INTERRELATION OF TECHNOLOGY AND IDEOLOGY IN INFORMAL SECOND LANGUAGE ACQUISITION: A TRANSDISCIPLINARY FRAMEWORK

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Abstract
Technology in informal language acquisition is inevitably in this digital era since it offers opportunities and brings positive impacts on English non-native speakers. Some related studies are concerned with a particular approach. Therefore, this study looks at a broader lens to investigate individuals' differences in developing a second language, and to what extent technology contributes to their second language acquisition by employing the transdisciplinary framework of Douglas Fir Group (2016). This case study involved two participants and the data were collected through semi-structured interviews. The findings indicated that individual differences in acquiring English are influenced by social interaction (micro), environment (meso), and belief (macro). Technology is utilized not only as a medium of English but also as an identity construction. How technology and ideology are interrelated is further discussed.

Keywords: Technology, Ideology, Informal second language acquisition

INTRODUCTION
The research trend in technology roles to informal language has been developed over the years as the impact of rapid technology evolution. Technology is believed to contribute to second language (L2) language development as its affordance to present authentic materials (e.g. Beresova, 2015; Shlowiy and Lidawan, 2019) and the facility of practising discrete language skills (e.g. Banditvilai, 2016; Trinder, 2017), outside the classroom acquisition setting. The prevalence of technology harnessed in daily life – e.g. TV, music, internet, social media, mobile phone, etc. – offering limitless boundaries of access and spaces, has been emerging new perspectives primarily to support informal language acquisition.
Some researchers examining this trend are Bahrani and Sim (2012), Marsenille (2015) and Trinder (2017). Marsenille (2015) indicates that watching film series available on the internet make the speakers understand the meaning of new vocabulary based on the context and encourage them to practice English. Meanwhile, Trinder (2017) has proved that TV/radio/videoclips/series and films assist participants in improving listening, pronunciation and speaking skills (Bahrani and Sim, 2012). Besides, in terms of vocabulary enhancement, Trinder (2017) has found that an online dictionary has a significant role for the participants. Hence, the use of technology in informal settings brings a positive impact on speakers’ proficiency and willingness. Nevertheless, these studies are restricted to speakers’ proficiency improvement in acquisition English.

Other research was exploring the technology contribution to L2 development by looking at different perspectives, e.g. Thorne and Black (2011) who posited technology as a construction of identity. Their case study investigated English language speakers from China by participating in an online fan fiction site. They pointed out that the learner experienced two dynamics. One was the broader opportunities to communicate with a diverse group of fans from around the world who shared interest while increasing her confidence in her writing and hence reshaped her position in that community to a successful author. The second dynamic was the construction of identity as a speaker of Chinese and her knowledge of Asian Languages and cultures.

Lam (2000) documented the story of Almon, immigrant youth from Hong Kong resided in the US for five years. Feeling insecure of English skills and being discriminated against in the context of school culture, his engagement with instant messaging and webpage facilitated him to find new online peers on the internet, who assisted him portraying a new, confident identity as an expert web design and a competent English user. The finding presents that technology can support minority L2 speakers reshape positive identities as well as fostering second language abilities. Lam (2004) later highlighted that participation in the supportive virtual community created a shared identity construction and helped immigrant Chinese studying in the US improve their confidence and English fluency in their environment. Those studies uncover that technology gives L2 speakers rich opportunities for identity construction and negotiation, social and cultural acquisition as well as developing speakers’ confidence and English proficiency.

Accordingly, considering that language acquisition is a dynamic and complex process, this study tries to explore the role of technology in informal L2 acquisition using the transdisciplinary framework. Specifically, the researchers attempt to understand and explain how different individuals develop a second language and to what extent technology contributes to their ideology during the process of second language acquisition.

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THEORETICAL FRAMEWORK

Research in Second Language Acquisition (SLA) has widely focused on a particular theoretical perspective. Some research reviews the cognitive approach, such as The Universal Grammar Theory Noam Chomsky. This approach examines how second language speakers proceed to linguistic information and how the second language is developed through their ability. Meanwhile, constructivist or emergentist cognitive approach emphasizes on the communicative needs or intentions. Some use Psychological approaches to look at how the role of memory, of noticing and attention, of implicit or explicit acquisition and individual differences (e.g. motivation, aptitude and intelligence), and their pedagogical implications (Dornyei, 2012). The psychological factors comprise cognitive factors (intelligence, language aptitude, learner beliefs), conative factors (motivation and willingness to communicate), affective factors (language anxiety, and mixed factors (personality and acquisition style) (Ellis, 2015).

Some others use the sociocultural approach by Lev Semeonovich Vygotsky (e.g. Jang and Jimenez, 2011) to understand the speakers as active roles (learner strategies) in the acquisition process including cognitive and social development by considering the social relationship and power relation in the classroom context. In terms of the sociocultural approach, Lantolf (2000) mentions two recent formulations in contemporary interpretation or discussion of Vygotsky, i.e. mediation and mediated acquisition. Mediation is a central concept of Vygotsky which portrays language as a tool for thought or a means of mediation. Mediation exists through the use of information to be learnt, such as verbal or non-verbal and graphics. Moreover, acquisition itself is a mediated process. In this process, speakers need a dialogue with a more competent person to mediate the acquisition (Mitchell, et al., 2013). Concerning to mediated, the stages of development of internal self-regulation are social speech (doing interaction with the more capable person), egocentric (giving instruction to others in applying skills), and inner speech (mental self-guidance).

Some also integrate cognitive and sociocultural theories to provide perspectives that social context as central to cognitive development (e.g. Thorne, 2005; Lantolf, 2000 in Zuengler and Miller, 2006). Larsen-Freeman (2002) accommodates both sociocultural and cognitive perspectives within SLA. She suggests that the cognitive acquisition process and social use process are connected. When a person learns a language, he/she becomes a member of a specific community.

From the evaluation to the discrete approach to look at speakers’ L2 acquisition and acquisition, the Transdisciplinary approach offers a new lens to understand the issue from the dependent and dynamic interaction of each different perspective. The Transdisciplinary framework is a known concept by The Douglas Fir Group (DFG) in 2016, highlighting the involvement of micro, meso, and macro factors in the language acquisition process. The framework explores speakers’ neurological mechanisms, cognitive and emotional capacities in specific contexts of interaction at the micro-level. The meso level of social activity is related to institutions and communities in which L2
speakers participate, which is also concerned with speakers’ social identities. The macro-level is regarded as ideological structures about language and acquisition. Specifically, Douglas Fir Group (2016, p.36) defines the framework as:

“Language acquisition is a complex, ongoing, multifaceted phenomenon that involves the dynamic and variable interplay among a range of individual neurobiological mechanism and cognitive capacities and L2 speakers’ diverse experiences in their multilingual words occurring over their life spans and along three interrelated levels of social activity: the micro level of social action and interaction, the meso level of sociocultural institutions and communities, and the macro level and ideological structures.”

In the micro-level, the L2 acquisition is the product of interactions between an individual and environment, which specifically described by The Douglas Fir Group (DFG) as the function of semiotic resources (e.g. graphics, auditory, linguistic, pictorial, gesture, etc.) contributing the learner to understand the language (i.e. creating meaning) from any social interaction (i.e. with interlocutors such as peers, or media like printed or digital resources).

In the larger context, the meso-level emphasises the influence of power (i.e. the role of institutions surrounding the speakers, e.g. at schools, families, workplaces, organisations, neighbourhood) and social agents (e.g. teachers, peers, parents) constructing the L2 language development (DFG, 2016; Duff, 2019). Further, Duff (2019) explains the role of agency in the meso-level as a mediation driving the L2 speakers’ actions and decisions, for example, taking a language course or being reluctant to speak the target language.

The macro level relates to ideological contributions to the L2 acquisition experience, for example, how the speakers perceived the usefulness of the target language, how the government regulation affect to the emergence of L2 application in particular setting, how

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particular social tradition or culture see the target language as either opportunities or constrains, etc.

**METHODOLOGY**

This study carried out qualitative research, specifically a case study purposing to understand how different individuals develop a second language, and to what extent technology contributes to their second language acquisition. This study particularly focuses on a single unit and provides an in-depth description of a phenomenon of speakers’ use of technology for language acquisition in an informal setting. A Case study mainly use to observe an existing phenomena occurring in a real life context (Yin, 2018) and to answer questions of how and why the phenomena happen by looking at the process which is particularistic (focused on particular phenomenon), descriptive (give a rich description), and heuristic (posits new insight) (Ary, et al, 2006).

This study explores two individual cases, which the participants were Indonesian doctoral students at a university in the UK. The participants were purposively selected considering the access, as the researcher was also undertaking her study in the same university. The participants were both females, Dina was 27 years old, and Rani was 40 years old. Dina educational background was Engineering and Business, and Rani’s background was Biology. Concerning the ethic, all participants were aware that they voluntarily participated and agreed to mention for any demographic information in the study. In addition, all names are pseudonyms used for participants anonymity and to protect their privacy.

The study employed a semi-structured interview which interview guidelines with lists of guided (open-ended) questions and topics are arranged (Bernard, 2006). In the process, this type of interview allows me to probe necessarily followed-up questions to gain a more detailed explanation from the participants’ response (Gilham, 2005). Some leading questions are in relation to, (1) the participants’ L2 acquisition experience in a formal context, (2) the participants’ L2 acquisition experience in an informal setting, (3) the incorporation of technology in informal acquisition, (4) the participant belief in the emergence of L2 acquisition.

**DISCUSSION**

Case Story 1

Dina has learnt English since her first grade of elementary school. Outside the formal English acquisition in the classroom, she also learnt English in an English course institution. The course was twice a week, and lasted for one and a half hours at each meeting. She started the course in her second grade. In the third grade, she halted studying at the course and continued the course in her high school.

During the classroom acquisition, she had mainly learnt basic vocabulary, and she revealed that she learnt English more in her course, as the acquisition target in each meeting was clearer. In the classroom, the acquisition goal was not as high as in the course
due to the various students’ levels. In the high schools, she mainly learnt reading and listening skills.

In the informal acquisition setting, she started to like to listen to English songs. She also unconsciously learnt English from movies. She said, “In junior high school, I loved watching Japanese movies. You know, there was no Indonesian subtitle back then, but English. So, I had no choice but to watch it using English subtitles. It was the only way. If I wanted to know the synopsis, it was also in English. But, as it was in junior high school, I already had the basic vocabularies.”

Explicitly, she explained that she did not understand each conversation said in the movie. However, the accumulation of English knowledge (i.e. vocabularies) she had learnt in elementary school helped her to understand the context. When she read the subtitle and found some words which made it difficult to get the context of the story, she checked the meaning to the google translate. She was encouraged to consciously learn the new vocabularies as she had the interest to be able to comprehend the story. She explained, “When I listened to music, I frequently never focused on the meaning of the lyrics. But if I liked the song, or I liked the movie, I was more interested in finding the meaning.”

Dina said that she was the type of person who does not like speaking English in public, in Indonesia. She was reluctant speaking English in public or having mixed language in daily conversation as she did not want to be called "showing up”. As such, she preferred speaking Indonesian to mixing using English in her everyday conversation. Dina was also not an active social media user in terms of posting captions. She only used her social media to be updated with recent news or friends’ status.

In terms of acquisition receptive skills, she revealed that she got more contribution from her formal acquisition settings. However, practically, she applied her English more in the informal settings, in which she used it to watch foreign movies, e.g. Japanese, Chinese, Korean, and Western movies from reading the subtitles.

In productive skills, especially writing, she developed and practised it from a formal acquisition setting as she could get direct feedback. For speaking practice, she explained that she hardly practised it as she had no peers to practice. In the formal acquisition setting, her teacher also never gave her speaking practice. However, Dina said that despite not having frequent practice in speaking, she was able to speak in English but not fluently. Before studying for her Doctoral degree in the UK, Dina was pursuing her master's in the Netherlands. She was taking an IELTS course to prepare her master study. She also explained that she only focused on acquisition listening, reading, and writing skills in the IELTS class. She explained, “For writing, I still practised it with my teacher. So, there was still feedback. The course was one month. It was an intensive class, so I attended the class every day and each meeting was 3 hours. So, I felt that my writing was still required to improve more. So, I took another course, but it was flexible. I could take only one hour or two hours. I only focused on wiring. You know, I need people who understand writing to give me feedback. If I asked my friends, it was no use as they also did not know how to correct it”.

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Outside the formal acquisition setting, Dina revealed that she did not consciously learn English unless she got homework from the teacher. However, acquisition IELTS outside the class was an exemption for her as she would take a test. So, she learnt English both in formal and informal acquisition settings. She also explained that she did not use technology such as Youtube or other online materials to learn IELTS to practice. She used printed books and CDs to practice her listening and reading skills.

For Dina, acquisition English is a need not a matter of interest. She considers English as a global language, so she must learn it. She revealed, if she had a choice, she would like to learn another language other than English. She has learnt English at school, so it would better if she took a course for other languages.

Case Story 2

Rani had learnt English in a formal acquisition setting since the fourth grade of elementary school. She was living in Papua, where the neighborhood was not only local people but also foreign workers. In elementary school, her English teacher was an Indonesian living in America for some periods. So, the classroom instruction was mixing between English and Indonesian. The teacher’s teaching style was Grammar-based method, focusing on memorizing vocabulary and grammar. However, Rani revealed that she did not develop her English much from the class, instead from her informal acquisition. She was initially encouraged to learn English more due to her classmates, who were more advanced than her. She observed that some of her classmates took opportunities to interact with foreigners in their neighborhood. Feeling insecure with her achievement, she started to find a strategy for acquisition English independently, from movies or TV series.

“Some of my friends made friends with foreigners, so their English was more advanced than us not having foreign friends. I still remember it clearly, in the exam, I asked my classmate “what is an egg?”, when she answered that egg is telur, I was surprised. I was thinking of how she could know it while we had never learnt what an egg is in the class. Then, I realized that my classmates might be acquisition hard outside the class. So, I tried using movies to learn English.”

Rani explained that most TV channels in her neighborhood were showing programs in English. She emphasized that the channels, particularly, cartoons in English, contributed a lot in shaping her English vocabulary. She explained that she initially did not consciously and purposely learn English from TV series, but she had no choice as all channels were presented in English and it was the only entertainment for her at home. She admitted that she did not understand any word spoken in the movie. However, she gradually learnt the spelling, pronunciation, and meaning from the subtitle and English words showing in the scenes.

Rani added that she started to use English actively, especially for productive skill, when she was at the university level, in Bandung. She explained that many of her college friends used mixed languages, Indonesian and English, in daily conversation. This environment encouraged her to learn some new vocabulary from peers, and she tried to
use it in the conversation to follow the trend. She also liked listening to English songs and lyrics to enrich her vocabulary. She also explained that media social, especially twitter, contributed a lot to develop and practice her written skill. She learnt the sentence structure and vocabulary from twits written in English.

"Outside the class, media social helps me a lot. I significantly learnt from Twitter. You know, from people who were tweeting using English. I learnt it from that, the structure, the vocab. I thought that they were Indonesian, but their English was so cool. This kinds of helping me, like Oh, here is how to make a passive sentence. So, I also started to tweet using English. If some people replied to my tweet in English, I was delighted."

Rani also explained that she learnt English, especially practicing speaking and writing, significantly when she was acquisition IELTS intensively every day for three months. She learnt IELTS 8 hours each day. She learnt IELTS to prepare her doctoral study. However, when she finished the course, she did not use it actively, and she mostly forgot what she had learnt. She said,

"I took IELTS twice, the first was in 2012 and the second was 2017. Both were conducted for three months. It was a DIKTI program. So, I learnt IELTS for 8 hours every day. So, after five years I was like, I must restart again. I forget it. I still remember what my teacher said, "the only way is practicing every day."

For Rani, the intensive formal acquisition environment was significant in developing her English skill. In practice, she still actively used English for listening, reading English written texts, or writing papers or updating status in social media in English. However, she claimed that she hardly practiced English in daily life as it was challenging to find sparring partners to practice fit to her needs. She explained that she needed sparring partners who can give her feedback. If she found some, the partners were mostly reluctant to speak English as they were unconfident. Otherwise, they only listened to her without having interactive communication.

From the two case stories, Dina and Rani experienced different English acquisition processes, particularly in the way of informal language acquisition practice and the extent of ICT incorporation. Dina was likely to use technology less than Rani, who was inclined to gain more contributions from technology use in the L2 language acquisition development in the informal setting.

In the L2 acquisition process, Dina was mostly influenced by meso levels, family and schools. Her family has enrolled her to English language courses from elementary to senior high schools. Dina also mentioned that if she had a choice, she would like to take another L2 languages she were interested in more. Her family belief in the importance of English roles as an international language contributes to her belief establishment perceiving acquisition English, not due to interest but need. In this case, the ideology of English as a Global Language in the family and society has formed her belief, subsequently encouraging her to learn English more seriously in the formal acquisition setting.

Looking at the micro-level, Dina had more interactions in printed sources and teachers' explanation as most L2 inputs. She also subconsciously benefitted from movies
with English subtitles to foster her English ability. Her English had become much improving when she was taking her Master for two years in the Netherland, in which she had more opportunities to practice, particularly the speaking skill, more than in Indonesia. The lack of opportunities in language skills practice was also widely influenced by a political factor that English was only learnt at schools and not applied as a language tools in neither formal settings nor informal settings. Additionally, some community tradition to comment one speaking English in public as a boasting action, relatively affected her reluctance to use code-switching in her daily conversation with peers, although some of her friends did contrary (i.e. using code-switching).

In accordance with Dina’ English acquisition experience, she subconsciously learnt English using English subtitle movies as her hobby. In this process, she benefitted for reading skill enhancement. Her action in informal language acquisition was voluntarily and much more influenced by micro-level (her interaction with contexts of semiotic resources shown in the movies)

Unlike Dina, Rani’ English acquisition development was considerably influenced by the micro-level, the result of her interaction with English movies, music, and Twitter. While Dina was more dependent on the formal acquisition, Rani was more reliant on the informal acquisition environment (i.e. incorporating technology for autonomous acquisition). Despite having exposure from movies, the meso-level initially took a role in her interest to learn English, which was her peers. As she was living in a community where many foreign workers were living in her childhood area, she was feeling insecure by the English ability of her peers who interacted more with foreigners’ neighbors. In this case, the community situation (the meso-level) implicated her attitude to learn English autonomously from different semiotic resources (the micro-level) from the contexts in the movies.

Having a different living area in her teenage, she still took advantage of the informal acquisition than formal acquisition. In her high schools, she started to learn English from songs (i.e. micro-level), which she enriched vocabulary and improved her listening skills. In the college, Rani language acquisition, particularly in productive skills, was started to be influenced by peers and social media interaction. The role of peers in Rani’s college stage is different from her childhood. In the college, her peers’ contribution was more at the micro-level (speaking using code-switching and online interaction in Twitter using English) than the meso-level (neighborhood).

Like Dina, the macro-level influencing Rani’s decision was also from the political aspect, which English was not a second language. This factor was also one affecting slower English language development as the target language acquisition was hardly used in daily life, unless the speakers have a personal initiative to learn or use it outside the formal acquisition setting. In the case story, Rani experienced this situation, that despite having several formal courses, she did not use it in the daily life which impacted the static ability in her English, but reading (as she still used it for reading written English sources). This political value also affected both Dina and Rani to practice speaking in informal contexts.
as they were difficult to get direct feedback from more competent people (as pointed out by Mitchell, et al., 2013).

Table 1. Comparison of Two Cases L2 Acquisition Experience

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<th>L2 Acquisition Experience</th>
<th>Informal L2 Acquisition using Technology</th>
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<tbody>
<tr>
<td></td>
<td>Dina</td>
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<tr>
<td><strong>Micro</strong></td>
<td>Textbooks or school assignments (semiotic resources)</td>
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<td></td>
<td>Listening to teachers’/tutors’ explanation (semiotic resources and social interaction)</td>
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<td></td>
<td>Watching movies with English subtitles (semiotic resources)</td>
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<td></td>
<td>Listening to English songs (semiotic resources)</td>
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<td></td>
<td>Interaction with peers using code-switching (social interaction)</td>
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<tr>
<td></td>
<td>Reading written English resources both online and offline (semiotic resources)</td>
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<td></td>
<td>Communicating with friends using English in social media (social interaction)</td>
</tr>
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</table>
The table shows that both Dina and Rani experienced English acquisition and acquisition influenced by each level which one is related to another. In Dina case, the cognitive process of language acquisition was much gained from her interaction with semiotic resources. This interaction was also encouraged by her family (power) and schools/teachers (agency) in the meso-level, like what Duff (2019) explains in the literature. In addition, despite the family and school power, her self-awareness or belief (i.e. the macro level) that English is essential (i.e. as a global language) also affect the micro level.
to learn English voluntarily from both in formal and informal environments. In addition, some macro factors (e.g. political value and social value) seemingly impeded, especially her speaking skills, which she actually could achieve from social interaction in the micro-level. Likewise, the interaction of each level in Rani’s language acquisition process is much more like Dina’s. The difference is in their personality (e.g. motivation to speak; Ellis, 2015) affecting their belief system. Rani is inclined to regard the social values (i.e. people views on speaking English in public) as an opportunity instead of a constrain.

In terms of technology incorporation in informal English acquisition, both Dina and Rani took advantage of it mainly to interact with authentic materials (as semiotic resources). Their informal acquisition action was voluntary, which they had learnt English subconsciously from movies or songs as a result of their recreational purposes (i.e. they liked watching foreign movies). Their process of language acquisition in using movies here was assisted by the presence of contexts from the storyline and their confirmation of unfamiliar words to an online dictionary, helping them better understood the story.

Moreover, the other informal acquisition purpose by incorporating technology was as an instrument to achieve social identity and working demand, particularly experienced by Rani. The trend of social media users to post captions in English, especially in her social circle had encouraged her to enhance English (i.e. vocabulary and grammar) from her online palls’ captions/posts. In the workplace, as a lecturer, she was also demanded to be productive to write research published in English written forms, leading her to have no option for not practising her English skills (i.e. writing and reading) to attain the professional goals. In this context, the informal language acquisition is not only influenced by the micro-level (self-interest), but for some people, it is a process resulting from external forces (meso and macro level), encouraging them to keep acquisition and developing their L2 ability.

CONCLUSION

The result of the study confirms the Douglas Fir Group’s (2016) model that different individual has different L2 acquisition process. The participants L2 acquisition experiences show that the L2 acquisition process is not solely influenced by intrinsic factors (e.g. motivation, personality, etc.) but also externals such as peers, family, teachers, curriculums, government policy, social trends, etc. The participants experience also confirm that acquisition L2 is not adequate to gain from formal acquisition settings only. The informal L2 acquisition process is claimed to contribute more in the speakers L2 enhancement as they can practice the target language in accordance with their need. However, as not all speakers have the self-interest to learn the target language autonomously, the presence of external encouragement (e.g. schools or peers) should be taken into consideration. The mutual relationship of each factor, motivation, acquisition persistence, and autonomous acquisition also contributes to a positive attitude toward L2 acquisition.

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In relation to the role of technology, it is shown that technology takes a role in the L2 informal acquisition settings (i.e. both participants involved technology in L2 informal acquisition development). Technology mediated the participants to enhance English proficiency in order to satisfy their interest and to reach an equal position of social identity, which is affected by ideology or belief.

However, this paper is limited to explore two cases of L2 acquisition experience. Having more participants may be more beneficial to understand individual L2 development from diverse backgrounds and variables. As such, the application of the Transdisciplinary framework can enrich information about and assist understanding Second Language Acquisition (SLA) in various perspectives and contexts.

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