

Voices from University Classrooms on Effects of Multimodality on Polylingual EAL College Students' Meaning Making

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Abstract

This IRB-approved qualitative case study was grounded in Vygotsky's (1978; 1987) socio-cultural constructivism theory and New London Group (1996) postulates of multiliteracies. The participants in this project were 12 domestic and international polylingual English as an Additional Language students at a public university in one of the north-eastern states in the United States of America. The data was collected via site and participant observations, analytical notes and memos, surveys, audio-recorded and transcribed interviews, and artifacts in the forms of the reading comprehension tests to two different texts. One of the texts was supported by an audio recording, another one had a video support with the sound track. All the data was coded using Saldaña's (2012) thematic and value coding and triangulated in the process of analysis. The findings of this study indicated that all 12 research participants strongly relied on the means of multimodality while reading the texts and working with the comprehension test questions. All participants in this study found video mode as most helpful to them, followed by the auditory one in the process of their meaning making of the text, which they found complex. Major implication of this study is that multimodality needs to be embedded in the higher education curriculums in order to assist students, including but not limited to the polylingual EAL learners with reading and meaning making.

Keywords: English as an additional language (EAL), meaning making, multimodality, polylingual college students, visual mode

1. Introduction

1.1. Position Statement

Education of today has to recognize the changes which occurred in this field due to the development of the modern technologies. "This change is particularly significant for our students, who have grown up surrounded and shaped by literacy practices related to computers, the Internet, mobile phones and other ubiquitous computing devices for communicating, taking pictures and videos, playing music and games, searching for and storing digital material" (Miller, & McVee, 2012, p. 2). Modern days' students habitually read multimodal texts on everyday basis from their electronic devices. Nevertheless, reading processes continue to be a unimodal, i.e., print-based practice.

Multiple studies conducted by the American and International researchers find multimodality highly beneficial for students (e.g., Ajayi, 2008; 2009; Baildon & Damico, 2009; Binder & Kotsopoulos, 2011; Callow & Zammit, 2012; Cloonan, 2011; Exley & Cotrell, 2012; Gellervij et al. 2002; Gould, 2017; Gould-Yakovleva et al., 2020; Hasty & Fain, 2014; Jacobs, 2012;



Kitson, 2011; Lin, 2014; Miller, 2013; Mills, 2007; 2010; 2011; Molyneux & Godinho, 2012; Norton & Stein, 2000; Pahl, 2007; Pantaleo, 2012; Shih, 2014; Siegel, 2006; Stone, 2012; Vincent, 2006; Walsh, 2008).

Many authors stress the importance of further studies in this field (e.g., Bruce, 2009a; Giampapa, 2010; Gould, 2017; Lankshear & Knobel, 2003; Leander & Boldt, 2012; Levy & Kimber, 2009; McVee et al., 2008a; Miller & McVee, 2012; Molle & Prior, 2008; Nelson, 2008; Shanahan et al., 2014; Wang, 2011).

The major claim of this research was that implementation of diverse modes of multimodality may play a crucial role in education of the polylingual English as an Additional Language (EAL) speaking college students who, otherwise, may experience difficulties with reading the complicated academic, predominantly unimodal, print-based texts.

The above claim finds support in the publication by Gellevij et al. (2002) who found that "...instructional material in which various media are integrated improves learning more than instruction with only one medium" (p. 215). The ideas of changing the school curriculums via embedding in them multimodalities and multiliteracies as new and highly important skills needed in the modern world are based on the principles developed by the New London Group (the NLG) (1996). Via this publication, the author attempted to attract the attention of the global educational communities to the specific population of students, the EAL learners who habitually speak more than one language. Among the diverse student populations, the polylingual EAL speakers may experience serious difficulties with meaning making while reading texts in English as an Additional Language (Cekaite & Evaldsson, 2008). This student population is growing in the U.S. colleges. And over the most recent years, the numbers of the students, including the ones from the immigrant and refugee backgrounds, have rapidly grown world-wide. This explains the acute necessity for researchers and educators to find some working solutions for the above student population. It is important to notice that by this time in history, the affordances of a print-based text are used as the major means to store information. Knowing about importance of reading comprehension skills, this research sought to find some means to assist the polylingual EAL college students with their reading and meaning making.

1.2. Research Questions

The major research questions were: In what ways, if any, does inclusion of multimodal features in combination with traditional print-based text assist polylingual EAL-speaking college students with meaning making? What are polylingual EAL speaking college students' perceptions of working with multimodal texts? Which modes of multimodality, if at all, do polylingual EAL speaking college students find most helpful in the process of reading the text supported by means of multimodality? Would the polylingual EAL speaking college students recommend educators to implement features of multimodality in addition to print-based texts with the purpose to assist their EAL students with meaning making? If yes, which modes are recommended?

The significance of this research is in its global applicability due to the global changes which resulted in the outbreak of migration processes and growth of the EAL speaking populations in many countries including the United States.

2. Theoretical Framework and Review of Literature

This qualitative case study was grounded in Vygotsky's (1978; 1987) socio-cultural constructivism and the ideas of multiliteracies (NLG, 1996). Lev Vygotsky strongly believed

that the knowledge of a particular individual or a group is deeply rooted in their culture and the surrounding society. Additionally, the ideas of multiliteracies developed by the NLG (1996; 2000) were considered for laying the ground for this study. Lankshear and Knobel viewed literacies as "...socially recognized ways of communication through the medium of encoded texts..." (2003, p. 4). According to the NLG, the role of multiple literacies has grown with the development of technologies. Kalantzis and Cope (2008) stated that, "The 'multiliteracies' theory suggests that learner activities should involve a wide variety of representational modes" (p. 203). Inclusion of the diverse modes enables meaning making of the print-based, auditory, and visual texts or their combinations.

Researchers all over the world find multiple positive effects from multimodality on students on all grade levels (Ajayi, 2008; Ajayi, 2009; Baidon & Damico, 2009; Binder & Kotsopoulos, 2011; Kuo et al., 2013; Sigel, 2006). Lincoln & Rademacher's (2006) research on adult EAL learners found variations in the multimodal reading preferences and results based on gender and ethnicity, which supports the Vygotskian postulates. Studies in the field of writing found multimodality beneficial for emergent and developing writers (Bruce, 2009b; Giampapa, 2010; Huang, 2012; Kaur et al., 2012). In particular, the multimodal composing was found helpful for low-motivated in the academics but highly interested in technology young learners (Callow & Zammit, 2012; Hegelheimer, 2006; Miller, 2013; Miller & McVee, 2012; Molyneux & Godinho, 2012; Pantaleo, 2012; Shin & Cimasko, 2008). Miller concluded her extensive metasynthesis of the research literature with the statement that the central finding of her work was "the importance of expanding the available resources for making meaning – from text to also images, sounds, movements, and gestures" (2013, p. 422).

Nevertheless, upon conducting the review of the available literature on the above topic, there was identified a gap in the research on multimodality for the specific population, the polylingual EAL speaking college students. This fact confirmed the researcher's decision to conduct the study with this population.

3. Methodology

3.1. Research Design

In order to answer this research questions, the qualitative case study was designed according to Guba and Lincoln's (1994) traditions and conducted in accordance with the Creswell's (1998) principals. Purposive sampling method helped to recruit twelve polylingual EAL university students. When saturation (Creswell, 2007) reached the point where adding new participants would not lead to bringing new information to the table, nor contribute to the diversity of topics and themes, or add to the understanding of the researched problems (Saldaña, 2012; Strauss & Corbin, 1998), the expansion of the sample size in the process of this study was curbed to the 12 participants. Data were collected from multiple sources: through interviews (Seidman, 2013), surveys, field notes, artifacts, site, and, quite importantly, from the participant observations (Spradley, 1980).

3.2. Data Collection Processes

This research employed classic qualitative methods for gathering data from the participant interviews, observations, surveys, and artifacts. The latter were collected via hard copies of the comprehension tests to two Shakespearean texts. Subjects were given the following tasks: Task 1. read the traditional print-based text, Text 1 (Act II Scene II from *Romeo and Juliet* by

Shakespeare), listen to the audio-recording of the text, attempt to answer the comprehension questions to the text and reflect on the working process via survey;

2. Upon completion of Task 1, the subjects were offered to read Text 2 (Act I Scene IV from *Romeo and Juliet* by Shakespeare), by the same author, from the same work of literature and watch a video to the text, and try to answer the comprehension questions to this text and reflect on the working process via survey.

In this way, in addition to the observations, audio-recorded and transcribed interviews, and surveys, there were two sets of artifacts to be analyzed:

1. Hard copies of print-based Text 1 with test questions answered by the research participants in the process of reading Text 1 with support of the audio-recording;
2. Hard copies of the second print-based text, Text 2, with the comprehension questions answered by the research participants in the process of reading Text 2 supported with the video.

The surveys were used to have more evidence for data triangulation (Ely et al., 1994; Glesne, 2010). Saldaña's (2012) thematic and value coding was utilized for the search of the recurring patterns, themes, and values stressed by the participants. All of the above presented substantial evidence in support of this study's findings, conclusions, and implications, added to their validity and trustworthiness, and served as a platform for writing this report.

3.3. Data Analysis

All the collected data were synthesized, analyzed, and triangulated. Saldaña's (2012) principles for thematic and value coding were used to help the researcher in identifying the recurring themes and values in the transcripts of the participants' interviews. The data from the interviews with the participants went under the narrative and discourse analyses. In accordance with Saldaña's guidelines, the interview data was manually coded and organized by the highest significance topics, themes, and values from the perspective of the participants. Software-based coding and analyses, though conducted, will be addressed in a separate, follow-up publication due to their high volume. To ensure trustworthiness of this study, peers and colleagues in the field were involved in prereading this paper as recommended by Creswell (1998). The findings of this study were also presented at the National and International conferences. The presentations of this research received only positive remarks. Most importantly, these peer-reviews helped the researcher to avoid bias and subjectivity which also added to the trustworthiness of this study.

4. Findings

4.1. Participants and their Linguistic Backgrounds

This project took place in one of the universities in the northeastern United States. All twelve participants were above the age of 18 years old. The subjects came from different cultural and educational backgrounds; yet, they were of a sufficient English Language proficiency. All people and places mentioned in the article were disguised under their assigned pseudonyms. The data in Table 1 below was obtained through the analysis of the surveys. The survey data analysis helped to identify the education level and field of each participant; it also presented the evidence of the participants' multiculturalism and polylingualism.

For the interview data collection, the whole sample was divided into small groups using preferential grouping (See *Table 1* below for more detailed data on the groups and individuals).

Table 1.

Characteristics of Participants

NN	Group / Name	Sex	Degree	Program Status	Field	Country Of Schooling	Tongues ¹	Mother Tongue ²
Group I								
1	Lena	F	B	Undergrad completed	Linguistics	China Hong Kong	Mandarin Cantonese EAL Korean Japanese	M / C
2	Rita	F	HS	Undergrad in progress	Biomedical Sciences	China Hong Kong	Mandarin Cantonese EAL Korean	M / C
3	Ella	F	B	Undergrad completed	Health and Human Sciences	Pakistan / USA	Urdu EAL Spanish	U
4	Dania	F	B	Undergrad completed	Biology	Pakistan / USA	Urdu Punjabi EAL Spanish	U
Group II								
5	Dylan	M	B	Graduate in progress	Electrical Engineering	Central India	Hindi EAL	H
6	Ines	F	HS	Undergrad in progress	Early Childhood Education / ASL	USA/ Puerto Rico/ Dominican Republic	Spanish EAL ASL	S
7	Keya	F	B	Graduate in progress	Electrical Engineering	North-west India	Gujarati Hindi Marathi EAL Local tongues	G
Group III								
8	Amma	F	HS	Undergrad in progress	Psychology	Ghana	Twi Bantu Ga EAL French	T / B / G
9	Jasmine	F	B	Graduate in progress	Biomedical Engineering	Southern India	Hindi Marathi Tamil EAL Bengali	M
Group IV								
10	Mona	F	B	Graduate in progress	Electronics And Communications	Northern India	Hindi EAL	H
11	Amir	M	HS	Undergrad in progress	Computer Sciences	Canada	Gujarati EAL Hindi French	G
12	Jim	M	B	Graduate in progress	Electronics	Southern India	Telugu Hindi EAL	T

Comments to Table 1: a) Tongues¹ - languages used by participants are listed in the order of importance for each participant; b) F – female; M – male; HS – High School; B – Bachelor’s degree; c) Mother ² tongues are abbreviated by the first letter in the name of the language.

The languages spoken by two or more students within the sample included the ones shown in the table below (See *Table 2*):

Table 2.

Languages spoken by two or more participants

Cantonese	EAL	French	Gujarati	Hindi	Korean	Mandarin	Punjabi	Spanish	Urdu
2	12	2	2	6	2	2	2	3	2

The other languages used by some participants were: American Sign Language (ASL) - 1 student, Bantu -1, Bengali -1, Ga -1, Japanese - 1, Marathi -1, Tamil -1, Telugu - 1, Twi-1.

Some of the subjects claimed understanding some additional local dialects and languages used locally in their home-places. The total number of languages used by the students in the sample equaled 19. The mother tongues of the research participants were: Bantu, Ga, Gujarati, Hindi, Mandarin, Spanish, Telugu, Twi, and Urdu. Due to the fact of being raised in polylingual families, several research participants named more than one language as their native tongues. These students found it impossible to give preference to only one of the languages they spoke life-long being raised in their polylingual households. Nine participants were international students with their families permanently residing abroad. Four of 12 participants were children of immigrants and were fully or partially schooled in North-American schools: three in the United States and one in Canada; three of them - from Pre-K through college, the fourth one - from Grade 2 through the university. The survey data analysis was important for understanding of the fact that this study's subjects were well-educated college students who inherited or acquired multiple languages and affiliated with the cultural *knowledges* naturally, via communication within their social environments (Vygotsky, 1978; 1987, Wertsch, 1981). Yet, this analysis also enabled understanding and supported the idea of the above factors serving as a barrier between those participants' diverse socio-cultural environments and the western cultures and languages.

4.2. Participants as Scholars and Reading Personalities

A deeper insight into this research participants' academic backgrounds and reading personalities is highly significant for a deeper understanding of all the steps involved in this study. The observational data analysis was especially important for interpretation of the reading comprehension test-taking processes, the reading test results, the survey, and interview data, and the overall findings in this research. The rich descriptions of each participant and their working abilities and characteristics (Glesne, 2010) was not only the tribute to the traditions of the qualitative research. The textual presentation of the results of the observational data analyses helped to validate the hypothesis of this study participants being hardworking, motivated, and zealous young scholars. Additionally, these data analysis lead to the understanding of this sample participants as not being a group of low-achieving students with limited set of working strategies and skills. On the contrary and evidently, each of these students had earned the opportunity to be admitted in this high-rank American university due to their high scores in English as an additional language and, most importantly, in their specific subject areas and scientific fields. Nevertheless, what these students most probably lacked was the extensive and in-depth exposure to the values of the western cultures, such as the literary and educational traditions, the histories of the European and American countries, subtleties of the English language throughout the periods and localities where it was used, and some other substantial in its volumes culture-specific information. This research participants, as the representatives and a part of the vast populations of English as an additional language-speaking college students, excelled in their fields of study, yet, still were struggling with reading and meaning making of the texts, where the content included portions of the information which was

outside of their cultural schemas and background knowledge. This clarification aims to stress the fact that this research data analysis focused on and aimed to help with furthering the field of education in terms of looking for solutions for the cases described above: for helping students with their deeper meaning making of the complex print-based texts, which might be outside of the particular readers' current ZPDs. The above information served as a platform for launching the participants' description both as scholars and as reading personalities.

As it was previously stated, the subjects took part in this study having formed small, preferential groups. Each participant will be characterized as a group member, whereas the groups will be ranked according to the time each of them joined this project.

4.2.1. Group I

Group I was formed by two Chinese female siblings from Hong Kong: Lena and Rita. Lena was one year older than Rita. She studied Linguistics and was several weeks apart from her graduation and returning back home at the time of this project. Regardless of this fact, Lena's younger sister Rita possessed higher proficiency in her English as an Additional Language speaking skills. She was more outspoken and more open to discovering new to her phenomena in the new to her country and culture. Rita studied Biomedical Sciences. Compared to her older sister, Rita read more and loved reading; though, she identified herself as a struggling EAL reader. While Lena did not read much due to lack of enjoyment in reading, she did not consider herself a struggling reader. Both sisters spoke Mandarin and Cantonese as their native tongues. They studied English during the time of their schooling in Hong Kong. Upon these sisters' visit to Korea in their childhood, both sisters decided to study the Korean language. Additionally, Lena was in the process of studying Japanese.

The other members of Group I were two females of Pakistani origin: Ella and Dania. Both of them were born in Pakistan and brought to the United States in their childhood by their families. Ella attended Pre-K and elementary school in Pakistan till grade 2; then, she was brought to the United States. Dania was schooled in the USA from Pre-K through college. Both participants named Urdu as their mother tongue, and both of them were fully proficient in the English Language. Additionally, Ella and Dania studied Spanish in their high schools. Besides Urdu, Dania could also speak Punjabi. Regardless of her high language proficiency, Dania, though loved reading and did not struggle with it, recognized she did not read too much, except for the studies. Ella stated she did not like reading due to the fact that she struggled with her dyslexia. But regardless of this inborn condition, Ella read a lot with outstanding zeal. This student with her strong personality made her decision to overcome the obstacles caused by her dyslexia and strived to achieve as high as possible. Academically, Ella studied Biology, while Dania majored in Biology, Health, and Human Sciences.

4.2.2. Group II

Group II consisted of three participants: one male and two females. Dylan was a male Master's level student from central India. He majored in the field of Electrical Engineering. Dylan's mother tongue was Hindi. He studied English at school in India where he completed his Bachelor's degree. Ines was a sophomore student who majored in Early Childhood Education and had a minor in the American Sign Language. Though schooled in the United States, Ines came from her mixed Puerto Rican and Dominican family where Spanish was the language used at home. Keya was a Master's level student in the field of Electrical Engineering. She considered Hindi her native tongue, though her mother's tongue was Gujarati. Besides Hindi, Gujarati, and English, Keya also used some local languages when in her home country. When asked to clarify whether they were local dialects of one certain tongue or independent languages, Keya restated she meant exactly independent languages, but not dialects, which

were rarely spoken in her particular location in one of India's provinces. All three participants in Group II revealed they loved reading. Nevertheless, only Keya had enough time to read a lot. Neither Dylan nor Keya considered themselves struggling readers. Their group member Ines confessed she struggled with reading as she got easily distracted. Later on, in the process of the interviewing, Group II showed themselves as an exceptionally friendly, merry, and joyous company.

4.2.3. Group III

Group III included two female university library co-workers. Amma was an undergraduate student who came from Ghana to the United States to study Psychology. Her group-member Jasmine was a graduate student in the field of Biomedical Engineering. She completed her Bachelor's degree in India and came to proceed with her Master's level education in the United States. Amma named several languages she habitually used in her home country; they were Ga, Bantu, and Twi. This student had studied English and French at her school back in her home country. Jasmine was also a speaker of multiple languages. This participant's mother tongue was Hindi; yet, she used several Indian languages, such as Marathi, Tamil, and Bengali. Just as Amma, Jasmine also studied English at her school back at home. Both Group III participants recognized they loved reading and read much, while none of them considered herself a struggling reader.

4.2.4. Group IV

Group IV was the last group to join this project at the beginning of the summer semester. This was a group of two male and one female participants; all three were good friends. Mona was a Master's level Electronics and Communications student from India. Her mother tongue was Hindi, and she had also studied English at her high school. Amir was a Canadian undergraduate student one course away from completion of his Bachelor's degree in Computer Sciences. Amir's mother tongue was Gujarati. He was schooled in the English language in Canada. Amir shared he had mastered Hindi from watching TV and movies, while French was the language he studied at his high school. Jim was a Master's level Electronic Engineering student from the South of India. His mother tongue was Telugu. He had also studied English at school and possessed native proficiency in Hindi. Mona and Amir did not consider themselves struggling readers, while Jim confessed he always struggled with reading, did not like to read, and did not read much. Mona also recognized she did not like reading either, neither did she read too much. On the contrary, Amir stated he had always loved reading and read a lot. During his school years, this student developed a habit to routinely read on daily basis, always at a certain time, and for a particular number of hours. This participant shared he genuinely enjoyed reading and was not going to reduce his daily routine reading time even during his busiest semester weeks in college.

To conclude with, the results of the observational data analysis described in this section aimed to add to the greater understanding of this study participants as readers, personalities, young scholars, and future professionals. Further on in this paper, there will be revealed the correlation between this research participants' reading behaviors, their perceptions of their working on this project tasks, and the results of their individual work, their group work, and their collective achievements.

4.3. Findings from Observations

This section of the paper is concerned with the reading, test-taking, and overall working patterns identified in the participants in the process of the observational data analysis. For the readers' convenience, these findings will be organized by the text and support type: Shakespearian play

Romeo and Juliet Text 1 which was supported by an audio recording and Text 2 from the same play supported by a video recording with the sound track.

4.3.1. Text 1 with the Audio Support

Group 1 observations data analysis results revealed that these participants' personalities as readers differed from their at-leisure ones. It was noticeable that all four females listened to the directions respectfully, silently, nodding their heads to indicate comprehension. There were some visible variations in the working processes between these students. Lena and Rita went deep into studying the text as soon as they were offered to start working. Both students completely froze and did not move while reading. Though both siblings were sitting next to each other, they have never attempted to look into each other's papers. They did not implement any text-marking strategies. None of the sisters went back and forth between the text and the questions to the text. While listening to the audio support to Text 1, Rita seemed to be listening with more intense, while her sister Lena looked less tensed; yet, both of the siblings were completely absorbed in the task and did not make a single glance off the papers.

Ella's working style differed from the rest of the group: she read the test questions first and often went back and forth between the text and the comprehension questions. There was more of physical activity in her working style, which differed her from her friend Dania, who looked more relaxed and laid back. Dania's fiery, outgoing, merry communication style immediately changed to patient, modest, obedient, and respectful "student-in-class" type of behavior once the project started. One of the most characteristic features of her reading and test-taking manner was complete lack of tension or strain. This student's working style was significantly different from the rest of the group in terms of her lack of straining.

At the beginning of the interview that followed the work with the texts, tests, and surveys, Dania's telephone rang. Dania and Ella exchanged some words in a language other than English, hurriedly excused themselves in English, and explained their need to leave due an emergency. One of their friends had suddenly fallen sick, gradually felt much worse by that time, and asked for assistance with transportation to an Urgent Care facility. On the go, Ella and Dania expressed their gratitude for this research on the topic of high significance. These students promised to come back for an interview as soon as possible, and immediately left the site running downstairs without waiting for the dormant elevator cabin to arrive.

Summarizing the observations of Group I participants working on Text 1, it can be concluded that Lena, Rita, Ella, and, with a lesser degree, Dania who seemed significantly more confident, produced the impression of the people who were determined to work hard and put their strongest effort in the research tasks.

Group II members' seriousness and concentration on the task were remarkable. This group was extremely friendly and joyful. All three participants preferred to pre-read the text before listening to the audio recording. None of them pre-read the test questions. All three participants started with reading the print-based text, and only after that went through the test questions. After having been exposed to the audio support, these students proceeded to the test questions without rereading the text. Dylan and Ines repeatedly went back and forth between the questions and the print-based text. There was less physical activity in Keya's working style. Dylan looked slightly stressed or overwhelmed with the level of complexity of the text. There was no sign of nervousness or tension in Keya's face or body language. This student looked deeply absorbed in reading, while her interest in the content of the text was showing in her facial expressions. The fact of being personally engaged with the reading might serve as an explanation to Keya's behavior, which was more characteristic of reading for enjoyment rather than reading for test taking. Keya's vivid interest in the read texts made her working style

observably different from the ones by her group members as well as the members of the other three groups.

Group III showed lots of physical activity in the process of working with Text 1, listening to the audio recording to the text, and answering the comprehension questions. In contrast to her group member, Amma had very specific manners: every move of hers was full of dignity. These manners applied to her working style as well. There was no rush, no nervousness, nor signs of hesitation in her facial expressions, posture, and body movements. Both participants in this group listened to the audio recording and read the text twice: prior and after listening. Though the graduate student, Jasmine demonstrated some hesitation and lack of confidence, her strong effort showed through her body language and facial expressions. The research tasks were visibly hard for Jasmine. As it appeared, this was the first time this student encountered the Shakespearean language, so she was struggling with making the meaning of it. Jasmine froze during listening to the text while striving to construct the meaning of the Shakespearean English. Observations these participants' reading, listening, and answering comprehension questions heated the researcher's interest in comparing the working styles of each of them to their individual test results.

Group IV members' working styles varied. Amir promptly started with pre-reading Text 1. Actually, as soon as he arrived to the research site, this student read whatever was available on the desk in front of him, including the IRB consent form and the recruitment flyer. Amir expressed his idea that more time needs to be allotted for the participants in order to read the text without haste rather than skim or scan it. His group members and friends Jim and Mona went through the text superficially and finished their reading fast. On the contrary, Amir, when noticed their idleness, asked for some extra time and murmured, "As you wish, guys, but I need to read it." Having dropped these words, Amir dived deep into the text. Jim and Mona were patiently sitting and staring though the air. Further on, when all this group members were listening to the audio recording, Jim was not looking at the print-based text, but tried to make the meaning from his listening to the actors' voices. Amir matched the audio and the print-based text simultaneously, while Mona was listening very attentively with her glance sliding down the paper, but not from left to right along the lines of the text.

During the analysis of the data collected from the observations of all twelve research participants' working with Text 1 supported by the audio-recording, one common feature stood out: most of the research participants relaxed noticeably after having been exposed to the supporting features of multimodality. Prior to this exposure, their faces showed noticeable concern while their postures indicated their internal tension.

4.3.2. Text II with the Video Support

There were significantly fewer variations between all twelve participants' working styles in the process of their reading Text 2 and watching the video support. So, in this section, the behaviors by the whole sample will be addressed without breaking it into groups. There was one common trait which formed into a strongly identifiable pattern: none of the twelve students tried to even glance at the print-based text while watching the video, which had the audio track as well. Every research participant set the print-based text aside and tried to make the meaning from the orchestration of the modes in the short episode from Zeffirelli's (1968) production of *Romeo and Juliet*. The research participants were reading the meaning via watching the actors' movements, positions in the space, facial expressions, body language, gazes etc. They observably experienced the Vygotskyan (1998) or Bakhtinian (1981) *perezhivanie*, which can be best translated from these philosophers' mother tongue as *compassion* or *co-passion*.

Nevertheless, every research participant found for necessary to pre-read the print-based text prior to watching the video, except for Jim. Jim was waiting for the video to start. He swiftly looked through the print-based text and did not attempt to read in detail. When the video started, his attention was completely focused on the screen. All participants immersed in watching the video with the audio and tried to make the meaning reading both: verbal and non-verbal language including speeches of actors, tones of voices, background music and sounds, the colors, the characters' movements, and positions in the space and towards each other, their gestures, postures, facial expressions, and more.

As follows from the description of the participant observations above, the students in this sample were highly motivated in making the meaning of the print-based, audible, and visual texts. Interestingly, these students' strong efforts and high motivation in meaning-making brought them to the specific outcomes as they revealed through their interviews. It was highly significant for the validity of this research findings to triangulate the data from the observations, surveys, and the interviews. The latter data will be presented in the section below.

4.4. Findings from the Surveys and Interviews

Subsequently, after the completion of the working processes with Texts 1 and 2 and the comprehension tests, the research participants were offered to answer a set of the survey questions. The responses provided in the surveys, allowed to analyze the data on the participants' educational backgrounds, their reading proficiency and preferences, and their perceptions of selves as readers. Most importantly, the survey contained a list of questions with regards to the comprehension strategies students implemented for the meaning-making purposes while working with each of the two texts and test questions. It was highly significant to analyze the data on the sets of reading strategies implemented by participants and understand how these skills were used by the students, and which of them they found most helpful. Table 3 below shows the subjects' reading preferences, their perceptions of selves as readers as well as their perceptions of the complexity of the project texts as reflected by them via the surveys.

Table 3.

Participants reading preferences and perceptions

Group / Name	Likes to read	Reads much	Struggles with reading	Text I Perceived as	Text II Perceived as
Group I					
Lena	No	No	No	Easy	Easy
Rita	Yes	Yes	Sometimes	SW hard	Easy
Ella	No	Yes	Yes / Dyslexia	Easy	Easy
Dania	Yes	No	No	Easy	Easy
Group II					
Dylan	Yes	No	No	SW hard	Very Easy
Ines	Yes	No	Yes	Easy	Hard
Keya	Yes	Yes	No	SW hard	Easy
Group III					
Amma	Yes	Yes	No	SW hard	SW hard
Jasmine	Yes	Yes	No	Hard	Very Hard
Group IV					
Mona	No	No	No	Easy	Easy
Amir	Yes	Yes	No	SW hard	SW hard
Jim	No	No	Yes	Hard	Hard

To sum up the data in Table 3 above, five students found Text 1 easy, the other five – somewhat hard, two subjects considered it hard. As for Test 2, two participants considered it hard, one considered it very hard, while the rest of the students found it easy to understand.

It was important to find out which exactly strategies participants utilized while working on each of the texts and which features of multimodality they considered most valuable. These findings might lead to the implications beneficial to larger populations of the polylingual EAL-speaking college readers.

4.5. Value Findings

The major research instrument, the semi-structured interviews were built on the principles of Bakhtinian (1981) genuine dialogue. Within this study, all the participating parties: the researcher and the research participants were educated polylingual English as an additional language speakers. From this perspective, and for this reason, all the parties or so-called *birds of a feather* could understand each other's needs, perceptions, and feelings in all their depth and complexity. While belonging to the same smaller sub-culture of the new-comers engulfed and dissolved within the large American nation, the entire group involved in this study collaborated on looking for possible answers to their life-important questions through the collective, joint effort of their educated minds. All the participants expressed their hope that their efforts might help future generations of the polylingual EAL-speaking college students. These participants' passion about this research and its results was evident in their speeches.

Listening to and analyzing the participants' audio-recorded interviews confirmed the initial impressions of their effort and dedication through such significant audible details as changes in their intonations, breathing patterns, tones of voices, pauses, and other types of non-verbal language in addition to their verbal speeches. All these small but important nuances and subtleties contributed to the thematic and value discourse analysis and understanding of the meaningfulness of this research topic for these participants. Most importantly, it became obvious how significant it was to the participants to express their previously silenced thoughts and concerns. It was observably and audibly noticeable how important it was to these students to be listened to and understood. The thematic and value codes analysis revealed that all of these people cherished their hope for their greatest values to be heard further on, beyond this project's time frames. All of the subjects stated they hoped their endeavors help in the future to the innumerable *birds of the feather*, the polylingual EAL-speaking college students.

4.6. Thematic Findings

The thematic and value interview analysis with the small groups of the participants helped to identify recurring themes, which formed strong, traceable patterns. Visual representation of the data (see *Figure 1* below) showed that 100% of all the research participants who were exposed to the multimodal features in addition to the traditional print-based text found that inclusion of the multimodal features in addition to the print-based text powerfully assisted them with their meaning-making in the process of their working on the project tasks (See the comments to the data in *Figure 1* underneath it).

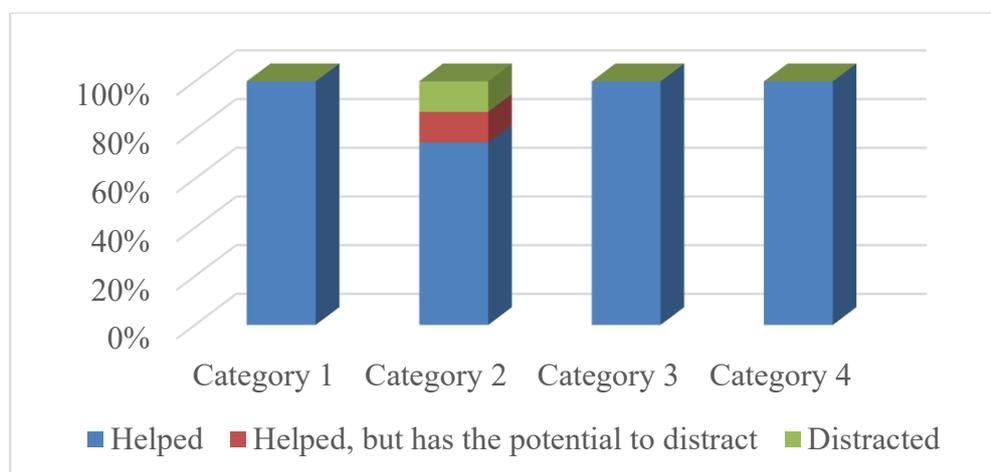


Figure 1. Participants' perceptions of the effects of inclusion of multimodal features in addition to the traditional print-based text

Comments to *Figure 1*:

Category 1: Has the addition of multimodal features helped you to better understand the text or not? – 100% said yes.

Category 2: Would you say the multimodal features in addition to the print-based text distracted your attention and prevented you from focusing on the content of the text or not? – Ten participants (83.3%) said the inclusion of the multimodal features in addition to the print-based text did not distract them from the content of the text.

Category 3: Did you find the multimodal features in addition to the print-based text helpful to you while working at the text and the test questions? – 100% of the participants said yes.

Category 4: If you were offered another text with test questions to answer, would you prefer to be exposed to supporting multimodal features or not? – 100% of the participants said yes.

The major finding of this study is that all of the research participants stated that inclusion of multimodal features in addition to the traditional print-based text assisted them with meaning-making in the process of reading, listening, or viewing the text which the majority of them identified as new and complex for them as the culturally diverse polylingual EAL speaking college students without the history of exposure to the western cultures. This finding supports Vygotsky's (1978/1987) socio-cultural constructivism theory.

As for the use of the strategies, the data collected through the surveys showed that on average, the participants implemented 72% fewer reading strategies while working with the audio supported text. There were 82 cases of using reading strategies per the whole group. The students implemented mostly text-based and audio-text-based strategies such as Summarizing (75%), Using Context Clues (67%), Identifying the Main Idea (67%), Listening to the Characters' Speech (58%), Making Inferences (58%), and Key-Word Matching (58%). The participants answered 75 % of inferential test questions correctly and gave 18 wrong answers.

It was impressive that these students implemented 72% percent more reading comprehension strategies, both text-based and multimodal ones while working with the video supported text. There were significantly more (141) cases of usage of print text-based (56) and multimodal (85) strategies per the whole group. The most commonly used strategies were: Identifying the Main Idea (92 % of all participants), Evaluating Emotions of Characters (75%), Observing the Movements and Gestures of Characters (75%), Observing Actions of Characters (75%), Sequencing the Events in the Text (67%), Listening to the Characters' Speech (67%), Examining Facial Expressions (58%), Summarizing (58%). The students found the strategies

listed above most helpful for their meaning-making purposes according to the data collected from both: the surveys and interviews. Availability of additional multimodal reading comprehension strategies helped research participants to answer correctly 90% of the inferential test questions to the video-supported text with only seven wrong answers per the whole group.

Triangulating the data from the multiple sources confirmed this study's major finding, i.e., all twelve participants comparatively in both: their surveys and the interviews stated that inclusion of multimodal features in addition to the traditional print-based text assisted them with their meaning-making in the process of reading, listening, and viewing the texts which the majority of them identified as high complexity text for culturally diverse polylingual EAL speaking college students.

Visual representation of the data in *Figure 2* below shows that all participants strongly and prevalently relied on the information received through the visual means of multimodality and considered them most helpful for their meaning making.

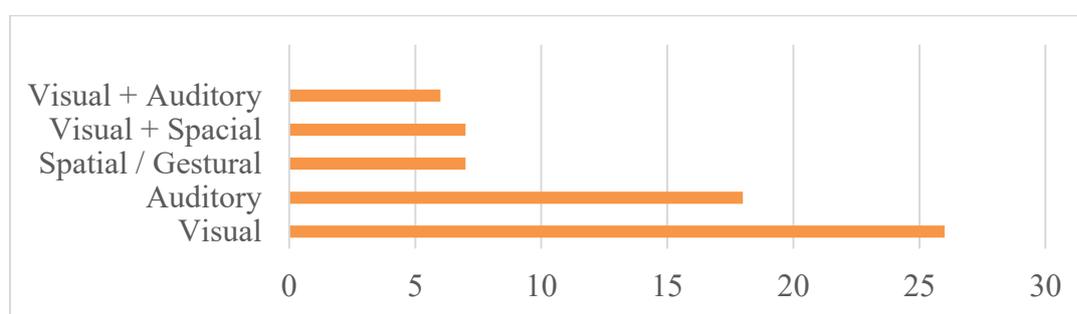


Figure 2. Frequency of use of different modes of multimodality by participants in the process of performing the research project task

All twelve participants found it important to include in the classroom instruction diverse features of multimodality in addition to the traditional print-based text for the purpose of assisting students with reading comprehension.

It needs to be stated that in the process of triangulation of all the data, which were collected from multiple sources, such as the artifacts (reading comprehension test results), participant observations, surveys, and interviews, there were identified some diversity by culture or educational tradition. Representatives of different countries and cultures utilized different approaches to meaning-making which was found congruent with Vygotsky's (1978) socio-cultural constructivism theory. The students from Asia were more detail-oriented, while the participants from Pakistan recognized they were in need of "a whole, big picture" in order to be able to understand the events in the text. Participants from India indicated that computerized, digitalized, technology-based multimodal reading was the most convenient to them way to make the meaning rather than reading traditional print-based text. The Latin-American participant expressed the idea of importance of actions in the form of gestures and movements through the space etc., which helped her better understand the print-based and auditory text. The African participant indicated that some students might additionally rely on the multimodal resources which are not being discussed in the traditional Western academic literature. Nevertheless, this student stated those additional modes of multimodality existed and helped the people of her culture to better read and understand a number of real-life texts. These findings support the ideas about socially and culturally constructed knowledge expressed by Miller (2013), Vygotsky (1978; 1987), and Wertsch (1991).

5. Discussion and Conclusion

The great significance of this study is in its focus on the data obtained from the *horse's mouth*, from the English as an additional language-speaking college students in person. This research found that addition of multimodal features to the traditional print-based text, as voiced by this study participants, powerfully assisted them with their meaning making of the read within this project texts via the strongly interconnected modes of multimodality in their combination with the conventional print-based text. The combined findings of this research confirmed that Vygotsky's (1978) social-cultural constructivism postulates are fundamental for studying meaning-making processes in polylingual EAL speaking college students each of whom came from a different socio-cultural and linguistic background, yet found the addition of multimodalities in support of the conventional print-based texts highly beneficial for their meaning making during reading and the comprehension test taking. Importantly, the findings of this current study correlate with the ones made by this author's as the result of her previously conducted research projects on the effects of multimodality on the polylingual EAL populations in the American higher education institutions. These findings also strongly support the previously conducted research (e.g., Duncum, 2004; Gould, 2017; Gould et al., 2020; Jacobs, 2012; Lincoln & Rademacher, 2006; McVee et al., 2008b; Moor-Russo & Shanahan, 2014; Murray, 2013; Shin & Cimasko, 2008).

Most importantly, this research found that it is highly significant to listen to and try to understand the perceptions of working with multimodal texts by the polylingual EAL-speaking college students. It did not happen too often that research focused on perceptions revealed by these student populations. This research participants expected and asked the researcher to resound on their behalf this research findings via presenting this study results at the National and International conferences and disseminating the report via publishing for the benefit of diverse student populations. Additionally, using the rich descriptions as an instrument and a privilege of a qualitative report, this article portrays detailed images of this study participants. The purpose of this work is to attract attention to the diverse student populations whose high intellectual abilities may be largely erroneously underrated based on their initial English language proficiency, heavy accents, culture-specific ways of expression, and untraditional, from the western perspectives, philosophies as well as their expansive sets of the non-western cultures-specific scientific, literary, historical, and artistic knowledges.

The most significant implication of this research for the reading, literacy, and EAL educators as well as for the curriculum developers is that all the research participants who were exposed to the features of multimodality in addition to the traditional print-based text highly recommended the educational communities in the United States and world-wide to include teaching multimodalities in the curriculums as all this research participants found multimodality extremely helpful for their meaning-making in the process of their working with the print-based texts and comprehension test-questions within this project. The effects of the means of multimodality, including but not limited to visuals, need to be further researched in order to find more of new and effective ways to assist vast reading audiences with meaning making of print-based text supported by multimodal features.

Regardless of the multiple beneficial for students and educators implications, there were some limitations to this research, for example, its relatively limited time frames. Additionally, larger numbers of linguistically, academically, and culturally diverse participants need to be recruited in the new studies on the effects from multimodality on meaning making.

Nevertheless, the ideas communicated by the participants position this research as a unique study among multiple projects in the field of multimodality where the focus was predominantly on school teachers and their young learners, but not on the diverse higher education students.

The affordances of the qualitative research allowed the author to show the participants as real people who represent the vast populations of polylingual EAL-speaking college students which increasingly fill the American university classrooms. Yet, even if studied, these people largely remain hidden behind the statistical and quantitative data while their internal voices stay silenced. Hopefully, the traditions of the qualitative report allowed the reading audiences to visualize each participant not just as a subject associated with a set of numeric data, but as a person. Each of these people was found to be a unique personality with their specific, individual learning and working styles. Each of these students, though high achieving, encountered and struggled with some academic problems. Nonetheless, these people deserve academic help. On the long run, the educators' endeavors will pay as this study participants represent the intellectual cohort of our planet, who are responsible for the future of our nation and a global society. It is the right time now to listen to their voices and cater to their academic needs.

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