

**Exploring Divergent Perspectives Between ELLs and Instructors: Revealing Adverse
Mismatches Through Analogical Discourse Analysis**

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On my honor as a University Student, I have neither given nor received unauthorized aid on this
assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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If proficiency becomes merely regarded as a tool, it reduces language as an exchange of messages in unsophisticated ways that do not recognize the sociocultural embeddedness of message and speaker.

Urlaub et al., 2022, p. 3

I. Introduction

According to Castillo (2023), multilingual classrooms have become commonplace in the United States, with an estimated 10.3% of students being English Language Learners (ELLs) as of 2020 (para. 1). McKay (2002) asserts that English instruction materials disproportionately emphasize grammar and vocabulary while neglecting the cultural necessities of ELLs, which may contribute to their high dropout and low college enrollment rates, as noted by Jerome (2009). In a multilingual classroom, two key groups exist: the multilingual students and the instructors teaching them. These two groups often hold differing perspectives regarding language learning. For instance, Castillo (2023) notes that ELLs frequently report feeling misunderstood or ignored by their instructors, while Shim et al. (2017) observe that instructors believe the frequent use of students' native language hinders English learning. These differing accounts can be considered misaligned, meaning that the experiences between ELLs and instructors diverge significantly, resulting in educational inequities for ELLs.

While many accounts of ELL and instructor experiences exist, there is limited research on their intersection, which could reveal hidden challenges faced by ELLs. Hence, it is unclear the extent to which ELL and instructor perspectives diverge and how these differences impact the educational equity of ELLs. By discovering insights into these unseen challenges, we can better understand how to foster positive change within multilingual classrooms. In this paper, I argue that the counterproductive mental models of instructors contribute to the negative outlooks

faced by ELLs. Additionally, raising instructors' awareness of these challenges may encourage them to adjust their perspectives to address the needs of ELLs. To examine the accounts of ELLs and instructors, I employed Schwarz-Plascg's (2018) analogical discourse analysis approach to construct implicit analogies, revealing the underlying mental models within these accounts. Various analogies were constructed from ELL and instructor accounts, including the survival, solitary confinement, broken-down car, and noise pollution analogies. By comparing these analogies and their associated mental models, I identified two mismatches in which ELL and instructor perspectives clash, likely exacerbating the struggles experienced by ELLs.

II. Problem Definition: Few Studies Explore the Intersection Between ELL and Instructor Accounts

According to Bligh (2014), from a linguistic perspective, the goal of learning English is to gain language proficiency. Language proficiency is broadly understood as the ability to communicate effectively in a language; however, this definition varies among different stakeholders. For example, Ramirez et al. (2018) mention one instructor who highlights a reading metric for language proficiency, stating, "...if we improved language proficiency, their stupid [Developmental Reading Assessment] DRA score would improve" (p. 166). This account reveals how school curricula often focus on standardized metrics like the DRA score while neglecting the cultural background of ELLs, despite linguistic experts advocating for its importance in language learning, as noted by Shim et al. (2017).

In the context of ELLs, culture encompasses the norms, beliefs, customs, and practices of the communities associated with their native language. In addition to the previous example of the DRA score, Hossain (2024) argues that English language teaching materials disproportionately emphasize grammar and vocabulary while neglecting the culturally rich dimensions of the

language. This lack of cultural integration in multilingual classrooms raises the important question of whether it contributes to the learning gap faced by ELLs. ELLs may continue to face educational disparities without identifying and addressing the possible factors contributing to this learning gap. One example of these educational disparities is the low high school graduation rate of ELLs in the United States, which is reflected in Figure 1:

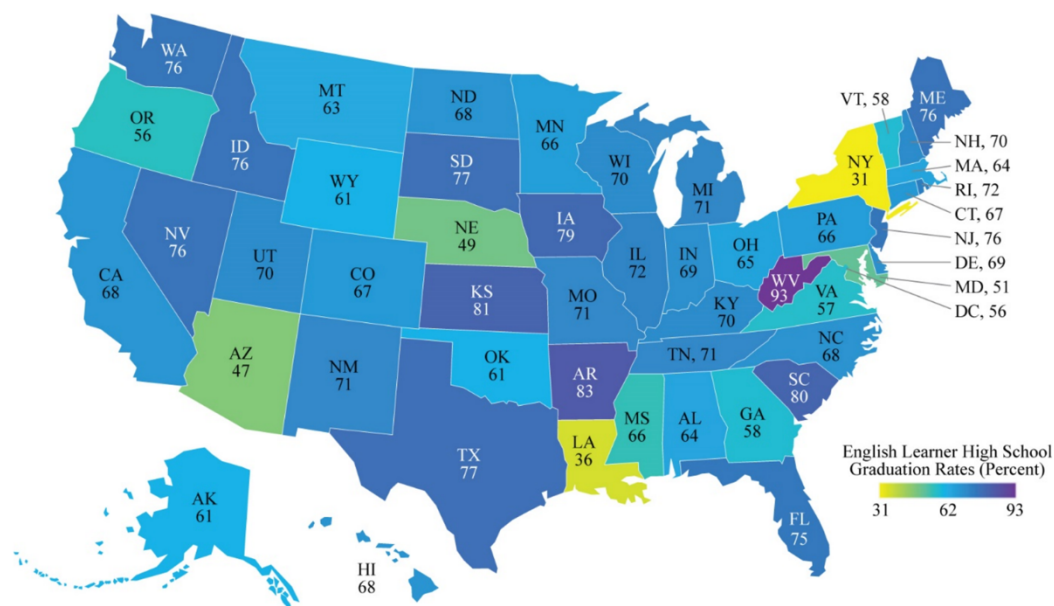


Figure 1. State-Level High School Graduation Rate Percentages for English Learners: 2017-18 School Year. State-level graduation rate percentages for English learners range from 31% to 93%, with a nationwide median of 68.4%. (Office of English Language Acquisition, 2020)

This figure shows that most states have low ELL high school graduation rates, along with a national median of 68.4%. Along with low high school graduation rates, Jerome (2009) notes that ELLs also face low college enrollment rates. Analyzing ELLs’ experiences can provide insights into how they perceive the role of culture in English language acquisition, helping us understand how cultural absence contributes to this learning gap.

An example of this experience is shared by Tomás, who, upon learning about the history between Portugal and the United States, states, “Hey, Ms. Mora, why hasn’t anyone ever taught us this before? This is who I am. I don’t get it – why am I like 13 before I ever hear about this?”

(Mora-Flores et al., 2011, pp. 21-2). From the perspective of Tomás, learning about his history connects him to his identity, linking his experiences with his native language to his experience of learning English. Through this experience, linguists and instructors better understand that culture plays a significant role in facilitating the learning of English.

Research has been conducted to analyze ELL accounts, such as Tomás's account, using frameworks such as "student voice research" as employed by Eqab (2016). Additionally, Figure 2 from Eqab (2016) outlines other relevant frameworks like the achievement gap, critical race theory, and sociocultural theory. Together, these frameworks showcase the relationship between the perspectives of ELLs and their educational outcomes.



Figure 2. Theoretical Frameworks Relationship. The perceptions of long-term English learners are understood through four broad theoretical frameworks, including the achievement gap and student voice research. (Eqab, 2016, p. 43)

Student voice research, in particular, emphasizes the importance of listening to student accounts to understand the challenges they face, such as the absence of cultural inclusion in multilingual classrooms. These frameworks reveal some of the challenges ELLs encounter, such as their struggles to be heard by instructors.

In addition to ELL experiences, numerous studies have analyzed the accounts of instructors. Considering instructor experiences is equally important, as their beliefs, experiences, and perceptions significantly influence the quality of the education that ELLs receive. For example, one instructor comments, “I think that the biggest problem for ELLs is their parents letting them speak Spanish at home all the time” (Shim et al., 2017, p. 28). While this instructor believes that Spanish should rarely be spoken at home, how this view contributes to ELLs’ challenges is unclear.

Much of the literature analyzing ELL and instructor experiences tends to focus on one group while neglecting the other. For instance, Kim (2021), analyzing the accounts of instructors, acknowledges the limitation that “none of the studies indicated the students’ perspectives on teachers’ beliefs and attitudes and how teachers affect ELLs’ academic achievement” (p. 7). This one-sided analysis prevents a thorough comparison between ELL and instructor perspectives. Hence, there is uncertainty regarding how and why these perspectives differ. Furthermore, the extent to which these perspectives diverge is unclear. Understanding these differences might reveal factors contributing to the challenges faced by ELLs.

Looking at the student and instructor accounts reveals two distinct perspectives on language learning. On the one hand, one student appreciates the inclusion of culture in language learning; on the other, the instructor believes that ELLs should rarely speak their native language. These contrasting perspectives reveal two distinct mental models. A mental model can

be defined as one's understanding of the world. Similar to comparing ELL and instructor accounts, comparing ELL and instructor mental models is a topic seldom researched. In one study, Shim et al. (2017) explore these differences under the activity theory framework, noting that "...an object, in the sense of a goal, is held by the student and motivates his or her activity, giving it a specific direction" (p. 23). Through this lens, Shim et al. explore how ELLs "[perceive] their learning and the learning tasks set by their teachers" (p. 24), uncovering insights into the challenges faced by ELLs.

Expanding on the research of Shim et al., this paper employs analogical discourse analysis to analyze the language in the accounts of both ELLs and instructors, aiming to reveal how their divergent experiences may contribute to educational inequities faced by ELLs. To better understand these different perspectives, I investigated various language attributes in these accounts, including themes, sentiments, and repeated words or phrases. Additionally, I analyzed discourse containing explicit and implicit analogies involving ELLs and instructors to uncover underlying mental models. Analogies are particularly helpful in drawing comparisons with other sociotechnical systems, potentially revealing hidden insights through anticipation. By employing an analogical lens, the different mental models of ELLs and instructors become more apparent, highlighting the differences in their experiences. These differences can reveal how an instructor's mental model may affect an ELL's experience or vice versa.

III. Research Approach: Deriving Mental Models and Anticipating Expectations of English Learning from Analogies

Building on the research of Shim et al., this paper uses Schwarz-Plaschg's (2018) analogical discourse analysis approach to investigate the language in the accounts of ELLs and instructors. Within this approach, I specifically utilized Schwarz-Plaschg's concept of analogical

imagination to understand the relationships between different systems and the experiences of ELLs and instructors. Schwarz-Plaschg explains that humans use analogies to grasp the meaning of new things, particularly when “thinking and debating about emerging technological developments” (p. 140). With analogical imagination, analogies can contribute to collective exploration and anticipation processes by allowing people to understand an emerging technology through comparisons to an established system. However, unlike a one-way mapping, analogical imagination analyzes multiple analogies to understand different dimensions of an emerging technology. These analogies can clash, highlighting the complexities and various perspectives within the emerging technology. Through “the creation of an ongoing dialogue about analogies as a means to identify a variety of relevant issues...” (p. 141), these issues can be compared to generate insights.

In addition to revealing the various dimensions of an emerging technology, analogies also enable retrospective prospection, allowing us to anticipate the future of an emerging technology. However, Schwarz-Plaschg notes that “previous technologies are never tailor-made analogical sources for new technologies” (p. 143). Yet by considering multiple analogical sources, various lessons can be drawn to inform our understanding of an emerging technology. Through analogical imagination, insights emerge by applying knowledge gained from past technologies to anticipate new futures and expectations. Figure 3 visualizes the concept of analogical imagination and how it relates to mental models. As defined earlier, a mental model represents one’s understanding of a situation. In the case of analogical imagination, analogies help us understand the various issues and dimensions of an emerging technology by anticipating its outcomes and expectations.

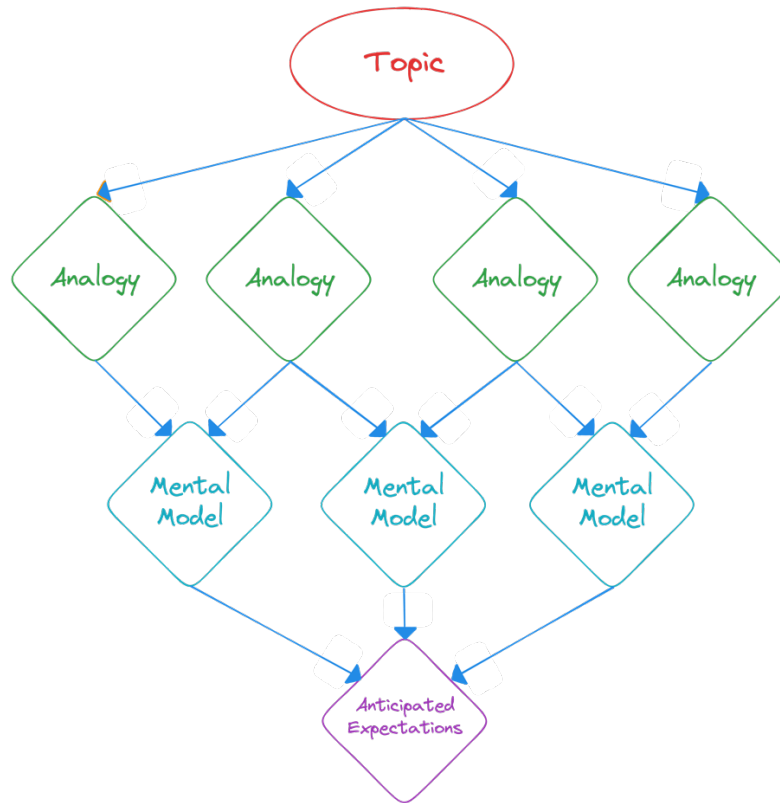


Figure 3. Schwarz-Plaschg’s Analogical Imagination Approach. For a topic of interest, such as an emerging technology or a sociotechnical system, analogies are identified, collectively revealing the mental models of different stakeholders. These mental models carry anticipatory implications that can lead to insights. (Created by Author)

This visualization demonstrates that analogies are not one-to-one mappings; instead, they are combined to gain a more nuanced understanding of an emerging technology. By drawing comparisons with past sociotechnical systems, anticipatory insights are generated.

To apply Schwarz-Plaschg’s approach to my research, I gathered multiple sources containing the accounts of ELLs and instructors, primarily transcribed interviews. These accounts were gathered from journal articles in publications such as *The Teacher Educator*, *English Language Teaching*, and *NABE Journal*, as well as from several books. I analyzed over 20 accounts from both ELLs and instructors to ensure an ample sample size. This chosen sample size helped substantiate identified analogies with multiple statements, enhancing their soundness.

From these accounts, I constructed implicit analogies to better understand the different mental models held by ELLs and instructors.

Using the elements of the analogical imagination concept outlined above, I developed a step-by-step process to analyze ELL and instructor accounts involving explicit and implicit analogies. The first step involved gathering accounts of ELL and instructor experiences and identifying analogies within those accounts. In cases where an explicit analogy is absent, an implicit analogy is constructed. Then, for each analogy, I identified the reasoning behind their relevance. Through these analogies, the different mental models held by ELLs and instructors were revealed by anticipating different expectations or outcomes of English learning. These expectations provided new insights into the challenges faced by ELLs. These steps are outlined in Figure 4 below:

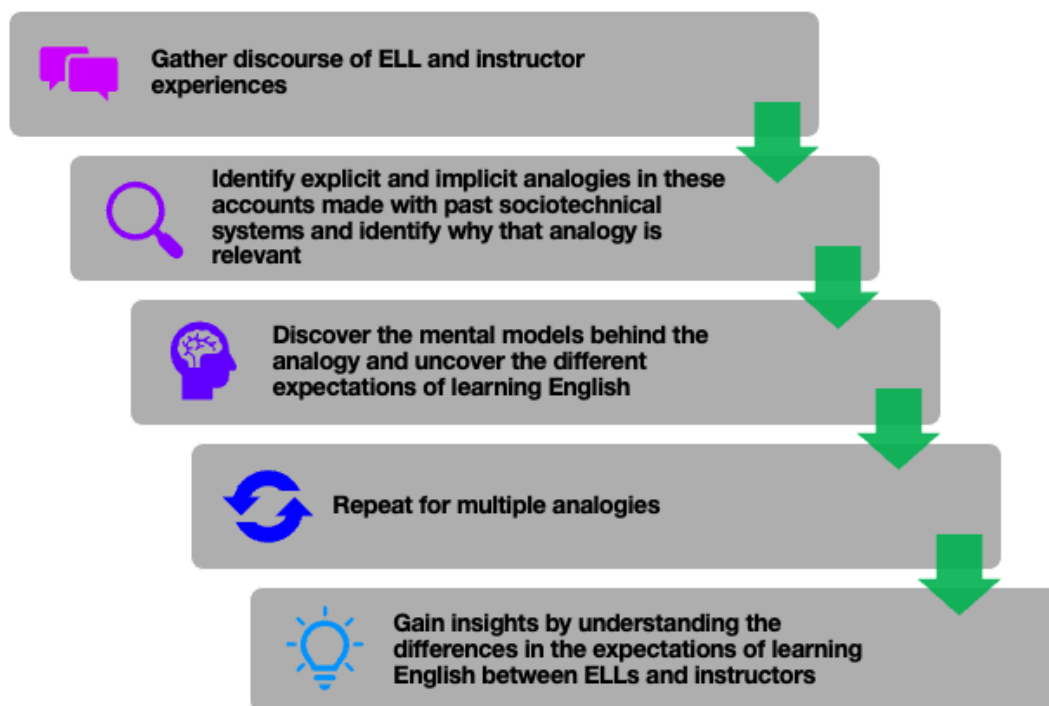


Figure 4. Steps of applying Schwarz-Plaschg's analogical approach. By gathering discourse containing analogies, the implications of those analogies can be analyzed to reveal insights. (Created by Author)

Understanding the mental models of ELLs and instructors highlights the extent to which ELL and instructor perspectives differ. Furthermore, comparing different mental models and the various expectations highlights similarities and misalignments.

Schwarz-Plaschg's analogical discourse analysis approach is well-suited for my research because it provides a structured yet flexible approach to understanding the perspectives of ELLs and instructors. Learning English is a complex process involving multiple factors such as linguistics, culture, and teaching practices. Analogies illuminate these perspectives and factors by comparing the experiences of ELLs and instructors with familiar sociotechnical systems, revealing the mental models behind their experiences. The diverse accounts of ELLs and instructors gathered for my research provide the insights they have gained over many years of navigating language learning. Furthermore, these accounts often contain implicit analogies that highlight the challenges encountered by ELLs. Different mental models can be deduced by analyzing multiple accounts using analogical discourse analysis, allowing me to identify similarities or misalignments between the accounts.

IV. Results: Adverse Clashes Between ELL and Instructor Mental Models

Using the research approach described above, I analyzed multiple accounts between ELLs and instructors, drawing four implicit analogies from these accounts. The survival and solitary confinement analogies capture the perspectives of ELLs, while the broken-down car and noise pollution analogies capture the perspectives of instructors. These analogies helped derive mental models that anticipate how ELLs and instructors understand the process of learning and teaching English. These mental models revealed various insights about the differences in how ELLs and instructors perceive the challenges of English language acquisition. By comparing these mental models, two central insights emerged that uncovered misalignments between ELLs and instructor perspectives. First, the mental models derived from the broken-down car analogy may exacerbate the ELL's "survival mode" experience, as described in the survival analogy. Secondly, the mental models derived from the noise pollution analogy may reinforce the feelings of isolation and punishment experienced by ELLs associated with the solitary confinement analogy.

Mismatch 1: Survival Analogy vs. Broken-Down Car Analogy

The survival analogy is an explicit analogy found within various accounts of ELLs. For example, one ELL states, "You learn to survive. You learn what you need to know to fit in" (Bligh, 2014, p. 86). "Survive" implies a sense of urgency, often associated with "life or death" situations. While learning English is not a matter of life or death, this ELL is likely describing the experience as unfamiliar and challenging. Thus, the survival analogy emerges, which compares learning English to surviving in a harsh, unpredictable environment, such as a jungle or desert.

This analogy reveals hidden mental models held by ELLs by drawing parallels to surviving in a harsh environment, where the primary focus is immediate needs, such as finding food or constructing a temporary shelter. This sentiment is echoed by Tasmin, who describes feeling like a “fish out of water” (Bligh, 2014, p. 87). For a fish, survival is a matter of immediately finding water, similar to how ELLs are focused on the immediate task of learning a new grammatical structure or more vocabulary, as described by Gleeson et al. (2016). Furthermore, in a survival situation, it is challenging to transition to long-term solutions, such as permanent housing. Similarly, for ELLs, their long-term goal of English proficiency is overshadowed by daily language tasks. Thus, this analogy shows how ELLs focus on the daily language tasks yet struggle to attain long-term proficiency because of their fixation on “surviving” for that day, neglecting the need to reinforce what was learned the day prior.

The broken-down car analogy emerges from various instructor accounts, with one instructor stating, “If there is nothing wrong with them, they can grasp it” (Carley, 2017, p. 193), implying that ELLs who struggle must have something “wrong” with them. From this perspective, a struggling ELL is like a broken-down car needing repairs. Fixing a car requires years of specialized experience, similar to the high amount of training necessary to teach English effectively. Many instructors express a lack of time to complete this training, with one instructor stating, “At some point, but right now I feel too busy to fit that training in” (Walker et al., 2004, p. 141). In extreme cases, mechanics give up on fixing severely broken cars, similar to how instructors may abandon ELLs who struggle severely with learning English.

These two analogies reveal various mental models held by ELLs and instructors, some of which conflict with each other, uncovering hidden challenges ELLs face. The broken-down car analogy suggests that instructors may abandon ELLs who experience severe difficulties in

learning English. One ELL account echoes this sentiment: “Last week, in one of my classes, I told the teacher I didn’t understand and she told me to ask a friend” (Shim et al., 2017, p. 26). The instructor’s abandonment of the ELL likely exacerbates the “survival mode” that this ELL experiences. Surviving in a harsh environment is more manageable with support from other people; yet, when instructors give up on helping ELLs, they leave them to handle their struggles on their own. Hence, without a support system, ELLs are unlikely to attain long-term proficiency in English. Thus, the instructor perception of abandoning struggling ELLs exacerbates the survival sentiment faced by ELLs, making language acquisition more difficult. The findings from the two analogies and their misalignment are summarized in Table 1:

Perspective	Analogy	Line of Reasoning	Mental Model
Instructor	Broken-down Car	An ELL is like a broken-down car	Instructors believe that ELLs need fixing
		Some broken-down cars may be beyond repair	Instructors may give up on "fixing" an ELL who struggles a lot
ELL	Survival	Learning English is like surviving the treacherous jungle	ELLs find learning English difficult because it is so foreign
		You focus on the short-term needs like food in survival situations instead of long-term goals like permanent housing	Day-to-day, ELLs focus on learning vocab and grammar instead of the long-term goal of English proficiency
Mismatch: Instructors may abandon ELLs, leaving them survive on their own			

Table 1. Results From the Survival and Broken-Down Car Analogies. By comparing the mental models derived from each analogy, a mismatch emerges in which instructors may abandon an ELL, leaving them to survive on their own. (Created by Author)

Mismatch 2: Solitary Confinement Analogy vs. Noise Pollution Analogy

The solitary confinement analogy is derived from multiple ELL accounts describing their isolation. For example, one ELL shares, “I remained very insular and self-contained throughout primary school because I knew that my life was so very different – at home” (Bligh, 2014, p. 69).

Isolation, a primary aspect of solitary confinement, involves limited to no communication with others. Thus, this analogy compares the experience of an ELL to solitary confinement. The comparison with solitary confinement further suggests that learning English is a punishment. While ELLs don't explicitly describe learning English as punitive, many express their disinclination to learn it, with one ELL stating, "I like my language, I don't want study other language but I must study it so-" (Aiello et al., 2018, p. 49). Thus, ELLs may resent the requirement of learning English imposed by many schools.

The noise pollution analogy reflects instructors' view of ELLs using their native language as noise pollution. The word "pollution" implies something harmful that needs to be removed. Hence, this analogy suggests that instructors want to eliminate ELLs' use of their native language. This sentiment appears in several instructor accounts, with one instructor stating, "However, I believe that the students who are not proficient in English should not be speaking Spanish at school" (Shim et al., 2017, p. 28). Similar to how pollution is viewed as harmful, this analogy implies that instructors perceive ELLs speaking Spanish as detrimental to language acquisition. Like the broken-down car analogy, the instructor perceives the issue of using a native language as something that needs to be fixed.

Noise pollution is perceived differently than other forms of pollution, such as air pollution. Noise pollution comes from auditory disturbances such as loud music, traffic, and construction noise. Some of these sources, such as someone playing loud music, can be quickly addressed, for example, by asking the person to lower the volume. Similarly, instructors, as authoritative figures, can control ELLs' usage of their native language. One way that instructors eliminate this "noise pollution" is to discourage or prevent the use of Spanish at school, sometimes through incentives. For example, one instructor states, "To help my students, I

usually throw a pizza party for them on Fridays if they spoke no Spanish during class on a given week.” (Shim et al., 2017, p. 28). So, by discouraging the use of Spanish and eliminating what they see as “pollution”, instructors believe they are benefitting ELLs.

However, a mismatch lies between these two analogies. In the noise pollution analogy, instructors view ELLs’ use of their native language as harmful and needing to be prevented, effectively eliminating ELLs’ primary mode of communication. Yet, in the solitary confinement analogy, ELLs experience isolation due to their inability to communicate with others. Thus, by preventing the use of Spanish, instructors are unknowingly contributing to the isolation felt by ELLs. In the instructor’s well-intentioned beliefs, they may have inadvertently caused harm by reinforcing ELLs’ sense of isolation. Furthermore, ELLs’ need to use their native language makes restricting it a punishment, reinforcing the solitary confinement analogy. This mismatch and the previous one reveal the importance of considering misaligned perspectives because they can unveil hidden educational inequities ELLs face. The findings for these analogies and their misalignment are summarized in Table 2:

Perspective	Analogy	Line of Reasoning	Mental Model
Instructor	Noise Pollution	ELLs speaking Spanish is like noise pollution	Instructors may try to stop ELLs from speaking Spanish to eliminate the 'noise pollution'
		Eliminating noise pollution is beneficial to humans and the environment	Instructors believe that preventing ELLs from speaking Spanish is benefiting them
ELL	Solitary Confinement	The ELL experience is like solitary confinement because it is isolating	ELLs feel like they cannot communicate with others
		Solitary confinement is a form of punishment	Some ELLs feel disdain towards learning English
Mismatch: Instructors prevent ELLs' main form of communication, exacerbating ELLs feelings of isolation and punishment			

Table 2. Results from Solitary Confinement and Noise Pollution Analogies. By comparing the mental models derived from each analogy, a mismatch emerges in which the ELLs' communication with others is limited because instructors prevent ELLs from speaking their native language. (Created by Author)

V. Conclusion

Examining the mental models of instructors and ELLs revealed that the instructors' perceptions — viewing the task of teaching ELLs as unfeasible and believing that using a native language is detrimental — might reinforce negative mindsets among ELLs, such as feelings of isolation and abandonment. From the instructor accounts analyzed, it is apparent that instructors are not aware of the unproductive and harmful nature of their beliefs. If instructors are made aware of the experiences of ELLs, then the instructors could construct more productive mental models that combat the negative outlooks experienced by ELLs and better support them. Through more productive mental models, instructors can better understand why ELLs struggle and change their teaching methods to address those struggles, making it easier for ELLs to gain English proficiency. By supporting ELLs' efforts to learn English, instructors can begin to close the multilingual learning gap faced by ELLs and improve their educational outcomes.

Analogical imagination revealed creative insights into how ELLs and instructors experience learning and teaching English, but it is not a perfect methodology. Critics may argue that insights from analogies lack value because the systems compared are inherently different. However, Schwarz-Plaschg suggests that the purpose of analogical imagination is not to predict the exact outcomes of a system from one analogy but instead combine multiple analogies to anticipate different dimensions of an emerging system. By comparing similar aspects across multiple systems, a thorough predictive model can be constructed to anticipate the mental models of ELLs and instructors. Furthermore, analogies created from multiple domains can be compared with each other to determine their similarities and differences. In this paper, analogies were compared to reveal similarities in the mental models of ELLs and instructors, which helped anticipate how instructors may exacerbate the challenges faced by ELLs.

References

- Aiello, J., & Singapore Association for Applied Linguistics (2018). *Negotiating Englishes and English-speaking identities: A study of youth learning English in Italy*. Abingdon Oxon. Routledge.
- Bligh, C. (2014). *The silent experiences of young bilingual learners: A sociocultural study into the silent period*. Rotterdam: Sense. Brill.
- Carley Rizzuto, K. (2017). Teachers' perceptions of ELL students: Do their attitudes shape their instruction? *The Teacher Educator*, 52(3), 182–202.
- Castillo, J. (2023). ELL students voice their experiences [Online article]. *Lamplighter Media Productions*. <https://pdlamplighter.org/features/2023/08/30/dunbar-ell-students-voice-their-experiences/>
- Eqab, S. (2016). Long-term English learners' perceptions of academic challenges [Doctoral dissertation, George Mason University].
- Gleeson, M., & Davison, C. (2016). A conflict between experience and professional learning: Subject teachers' beliefs about teaching English language learners. *RELC Journal*, 47(1), 43–57.
- Hossain, K. I. (2024). Reviewing the role of culture in English language learning: Challenges and opportunities for educators. *Social Sciences & Humanities Open*, 9, 100781.
- Jerome, E. M. (2009). Enhancing school competence in English language learners: The role of teacher-student relationships in preschool [Doctoral dissertation, University of Virginia].
- Kim, S. L. (2021). A Review of the literature on teachers' beliefs about English language learners. *International Journal of Educational Research Open*, 2, 100040.
- McKay, S. L. (2002). *Teaching English as an international language: Rethinking goals and perspectives*. New York: Oxford University Press.
- Mora-Flores, E., & Ebook Central Diversity, E., & I. S. (2011). *Connecting content and language for English language learners*. Huntington Beach: Shell Educational Publishing.
- Office of English Language Acquisition (OELA). (2020). High school graduation rates for English learners: 2017-18 school year [Fact sheet]. National Clearinghouse for English Language Acquisition. <https://ncela.ed.gov/resources/fact-sheet-high-school-graduation-rates-for-english-learners-september-2020>

- Ramirez, P. C., Faltis, C., & De Jong, E. J. (Eds.) (2018). *Learning from emergent bilingual Latinx learners in K-12: Critical teacher education*. New York, NY: Routledge.
- Schwarz-Plaschg, C. (2018). The power of analogies for imagining and governing emerging technologies. *NanoEthics*, 12(2), 139–153.
- Shim, J. M., & Shur, A. M. (2017). Learning from ELLs' perspectives: Mismatch between ELL and teacher perspectives on ELL learning experiences. *English Language Teaching*, 11(1), 21.
- Urlaub, P., & Dessein, E. (2022). Machine translation and foreign language education. *Frontiers in Artificial Intelligence*, 5, 936111.
- Walker, A. & Shafer, J., & Iiams, M. (2004). "Not In My Classroom": Teacher attitudes towards English language learners in the mainstream classroom. *NABE Journal*, 2.