachers in our higher education institutions, at least for seminars and study days.

I. Literature Review

A. Natural Pedagogy

Many philosophers from Plato to Descartes, Kant, and Chomsky have attributed with visionary goals and definitions of attributions unique to human nature and human cognitive powers (Atkinson, 2012). Recently, this attribution has been credited to the unique power of humans to be socially able to interact (Atkinson and Shvidko, 2019). Tomasello and Herrmann (2010) state that our species have “more sophisticated cognitive skills for dealing with the social world in terms of intention reading, social learning, and communication” (Tomasello and Herrmann, 2010, p. 5). Also, based on the socio-cognitive level, the types and scopes of cultural knowledge forms that are transmitted by human beings shed light on our hominin ancestors may have naturally developed specific social cognitive adaptations specialized for cultural learning (Csibra & Gergely, 2006; Tomasello, 1999). Csibra and Gergely (2011) further gave a related hypothesis that these special abilities co-evolved with hominin tool-making. The earliest known hominin tools were simple, but within time it became too complex technically to master through unassisted learning alone. It was then that new forms of teaching were suggested and evolved in humans, thus allowing the transmission of complex and non-transparent knowledge. This is unique to the human species alone that many indispensable survival skills are able to be transmitted and grown culturally, not only genetically, its distinctive forms of socio-cognitive behaviour and organization are essential within teaching (Boyd, 2017; Goodwin, 2018; Atkinson et al., 2018). It is also repeatedly mentioned that the natural pedagogy theory contributes to another dimension of human interaction, treating teaching and teaching-enabled learning among evolved forms of learning. In contrast to the closest living species to humans, chimpanzees have proved to learn many things, but they don't appear to be able to teach (Kline, 2015). These attributes are specific to humans only, and it is relevant to mention human sociality, according to Levinson (2006, p.39), is rooted “in a special capacity for social interaction, which holds the key to human evolution, the evolution of language, the nature of much [sic] of our daily concerns, the building blocks of social systems, and even the limitations of political systems.” To sum up, numerous properties differentiate the variety of knowledge content transmitted and maintained across generations of human cultures. In contrast, compared to non-human primate cultures, there is more restriction in the range of socially transmitted cultural skills. (Csibra & Gergely (2009).

Another modern natural pedagogy concern is developmental psychology and The study of prelinguistic infants. Psychologists Csibra and Gergely (2009) make three principal claims in the contemporary version of natural pedagogy of development:

“Claim 1: Humans are evolutionarily designed to give/respond to ostensive communicative cues—signals indicating that they are being addressed/communicated with. Thus, prelinguistic infants actively respond to human faces, eye contact, gaze, and infant-directed speech.

Claim 2: Humans are evolutionarily designed to present/expect referential information. Thus, infants innately assume during communicative activities that

the communication is about something in the environment, and that that something will be explicitly marked, e.g., through deictic gestures.

Claim 3: Humans are evolutionarily designed to give/receive new, generalizable information. Thus, infants have innate cognitive biases for information that is: a) novel; and b) likely to generalize beyond the immediate situation. This claim reflects an influential definition of learning: Acquiring new knowledge transferable to other situations.” (Atkinson & Shvidko, 2019)

To confirm, different experiments have shown that infants have innate adaptability for human faces, gaze-following, eye contact, referential pointing, speech, and action directed at infants, and affiliation for facial expressions. Also, infants can communicate before the emergence of their speech through declarative gestures like pointing. (Atkinson & Shvidko, 2019)

After taking upon Csibra and Gergely’s notion of natural pedagogy as a foundation for this research, we noticed alongside (Atkinson & Shvidko, 2019) that their list of evolved natural pedagogy abilities and behaviours seem to be short and undeveloped (see Claims 1-3 above). Like many other natural Pedagogy contributors, they mainly focus on the study of prelinguistic infants (Skerry, Lambert, Powell, & McAuliffe, 2013). Meanwhile, we believe that these tools and skills are necessary for general language learning and ought to be used in EFL learning environments and adult learning. Atkinson and Shvidko (2019) was the only study to explore a similar concept in their SLA learning and teaching. The research outlined below suggests that natural pedagogy is a life-long process that employs natural tools such as gestures, facial expressions, body movement, head movement, interactional synchrony, and linguistic tools such as intonation, repetition, correction, and narrative. Another is situational structuring tools such as activity types, participation, and humour. Lastly, principles and tools from borrowed related approaches such as the direct approach and the natural approach.

B. Direct Approach and the Natural Approach in Oral production

One of the first nineteenth-century reformers, Gouin, pursued his research to build a methodology around the observation of child language learning. Towards the end of the century, many reformers similarly turned their attention to the naturalistic principles of language teaching and learning. For this reason, they are sometimes referred to as advocates of a “natural” method. This has happened numerous times throughout language teaching and learning history, where attempts were made to make second language learning more like first language learning. It was thus later named the Natural Method. One of the reformers, F. Franke (1884, cited in Richards & Rodgers, *ibid.*) states that a language is best taught by actively using it in classroom environments. Teachers must encourage direct and spontaneous use of the foreign language in the classroom where learners would be able to simply induce the rules of grammar rather than using compelling analytical procedures that focus on the use of explanation and memorization of grammar rules in classroom teaching. The teacher replaced the textbook in the early stages of learning. Speaking began with systematic attention to pronunciation. Known words could be used to teach new vocabulary, using mime, demonstration, and pictures. These principles of natural language learning provided the foundation for what is now known as the Direct Method,

which is one of the most famous approaches of the natural methods and is often referred to in meaning as well.

The Direct approach of teaching or what is sometimes known as the Natural Method as mentioned above is mainly used in teaching foreign languages. It constitutes the use of the target language as the main language of communication and instruction and forbids the use of any other language. Classroom activities and instructions are carried out in the target language; therefore, students are actively involved in using the target language. Conversational activities hold an important place in this method. Students will be able to use language in authentic contexts; therefore, students will have a higher chance of speaking and thinking in the target language. This inevitably will uphold students to learn how to speak earlier than most other methods and it will lead them to acquire fluency faster, as Larsen-Freeman (2000) states that language is primarily speech.

The Direct method was officially approved and later introduced in countries such as France and Germany due to the enthusiastic supporters who urged its use at the beginning of the century. Therefore it became a widely known method that was adopted in the United States mainly through its use by Sauveur and Maximilian Berlitz in many successful commercial language schools. Berlitz coined another term that referred to the direct method used in his schools as the Berlitz Method). In practice, it stood for the following principles and procedures:

1. Classroom instruction was conducted exclusively in the target language.
2. Only everyday vocabulary and sentences were taught.
3. Oral communication skills were built up in a carefully graded progression organized around question-and-answer exchanges between teachers and students in small, intensive classes.
4. Grammar was taught inductively.
5. New teaching points were introduced orally.
6. Concrete vocabulary was taught through demonstration, objects, and pictures; abstract vocabulary was taught by association of ideas.
7. Both speech and listening comprehension were taught.
8. Correct pronunciation and grammar were emphasized.

These principles are seen in the following guidelines for teaching oral language, which are still followed in contemporary Berlitz schools:

Never translate: demonstrate

Never explain: act

Never make a speech: ask questions

- Never imitate mistakes: correct
- Never speak with single words: use sentences
- Never speak too much: make students speak much
- Never use the book: use your lesson plan
- Never jump around: follow your plan
- Never go too fast: keep the pace of the student
- Never speak too slowly: speak normally
- Never speak too quickly: speak naturally
- Never speak too loudly: speak naturally
- Never be impatient: take it easy

The Direct Method fits our current research adequately as the method itself uses and merely emphasizes the principles of natural pedagogy mainly because they are believed to conform to principles of naturalistic language learning in young children. Similarly, as represented by (Krashen and Terrell, 1983), the Natural Approach is also believed to conform to the naturalistic principles found in successful second language acquisition. However, unlike the Direct Method, the goals differ in that it places less significance on teacher narrative, blunt repetition, and formal questions and answers and less focus on accuracy in the production of target language sentences. Whereas, In the natural approach, the main emphasis is on exposure to the language or the input rather than practice. This optimizes emotional readiness for learners, prolongs the attention for learners to hear before they try to produce language, and also, willingness to use written and other materials to enhance comprehension. Also, huge emphasis on the comprehension of the students. The Natural Approach belongs to language teaching methods based on observation and interpretation of how learners acquire both first and second languages in non-formal settings. It rejects the formal use of a grammatical organization of a language as an obligation in teaching languages. Newmark and Reibel suggest that “an adult can effectively be taught by grammatically unordered materials” and that an approach like this is, “the only learning process which we know for certain will produce mastery of the language at a native level” (1968, p. 153). The Natural Approach focuses on comprehension and practical communication as well as providing the proper input/materials. Not to forget sufficient conditions for a successful classroom suitable language acquisition. Its most significant focus is not on the techniques it employs but on using methods that emphasize meaningful practice and activities, and not giving much attention to the production of grammatically perfect sentence utterances.

II. Methodology

Natural Pedagogy is a socio-cognitive theory fuelled by its behavioural aspects performed in real-time by real people naturally. Therefore, natural pedagogical practices embody socio-cognitive skills by which humans cooperate and associate with their natural and social environments in order to survive. But this research is a unique intake to the natural pedagogy theory in that it responds to different implications not usually studied within it like (1) teaching adults and young learners and specifically children only, (2) using EFL approaches foregrounding linguistics and cognitivism, and (3) focusing on oral production primarily and adopting features and principles from the Direct Approach sparingly. This way we adapt to the linguistic element of the study.

The research is fundamentally exploratory; our main focus is on applying the natural pedagogy tools that are featured and observed in this research and testing them explicitly to see if they make a tangible difference in EFL students' development. The tools are motivated from a few related methods and sources: The Direct Method and the Natural Approach, adopting work from Atkinson and Shvidko (2019) work on SLA and Natural Pedagogy, who used the "SLA multimodal interaction analysis" (e.g. Atkinson et al., 2018) and lastly some inventories of natural pedagogy related tools (Hewlett & Roulette, 2016). Specific Native teachers and Native-like teachers from the University of Yahiya Fares in Medea, Algeria, have been appointed. From this all, the teachers have been reminded to focus on their own and the students' Eye contact, facial expressions, head movements, gestures, body movements, interactional synchrony, and imitation. They have also been instructed to be spontaneous, show humour, scaffold and break down complex tasks into simple steps. Moreover, linguistic elements have been considered, such as speech rhythm, intonation, repetition, asking questions, accommodation, simplification, using narrative, taking turns in speaking with students, assessing, correcting mistakes, and prompting students to speak.

Natural Pedagogy was explored, and the sample case was on 61 (2 groups) first-year EFL students from the University of Yahiya Fares in Medea, Algeria. Lesson plans of oral production classrooms were created to study the effectiveness of the theory on adult learners. Since this paper is primarily conceptual, our analysis is of brief exploratory nature. It focuses on learning opportunities provided by natural tools.

The lessons taught were from two EFL teachers, one native-like and one native speaker. The lesson is a diverse set of activities that the teacher introduces in the classroom. Table 1 shows a description of the materials used.

Table 1. Description of Materials Used in the Oral Production Classes

Materials	Quantity	Duration	Themes
Clips	4	average 10min	interviewing a president, interviewing actors, dialogue at a hotel reception
Plays	3	10-15 mins	hotel reception, owning a business, dealing with children as parents.
Presentations	2	10-15 mins	discrimination and racism, success
Discussions	5	10-15 mins	personality types, opinions, appearances, attitudes and behaviours, clothing

First, the clips included (4) different types, mainly interviews and dialogue. These clips were approached through video analysis techniques, and students were asked to analyze and write down unfamiliar words to them and later on a discussion about the videos. Then, students were asked about a topic related to the video, where they expressed their opinions and views on the topic. In addition, (3) types of plays were used. Also, discussions and presentations were used in the classroom. Our analysis focuses on many elements from the natural pedagogy tools: repetition, asking questions, simplification, breaking down complex tasks into simple steps, assessment, prompting students to speak. We then analyzed student's cognition and development mainly through classroom observation.

III. Results and Discussion

One of the findings that ought to be mentioned is that students were impressed and inspired by the teachers' competency and level of English as well as the spontaneous way of executing the lessons assigned to them in a very natural and native manner. Some students further expressed their satisfaction, and some even went further to say that they "didn't even feel like they were being taught" and that the lessons were exciting and memorable to them. This has been one of our main objectives in making the classroom be more like a natural environment for learners. All students -even the shiest ones- participated as they no longer focused on themselves and were not self-conscious about their own English level, not to mention that they were first-year students only, they felt motivated to participate and be present and thus, there were no absences.

Due to their competitive level and their adequate speaking skills, the teachers were able to meet our expectations and effectuated many of the natural pedagogy tools with ease. Mainly: carrying out spontaneous use of language and attitude, using the correct narrative according to the lesson, taking turns in speaking with students, thus creating a suitable environment for dialogue, the use of speech rhythm, obtaining perfect intonation, accommodation, and correcting mistakes efficiently according to the lesson goal from the direct method which is allowing students to explore and participate.

Other tools were achieved from the choice of the lesson plan itself, repetition, asking questions, scaffolding, and simplification. Repetition is an excellent linguistic focal tool. It was practical, mainly because the act of repetition conquers learning and is a natural scaffolding tool for learning. Many researchers like Larsen-Freeman (2012) and Moore (2011) have frequently discussed it in language acquisition literature. Repetition emphasizes many functions; noticeably, it makes learning words and phrases more salient and memorable, provides better comprehension, scaffolds interaction and discourse cohesion linguistically. Besides, repetition enhances classroom affiliation and alignment and allows feedback on student performance (e.g. Larsen-Freeman, 2012; Atkinson et al., 2018). Repetition in classrooms is an effective method for repairing utterances, discourse cohesion, and the use of emphasis and confirmation.

This was achieved following the lesson plan where students were instructed to watch the videos provided and take notes of the words, phrases, and elements they wished to discuss. After the videos were presented, the teachers reviewed the students' notes and wrote down specific words that the students faced difficulties with. They were then practised in sentences and repeated where each student provided their own take of the word. Teachers also simplified the sentences and corrected them, not focusing on grammar alone but also on pronunciation and accuracy of the sentences, following the direct method.

Table 2. Summary of Vocabulary Exposure

Video	words	Phrases/Expressions
Barack Obama clips (2) ^{1 2}	inauguration, typhoon, deploy	some run-down, silverware, it's been a while since, didn't you get the memo, wake up call,
Daniele Radcliff ³	integrity, meme, pug, snitch, Broadway, upfront, rummage	seek them out, on sale, stuff like that, screw up, at a play
Leonardo DeCaprio ⁴	attorney, skydiving, hurl,	grow up to be, sounded

¹ <https://youtu.be/2TtdPbeKNFc>

² <https://youtu.be/1FV-exClcDQ>

³ <https://youtu.be/PI8AJAt3TDg>

⁴ https://youtu.be/v7_4_UJCulU

	tandem	smooth, looking forward, the making off, have a laugh, down to earth, oh blank
Hotel and tourism ⁵	reservation, deposit, glitch, adjoined, jacuzzi, amenities, sightseeing, bell boy	exception of, of no extra charge, registration form, big apple

Students were also prompted to analyze the body language, humour, and attitudes of the people who were shown in the video. Teachers asked questions such as: “is the speaker offended? Is the speaker comfortable talking about the subject? What does their body language represent?” Thus, delving into the psychology of the speakers was a way to motivate students to interact. They were even asked to express how or what they would do and how they would have responded if they were in the speaker’s shoes.

Another lesson that was presented in the classroom focused on “plays” and presentations and successfully targeted the natural pedagogy tools of assessment and self-assessment, asking questions, and even imitation. After classroom brainstorming, students were faced with different social situations such as, “imagine yourself in a hotel”, “imagine yourself as a businessman, how would you sell or market your product effectively”, “imagine you are a parent, and your child was misbehaving, how would you deal with such behaviour?” and such smaller side play rehearsals. The students had to put themselves in character to portray the roles they were given. Lastly, the classic presentations are almost already being applied in Algerian universities, but we noticed great success mainly due to the teachers that helped with the motivation of students and helping them to speak and express themselves fluently.

IV. Implications

The acquisition of good oral proficiency is of paramount importance in the foreign language learning process. Therefore, teachers should value students’ talking and creating a communicative environment that encourages them to delve further into the target language and enhance their oral language development. The teacher should be aware of their own potential in the classroom as it positively influences the development of students’ vocabulary.

The role of the native language teacher, as the study found, is to represent the major source of the target language. The teacher has primarily provided the comprehensive input in the natural approach experience. This might denote that the comfortable environment can only be made natural by the teacher who has quality linguistic proficiency. Students’ confidence and reliability in the source of their comprehension explain the significance of natural pedagogy if it is well-controlled.

Being a foreign language learner in a naturally-occurring-like profession of speaking and listening describes the estimated outcomes of instruction. It is ideal for their motivation to be aware that

⁵ <https://youtu.be/CGHWNXP1oqQ>

the teacher is native, and students should be exposed to native material and native teachers at least in seminars and study days.

Conclusion

Using the target language in teaching creates more competent learners. The natural approach, as the few works in the literature noted, proved its obvious merits in terms of communication and motivation. Notwithstanding any relevant advantages, teachers might find the applicability of this approach relative accordingly. Its appropriateness depends on the taught language, provided content, targeted skills, and students levels. After all, in case it is applicable, teachers will to some extent find instructing through this approach time-consuming. Furthermore, not all foreign language teachers share the same proficiency and readiness qualities to plan their lessons under such a procedure of creating comprehensiveness. The latter, indeed, is shared with the Total Physical Response theory. That is, the input importance lies in its importance to the learner. Besides, positive effects are promoted in the learning process in both spheres (NA and TPR).

References

- Atkinson, D. (2012). Adaptive intelligence and second language acquisition. *Applied Linguistics Review*, 2, 211-232. doi:10.1515/applirev-2012-0010
- Atkinson, D., Churchill, E., Nishino, T., & Okada, H. (2018). Language learning great and small: Environmental support structures and learning opportunities in a sociocognitive approach to second language acquisition/teaching. *Modern Language Journal*, 102, 471-493. doi:10.1111/modl.12496
- Atkinson, D., & Shvidko, E. (2019). Natural pedagogy in second language learning and teaching. *TESOL Quarterly*, 53, 1083-1114.
- Boyd, R. (2017). *A different kind of animal*. Princeton, NJ: Princeton University Press.
- Csibra, G. & Gergely, G. (2006). Social learning and social cognition: The case for pedagogy. In Y. Munakata & M. H. Johnson (Eds.), *Processes of Change in Brain and Cognitive Development. Attention and Performance XXI* (pp. 249-274). Oxford: Oxford University Press.
- Csibra, G. & Gergely, G. (2009). Natural pedagogy. *Trends in Cognitive Sciences*, 13, 148-153.
- Csibra, G. & Gergely, G. (2011). Natural pedagogy as evolutionary adaptation. *Philosophical Transactions of the Royal Society B*, 366, 1149-1157.
- EasyFluency*. (2012, October 2). *English for Hotel and Tourism "Checking into a hotel" by LinguaTV [Video]*. YouTube. <https://www.youtube.com/watch?v=CGHWNXPIoqQ&feature=youtu.be>
- Ellis, R. (2008). *The study of second language acquisition*. Oxford: Oxford University Press.
- Goodwin, C. (2018). *Co-operative action*. Cambridge: Cambridge University Press.
- Hewlett, B., & Roulette, C. (2016). Teaching in hunter gatherer infancy. *Royal Society Open Science*, 3, 150403. doi:10.1098/rsos.150403
- Jimmy Kimmel Live. (2016, October 25). *How Does President Obama Get Woken Up? [Video]*. YouTube. <https://www.youtube.com/watch?v=1FV-exClcDQ&feature=youtu.be>
- Kline, M. (2015). How to learn about teaching: An evolutionary framework for the study of teaching behavior in humans and other animals. *Behavioral & Brain Sciences*, 38, 1-17. doi:10.1017/S0140525X14000090 , e31
- Krashen, S. D., & Terrell, T. D. (1983). *The Natural Approach: Language Acquisition in the Classroom*. Hemel Hempstead: Prentice Hall International English Language Teaching.
- Larsen-Freeman, D. (2000). *Techniques and Principles in Language Teaching*. Oxford: Oxford University Press
- Larsen-Freeman, D. (2012). On the roles of repetition in language teaching and learning. *Applied Linguistics Review*, 3(2), 195-210.
- Leonardo DiCaprio on Oprah Winfrey Show (Interview AND Q&A)*. (2014, August 19). [Video]. YouTube. https://www.youtube.com/watch?v=v7_4_UJCulU&feature=youtu.be

- Levinson, S. (2006). On the 'human interaction engine.' In N. Enfield & S. Levinson (Eds.), *Roots of human sociality* (pp. 39–69). Oxford: Berg.
- Moore, L. (2011). Language socialization and repetition. In A. Duranti, E. Ochs, & B. Schieffelin (Eds.), *Handbook of language socialization* (pp. 209–226). London: Blackwell.
- Richards, J.C., & Rodgers, T.S. (1986). *Approaches and methods in language teaching*. Cambridge, UK: Cambridge University Press
- Skerry, A., Lambert, E., Powell, L., & McAuliffe, K. (2013). The origins of pedagogy: Developmental and evolutionary perspectives. *Evolutionary Psychology, 11*, 550-572. doi: 10.1177/147470491301100306
- The direct method. (n.d.). Retrieved March 2, 2021, from https://www2.vobs.at/ludescher/Alternative%20methods/direct_method.htm
- THE NATURAL APPROACH. (n.d.). Blogger. Retrieved March 2, 2021, from <https://elifozlm.blogspot.com/2012/12/the-natural-approach.html>
- The Tonight Show Starring Jimmy Fallon. (2018, September 12). *Daniel Radcliffe Reacts to Harry Potter Memes* [Video]. YouTube. <https://www.youtube.com/watch?v=Pl8AJAt3TDg&feature=youtu.be>
- The Tonight Show Starring Jimmy Fallon. (2016, June 10). *President Obama and Jimmy Had an Awkward First Meeting* [Video]. YouTube. <https://www.youtube.com/watch?v=2TtdPbeKNFc&feature=youtu.be>
- Tomasello, M. (1999). *The Cultural Origins of Human Cognition*. Harvard University Press.
- Tomasello, M., & Herrmann, E. (2010). Ape and human cognition: What's the difference? *Current Directions in Psychological Science, 19*(1), 3–8.
- Newmark, Leonard. & Reibel, David A. (1968). *Necessity and Sufficiency in Language Learning*. Washington, D.C. Distributed by ERIC Clearinghouse, <https://eric.ed.gov/?id=ED026895>.