Research Paper

Investigation of Computer-mediated Communication Proficiency among Secondary School Students in Ibadan: Testing Bernstein's deficit hypothesis

Ajayi Temitope Michael[1]*, Assistant Professor, Department of Linguistics and African Languages, University of Ibaden, Nigeria
michaeltemitope@yahoo.com

Amaka Linda Ajuonuma[2], M.A. Department of Linguistics and African Languages, University of Ibaden, Nigeria

Amakalinda05@gmail.com

Abstract

The nature of the relationship between language and social class has attracted the attention of language scholars, especially sociolinguists. The aim of this study is to provide further arguments on the never-ending debate around Basil Bernstein's position on language and social class. However, unlike previous studies, it focuses on social class (as marked by school type and access to information technology tools) and computer-mediated communication proficiency among selected secondary school students in Ibadan, Oyo State, Nigeria. While there was no significant difference in the attitudes of the sampled public and private secondary schools' students, strong evidence abounds to the effect that private school students had a better mastery and 'proficiency' in the use of computer-mediated communication language relative to their counterparts in public schools. Although there are studies challenging Bernstein's claims on language and social class, the study further lends credence to the validity of these claims, particularly as experienced in the Nigerian context: upper and middle class children demonstrate better proficiency relative to their lower class counterparts, especially in (English) language-related subjects.

Keywords: *Computer-mediated communication, Social class, Basil Bernstein, Nigeria*

Introduction

Basil Bernstein's code theory, later conceptualised as deficit hypothesis (Ajayi, 2013), which came to the limelight in the 1960s, revolved round the thesis that children from the lower class demonstrate limitedness in their language proficiency relative to their counterparts from middle class parents. In other words, the social class to 'which a given individual belongs in a society determines the extent of the individual's proficiency in the language used in the society' (Ajayi, 2013). Littlejohn (2002, p. 178) espouses this position and thus opines 'people learn their place in the world by the language codes they employ'. The code that a person uses indeed symbolizes their social identity. Bernstein strongly holds that social structures bring about and inform differential modes of linguistic behaviour, and these modes essentially in turn, determine the extent of the cognitive and social development of children/individuals within these structures. In the arguments of Bernstein (1973), two types of codes can be identified in the society: the elaborated and restricted codes. The restricted code is characteristically found within the social and existential context of the lower or working class in the society (see Ivinson, 2018; Singh, Pini, & Glasswell, 2020). This code is perceived to be linguistically less-demanding in terms of the amount of planning (by speakers). This is because, according to Bernstein, the restricted code speakers only have very limited pool of expressions for possible conventional utterances. And from the psychological perspective, the restricted code only deploys the use of implicit meaning as it largely depends on social and physical contextual elements to supplement or augment what is said. On the other hand, the elaborated code is identified with the upper and middle classes. In the context of the elaborated code, speech is employed functionally to express the speaker's purposeful meaning rather than what the speaker has in common with the group. Thus, since the meaning is personalized or individualised, it requires a good deal of planning, with a sequence of words that is comparatively unpredictable. The code is characterized by explicitness of meaning. Therefore, because of the clarity of meaning inherent in this code, ideas expressed in it can be easily understood without reference to non-verbal elements. In the submission of Bernstein, people from the middle and upper classes possess both the elaborated and restricted codes in their linguistic repertoire.

Review of Literature

Since the introduction of Bernstein's code phenomenon to sociolinguistics scholarship, many scholars have reacted to it in different ways, particularly in terms of its applicability and weaknesses. Some of the studies in this regard include Mason (1986), Kassal (2000), Muvindi and Zuvalinyenga (2013), Ajayi (2013), and Jones (2013), among others. Essentially, these studies have exclusively concentrated on the conventional communication behaviours (non mediated) of people in their respective societies. However, since the arguments raised in Bernstein's code theory require insights from some other forms of language use beyond the conventional one, a study of this nature which examines the applicability (and perhaps acceptability) of the theory from the angle of mediated communication is pertinently imperative. It is in view of this that the current study examines Bernstein's argument within the context of computer-mediated communication. It is hoped that this study provides further insights, pro or against Bernstein's arguments, into the life-long debates on the nexus between language and social class.

Computer Mediated Communication (CMC)

With the prominence of the Internet in the early 1990s, human communications system has had to adjust to the realities that technological advancement has brought to it. One of such realities is the emergence of computer-mediated communication which has hitherto proved to be an experience that might stay with humanity, and in fact shape pedagogy for many years to come. Its prominence in the contemporary world has made it attract the attention of scholars in different disciplines with different perspectives. For instance, Metz (1994) defines computer-mediated communication (CMC) as any communication patterns mediated through the computer. December (1996) sees computer mediated communication as "the method of creating, exchanging and perceiving information, which helps in encoding, decoding and transmitting messages by means of telecommunication network". As further noted by December, the CMC includes human interactions facilitated via digital technologies. It revolves round technology-centred concepts such as the Internet; email, instant messaging, cellular phone text, and multi-user interaction, among others (Kumar, Natarajan, & Acharaya, 1997).

The CMC is particularly popular among its users for its usefulness in creating and maintaining contact among family members and friends (Parks & Floyd, 1996; Hampton & Wellman, 1999). Ramirez and Zhang (2007) indicate that computer mediated communication allows more closeness and attraction between two individuals than a face-to-face communication. In line with the focus of this study, an important component of the CMC is the short message service (SMS), which is more popularly known as text messaging, which developed as an initial by-product of the cell phone industry (Faulkner & Culwin, 2005). The SMS involves the use of coded language expressions (text messages) among individuals or members of a group, and are most times not comprehensible to outsiders (Thurlow, 2003). For instance, in the SMS language, a single or multiple words could be compressed to form single letters. In some other instances, figures could take the place of words or letters (Geertsema, 2011). As observed by Goldstuck (2006), the SMS language, just like the natural language, is susceptible to change. This explains, for instance, why the word 'thanks' or 'thank you' has changed from 'tnx' to 'tx' overtime. In the opinion of Thurlow (2003), the SMS language could be described as a form of morphological or orthographical deviation that manifests morphological processes as clipping, shortening, contractions, acronyms and initialisms, letter homophones, and unconventional spellings. In relation to the Nigerian context, Taiwo (2008) observes that the SMS is so entrenched among Nigerians, especially the educated ones, that it is gradually leading to the abandonment of the traditional oral culture.

Odey, Essoh, and Endong (2014) have also commented on the prominence of SMS language in Nigeria, especially among students. As noted by these scholars, many Nigerian youths, particularly students, have become so used to the SMS language that they 'unconsciously' use it in the formal academic/pedagogical context. Following from the arguments above, especially by Taiwo (2008) and Odey et al (2014), it suffices to submit that the CMC is a deep-rooted linguistic sub-culture in the contemporary Nigeria that requires all manner of intervention it could get from scholars, hence the aptness and necessity of the current study.

Langage and Social Class

The relationship between language and social class has caught the interest of scholars in applied linguistics and sociolinguistics. These include Labov (1966). Huygens and Vaughan (1983), Crowley (1989), Hymes (1996), Bex and Watts (1999), Mugglestone (2003), Collins (2009), Lia (2010), Ajayi (2013), and Chakrania and Huang (2014), among others. The central argument of the works of these scholars is the notion that language use correlates with social factors such as social class, age and gender. In other words, social categories greatly influence or

control individuals' linguistic and behavioural practice. As noted by Snell (2014), some of the studies on the relationship between language and social class come up with categories such as 'working class', 'middle class', 'lower class', 'middle class', 'upper class', non elite, semi elite, elite class. Similarly, phenomena such as occupation, income, and housing, and sometimes a combination of the trio have been described as factors that define social class in the society (see Ajayi, 2013). Some of the notable works in this regard are Macaulay (1977), Labov (1966), and Trudgill (1974), among others.

As further noted by Shnell, these studies have established the fact that the language pattern of the middle class speakers of English in the native English environment is more standard relative to their working class counterparts. This trend has been extensively researched in the Nigerian socio-economic space. For instance, Kassal (2000) notes that the language behaviour of private and public secondary schools' students in selected secondary schools in Ogun State Nigeria is largely reflective of the 'kind of school' attended by the students. As argued by Kassal, students of private secondary schools in the state demonstrated a relatively higher competence in English compared to their counterparts in public schools. A similar pattern has been observed by Adelabu (2006), Ajayi (2013) and recently by Okedigba (2018). However, Ajayi (2013) further adds that the discrepancy observed among the different categories (based on social class) in relation to language use at the pre-tertiary level of education is 'bridged' at the tertiary level.

The current study, though takes a cue from the studies above, takes a different dimension to the investigation of the nexus between language and social class in society. As mentioned earlier, this study takes the scholarship on the relationship between language and social class beyond the conventional use of language to the mediated-communication context. The specific questions answered in this study are:

●do private secondary school students, given their perceived class (as defined by the kind of school they attend) have better access to, and use the CMC better than their counterparts in public secondary schools?

●arising from the question above, how applicable is Bernstein's deficit hypothesis (originally conceived as code theory, though) in the Nigerian context?

Investigating this phenomenon becomes important for the following reasons. First, it is an exercise to validate or otherwise the claims by Bernstein and his disciples on language and social class. Second, a study of this nature is essential given the predictions by scholars that the CMC might be the future of human communication system (Taiwo, 2008; Oso 2014) and as such demands some serious pedagogical preparations and attention (Khoshsima, Saed, Arbabi, 2018; Faramarzi, Tabrizi, and Chalak, 2019).

Methodology

This study adopted the survey research design. Two private and public secondary schools were randomly sampled in Ibadan, Nigeria. The population for the study comprised 200 (100 from each school) students conveniently sampled in the selected schools. The senior secondary classes I and II were particularly focused in the study. Even within this category of students, the senior secondary school III students were excluded in this study given their participation in an on-going continental examination which coincided with the period of data collection. The population was deliberately limited to the senior class on the assumption that the data generated from this class of students could be a clear indication of what is obtainable in the entire secondary school system. A 35-item research questionnaire divided into 3 sections was used for data collection. Section A probed background attributes, section B profiled students' attitude towards

computer mediated communication and language, while section C contained 15-item samples of text abbreviations to be translated or rewritten in proper English by the students. Data were analyzed using statistical procedures of frequencies, percentages, and chi- square. In classifying the student-respondents into social classes, two major variables: fathers' highest qualifications and type of school were considered. This was based on our knowledge of the socio-cultural realities in Nigeria where in many cases, the status of the father, being the head of the family in line with cultural dictates, determines the standard of living of the family, as well influences decisions on the type of school attended by the children.

Results and Discussion

Table 1
Background Information of respondents

Variable	Public	Private	Statistics χ^2	p-value
Gender				
Male	18 (9.0%)	45(22.5%)		
Female	82 (41.0%)	55(27.5%)	16.89	.000
Age				
Between 10 – 14 yrs	21 (10.5%)	50(29.5%)		
Between 15 – 20 yrs	79 (39.5%)	41(20.5%)	30.08	.000
Fathers' Education				
Post-University Qualification	18 (9.1%)	45(22.8%)		
First degree or HND	11 (5.6%)	39(19.8%)	73.63	
OND, NCE & Monotechnic certificate	10 (5.1%)	3 (1.5%)		
SSCE/JSCE	56 (28.4%)	5 (2.5%)		
Primary Six Certificate	5 (2.5%)	5 (2.5%)		000
Level of Computer Expertise				
Not experienced	14 (7.0%)	5 (2.5%)		
Novice	63 (31.5%)	42(21.0%)	23.05	.000
Intermediate	22 (11.0%)	42(21.0%)		
Expert	1 (0.5%)	11 (5.5%)		
First contact computer				
Home	30 (19.0%)	74(37.0%)		
School	47 (23.5%)	24(12.0%)		
Media center	17 (8.5%)	2 (1.0%)	32.42	.000
How often do you use computer as mediated means of communication?				
Daily	49 (24.6%)	44(22.1%)	0.42	
Weekly	29 (14.6%)	31(15.6%)		
Monthly	22 (11.1%)	24(12.1%)		.812
Social Media Platform Used?				
Facebook	68 (41.7%)	38(23.3%)		
Whatsapp	20 (12.3%)	4 (2.5%)		
Instagram	4 (2.5%)	7 (4.3%)	29.76	
Snap chat	4 (2.5%)	4 (2.5%)		

YouTube	0 (0.0%)	3 (1.8%)	
All above	0 (0.0%)	11 (6.7%)	.000
Total	100 (50%)	100 (50%)	

As evident in Table 1, there were 18 (9.0%) males and 82 (41.0%) females among the respondents from the public schools, while there were 45 (22.5%) males and 55 (27.5%) females from the private schools. Also, 21 (10.5%) of the public schools' respondents were between 10 and14 years; 79 (39.5%) were between 15 and 20 years; while 50 (29.5%) of the private schools' respondents were between 10 and14 years, and 41 (20.5%) were between 15 and 20 years. Perhaps this reinforces the notion among Nigerians that there are more females than males in the Nigerian population, even though the official report as at 2015 had it that women constitute 49.5 percent and men 50.5 percent of the population (National Bureau of Statistics, 2016).

With respect to qualifications of parents, the Table shows that: 18 (9.1%), 11 (5.6%), 10 (5.1%), 56 (28.4%) and 5 (2.5%) of the public schools' respondents' fathers had post-university qualification, first degree or HND, OND, NCE & Monotechnic certificate, SSCE/JSCE and Primary six certificates, respectively. On the other hand, the private schools' respondents' fathers' educational qualifications revealed that 48 (22.8%), 39 (19.8%), 3 (1.5%) 5 (2.5%) and 5 (2.5%) of the respondents' fathers had post-university qualification, first degree or HND, OND, NCE & Monotechnic certificate, SSCE/JSCE and Primary six certificates, respectively With respect to level of proficiency in use of computer, the Table reveals that, of the students from the public schools, 14 (7.0%) were not experienced, 63 (31.5%) were novice, 22 (11.0%) were intermediate and only 1 (0.5%) considered themselves very proficient. On the other hand, for students from the private schools, the Table shows that 5 (2.5%) rated themselves experienced, 42 (21.0%) novice, 42 (21.0%) intermediate, and 11 (5.5%) rated themselves highly proficient in the use of computer. Additionally, majority (47, 23.5%) of the respondents from the public schools indicated that they first came in contact with the computer at school, 30 (19.0%) indicated home, while 17 (8.5%) media centers. However, majority (74, 37.0%) of the respondents from private school indicated that they first come in contact with computer at home, 24 (12.0%) indicated school, while 2 (1.0%) indicated media centers. On the frequency of use of computer as mediated means of communication, 49 (24.6%) of the respondents from the public schools used it daily, 29 (14.6%) used it weekly, while 22 (11.1%) used it monthly. However, for the studentsfrom the private schools, 44 (22.1%) of the respondents used it daily, 31 (15.6%) used it weekly, while 24 (12.1%) used it monthly. Finally, on social media platform used, 68 (41.7%) of respondents from the public schools used Facebook, 20 (12.3%), Whatsapp, 4 (2.5%) Instagram, and4 (2.5%) Snapchat. However in the private school category, 38 (23.3%) of the respondents used Facebook, 4 (2.5%) used Whatsapp, 7 (4.3%) Instagram, 4 (2.5%) Snapchat, 3 (1.8%) use YouTube, while 11 (16.7%) use all the social media platforms.

A critical appraisal of the Table above gives a clear insight into the background differences of the two groups of students, particularly with respect to access to information technology devices. In other words, from the Table, it is crystal clear that more students from the private schools, who were largely from parents with higher educational qualifications, have better and early access to information technology facilities relative to their public school counterparts.

Table 2
Attitude towards Computer-Mediated Communications

Variable	Public	Private	Total	Statistics	p-

				χ^2	value
Do you have a mobile phone?					
Yes	73(36.5%)	58(29.0%)	131 (65.5%)		
No	27(13.5%)	42(21.0%)	69(34.5%)	4.98	.026
Can your phone surf Internet?					
Yes	40(20.0%)	56(28.0%)	96 (48.0%)		
No	60(30.0%)	44(22.0%)	104(52.0%)	5.13	.024
Do you understand computer mediated communication easily?					
Yes	22(11.0%)	63(31.5%)	85 (42.5%)		
No	78(39.0%)	37(18.5%)	115 (57.5%)	34.39	.000
Do you enjoy using short words during communication on phone or computer?					
Yes	57(28.5%)	75(37.5%)	132 (66.0%)		
No	43(21.5%)	25(12.5%)	68 (34.0%)	7.22	.007
Are you comfortable reading messages in short form?					
Yes	88(44.0%)	78(39.0%)	166 (83.0%)		
No	12 (6.0%)	22(11.0%)	34 (17.0%)	3.54	.060
Can you express your thoughts satisfactorily via CMC when communicating with others?					
Yes	78(39.0%)	74(37.0%)	152 (76.0%)	0.44	.508
No	22(11.0%)	26(13.0%)	48 (24.0%)		
Do you think the use of CMC is relevant?					
Yes	77(38.5%)	70(35.0%)	147 (73.5%)		
No	23(11.5%)	30(15.0%)	53 (26.5%)	1.26	.262
Do you find the use of CMC is conversion stressful?					
Yes	50(25.0%)	31(15.5%)	81 (40.5%)		
No	50(25.0%)	69(34.5%)	119 (59.5%)	7.49	.006
Do you prefer CMC to face-to-face conversation?					
Yes	47(23.5%)	41(20.5%)59	88 (44.0%)		
No	53(26.5%)	(29.5%)	112 (56.0%)	0.73	.393
Is the use of shortened word language complex and complicated during communication?		38 (19.5%)	103 (53.1%)		
		62 (32.0%)	91(46.9%)		
	65(33.5%)			18.88	.000
Yes	29(14.5%)				
No					
Do you use computer mediated languages to avoid spelling errors?	62(31.6%)	47 (24.0%)	109 (55.6%)		

Yes		34(17.3%)	53 (27.0%)	87 (44.4%)	6.14	.013
No					
Do you like people using coded l languages and short messages when communicating with you?			65 (33.3%) 34 (17.4%)	131 (67.2%) 64 (32.8%)		
Yes	66(33.8%)				
No	30(15.4%)				0.21	.646

Table 2 shows that a significantly higher proportion, 73 (36.5%) of the public schools' respondents affirmed that they had mobile phones, as against 58 (29.0%) of the private schools' students who reported they had mobile phones. On the whole, 131 (65.5%) of the respondents from both schools affirmed that they had mobile phones, as against 69 (34.5%) who did not. Also, as revealed in the Table, there was significant association between school type and the use of Internet-enabled mobile phones ($p<0.05$). A significantly high proportion, 56 (28.0%) of the private schools' respondents affirmed that their phones could surf the Internet, as against 40 (20.0%) of the public schools' respondents; while 60 (30.0%) of the public schools' and 44 (22.0%) of the private schools' respondents reported their phones were not Internet-enabled. On the whole, 96 (48.0%) respondents from both schools affirmed that they used Internet-enabled phones, as against 104 (52.0%) who reported their phones were not Internet-enabled. Additionally, there was significant association between school type and proficiency in computer mediated communication ($p<0.05$). A significantly high proportion, 63 (31.5%) of the private schools' respondents affirmed that they could easily decode computer mediated communication expressions, as against 22 (11.0%) of the public schools' respondents ; while 78 (39.0%) of the public schools' and 37 (18.5%) of the private schools' respondents admitted they could not easily understand computer mediated communication expressions. On the whole, 85 (42.5%) respondents fromboth schools affirmed their high proficiency in computer mediated communication, as against 115 (57.5%) who reported their low proficiency in computer-mediated communication.

Further still, there was significant association between school type and 'enjoyment' in using abbreviated or compressed words during mediated communication ($p<0.05$). A significantly high proportion, 75 (37.5%) of the private schools' respondents affirmed that they enjoyed using abbreviated/compressed words in mediated communication, as against 57 (28.5%) of the public schools' respondents; while 43 (21.5%) of the public and 25 (12.5%) of the private schools' respondents reported to the contrary. On the whole, 132 (66.0%) of both schools affirmed that they enjoyed using abbreviated or short words during mediated communication, as against 68 (34.5%) who reported otherwise. Also, there was significant association between school type and comfortability in reading messages with abbreviated and shortened words (in line with the computer-mediated communication style) ($p<0.05$). A significant proportion, 78 (39.0%) of the private schools' respondents affirmed that they were comfortable reading message contents in shortened or compressed forms. Eighty-eight 88 (44.0%) respondents from thepublic schools also confirmed they were comfortable reading messages in compressed or shortened forms . Twelve (6.0%) of the public schools' respondents and 22 (11.0%) of the private schools' respondents admitted they were not comfortable reading messages with shortened/abbreviated words and/or expressions. On the whole, 166 (83.0%) of both groups of students affirmed that they were comfortable reading messages featuring shortened words/expressions, while 34 (17.0%) reported to the contrary.

On whether or not they found the CMC interaction stressful, the Table shows that a low proportion, 31 (15.5%) of the private schools' respondents affirmed that it was stressful, as against 50 (25.0%) respondents from the public schools. However 50 (25.0%) of the public and 69 (34.5%) of the private schools' respondents did not consider it stressful. On the whole, 81 (40.5%) of both schools affirmed that they found the use of the CMC stressful as against 119 (59.5%) that did not consider it stressful. Additionally, there was significant association between school type and perception of CMC as complex ($p<0.05$). A low proportion, 38 (19.6%) of the private schools' respondents affirmed that it was complex and complicated, as against 62 (31.0%) of the students from the public schools; while 29 (14.9%) of the respondents from the public schools and 62 (32.0%) of the private schools' respondents reported they did not find it complex or complicated. On the whole, 103 (53.1%) of the respondents from both schools affirmed that they did not find the CMC complex and complicated as against 91 (46.9%) that reported to the contrary. Similarly, there was significant association between school type and usage of computer mediated language to avoid spelling errors ($p<0.05$). Forty-seven (24.0%) of the private school respondents affirmed that they used it to avoid spelling errors, as against 62 (31.6%) of the public schools' respondents; while 34 (17.3%) of the respondents from the public schools and 53 (27.0%) of those from the private schools reported to the contrary. On the whole, 109 (55.6%) of the respondents from both schools affirmed that they used it to avoid spelling errors as against 87 (44.4%) that reported otherwise.

Table 3
Decoding of Abbreviated Texts by the Respondents[1]

Variable	Public	Private	Total	Statistics χ^2	p-value
AEAP					
As early as possible	54 (27.0%)	73(36.5%)	127 (63.5%)		
No response	46 (23.0%)	27(13.5%)	73 (36.5%)	7.79	.005
ALAP					
As late as possible	0 (0.0%)	77(38.5%)	77 (38.5%)		
No response	100 (50.0%)	23(11.5%)	123 (61.5%)	125.20	.000
ASAP					
As soon as possible	57 (28.5%)	92(46.0%)	149 (74.5%)		
No response	43 (21.5%)	8 (4.0%)	51 (25.5%)	32.24	.000
BFF					
Best friend forever	55 (27.5%)	98(49.0%)	153 (76.5%)		
Boyfriend	2 (1.0%)	1 (0.5%)	3 (1.5%)		
No response	43 (21.5%)	1 (0.5%)	44 (22.0%)	52.51	.000
BRB					
Be right back	55 (27.5%)	93(46.5%)	148 (74.0%)		
Babe	0 (0.0%)	1 (0.5%)	1 (0.5%)		
Bye-bye	2 (1.0%)	0 (0.0%)	2 (1.0%)		
No response	43 (21.5%)	6 (3.0%)	49 (24.5%)	40.70	.000
IAV A ? 4U					

[1]Respondents were given a list of CMC expressions to decode

	Public	Private	Total		
I have question for you	57 (28.5%)	92(46.0%)	149 (74.5%)		
I have a	0 (0.0%)	1 (0.5%)	1 (0.5%)		
I have a surprise for you	0 (0.0%)	1 (0.5%)	1 (0.5%)		
No response	43 (21.5%)	6 (3.0%)	49 (24.5%)	38.16	.000
WCW					
Woman Crush Wednesday	55 (27.5%)	83(41.5%)	138 (69.0%)		
Welcome	2 (1.0%)	0 (0.0%)	2 (1.0%)		
Word Communication Wide	2 (1.0%)	0 (0.0%)	2 (1.0%)		
No response	41 (20.5%)	17 (8.5%)	58 (29.0%)	19.61	.000
CR8					
Create	55 (27.5%)	78(39.0%)	134 (67.0%)		
Christ	0 (0.0%)	1 (0.5%)	1 (0.5%)		
Carrot	0 (0.0%)	1 (0.5%)	1 (0.5%)		
Christian Religious Studies	0 (0.0%)	1 (0.5%)	1 (0.5%)		
No response	44 (22.0%)	19 (9.5%)	63(31.5%)	17.24	.004
BDAY					
Birthday	59 (29.5%)	91(46.0%)	150 (75.0%)		
Bad Day	0 (0.0%)	1 (0.5%)	1 (0.5%)		
No response	41 (20.5%)	8 (4.0%)	49 (24.5%)	30.05	.000
CMON					
Common	2 (1.0%)	79(39.5%)	81 (40.5%)		
Came on	55 (27.5%)	8 (4.0%)	63 (31.5%)		
No response	43 (21.5%)	13 (6.5%)	56 (28.0%)	124.33	.000

Variable	Public	Private	Total	Statistics χ^2	p-value
F2F					
Face-to-Face	61 (30.5%)	82(41.0%)	143		
For Two Forever	0 (0.0%)	1 (0.5%)	(71.5%)		
No response	39 (19.5%)	17 (8.5%)	1 (0.5%)	12.73	.002
			56 (28.0%)		
GRL					
Girl	59 (29.5%)	75(37.5%)	134		
No response	41 (20.5%)	25(12.5%)	(67.0%)	5.79	.016
			66 (33.0%)		
LOL					
Laugh Out Loud	0 (0.0%)	42(21.0%)	42 (21.0%)		
Lots of Laugh	55 (27.5%)	52(26.0%)	107		
Labour Organization	4 (2.0%)	0 (0.0%)	(53.5%)	81.98	.000
Local	4 (2.0%)	0 (0.0%)	4 (2.0%)		
Love of Live	0 (0.0%)	3 (1.5%)	4 (2.0%)		
No response	37 (18.5%)	3 (1.5%)	3 (1.5%)		
			40 (20.5%)		
PIC					
Picture	59 (29.5%)	93(46.5%)	152		
Photo	0 (0.0%)	1 (0.5%)	(76.0%)		

Petroleum International	2 (1.0%)	0 (0.0%)	1 (0.5%)	44.46	.000
Conference	0 (0.0%)	2 (1.5%)	2 (1.0%)		
Production Hired Company	39 (19.5%)	3 (1.5%)	3 (1.5%)		
No response			42 (21.0%)		
LLNP					
Long Life and Prosperity	59 (29.5%)	91(45.5%)	150		
No response	41 (20.5%)	9 (4.5%)	(75.0%)	27.31	.000
			50 (25.0%)		

Table 3 shows association between school type and ability to decode abbreviated texts by respondents. There was significant association between school type and the ability to decode the abbreviated text (AEAP) by respondents (p<0.05). A significantly higher proportion, 73 (36.5%) of the private schools' respondents got it correctly as against 54 (27.0%) respondents from the public schools, while 46 (23.0%) of public schools' respondents and 27 (13.5%) of the private schools' respondents did not respond. Also, there was significant association between school type and the ability to decode the abbreviated text (ALAP) by respondents (p<0.05). A significantly higher proportion, 77 (38.5%) of the private schools' respondents got it correctly as against none (0.0%) from the public schools, while 100 (50.0%) of the public schools' and 23 (11.5%) of private schools' respondents did not respond. On the whole, 77 (38.5%) of respondents from both schools got the abbreviated text correctly, while 123 (61.5%) did not respond. Further, there was significant association between school type and the appropriate decoding of (ASAP) by respondents (p<0.05).

A significantly higher proportion, 92 (46.0%) of the private schools' respondents got it correctly as against 57 (28.5%) respondents from the public schools, while 43 (21.5%) and 8 (4.0%) from both categories of schools, respectively did not respond. On the whole, 149 (74.5%) of respondents from both schools got the abbreviated text correctly, while the remaining 51 (25.5%) did not respond.

Additionally, there was significant association between school type and the ability to decode the abbreviated text (BFF) by respondents (p<0.05). A significantly higher proportion, 98 (49.0%) of the private schools' respondents got it correctly as against 55 (27.5%) of the public schools' respondents, while 43 (21.5%) of the public schools' students and 1 (0.5%) of the private schools' respondents did not respond. On the whole, 153 (76.5%) of respondents from both schools got the abbreviated text correctly, while 44 (22.0%) did not respond. The Table also shows there wassignificant association between school type and the decoding of (BRB) by respondents (p<0.05). A significantly higher proportion, 93 (46.5%) of the private schools' respondents got it correctly as against 55 (27.5%) from the public schools, while 43 (21.5%) respondents from the public schools and 49 (24.5%) from the private schools did not respond. On the whole, 148 (74.0%) of both schools got the abbreviated text correctly as against 52 (26.0%) who did not.

Also, there was significant association between school type and abbreviated text (I AV A? 4U) (p<0.05). A significantly higher proportion, 92 (46.0%) of the private schools' respondents got it correctly, as against 57 (28.5%) of the public schools' respondents; while 43 (21.5%) of the public schools' and 6 (3.0%) of the private schools' respondents did not respond. On the whole, 149 (74.5%) of respondents from both schools got the abbreviated text correctly, while 51 (25.5%) did not. Further, there was significant association between school type and abbreviated text (WCW) (p<0.05). A significantly higher proportion, 83 (41.5%) of the private schools' respondents answered it correctly, as against 55 (27.5%) from the public schools; while 41

(20.5%) students from the public schools and 17 (8.5%) from the private schools did not respond. On the whole, 138 (69.0%) respondents from the two groups of schools got the abbreviated text correctly, while 62 (31.0%) did not.

Additionally, there was significant association between school type and abbreviated text (CR8) (p<0.05). A significantly higher proportion, 78 (39.0%) of the private schools' respondents got it correctly as against 55 (27.5%) of the public schools' students; while 44 (22.0%) respondents from the public schools and 19 (9.5%) from the private schools did not respond. On the whole, 134 (67.0%) students from both groups got the abbreviated text correctly, while 66 (33.0%) did not. Similarly, there was significant association between school type and abbreviated text (BDAY) (p<0.05). A significantly higher proportion, 91 (46.0%) of the private schools' respondents answered it correctly, as against 59 (29.5%) from the public schools; while 41 (20.5%) of the public and 8 (4.0%) of the private schools' respondents did not respond. On the whole, 150 (75.0%) respondents from both schools got the abbreviated text correctly as against 50 (25.0%) who did not.

The table equally shows significant association between school type and abbreviated text (CMON) (p<0.05). A significantly higher proportion, 79 (39.5%) of the private schools' respondents responded correctly as against 2 (1.0%) from the public schools. However, 98 (49.0%) respondents from the public schools and 22 (10.5%) from the private schools did not respond correctly. On the whole, 81 (40.5%) respondents from both schools got the abbreviated text correctly, while 119 (59.5%) did not. In the same vein, there was significant association between school type and abbreviated text (F2F) (p<0.05). A significantly higher proportion, 82 (41.0%) of the private schools' respondents got it correctly, as against 61 (30.5%) of the public schools' respondents; while 39 (19.5%) and 18 (9.0%) respondents from the public and the private schools, respectively did not. On the whole, 143 (71.5%) respondents from both schools got the abbreviated text correctly, while 57 (28.5%) did not.

Similarly, there was significant association between school type and abbreviated text (GRL) (p<0.05). A significantly higher proportion, 75 (37.5%) of the private schools' respondents responded   correctly as against 59 (29.5%) from the public schools; while 41 (20.5%) of the public and 25 (12.5%) of the private schools' respondents did not respond. On the whole, 134 (67.0%) respondents from both schools re-wrote the abbreviated text correctly, as against 66 (33.0%) who could not. Further, there was significant association between school type and abbreviated text (LOL) (p<0.05). Forty-two (21.0%) of the respondents from the private schools got it correctly, while none (0.0%) from the public schools did. In addition to the general interpretation of the text as 'laughing out loud' as conventionally known, 52 (26.0%) of the respondents from the private schools interpreted the text as 'lots of laugh'. This further lends credence to argument of Bernstein on the creativity and resourcefulness ability of upper class children who have access to both the restricted and the elaborated codes. Interestingly too, there was significant association between school type and abbreviated text (PIC) (p<0.05). A significantly higher proportion, 93 (46.5%) of the private schools' respondents got it correctly, as against 59 (29.5%) from the public schools; while 41 (20.5%) respondents from the public and 6 (3.5%) from the private schools did not. On the whole, 152 (76.0%) of students from both schools got the abbreviated text correctly, while 48 (24.0%) did not.

Finally on Table 3, there was significant association between school type and abbreviated text (LLNP) (p<0.05). A significantly higher proportion, 91 (45.5%) of the private schools' respondents got it correctly as against 59 (29.5%) from the public schools; while 41 (20.5%) of respondents from the public and 9 (4.5%) from the private schools did not. On the whole, 150 (75.0%) of both schools got the abbreviated text correctly, while 50 (25.0%) did not.

Table 4
Re-writing CMC expressions in Proper English Sentences

Variable	Public	Private	Total	Statistics χ^2	p-value
I am ur m8 I am your mate No response	100 (50.0%) 0 (0.0%)	98(49.0%) 2 (1.0%)	198 (99.0%) 2 (1.0%)	2.02	.155
I know dat dia is a gud skull dia I know that there is a good school there No response	100 (50.0%) 0 (0.0%)	95(47.5%) 5 (2.5%)	195 (97.5%) 5 (2.5%)	5.13	.024
My sister is ok, she is on a d8 2day My sister is okay, she is on a date today No response	98 (49.0%) 2 (1.0%)	98(49.0%) 2 (1.0%)	196 (98.0%) 4 (2.0%)	0.00	1.00
I c dats gr8, its getting l8, we should go b4 it gets dark, I hope I will c u l8r I see that's great, its getting late, we should go before it gets dark, I hope I will see you latter No response	78 (39.0%) 22 (11.0%)	86(43.0%) 14 (7.0%)	164 (82.0%) 36 (18.0%)	2.17	.141
Ok I will cul u Ok, I will call you No response	100 (50.0%) 0 (0.0%)	94(47.0%) 6 (3.0%)	194 (97.0%) 6 (3.0%)	6.19	.013
I h8 2 c u go I hate to see you go No response	90 (45.0%) 10 (5.0%)	91(45.5%) 9 (4.5%)	181 (90.5%) 19 (9.5%)	0.06	.809
This year is your year INJN This year is your year in Jesus Name No response	76 (38.0%) 24 (12.0%)	91(45.5%) 9 (4.5%)	167 (83.5%) 33 (16.5%)	8.17	.004
Smh 4 u Shaking my head for you Shame for you Somehow for you Something for you No response	55 (27.5%) 11 (5.5%) 0 (0.0%) 2 (1.0%) 32 (16.0%)	25(12.5%) 8 (4.0%) 2 (1.0%) 55(27.5%) 10 (5.0%)	80 (40.0%) 19 (9.5%) 2 (1.0%) 57 (28.5%) 42 (21.0%)	74.53	.000
I av a lot of tins 2 do 2mrw I have a lot of things to do tomorrow No response	96 (48.0%) 4 (2.0%)	92(46.0%) 8 (4.0%)	188 (94.0%) 12 (6.0%)	1.42	.234

I av lol 4 u dear					
I have a lot of love for you dear	80 (40.0%)	92(46.0%)	172		
No response	20 (10.0%)	8 (4.0%)	(86.0%)	5.98	.014
			28 (14.0%)		

Table 4 shows association between type of school and ability to construct proper English sentences from CMC expressions. All the 100 (50.0%) respondents from the public schools re-wrote the CMC expression (*I am ur m8*) correctly; 98 (49.0%) from the private schools did same, while only 2 (1.0%) did not respond. On the whole, 198 (99.0%) of the respondents got it correctly, while only 2 (1.0%) did not. Also, all the 100 (50.0%) respondents from the public schools re-wrote (*I know dat dia is a gud skull dia*) correctly; 95 (47.5%) from the private schools also did, while 5 (2.5%) did not respond. On the whole, 195 (97.5%) of the respondents got it correctly, while 5 (2.5%) did not respond. Further, 98 (49.0%) respondents each from both categories of schools got the re-writing of the CMC expression (*My sister is ol, she is on a d8 2day*) correctly, while 2 (1.0%) each from each of the categories did not respond. On the whole, 196 (98.0%) of the respondents got it correctly, while 4 (2.0%) did not respond. Additionally, 78 (39.0%) respondents from the public schools got the re-writing of (*I c dats gr8, it's getting l8, we should go b4 it gets dark, I hope I will c u l8r*) correctly, 86 (43.0%) from the private schools did the same, while 22 (11.0%) and 14 (7.0%) of respondents from the schools, respectively did not respond. On the whole, 164 (82.0%) of the respondents got it correctly, while 36 (18.0%) did not.

All the 100 (50.0%) respondents from the public schools and 94 (47.0%) of the private schools' respondents got the re-writing of (*Ok I will cul u*) correctly, while 6 (3.0%) did not respond. On the whole, 194 (97.0%) of the respondents re-wrote it correctly, while only 6 (2.3%) did not. Further, 90 (45.0%) of the respondents from the public schools re-wrote (*I h8 2 c u go*) correctly, and 91 (45.5%) from the private schools did the same; while 10 (5.0%) and 9 (4.5%) respondents from both categories of schools, respectively did not respond. On the whole, 181 (90.5%) of the respondents from both categories of schools got it correctly, while 19 (9.5%) did not. Additionally, 76 (38.0%) of the respondents from the public schools re-wrote (*This year is your year INJN*) correctly; 91 (45.5%) from the private schools got it right, while 24 (12.0%) from the public and 9 (4.5%) from the private schools did not respond. On the whole, 167 (83.5%) of the respondents got it correctly, while the remaining 33 (16.5%) did not. In like manner, 55 (27.5%) of the respondents from the public schools understood and re-wrote (*SMH 4 u*) correctly, 25 (12.5%) from the private schools did; while 45 (22.5%) of the public and 75 (37.5%) of the private schools' respondents did not. On the whole, 80 (40.0%) of the respondents got it correctly, while 120 (60.0%) did not get it. Again, 96 (48.0%) of the respondents from the public schools re-wrote (*I av a lot of tins 2 do 2mrw*) correctly; 92 (46.0%) from the private schools equally did, while 4 (2.0%) from the public schools and 8 (4.0%) from the private schools did not. On the whole, 188 (94.0%) of the respondents got it correctly, while 12 (6.0%) did not. And finally, 80 (40.0%) of the respondents from the public schools understood properly and re-wrote (*I av lol 4 u dear*) correctly, 92 (46.0%) from the private schools got it correctly, while 20 (10.0%) of the public and 8 (4.0%) of private schools did not. On the whole, 172 (86.0%) of the respondents got it correctly, while 28 (14.0%) did not get it correctly.

Concluding Remarks

The aim of this study was to further engage Bernstein's code theory, which has been generally conceptualized as deficit hypothesis, albeit beyond the conventional use of language. In

particular, this study focused on computer mediated communication within the purview of Bernstein's code theory. Drawing population from four randomly selected secondary schools in Ibadan: two public and two private, the study revealed that although there was no significant difference between the attitude of public and private schools' students towards the computer mediated communication, students from the private schools had a better mastery of the CMC; a development predicated on the fact that they were more exposed to Internet facilities than the students from the public schools. As revealed in the findings, private school students were more expressive, creative and resourceful in the use of the CMC relative to their counterparts from public schools. This finding agrees with Bernstein's deficit hypothesis which suggests a correlation between social class and the use of either elaborated or restricted code. Bernstein argues that in the working class, it is likely to find the use of the restricted code, whereas in the middle class one finds the use of both the restricted and elaborated codes. His research suggests that the working class individuals have access only to restricted codes, the ones they learned in the socialization process, where "both the values and role systems reinforce restricted codes" (Littlejohn, 2002). However, the middle class, being more geographically, socially and culturally mobile has access to both the restricted codes and elaborated codes. (Atherton, 2002). This study has further reinforced the observations of studies such as Kassal (2000), Ajayi (2013), and Ashurst and Venn (2014), for instance, that class difference in the Nigerian context is a factor that determines children's/students' performance, particularly in (English) language-related school subjects. It would be interesting to see, in line with the enquiry of Ajayi (2013), how future studies investigate students' mastery of computer mediated communication at the post-secondary level of education.

References

Adelabu, S. T. (2006). *The impact of the English language on the performance secondary school students: A case study of some selected secondary schools in Ibadan*. An M.A. Dissertation, University of Ibadan.

Ajayi, T.M. (2013): Language, education and social slass in Nigeria: The bridge hypothesis. *Ife Journal of the Humanities and Social Studies*, *1*, 1-14

Ashurst, F. & Venn, C. (2014) *Inequality, poverty, education: A political economy of school exclusion*. Basingstoke: Palgrave Macmillan.

Bernstein, B. (1973). *Class, codes and control volume 1: Theoretical studies towards a sociology of language*. St Albans: Paladin.

Bex, T. & Watts, R. J. (1999). *Standard English: The widening debate*. United Kingdom: Routledge

Chakrani, B. & Huang, J.L. (2014). The work of ideology: Examining class, language use, and attitudes among Moroccan university students. *International Journal of Bilingual Education and Bilingualism*, *17*(1), 1--14.

Collins, J. (2009). Social reproduction in classrooms and schools. *Annual Review of Anthropology,* 38,33--48.

December, J. (1996). *What is computer-mediated communication*? Retrieved From www.december.com/john/study/cmc/what.html.

Faramarzi, S., Tabrizi, H. H., & Chalak, A. (2019). Telegram: An instant messaging application to assist distance language learning. *Teaching English with Technology*, *19*(1), 132-147

Faulkner, X, & Culwin, F. (2004). When fingers do the talking: a study of text messaging, *Interacting with Computers*, *17* (2), 167–185

Geertsema, S., Hyman, C. & van Deventer, C. (2011). Short message service (SMS) language and written language skills: educators' perspectives. *South African Journal of Education, 31*, 475-487

Goldstuck, A. (2006). *The Hitchhiker's guide to going mobile: The South African handbook of cellular and wireless communication*. Cape Town: Double Storey Books.

Hymes, Dell (1996). *Ethnography, linguistics, narrative inequality: Towards an understanding of voice (Critical perspectives on literary education)* (Pp. xiv, 258). London (UK) & Bristol (PA): Taylor and Francis.

Ivinson, G. (2018). Re-imagining Bernstein's restricted codes. *European Educational Research Journal*, *17*(4) 539–554

Jones, Peter E. (2013): Bernstein's 'codes' and the linguistics of 'deficit'. *Language and Education*, *27*(2), 161-179

Kassal, B. (2000). *An application of the Bernstein's hypothesis to the study of Yoruba-English bilingual acquisition and learning in selected secondary schools in Ogun state*. A PhD. Thesis. Department of Linguistics and African Languages . University of Ibadan

Khoshsima, H., Saed, A., & Arbabi, M. A. (2018). Online teachers' attitudes toward using technology in teaching English as a foreign language. *Journal of Applied Linguistics and Language Research*, *5* (2),134-148

Kumar, A. K., Natarajan, S. & Acharaya, B. (1997). Computer mediated communication: A pathway to analyze social media communication trajectories. *Man In India*, *97* (4), 195-205

Labov, W. (1966). *The social stratification of English in New York City*. Washington D.C: Centre for Applied Linguistics

Lia, M. L. (2010). Social class and language attitudes in Hong Kong. *International Multilingual Research Journal, 4*(2), 83--106.

Littlejohn, S. (2002). *Theories of human communication*. Albuquerque: Wadsworth

Macaulay, R. K. S. (1977). Language, social class, and education- a Glasgow study. Edinburgh: Edinburgh University Press.

Mason, M. (1986). The deficit hypothesis revisited. *Educational Studies*, 12(3), 279-289

Metz, J. M. (1994). Computer-mediated communication: Literature review of a new context. *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century*, *2*(2), 31-49.

Mugglestone, L. (2003) *Talking proper: The rise of accent as a social symbol* (Second Edition). United Kingdon: Oxford University Press

Muvindi, I. & Zuvalinyenga, D. (2013). Educational implications of the deficit/deprivation hypothesis in L2 situations: A case of Zimbabwe. *International Journal of English and Literature*, *4*(6), 283–287

National Bureau of Statistics (2016). *2015 statistical report on women and men in Nigeria*. www.nigerianstat.gov.ng/download/491 (Accessed 13. 07. 2021)

Odey, V. E., Essoh, Ndobo, E. G. & Endong, F. P. C. (2014). Effects of SMS texting on the writing skills of university students in Nigeria: Case of the College of Education Akamkpa. *International Journal of Linguistics and Communication, 2*(3), 83-96

Okegigba, S. O. (2018). *Socio-psychological variables of L1 and L2 proficiency among Yoruba-English sequential bilingual junior secondary school 3 children in Ibadan and Ibarapa, Oyo State, Nigeria*. A PhD. Thesis, University of Ibadan.

Oso, I. O. (2014). *Changes in English writing in computer mediated communication: A case study of Nigerian teenagers*. MA Dissertation, University of Ibadan

Singh, P., Pini, B., & Glasswell, K. (2020). Exploration in policy enactment: feminist thought experiments with Basil Bernstein's code theory. In P. Singh, (ed.) *Basil Bernstein, code theory, and education: Women's contributions* (Pp. 40-57) New York: Taylor and Francis Group.

Snell, J. (2014). Social class and change. *Handbook of pragmatics online*, vol 18: 1-24

Taiwo, R. O. (2008). Linguistic forms and functions of SMS text messages in Nigeria. In K. Sigrid, & Amant, K. S. (Eds) *Handbook of research on computer mediated communication* (Pp. 696-982). New York: Information Science Reference.

Thurlow, C. (2003). Generation txt? The sociolinguistics of young people's text-messaging. *Discourse Analysis Online*, *1*(1). http: //extra.shu.ac.Uk/daol/articles/v1/n1/a3/thurlow 2002003-paper.html.

Trudgill, P. (1974). *The social differentiation of English in Norwich*. Cambridge: Cambridge University Press.