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The Nexus of Infrastructure, Language and Class: A case study of selected China-Pakistan Economic Corridor (CPEC) energy sites in the Punjab

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Preface

This research paper by Dr Fareeha Zafar, professor, Graduate Institute of Development Studies, Lahore School of economics, is based on the findings of a research project investigating the need for language planning and policy in the context of CPEC. The Faculty of Social Sciences and the Graduate Institute of Development Studies, Lahore School of Economics, initiated the project in 2018 in consultation with the School of Oriental and African Studies (SOAS), UK.

The paper explores the linkages between infrastructure, language and class. The study is based on a research conducted in two districts of Punjab: Bahawalpur and Sahiwal. Research sites constituted three power plants (one in Sahiwal and two in Bahawalpur), two TEVTA institutes and one private institute each in the two districts offering Mandarin learning.

The paper examines the role of language in determining the socio-economic inclusivity of the infrastructural projects of CPEC and explores how the use and grasp over languages - English, Manadarin, and Urdu – will determine the state of class hierarchies in Pakistan.

The paper makes an important contribution to the growing literature on development and language. The class-based approach to this study raises some very important questions regarding the role of language and nature of infrastructural development in determining the deliverance of promises of inclusivity and equal opportunity.

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The Nexus of Infrastructure, Language and Class: A case study of selected China-Pakistan Economic Corridor (CPEC) energy sites in the Punjab[1]

1. Introduction

An agreement to create the China-Pakistan Economic Corridor (CPEC) was formally signed in 2015 between the two governments of China and Pakistan. There are two main parts to the agreement: One is the development of energy, infrastructure, economic zones and development of Gwadar Port leading to the creation of 700,000 jobs; and two, social development through cultural exchanges and transfer of knowledge through academic training. A key component of CPEC is the development of infrastructure summed up as physical networks (roads, railways, energy plants, etc.) to create local and regional connectivity. Infrastructure is thus considered essential for the development of other initiatives such as the Special Economic Zones (SEZs), promotion of agriculture and tourism. CPEC also views education including the acquisition of Mandarin and culture as central to promoting better understanding and improved human capital. Above all CPEC is seen as critical for job creation providing increased employment opportunities especially for the lower income groups.

When studying from a socio-cultural perspective, infrastructure takes the shape of a disciplinary or regulatory force. Amin (2014) argues that infrastructures play a crucial role "not only in the making and unmaking of individual lives, but also in the experience of community, solidarity and struggle for recognition." The author thus, defines infrastructure "as a gathering force and political intermediary of considerable significance in shaping the rights of the poor to the city and their capacity to claim the rights." It can be inferred from this view that infrastructure has the capacity of playing both, positive or negative, role in the socio-cultural and political capacity building of a nation.

[1] This paper is derived from research on the CPEC Language Policy and Planning Project as stated in the preface. I was assisted by Aqeel Awan and Fariya Hashmat.

A critical factor in determining access of different socio-cultural groups to infrastructure and its benefits is proficiency in a particular language or languages. It is thus important to study how CPEC infrastructure developments could impact the class structure of Pakistan through the formal and informal language practices. The dominant-class might speak a language that is different from the rest. Those who are not able to speak that language would then have very limited access and hence, very limited class mobility. Hence, all the new infrastructure developments could potentially benefit only a certain class of people – people who speak a particular language, while the other classes of people could end up becoming the inferior class in the social hierarchy. In such a scenario, an elite-centred formal or informal language policy serves as an institutional constraint for the vast majority of people.

The power of language is based on the significance and strength of attitudes a particular group possesses, which are basically formed when an individual interacts with social organizations comprising family, religious institutions, educational institutions, and political and economic institutions (Horton & Hunt, 2004). These attitudes, in turn, reflect people's perceptions towards different languages and language communities, thereby, motivating them to learn a Second Language (L2) either for integrative or instrumental purposes (Mansoor, 2017).

Whether a society is unilingual or multilingual, language tends to have a strong connection with power. Pakistan being a multilingual society consists of various ethnic groups in different regions, which manifest their power via the lens of regional languages, thereby, strengthening their group identity (Rahman, 2002). According to Ethnologue, a web-based publication that carries out research on over 7,000 languages of the world, there are 74 individual languages spoken in Pakistan; therefore, inter and intra language disputes are bound to occur because one of the factors through which ethnic groups strive to gain hegemony over others is language.

In the case of Pakistan language controverises date back to the era before partition. These controversies initiated with the advent of British in the Indian-Subcontinent because their fundamental aim was to modernize the state by establishing English as the language of employment. However, language disputes have proven to be path dependent because with the passage of time, English has emerged as a powerful language that is

considered necessary for good employment as Mansoor (2005) postulates that it is considered as a symbol of power, success and prestige which subesequently shape, promote and perpetuate inequalities, thereby, reinforcing class structures.

CPEC is viewed as a significant project for the economic development of Pakistan. China is not only the global economic leader but is also economically strong and experienced as compared to Pakistan; therefore, CPEC is considered as a golden opportunity for Pakistan to learn and gain experience through technology and knowledge transfer. This project is seen as providing enormous job opportunities in various sectors, thereby overcoming one of the biggest stumbling blocks in Pakistan i.e. unemployment. It is expected to create 70,000 jobs all across Pakistan, thereby, triggering growth and development all across the length and breadth of Pakistan. Hence, stakeholders who are willing to play a vital role in the economic system of Pakistan and are interested in job opportunities associated with CPEC, learning Mandarin is considered as mandatory for them.

This paper is based on research conducted in the Pakistan Punjab province. The objectives of the research study are:

1. To examine the extent to which language will play a role in limiting the inclusion of different socio-economic classes in the promises of prosperities made by CPEC.
2. To study how English, Urdu, Mandarin and local languages would compete in defining the social class hierarchy in Pakistan.
3. To examine if the introduction of Mandarin would add a new class in the hierarchy or replace or reproduce an existing one in a different shape and form.
4. To identify key policy implications that could ensure a positive impact of CPEC on class dynamics in Pakistan.

The research paper takes a critical view of the China Pakistan Economic Corridor's infrastructure development. It examines the developments in the context of what impact they might hold on the country's socio-cultural dynamics. Within the socio-cultural dynamics, the study focuses specifically on education, language and class issues. Using CPEC infrastructure

developments as the subject of the study, it examines how these developments are influencing the language situation and how that in turn impacts the evolving class structure of Pakistan. It aims to bring forward important policy implications for an official language policy of CPEC.

2. Literature Review

There are multiple views on infrastructure. Larkin (2013) defines infrastructure as "physical networks through which goods, ideas, waste, power, people, and finances are trafficked." Another important point about infrastructure found in literature is that it is generally an intermediary object that has relational value. Star (1999) gives multiple examples to assert the intermediary and relational importance of infrastructure. However, a physical network ceases to be an infrastructure, according to Star (1999), as soon as it loses its intermediary facilitative use-value. For a person in wheelchair, stairs would not be infrastructure, but barriers. So, the same system that serves as infrastructure for one person can become another person's "difficulty" (Star, 1999, p. 380). Thus, infrastructure can be summed up as physical networks (roads, railways, energy plants, etc.) that have an intermediary and relational value, which could be facilitative for some individuals or groups and obstructive for others in achieving an objective.

In the positive socio-cultural impact of infrastructure development, increased social networking, which then leads to more inclusiveness, is seen as a desirable outcome. Frei et al. (2009) examined the dynamic effects of improved communication technology and travel opportunities on social inequalities, particularly in relation to people's social networks. Their study identified that car ownership (and the associated mobility that this offers) had a positive effect on both the size and strength of the respondents' social networks. Being less anchored to a physical location and also more professionally flexible also had a positive effect on the size of a person's social network.

However, on the negative side, Church et al. (2000: 198–200) identify a number of specific features of infrastructure development particularly, the transport system, which contribute to the social exclusion of certain

population groups.[2] These include features of physical, geographical, time based, economic, fear-based and spatial exclusion as well as exclusion from facilities. Grieco (2006) has proposed that these individual factors can be grouped into three core components for the purposes of analysis, namely: 1) place-based measures, including opportunities and services within the immediate area in which a person lives; 2) social-category based measures, such as social stratification within a community to identify social need; and 3) person-based measures, such as the individual public transport user's profile of journey needs. Focusing specifically on the social-category based exclusion it leads to an inference about the capacity of infrastructure to create a class structure in which only a limited social circle could enjoy the fruits of the economic and space benefits of the developments.

The use of language is a social phenomenon and is considered a social activity that is used as a means of communicating ideas to others, thereby, enabling people to engage in social activities. Thus, language and society are intertwined and cannot be detached from one another. One view is that infrastructure is used by the elite to uphold the existing class inequalities. Anwar (2015) argues that the class structure of the country is such that infrastructure becomes "a locus of patron-client relationship; of distributing out benefits to the loyal supporters" (cited in Hameed, 2017, p. 66). Furthermore, Alavi (1972) argues that among other things language plays a key role in the politics of post-colonial societies because it helps the ruling oligarchy (in case of Pakistan, he argues it is the Military-Bureaucratic oligarchy) as well as its opponents to justify their respective interests. Khalique (2006) argues that such language based class structure has had serious implications for people's development. He notes that "the absence of a clear cut language policy in Pakistan and the adherence to English as the official language, the language required for a decent job and livelihood,

[2] *Physical exclusion*: whereby physical barriers, such as vehicle design, lack of disabled facilities or lack of timetable information, inhibit the accessibility of transport services; *Geographical exclusion*: where a person lives can prevent them from accessing transport services, such as in rural areas or on peripheral urban estates; *Exclusion from facilities*: the distance of key facilities such as shops, schools, health care or leisure services from where a person lives prevents their access; *Economic exclusion*: the high monetary costs of travel can prevent or limit access to facilities or employment and thus impact on incomes; *Time-based exclusion*: other demands on time, such as combined work, household and child-care duties, reduces the time available for travel (often referred to as time-poverty in the literature); *Fear-based exclusion*: where fears for personal safety preclude the use of public spaces and/or transport services; *Space exclusion*: where security or space management prevent certain groups access to public spaces, e.g. gated communities or first class waiting rooms at stations.

for a better education, social prestige and for academic discourse, has marginalized the majority of Pakistanis"

Thus, all new infrastructure developments could potentially benefit only a certain class of people, for example, people who speak a particular language, while the other classes of people could end up becoming the inferior class in the social hierarchy. Language can be considered as one of the fundamental building blocks of class structure. The elite-class might speak a different language and others who are not able to speak that language would then have very limited access and hence, very limited class mobility. In such a scenario, an elite-centered formal or informal language policy serves as institutional constraints for vast majority of people. James Tollefson (1991) argues that institutional constraints created by dominant groups prevent linguistic minorities from accessing social and political institutions. In this way, inequalities between different languages driven classes are maintained.

No language, per se, is inferior or superior in nature as Siddiqui (2012) argues that it is the social status that defines the power of language. The concept of power can be looked at in different contexts. So far, the literature on language shows that there is a strong relationship between language and power; nevertheless, power can further be divided into a combination of access to infrastructure (or resources) and social class. This perspective is supported by the theory of language-based ethnicity posited by Deutsch K. W. (1953). He argues that langauge is a phenomenon that is used to pursue political power and therefore the hunger for this very power has underpinned language controvrises.

Although, language learning theory basically posits that language learners possessing higher levels of motivation will likely to be higher achievers; yet, the fundamental task is to look for the factors that actually motivate learners to learn a second language (L2) in various cultural settings (Chen, Warden, & Chang, 2005). Language learning theories have emphasized the significance of integrative motivation in the acquisition of L2, which Gardner & Lambert (1972) and later Shabaan & Ghaith (2000) explained by stating that integrative motivation is effective because acquisition of language skills are considered imperative for the purpose of participating in various social group settings that use a specific language. However, Noels et al (2000) do admit the significance associated with integrative motivation in acquistion of L2, but they further elucidate that this may be the case only

in specific sociocultural contexts. Therefore, integrative motivation is often differentiated from externally influenced instrumental motivation, which Gardner & MacIntyre (1991) define as to study a language for practical reasons in order to gain extrinsic rewards, such as money, good job, etc. Yet again, these orienntations (integrative and instrumental) are dependent on the socio-cultural setting of social groups. For example, Triandis (1995) states that individualistic cultures focus on achieving goals associated with self-realization and self-actualization, whereas collectivist cultures are more inclined towards focusing on achieving objectives that have some collective benefits for the society. Therefore, in the former case, learners are likely to have instrumental motivation whereas in the latter scenario integrative motivation will be more approproate.

Hence, the collation of attitudes and motivation orientations (integrative and instrumental) can be regarded as the demand side factors, which influence a person's decision to learn a language. On the contrary, supply side factors comprise accessibility, availability, affordability, and relevance and efficiency pertinent to acquisition of language. Together these factors serve as the building block for devising formal and informal language policies at provincial and national level.

If access to infrastructure and social class mobility is equal for different language speakers, the emerging language policy would be called an inclusive or democratic policy. However, if the access to infrastructure and person's social class mobility is restricted and dependent on specific languages and their proficiencies given that supply and demand for that language is not equally distributed across the board, the emerging language policy would be elitist or extractive.

3. Theoretical framework

Literature on language shows that there is a strong relationship between language and power. Power can be further divided into a combination of access to resources or infrastructure and social class status. Infrastructure plays an intermediary role between language and class divide in a way that the nature, type and value of infrastructure defines the expected language practices for individuals to gain access to the infrastructure and that level of access then becomes a gateway to class mobility. Because of the critical socio-cultural positioning of infrastructure, it becomes a study

of the role that infrastructure plays in the relationship between language and class.

However, to transform this theoretical relationship into a methodologically conceptualized and empirically testable relationship, the study notes from the review of literature that language practices are primarily determined by society, educational institutions and workplace policies or practices. Therefore, the motivations, attitudes and perceived demand and supply of these three institutions combine to influence an individual's language (formal and informal) practices which then determines the person's accessibility to power (infrastructure and social-class). The representatives of these institutions thus become the respondents for our study.

To further delineate this conceptualization and turn it into an operationalized model, the factors that influence society, educational institutes and workplaces are divided into demand and supply side factors. Literature on demand side factors shows that individuals' attitudes are grounded in their motivations and orientations (integrative or instrumental) towards the language, its people and the infrastructure the people are bringing with them. Self-confidence in learning and practicing the language is a psychological factor that studies show plays a critical role in a person's formal and informal language practices and preferences. On the supply side, studies show that availability (of the language learning opportunities), their accessibility (in terms of the distance as well as the teaching language), affordability (in terms of prices), as well as relevance and efficiency of the supply (in terms of how effectively the language teaching program serves the integrative and instrumental purposes of language learning) are the four key factors that play a critical role in determining the formal and informal language practices of different individuals and groups.

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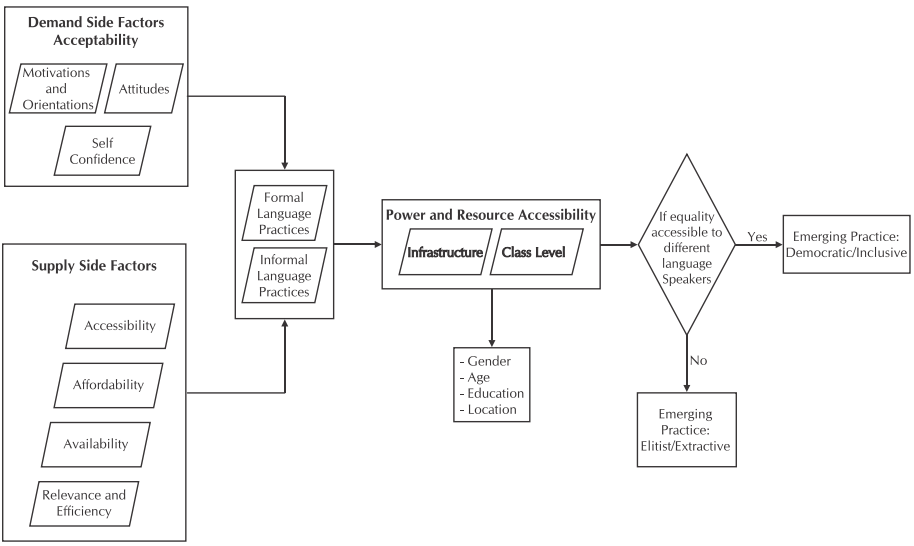
Figure 1: Operationalized Framework for this Study



4. Research Methodology

Language practices are primarily determined by society, educational institutions and workplace policies or practices. Therefore, the motivations, attitudes and perceived demand and supply of these institutions combine to influence an individual's language (formal and informal) practices which then determines the person's accessibility to power (infrastructure and social-class). The representatives of these institutions thus become the respondents for our study. The research questions that will be addressed include the following:

i. To what extent have language and communication issues been considered when CPEC was developed?
ii. To what extent is there provision (through schooling, in house training etc.) for Chinese employers and employees to learn Urdu or even one of the local languages?
iii. To what extent is there provision (through schooling, in house training etc.) for local employers and employees to learn Chinese?
iv. What is the quality of the Chinese language instruction and who are the providers?

v. Is English considered the lingua franca for interaction between the Chinese and the local leadership in power plants?
vi. What are the attitudes of both sides towards learning each other's languages?
vii. Does the arrival of CPEC pose a further threat to local minority languages? How?

Data Collection

Initially data was to be collected from five sites: CPEC power plant, households, schools, Technical Education and Vocational Training Authority (TEVTA) institutes and Mandarin teaching institutions/ academies. Preliminary visits showed that households did not express a need to learn Mandarin. Similarly, there was almost no interaction between Chinese and local businesses including shops as Chinese personnel were not buying any products locally. Mandarin was also not been offered as a subject in public or private schools in these districts. These three categories were dropped from our sample. However, limited data on households was gathered from the workers and students.[3]

The points of departure for workplace selection were the functional power/energy plants constructed as part of CPEC project. These include, one the Sahiwal 2x660MW Coal-fired Power Plant, and two, the Quaid-e-Azam 1000MW Solar Park in Bahawalpur. The use of different languages, local and national, English and Mandarin by employees/workers at the workplace and in informal settings provides us with the main body of the data. The two districts of Sahiwal and Bahawalpur where the power plants are located form the research sites.

To identify opportunities for learning Mandarin in the two districts, the two TEVTA institutes in the districts of Sahiwal and Bahawalpur were selected. In addition one private institute offering Mandarin courses from each district was also chosen. Convenience sampling has been used to identify respondents for the interviews, survey and focus group discussions comprising students, faculty and heads of institutions.

[3] After the field visit and testing of questionnaires by personnel from the Punjab Bureau of Statistics in December 2018, changes were made to the methodology and sample size proposed earlier.

Some issues were faced in determining the sample size as the power plant management was reluctant to share information on number of total workers, thus the possibility of selecting two-thirds of the workers from each of the CPEC power plants was reconsidered. Later some data was provided, however the research team was advised to limit the number of respondents.

Table 1 provides information on numbers in broad employment categories and their nationality as stated by the management.

Table 1: Number of Employees of Power Plants

	Sahiwal			Bahawalpur
Power Plants	Total employees – 6500			Total employees – 300
	Pakistani (P): 2730 (42%)			Chinese: 65 (22%)
	Chinese (C): 3770 (58%)			Plant Head/ Engineer/
		C	**P**	Manager – 15
	Professionals and Managers	100	45	Technicians - 50
	Technical skilled	800	350	Pakistani: 235 (78%)
	Semi-skilled	1400	300	Supervisors -20
	Labour unskilled	1227	1845	Technicians - 50
	Staff administration	200	150	Labour -150
				Drivers -15

The table shows that in the Sahiwal coal power plant Chinese outnumber local employees in each category with the exception of unskilled labour. Also Chinese and Pakistani employees number in thousands. In the Bahawalpur solar power plant, all management and professionals are Chinese, while supervisors and semi-skilled workers are local. Technicians are Chinese and Pakistani. Given the highly computerized environment of the plant the number of employees is much smaller.

The study uses a mixed methods (quantitative and qualitative) research approach. Observation, structured surveys, semi-structured interviews and focus group discussions are the four techniques applied for data collection. As stated in the framework above, the main objective is to measure actual and perceived motivations, attitudes, self-confidence from the demand side and accessibility, availability, affordability and efficiency from the supply-side of language teaching/learning. Structured questionnaires are used for employees and students, and semi-structured

questions for conducting interviews of managers and supervisors in the power plants and heads and faculty members of Mandarin teaching institutions. In addition focus group discussions have been conducted with workers and students on the broader aspects of CPEC. Checklists are used to collect general and basic information of the power plants and institutions offering Mandarin courses. This information is provided in table 2 below:

Table 2: Sampling Frame

	Frequency	By District	
Power Plants		**SWL**	**BHW**
Manager interview	2	1	1
Supervisor interview	4	2	2
Worker surveys	130	65	65
FGDs	2	1	1
Checklist	2	1	1
Mandarin Centers			
Centre head interview	4	2	1
Faculty interview	4	1	2
Student surveys	60	30	30
FGDs	2	1	1
Checklist	2	1	1
TEVTA			
Institute head	2	1	1
Faculty head/faculty	4	2	2
Student surveys	30	15	15
FGDs	2	1	1
Checklist	2	1	1
Total respondents	242 (minus FGDs)	120	120

The research team was not allowed to interview the Chinese personnel working in the power plants. Hence data has been collected for Pakistani personnel and workers only. The sample of employees for which data has been collected is given below in Table 3.

Table 3: Frequency of Employees by Job Title in the Sample

	Bahawalpur	Sahiwal	Total
Manager	1	-	1
Supervisor	5	3	8
Engineer	1	-	1
Accountant	2	-	2
Office Asst/clerk	9	2	11
Store keeper	-	2	2
Office boy	1	1	2
Technician	18	9	27
Labour	20	44	64
Driver	2	-	2
Chef/cook	2	2	4
Gardener	-	1	1
Cleaner	4	1	5
Total	**65**	**65**	**130**

Source: Survey data – questionnaires and interviews included

Two FGDs were also conducted at the two power plants involving 8-10 persons in each site. Managers and supervisors were also interviewed.

Data has been collected for two TEVTA institutes and two private institutions where Mandarin is taught in the districts under study. The TEVTA institutes offer a number of other technical courses in addition to Mandarin. Of the two private institutions, the one in Sahiwal offers courses in Mandarin and English while the institute in Bahawalpur only teaches Mandarin.

Table 4: Number and category of respondents from Mandarin Teaching Institutions

District	TEVTA Institute		Private Institute	
Sahiwal	Principal:	1	Principal:	1
	Faculty:	2	Faculty:	2
	Students:	15	Students:	30
Bahawalpur	Principal:	1	Principal:	1
	Faculty:	2	Faculty:	2
	Students:	15	Students:	30

Four FGDs were also conducted at the Mandarin teaching institutions involving 8-10 persons in each site. Principals and faculty were also interviewed.

5. Class background of employees[4]

The CPEC power plants have created employment opportunities for workers from several districts of Punjab. The number of districts of origin is much higher in the case of Bahawalpur employees (17) as compared to Sahiwal (11). Also more employees have a rural background in Bahawalpur (54%) as compared to Sahiwal (42%). An explanation for this lies in Sahiwal district being more urbanized as compared to Bahawalpur. Rural to urban migration is a common phenomena in the Punjab as is the migration for employment to districts that have a shortage of human capital. Almost one-third of those currently employed (41/130) were not working previously as such for them this is their first job.

Of the employees on whom data has been collected 16.1 percent have very little or no education. A little less than a quarter have studied upto grade 8. The largest number that is almost a quarter have 10 years of education, while more than a quarter either hold a vocational diploma or have 12 years of education. There is no difference in the work done between employees who are illiterate and those with five years of schooling as in either case the jobs available to them are at the lowest level. For those with 5-10 years of education a variety of forms of labour is the only option. Elementary education plus a special skill can lead to a job such as a driver. 10-12 years of schooling plus a vocational diploma will provide a technician's job, and, 12 years of schooling can provide an office assistant's job.

Employee assessment of the monthly income of their households ranges from 15,000-90,000 PKR. According to the Household Income and Expenditure Survey (HIES) 2015-16 in the Punjab province the quintiles of monthly household income in PKR are: 19,885, 23.174, 27,528, 33,546 and 61,853. The minimum wage announced by government on 12 June 2019 is PKR 16,500. It can be assumed that households with incomes less than this fall below the poverty line. Based on income

[4] For the purpose of this research, the respondent's class has been determined by their job title, educational level, household income and occupation of head of household.

quintiles, six respondents come from households that are below the poverty line (4.6%) while only three households fall in the category of what can be called the middle class. Only 16.5% gave their household income as above 50,000 PKR. The majority of workers (83.5%) belong to low-income households with earnings below 50,000 PKR. Given that the average size of households in Punjab is 6.4 persons those with incomes between 16,000-30,000 are just above the poverty line. The high rate of inflation and frequent increase in costs of basic services makes it difficult to determine the economic status of the low and middle classes in Pakistan.[5]

Most employees come from households where the head of the household is a skilled worker as such the household income of these workers is between PKR 16,000-50,000 dependent on the level and type of skill. Almost a quarter of employees in Sahiwal come from families running small businesses followed by the head of the household in the skilled worker category. In Bahawalpur on the other hand, the skilled worker category dominates. In Bahawalpur a few women were also listed as head of households.

Thus data on employees shows that education plays a key role in determining the kind of job held by them. Their household income or other background characteristics such as occupation of the head of the household (HoD) have minimal influence. It is only at the level of supervisors and managers that a link can be seen with the occupation of the head of household indicating that employees in these categories are from the above average income households.

6. Language use and proficiency

Punjab is a multilingual province where people speak a number of languages albeit with greater or lesser frequency and is location dependent. The dominant language of communication in the province is the local language or mother tongue - Punjabi and Saraiki, followed by Urdu. There has been little migration from other provinces and linguistic regions into the two districts under study.

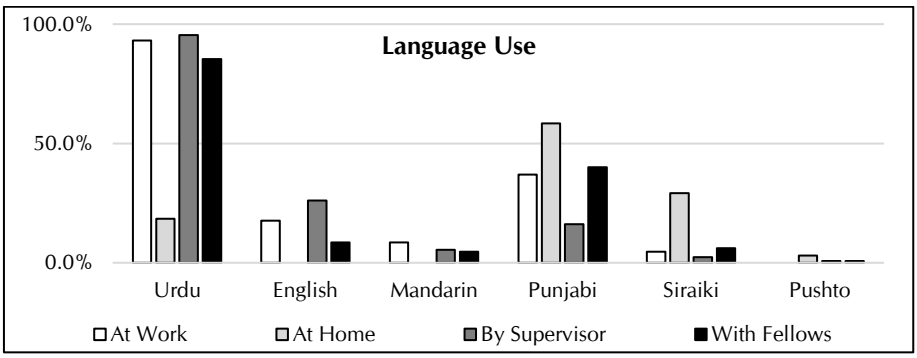
[5] In the budget for 2019-20 operational from 1 July 2019, incomes of PKR 50,000 and above will become taxable.

Generally, Sahiwal is a Punjabi speaking district while people in Bahawalpur speak Saraiki. The linguistic background of employees as determined by the language spoken at home shows that fifty percent are Punjabi, 25 percent are Saraiki, ten percent speak Urdu, and a few speak Pushto. The linguistic background of students is quite similar (Punjabi 40%, Saraiki 25.5%, 15% Urdu speaking). Discussions with employees at Sahiwal and Bahawalpur revealed that Urdu, Saraiki, Punjabi and other local languages are mostly used for informal communication by them, while Chinese employees preferred the use of Mandarin and English over other languages when conducting business transactions and in general communication.

The results of interviews revealed that local languages such as Punjabi and Saraiki are the prime means of communication in the homes of employees although the occasional use of Urdu is not uncommon. However, local languages such as Punjabi in Sahiwal and Saraiki in Bahawalpur in addition to Urdu are also used in the workplace.

The dominant language of communication in the workplace, seen as a formal environment is Urdu, used by all employees in communicating with each other and also with peers. In Bahawalpur 94 percent and in Sahiwal 89 percent workers said they used Urdu and were proficient in it. The managerial and supervisory staff at both the power plants emphasized the importance of using Urdu as it was the national language and an easier means of communication. They were also of the view that Urdu was easy to understand therefore the Chinese were also learning it especially in Bahawalpur.

Figure 2: Language use of Workers

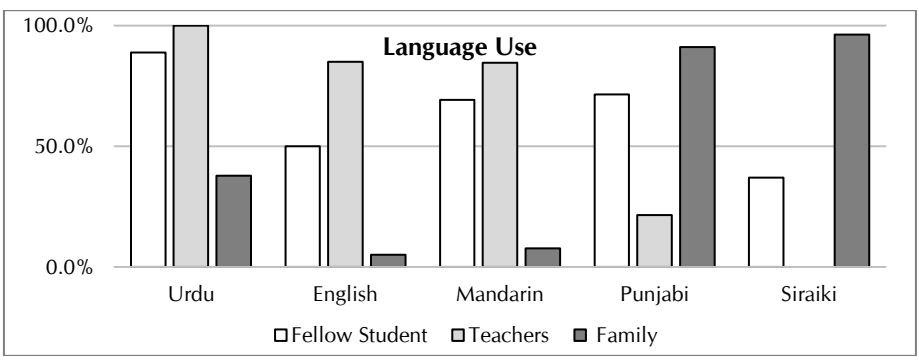


There is more use of English by employees in Bahawalpur (24%) than in Sahiwal (11%), possibly as most of the functions are computerized in the solar plant in Bahawalpur. In the opinion of workers as well as managers, English is predominantly used as a link language because in a multilingual job environment, it is exceedingly significant for employees to know a language that will help in effective communication with one another.

The use of Mandarin by employees is minimal (by 12% in Sahiwal and 5% in Bahawalpur) especially in communicating with their peers. Very few workers (5%) stated their ability to speak Mandarin, 28 percent employees said they were proficient in Mandarin meaning thereby that they could read words especially technical terms. At the power plants, machine-running instructions are mostly given in Mandarin (Sahiwal 97%, Bahawalpur 73%); some are in Urdu (Sahiwal 44%) and English, but none in the local languages. Supervisors mostly used Urdu to communicate with employees. To a lesser degree English (Sahiwal 21%, Bahawalpur 30%) and Punjabi are also used (Sahiwal 29%, Bahawalpur 9%). A small number also use Mandarin (Sahiwal 8%, Bahawalpur 3%).

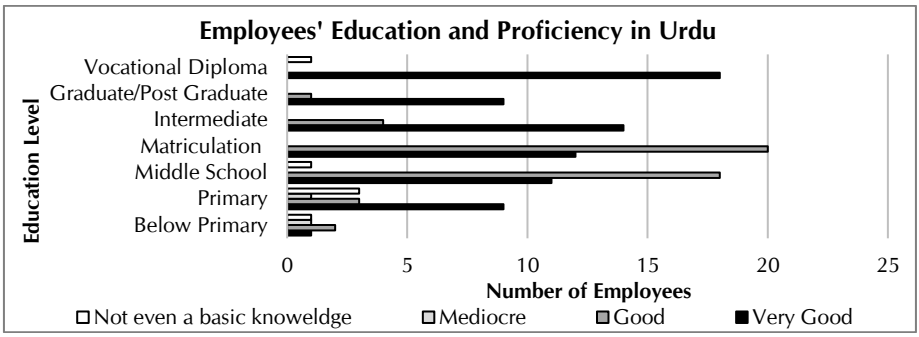
A similar pattern was observed among the students of TEVTA and private Mandarin teaching institutions in the two districts. Communication in the family is in the local languages, however, with peers Urdu, English and local languages are all used. Students communicate with teachers mostly in Urdu, English, Mandarin and to a lesser extent in Punjabi. The use of Saraiki in formal settings has almost disappeared. The greater use of Mandarin is to be expected in respondents in the teaching institutions.

Figure 3: Language use of Students



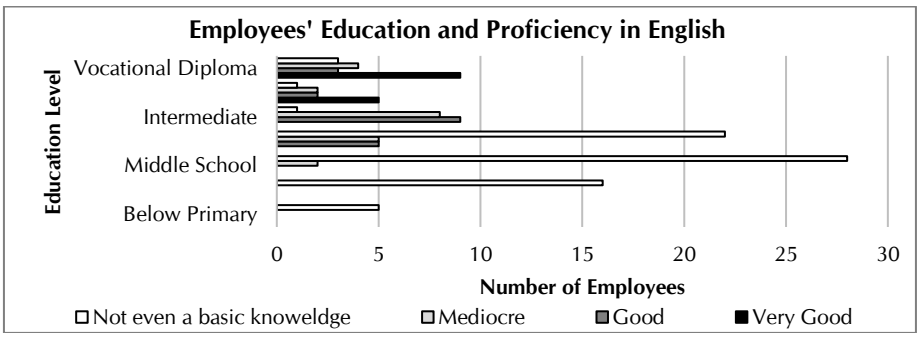
Almost all employees said they were proficient in Urdu in addition to their local language or mother tongue. This is not a surprising finding as besides being the national language, the medium of instruction in public and private schools is Urdu. It is thus only those with primary or less education who have poor proficiency levels in Urdu.

Figure 4: Employees education and proficiency in Urdu



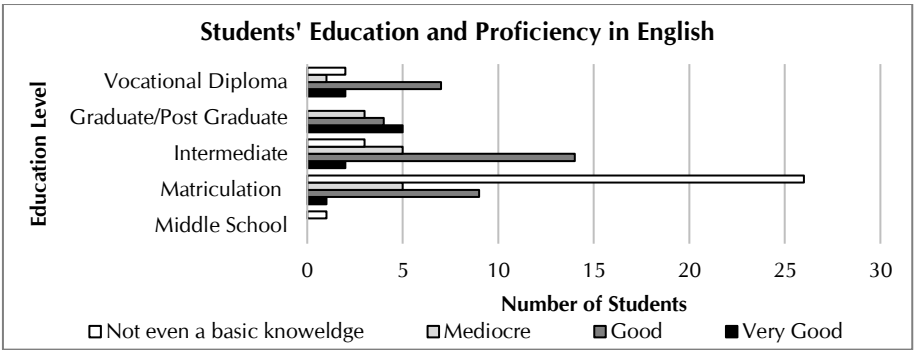
In the case of English taught as a subject from Grade one onwards, overall proficiency levels are low. 39 percent workers said that they were proficient in it. However, even with ten years of schooling that is matriculation, both employees and students stated their lack of proficiency in English. The level of proficiency by workers was rated as very good/good by 25 percent, mediocre by 15.4 percent and, not even basic knowledge by 59 percent. The last category includes those employed as labourers and may have none or only a few years of schooling. This reflects on the poor quality of English teaching in most schools.

Figure 5: Employees education and proficiency in English



The situation for students is similar. The majority with ten years of schooling claimed to have not even basic knowledge of English.

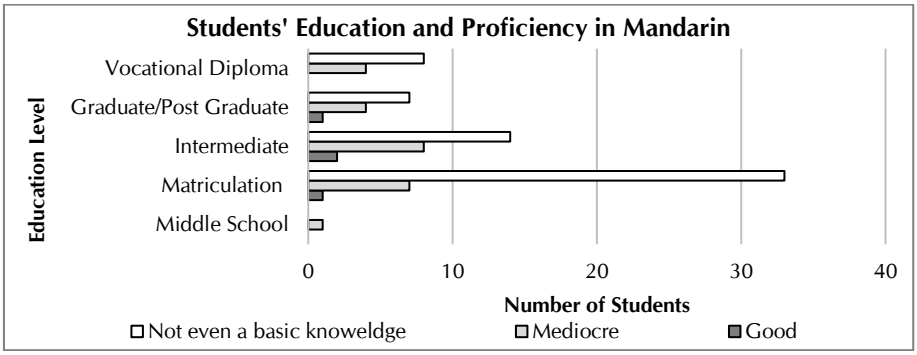
Figure 6: Students education and proficiency in English



Still proficiency in English is greater as compared to Mandarin. It was generally observed that very few employees could speak Mandarin (10% Yes, 58% No, 32% no opportunity to observe). However, while about a quarter said they were proficient in Mandarin they rated themselves as 'mediocre' and 'bad'. This was less than those who said that they were proficient in English (39%).

In the case of Mandarin although 40 percent students claimed they were proficient in using it when they were asked to rate their level of proficiency the majority of those with ten years of schooling said they did not even have basic knowledge of Mandarin. At best their proficiency level was mediocre. Thus, as a means of communication the use of Mandarin is limited as shown by the fact that only four out of ninety students said they communicated with their fellow students in Mandarin and eleven students said they communicated with their teachers in Mandarin.

Figure 7: Students education and proficiency in Mandarin



Interviews and focus group discussions provide further insights into language use. It appears that when the power projects were initiated, Chinese employees were substantial in number contrary to locals, which resulted in emergence of language barriers. Hence, it became mandatory to use English and specifically Mandarin at the workplace. English, being the international language, is taught in almost all schools while Mandarin is still in its nascent stage; thus, local managers and supervisors were proficient in English diametrically opposed to Mandarin as they ranked their fluency in latter – mediocre. On the contrary Chinese employees obviously prefer the use of Mandarin than English (and other languages) for communication purposes. Managers of power plants use Urdu or the local language at home and all the languages in the workplace. They claimed to be proficient in Urdu, local languages and English. However only one out two managers stated that he was proficient in Mandarin. Supervisors also used Urdu and local languages at home and all languages at work, but none of them was proficient in Mandarin. The result of the FGDs was the same except that Mandarin did not feature in their discussions in Sahiwal, whereas in Bahawalpur all claimed to be fairly proficient in Mandarin.

7. Motivation for learning Mandarin

The frequency of interaction between local workers and their Chinese counterparts on a daily basis makes the language of communication important in a multilingual job environment. It has thus become a priority for employees to learn the language which is being used at workplace, as their promotions, pay scales, incentives and increments are now

dependent on it. Opportunities for speaking in Mandarin with foreigners are limited to a small number of students from private institutes only.

In the opinion of management, the significance of Mandarin is considerably high, whereas discussions with workers show that its importance is only limited to CPEC and does not appear to have any functional value outside its domain. The manager at Sahiwal Coal Power Plant stated that cross cultural communication among employees belonging to various ethnicities and nationalities strongly emphasized the significance of a common language which is easily comprehensible to address the communication barriers arising due to bilingualism. Discussions with workers showed their willingness to be trained in Mandarin with the hope of becoming more self confident and getting good jobs.

Correspondingly faculty members of TEVTAs and private Mandarin academies stated that CPEC is considered as the backbone of Pakistan and therefore due to its importance, the tendency towards learning Mandarin is increasing, as it is becoming one of the requirements of students for a brighter future.

The research findings indicate three main areas in which the importance of learning Mandarin has been highlighted, these include: (i) increased employment opportunities and incomes, (ii) chances of upward mobility, and (iii) reducing inequalities.

Increased employment opportunities

In the view of managers and supervisors CPEC is a game changer for Pakistan as it has already created innumerable jobs and would continue to do so in the future. The euphemism for CPEC is multilingualism and therefore working with people belonging to various ethnicities and nationalities would prove to be quite experimental, because it would create diverse range of employment opportunities. However, stakeholders cannot benefit from CPEC unless and until they learn Mandarin because Chinese employers only prefer and hire those workers who have command over Mandarin thereby providing them with salary increments and incentives. Against this backdrop, job opportunities for local people are minimal if they do not learn Mandarin.

CPEC and the emphasis on Mandarin learning are seen as having a significant impact on the employment levels of different social classes of Pakistan. Emergence of new job opportunities and an improvement in the overall employment situation would have a positive effect on the lower social classes. Expectations of most likely employment opportunities are as translators (28%) and supervisors (21%) followed by managers (8%). Being a translator in addition to another job such as a technician, clerk and driver are also seen as improving their earning opportunities. These positions are seen as carrying a salary of between 45,000-70,000 PKR[6] for translators and 15,000-30,000 PKR for supervisors.

In the words of manager working at Sahiwal Coal Power Plant: "Mandarin is especially useful for blue-collar workers because learning Mandarin will open up new vistas and lines of inquiry leading towards promotion and upward mobility." Correspondingly according to workers: "Mandarin would have a positive effect on people belonging to low social classes as it would make them economically strong." Similarly a student said: "For people who are situated at the lowest rung of social ladder, CPEC and Mandarin learning would considerably make a huge difference in their employment levels."

The heads and faculty of Mandarin teaching institutions held different views. Their interaction with Chinese people is rare and only a few had travelled to China for business purposes or for learning Mandarin. Though they considered Mandarin and English as necessary, the significance of English surpassed that of Mandarin because of its status as a global language. In their view in Pakistani society, social status is gauged via the lens of English language. Hence for the present, English language was going to have a greater impact on social status but Mandarin would soon follow suit. Some apprehensions were expressed regarding the focus on learning Mandarin and the impact on English acquisition.

Chances of upward mobility

In occupational mobility, both Mandarin and English were considered as significant for job promotions and transfers thereby ensuring a better future. On the contrary, Urdu and local languages are insignificant in

[6] A few students had very high expectations of between 100,000-130,000 PKR after completing the course.

terms of occupational and upward mobility. Despite this, workers are of the view that they are willing to learn Mandarin only if it was taught during working hours and free of cost.

Importance of knowing Mandarin for promotions is considered to be greater by employees in Sahiwal (65%) compared to Bahawalpur (12%). This is because the number of workers Pakistani and Chinese is much larger in Sahiwal. Students were of the view that more foreigners were coming into Pakistan as a result of CPEC and the overwhelming majority felt there would be more job opportunities available. Many (73%) students were of the view that young people would move from rural to urban areas as a consequence of CPEC. All those enrolled in Mandarin courses expect their average income to be increased as a consequence as indicated in the table below:

Table 5: Job and Income Expectations of Students with Work Experience (19 students)

Previous Job Title	Education	Salary	Job Expectation	Expected Salary
Unskilled	VD*	23,000	Engineer	70,000
Skilled	HS**	25,000		70,000
Private High Management		30,000		90,000
Skilled		15,000	Manager	30,000
Middle business		22,000		40,000
Middle business		30,000		50,000
Private High Management		30,000		50,000
Unskilled		8,000	Supervisor	15,000
Unskilled		13,000		25,000
Skilled		12,000		25,000
Skilled		18,000		25,000
Private Helper		15,000		20,000
Skilled		18,000	Technician/	60,000
Skilled		25,000	Translator	50,000
Unskilled		10,000	Incharge	25,000
Unskilled		20,000		40,000
Private Helper		12,000		20,000
Private Helper		12,000		25,000
Private Middle Management		20,000		30,000

* VD – Vocational Diploma
** HS – Higher Secondary

Reducing inequalities

It was generally felt that while CPEC and Mandarin would prove to be useful for both high and low income groups, those belonging to the lower strata would benefit more as those from high income groups often find jobs through connections with senior officers but those who belong to low income groups are more willing workers and have exposure to technical skills. This would have a significant impact on reducing income disparities among various income groups as stated by an employee of the Quaid-e-Azam Solar Park:

> "The rich are getting richer and the poor are getting poorer; however due to CPEC and emphasis on learning Mandarin, income inequalities would reduce."

Although, some respondents were of the view that learning Mandarin is suitable for all educational groups, however others stated that it is more beneficial for those who have a degree or diploma in engineering and technical education. According to a supervisor who works at Quaid-e-Azam Solar Park, learning Mandarin is beneficial for stakeholders belonging to various educational background but it is specifically useful for those groups who are associated with technical trade and have a background in technical education. In addition to this, the role of TEVTAs in imparting technical skills cannot be understated as stated by one respondent:

> "Learning Mandarin is more suitable for people who have completed their diplomas from TEVTA institutes."

Like English, Mandarin is seen as creating opportunities for upward mobility through better jobs and promotions. The link between the value of knowing Mandarin and engineering and/or technical education has also been established possibly because of the nature of jobs available in the power plants. Moreover, TEVTA institutes have also promoted this idea. As it is persons from the lower socio economic strata who enroll in TEVTA courses the benefit of learning Mandarin to them is seen as contributing to reduction in inequalities. In the view of workers:

> "It is the most fundamental requirement of our country at the moment and without Mandarin there is no road to success or development."

8. State promotion of Mandarin

Although there is no specific language policy document, the need to remove the language barrier is a stated part of all political pronouncements on CPEC by both Chinese and Pakistani governments. Presentations on CPEC in universities and other forums emphasize the importance of learning the Chinese language. At a conference entitled "CPEC - Opportunities and Challenges" organized by China Study Centre at the University of Peshawar, it was stated that so far the China-Pakistan Economic Corridor (CPEC) project has been one of the biggest foreign investments in Pakistan and in order to avail this economic opportunity people need to remove the language barrier. It was emphasized that language plays an important role in improving relations between countries and is equally important for trade or business.[7] (The Nation, August 11, 2017).

The Beijing Language and Culture University established the first Confucius Institute in Islamabad in 2007. According to the vice-president of the Confucius Institute in Islamabad, Zhang Daojian, he had had numerous requests from Chinese businesses in Pakistan that want to hire local Mandarin-speaking students (Pakistan Today Aug 21, 2013). He also stated that some of the students who are fluent in Mandarin went to China for further studies, and the rest were hired in Pakistan. "Generally, their jobs are really good, and most of them are working in banking or for leading Chinese enterprises," he said. The Confucius Institute also organized Mandarin lessons for 6,000 students in 2012 amid the nationwide drive to learn the language. "Studying Chinese is a great help to Pakistani students because many Chinese companies want to hire people who can speak English, Urdu and Mandarin," the China Daily quoted Zhang as saying. Since 2015 government has instituted scholarship programmes for students to learn Mandarin in China. These opportunities exist largely for graduate and post-graduate students.

[7] Dr. Shaheed Sohrwardi, Chairman, Department of International Relations, University of Peshawar.

Since 2016, jobs have been advertised in Pakistan on Internet and other social media sites for cooks, chefs, drivers, advertising managers, translators, interpreters, and customer service representatives in banks with Chinese language skills. Our survey findings show that students of Mandarin have high expectations of getting jobs and higher salaries as projects and activities under CPEC develop. At the top of the list of expected job opportunities are translators, supervisors and managers. A combination of technical skills and working knowledge of Mandarin also has bright employment chances. More students availing the opportunity to learn Mandarin have an urban background. They also fall in the age bracket of 20-24 years.

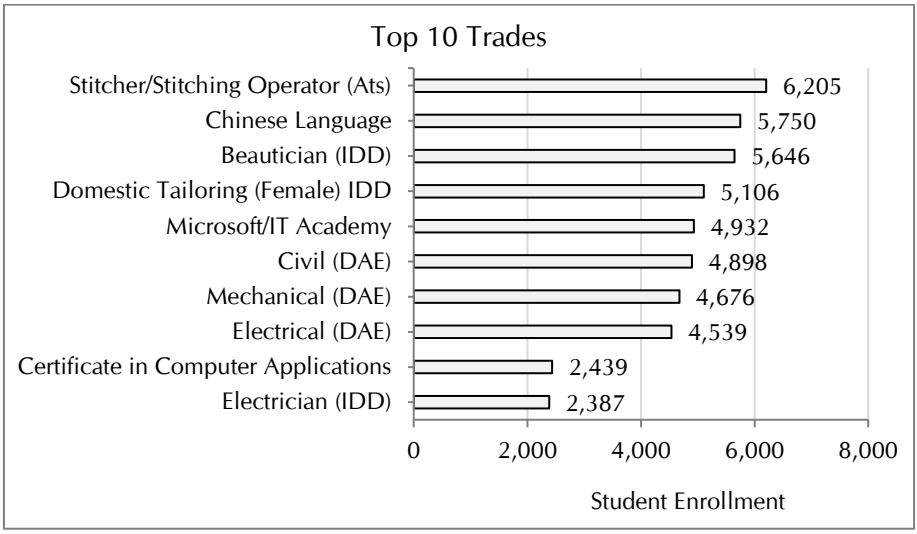
According to the Pakistan-China Institute (13-1-2017) 28 universities across Pakistan are offering courses in Mandarin. However, the National Vocational and Technical Training Commission (NAVTTC) is the main body mandated by government to teach Mandarin in addition to technical training. The research shows that the key agents promoting acquisition of Mandarin include the principals of TEVTA and private Mandarin teaching institutions and students. Their goals are to provide adequate and relevant training in Mandarin for persons with or without technical skills to enable them to find employment in projects set up under CPEC. The processes include the training programs and corpus of training materials used to deliver effective instruction in Mandarin. The discourse to perpetuate this policy stems both from policy makers, government, employers and heads of institutions projecting through pronouncements and the media, the importance of learning Mandarin for the people of Pakistan.

9. Language and Class

While some institutions have specific admission criteria in terms of educational level, that is matriculation, as in the case of TEVTA institutes, GCU and most private institutes, the University of the Punjab admits students with no formal education as well. Although four month long courses, diploma, and degree programmes are also offered by universities, the most commonly offered course in Mandarin is of three-month's duration. This is offered by TEVTA which because of its wide outreach throughout the Punjab province makes it the premier institution for teaching Mandarin to the lower and lower middle classes.

TEVTA is a government institution established in 1999 to provide technical and vocational training in all 35 districts of the province of the Punjab. The Head Office of TEVTA located in Lahore, Punjab offers several industry demand driven (IDD) short courses. From electrician to stitching, forty-five short courses are provided to thousands of individuals, both male and female, every year in different institutes registered under and/or affiliated with TEVTA across the province. The length of these courses varies from 5 weeks to 48 months. In 2016, in light of the rising demand for Chinese language due to CPEC, TEVTA also launched a three-month Chinese language course. The minimum eligibility criterion for enrolling in this course is set at matriculation. Prior to that, TEVTA only trained people in one other industry demand driven language, i.e., English. However, in just two years, Chinese language course has risen to one of the top choice of courses for people looking for short courses with TEVTA. The figure below shows the top 10 most popular courses, based on the maximum number of student enrollment, at TEVTA in the year 2017-18. It shows that Chinese language is currently the second most popular industry demand driven course at TEVTA with total student enrollment of 5,750 falling between courses on stitching and beautician in 2017-18. From 2016 when the course started up until August 2018, approximately 12,135 students have taken Chinese language course at TEVTA. Of these approximately, 63% (7,683) have graduated with a diploma while the rest are either currently enrolled, awaiting results, dropped or failed the exams.

Figure 8: Top 10 Trade courses offered by TEVTA



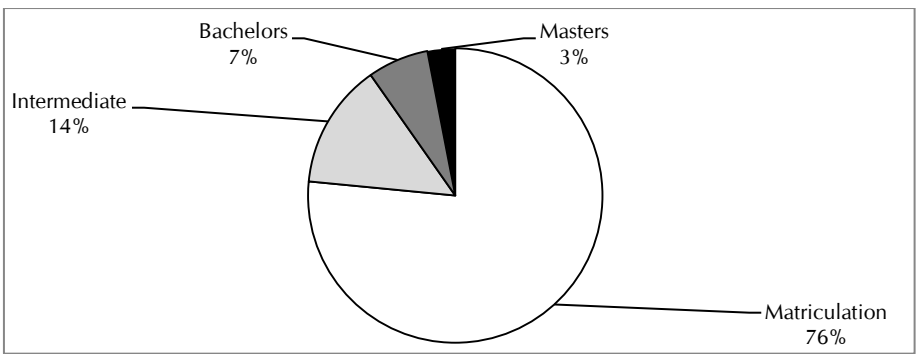
An interesting point about TEVTA's Chinese language courses is that they are not affiliated with the Ministry of Education of the People's Republic of China nor are they overseen by HANBAN (officially called the Office of Chinese Language Council International) unlike the Confucius Institutes established at universities in Pakistan. TEVTA's curriculum department develops their own course and the examination process falls under the Punjab's examination boards. Therefore, the teaching and course content quality is presumably different from the Confucius Institutes that are affiliated with HANBAN. Consequently the quality of Mandarin teaching varies from one TEVTA institute to another.

TEVTA charges no fee for teaching the course, hence, becoming an attractive option for lower and lower middle class individuals. Furthermore, since the course is industry demand driven, a salient feature of the Chinese language courses is that they emphasize on teaching relevant industry oriented vocabulary and phrases/sentences. Currently available data from TEVTA on Chinese language graduates shows the course has significantly greater popularity with men.

The diversity in students' ages is also noticeable. Average age of the 12,135 students who enrolled in TEVTA's Chinese language course until now is 25～ with a deviation of 8～. This information becomes more useful when

combined with the educational backgrounds of the students. Students come from many different educational backgrounds. Since minimum eligibility is set at matriculation, the highest qualifications achieved by Chinese language students at TEVTA prior to joining the course can be divided into four different categories as shown in Figure 8 below:

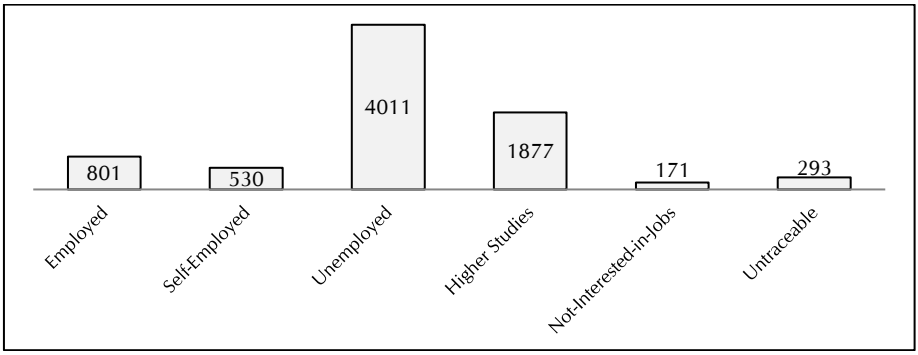
Figure 9: Educational level of students studying Mandarin in TEVTA institutes (all Punjab data)



It can be seen that more than three-fourth of the students (76%) who enrolled in Mandarin language courses at TEVTA had matriculation degrees. There are two possible explanations here. First, the students usually enroll in these courses during the three months break they get after taking intermediate part 1 or part 2 exams. This would also explain why 24.4 percent of the students go for higher studies after taking this course (see the traceability status of graduates in the figure below).

The second explanation is that since the students come from lower income backgrounds, they are taking this course to improve their likelihood of better jobs even with low education levels. This also contributes to the explanation why despite matriculation being the highest qualification level of majority of the students, the average age is 25 (when an average student completes matriculation at the age of 16) and the traceability status of students shows that they are either doing a job (17%) or looking for a job i.e., they are currently unemployed (52%). However, the figure of 52 percent being unemployed after taking this course shows that the course is not turning out to be quite helpful in attaining a job, let alone a higher paying job.

Figure 10: Traceability of TEVTA Mandarin Graduates (all Punjab data)



In addition to TEVTA, opportunities for learning Mandarin are also available in in private institutions.[8] Both types of institutions offer four courses in a year. The number of students in any course is 60 in TEVTA institutes and 50 in the private institutions so that approximately 800-850 students are learning Mandarin every year in these two institutions per district. Given the likelihood of more than one private institution teaching Mandarin, the number of students is likely to be much larger.

During the three-month long Basic Language Course students learn to write speak and understand Mandarin. The TEVTA institute also teaches technical words to students. Students of Mandarin (35%) state that they are proficient in Mandarin. On the other hand the level of proficiency is lower for workers (27%).

Table 6: Opportunities for Learning Mandarin in Selected Institutions

Institution	Sahiwal District	Bahawalpur District
TEVTA Institutes	Mandarin Courses in a year: 4 Students in each Mandarin course: 60 Total students in a year: 240 Total students in class for whom data collected: 55 Courses offered in Mandarin: Basic language, writing, speaking, understanding and technical words	Mandarin Courses in a year: 4 Students in Mandarin courses: 150-200 Total students of class for whom data has been collected: 40

[8] Modern Language Institute in Bahawalpur, and The Limit Group of Colleges in Sahiwal.

Institution	Sahiwal District	Bahawalpur District
	Number of students in different courses (including Mandarin): 500-550	Number of students in different courses (including Mandarin): 400
Private Institutes	Teaching Mandarin and English. Mandarin Courses offered in a year: 4 Students in each Mandarin course in a year: 40 - 50 Total number of students of class for whom data has been collected: 50 Courses offered in Mandarin: Basic language, writing, speaking, understanding	Teaching only Mandarin. Courses offered in a year: 4 Students in each course in a year: 50 Total number of students of class for whom data collected: 50 Courses offered: Basic language, writing, speaking, understanding

10. Employees concerns

At present, Chinese hold the top management positions in both the energy plants. In the Sahiwal coal power plant the largest number of employees comprise of unskilled Pakistani labour, while the majority of technical skilled and semi-skilled employees are Chinese. However a large number of Chinese are also working as unskilled labour. In the Bahawalpur solar plant, all top management and engineers are Chinese. An equal number of Chinese and Pakistanis are employed as technicians but the labour is entirely Pakistani (See table 1). If this situation has to change then professional qualifications as well as knowledge of English and or Mandarin becomes essential.

This points to the need for a coherent and clearly stated language policy which is recognised by employees/ workers and is stated to be the most important factor in the entire CPEC project. The presence of a multilingual workforce belonging to various ethnicities and nationalities points to the importance of a common language for cross culture communication, effective team building, information sharing, and employee responsiveness without any language barriers or adversely affecting any line of work.

The benefits to be derived from learning Mandarin are seen in economic terms given the large size of the CPEC project that began in 2016 and is expected to continue for several years. Moreover the linkages created because of CPEC are considered as extending far beyond the projects

specified under CPEC as well as beyond its geographical limits in transnational environments.

Existing opportunities for learning Mandarin for local employees indicate that these are outside the formal education system of schools and colleges. The key public sector organization identified for teaching Mandarin to the working class is TEVTA that has created opportunities for the largest number of people with ten years of schooling in all districts of the Punjab. Mandarin is also now the second most popular course option for students at the TEVTA institutes. However, although several institutions exist at the district level for teaching Mandarin the problem lies in their focus on teaching simple Mandarin conversations/ phrases without emphasizing the need for learning a technical language which makes it quite difficult for workers to comprehend technical terms (that are in Mandarin) at the workplace.

Also, there appear to be no opportunities for Chinese employees to learn Urdu in the study area. This is reflected in the limited communication between Pakistani and Chinese employees. In the power plants reliance on translators is in evidence. Feedback from higher and middle management such as supervisors and workers indicates an ad hoc approach to determining the suitability and/or selection of a language to facilitate communication in the workplace.

The question of the level of Mandarin required for operating in a CPEC dominated environment has as yet not be addressed. For the present Mandarin is seen to be important by workers at lower and middle level with 10-12 years of schooling for upward mobility. It is required for certain types of jobs such as for translators, for technical workers, for reading instructions on machines and for simple communication with Chinese personnel.

Multicultural understanding is an intrinsic part of the drive to teach Mandarin in Pakistan. Unlike English where the focus was on creating a class of clerks, ability to speak and understand Mandarin is viewed as bringing the two cultures, Pakistani and Chinese closer. This is seen as essential as the two cultures are very different and there has been very limited interaction at a people to people level.

11. Conclusion

The research indicates that local/regional language retain their role in the verbal domain while Urdu the national language remains the formal language of communication especially in the workplace. However English emerges as the preferred link language due to familiarity with it. It is also evident that the emphasis on Mandarin is especially useful and beneficial for blue-collar workers and those who are engaged in technical trade activities as it is opening up new avenues of work resulting in their upward mobility. It is expected that learning Mandarin will have a positive impact on employment levels of those who are situated at the lowest rung of social ladder because in terms of job promotions and advancement, workers who are fluent in Mandarin are preferred. The motivation to learn Mandarin is thus very real. At the same time while learning Mandarin will create more employment opportunities at the lower end of the class hierarchy it is not likely to alter the existing class structure. The question remains whether Mandarin will like English produce marginalizing hierarchies of educational and economic opportunity.

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