Human Resources Development for The Business Process Outsourcing Industry in India – A Scheme for Quality Improvement

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Abstract— India's Business Process Outsourcing industry is among the largest in the world. However, it is facing constraints to its growth due to shortage of employable talent. This shortage is mainly related to behavioral skills, particularly in the English language, among students from socio-economic strata often described as 'disadvantaged'. The shortage is caused by inadequate school education and training. In this paper, we develop and test a design, for a training scheme to address these inadequacies. The scheme involves the use of university students as mentors, using two techniques from previous research on internet assisted educational technology. Results of a small-sample study to measure the effectiveness of the proposed scheme are described and shown to be worth further investigation.

Implications for practice or policy

- ***This scheme can be used to design effective training programs for the BPO industry.***
- ***University students can find gainful employment as mentors for this scheme.***
- ***Trainees can be prepared for the BPO industry in a stress-free and efficient learning environment.***
- ***Researchers can use this scheme to measure the effectiveness of self-organized learning environments.***

Indexed Terms—BPO training, Pronunciation, conversation skills, student mentors, quantitative, small sample

I. INTRODUCTION

Business Process Outsourcing (BPO) is a key component of any global business model. India is among the largest BPO suppliers in the world due to its large pool of human capital and lower wages.

India is the world's favoured market for BPO companies, among other competitors, such as, Australia, China, Philippines and Ireland. Research by the National Association of Software Services and Companies (NASSCOM) has revealed that quality orientation among leading BPO companies, 24/7 services, India's unique geographic location and the investor friendly tax structure in India have all made the BPO industry in India very popular.

However, the Indian BPO industry is facing constraints to its further expansion due to lack of employable talent and appropriate social norms, among other factors (Yahya, 2012).

Nick Jiwa (Jiwa, 2015) lists some of the reasons why the BPO industry in India has lost ground to other countries. Among these are (quoted from Jiwa):

- "The availability of English-speaking agents with minimal accent neutralization issues and improved English comprehension and conversational skills in other countries.
- The UK and US media and late-night TV have satirized the Indian call center experience, creating extreme negative and at times comedic perceptions. This coupled with real world negative customer experiences with Indian call centers makes for dangerous combination of public views on dealing with Indian agents.
- The cultural disconnect between the Indian agent and the average consumer in English speaking countries particularly the US.
- The cost associated with training and development of agents and managers to the outsourcer and client alike, with very high attrition rates in India.
- The real cost of outsourcing to India is much higher than the contracted rate. The travel expenses from frequent trips for ongoing training and

troubleshooting combined with lost productivity, learning curve issues, the cost of declining service levels and performance, etc.

- The increasingly young and inexperienced agents and front-line managers.
- The lack of scalability without degradation in performance."

In India, apart from the products of elite schools in the larger cities, there are challenges with comprehension and communication in general and particularly in the English language. This is due to poor school education and lack of appropriate teachers. The challenge is deep rooted in India's geographical and economic diversity. Indians tend to face difficulty in stressing and producing the right tone and intonation while speaking in English. As a result, they encounter a number of difficulties in communicating with people from other countries (Dangwal 2021).

In this paper, we propose a new scheme for preparing people for the BPO industry in India and report the results of a small-sample study to test the effectiveness of the proposed scheme.

II. DESIGN OF AN INSTRUCTIONAL SCHEME FOR THE BPO INDUSTRY

In India, as in many other countries, there is a distinction between what is described as the 'advantaged' and the 'disadvantaged' sections of society. The distinction is mainly economic – poorer students attend schools and social settings that are different from the richer students. Due to various reasons beyond the scope of this work, these differences are seldom studied, or indeed, even mentioned. It is this distinction that is exploited by the media, as mentioned above, to produce a 'comedy of communication' that viewers seem to enjoy. We intend to address this issue through a simple, technology mediated, method whereby the 'disadvantaged' can imitate the 'advantaged' to reduce their differences.

To arrive at a design for a training scheme that addresses these problems, we have used the following findings from earlier research:

1. Learners, working in groups, can improve their English pronunciation using automated instructional methods (Mitra et.al, 2003, 2005).
2. Learners, working in groups and using the internet, can improve their reading and general comprehension by themselves. This method is called Self Organised Learning Environments (SOLEs), and is in use around the world (Dolan et.al 2013, Mitra 2019, Vega et.al 2020).
3. How learners perceive themselves and how others perceive them can be significantly different leading to communication difficulties (Dangwal and Mitra, 2000).

The proposed scheme uses a group of 'mentors' consisting of students of an 'advantaged' background from a university as the teachers for a group of 'disadvantaged' students preparing for employment in the BPO industry. We then use automated pronunciation exercise and other internet resources to change the target students' pronunciation and comprehension skills. Finally, we have used 'perceptions of self' as a tool for a possible change in students' social skills. A positive perception of a mentor would encourage imitation.

We have used a standard experimental and control group method to study the effectiveness of this instructional scheme. An intervention was applied to an experimental group of learners, while an equivalent control group did not receive this intervention.

Sample sizes are limited by the cohort sizes of training organizations that helped with this study. We used a sample of 32 students for our experimental group. While a larger sample would have been desirable, it was not possible to find larger cohorts of students. Using cohorts from different organizations would not have solved the problem of sample size as the uniformity of inputs and outputs could not have been ensured. We decided to go ahead with a smaller sample in order to find out if there is merit in pursuing the suggested approach further.

III. RESEARCH QUESTIONS

A. Hypothesis 1: Learners, in the Indian context, can improve their pronunciation and comprehension

skills when mentored by Indian university students in English using automated tools from the Internet.

B. *Hypothesis 2:* There is a difference in the perception of mentors and students about each other.

IV. RESEARCH METHODOLOGY

Experimental and control group participants were chosen randomly from a cohort of 32 students enrolled for a BPO skilling course in New Delhi. All students had access to smartphones and the internet.

A. *Experimental Group:* Consisted of 19 students. They interacted with mentors twice in a week. In total, they were exposed to 28 sessions of 60 minutes each. Sessions consisted of informal interactions such as conversation on any topic of interest, watching YouTube movies, practicing pronunciation using a speech-to-text program and researching answers to questions on the internet in English. The mentors were free to choose the order of interventions. All necessary ethical standards and permissions were followed.

B. *Control Group:* Consisted of 13 students similar to the experimental group in educational qualification and socio-economic status. They had no interaction with the mentors.

C. *Duration:* The duration of the study was 3 months.

V. TOOLS

A. *Reading Comprehension:* This was measured by two passages from TOEFL Junior Standard Sample Questions.

- Pre-test: Passage 1 were used for pre-testing
- Post- test: Passage 1 and Passage 2 were used for post-testing

B. *Pronunciation:* A passage was identified from Internet and students were asked to read aloud such that they could record it on their smartphones. These were then sent, without any identifiers, to 3 judges, who assigned scores on fluency, comprehensibility, clarity, and diction.

- Pre-test and Post-test: The same passage was used for pre and post-testing.

VI. EVALUATION CRITERIA

- Reading Comprehension: Had standard answers to questions
- Pronunciation: Had 4 parameters namely fluency, comprehensibility, clarity and diction. All passages were independently evaluated by 3 examiners as follows:

3= Good; 2= Average; and 1 = Poor. The evaluations of the examiners were tested for concordance.

VII. DESIGH OF INTERVENTIONS BETWEEN PRE AND POST TESTING

Two instructional methods were used for affecting reading comprehension and pronunciation:

- Students used Self Organized Learning Environments (SOLEs) for improving comprehension. SOLEs have been shown to improve reading and general comprehension and are easy to use ((Dolan et.al 2013, Mitra 2019, Vega et.al 2020).
- Students used speech-to-text software which is common and free on the Internet to achieve clearer pronunciation. This method has been shown to result in reliable and rapid improvement in speed and clarity of speech in earlier work (Mitra et.al, 2003, 2005).

VIII. PREPARATION

A training workshop was conducted for mentors prior to the program. The purpose of the program was to sensitize the mentors about the program. An invitation in the form of a link was circulated to all mentors to fill their names on slots convenient to them.

Each mentor was asked to write his/her observations about each session. This recorded what activities were undertaken in each session and the response of the class or individuals. Here are some examples of mentor reports:

A. *Session Report sample 1:* "As this was the first session students seemed apprehensive in the beginning. Introductions were made, and the session structure was explained. The students were given a demo of how to use an AI- based app that

would help them learn to pronounce sentences correctly. They were asked to search the internet to find out on "who made the first alphabet?", followed by interaction and discussion."

B. *Session Report sample 2:* "The session started with me going around the screens and asking the students to introduce themselves. Then, using the Duolingo Stories we went through a few stories which contained objective questions, that students enjoyed answering. After each story, I asked them to summarize it. They tried well and remained participative. We proceeded with one YouTube video, which they found inspirational, and discussed the moral takeaways. One student tried to relate their journey of learning English with the 'race' in the story. Later we again continued with one more Duolingo story and they helped me to select one to play for them."

IX. RESULTS

A. *Pronunciation:* The experimental group showed gains from the interventions, as shown in Figure 1. All gains were significant – fluency and clarity to a 0.05 confidence level, comprehension and diction to 0.01 confidence level.

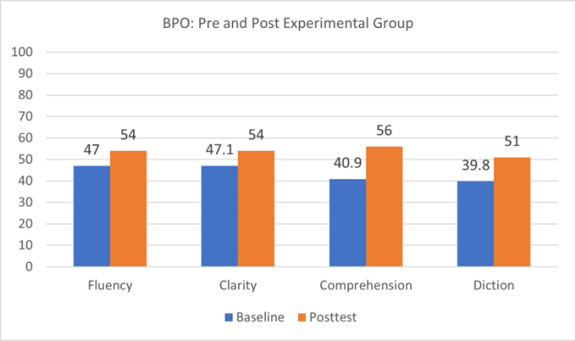

Figure 1. Experimental group pre and post-test results for pronunciation

The control group started out with a higher average score for pronunciation, but showed no change over the experimental period, as can be seen from Figure 2. The differences in the pre and post-test results were not significant.

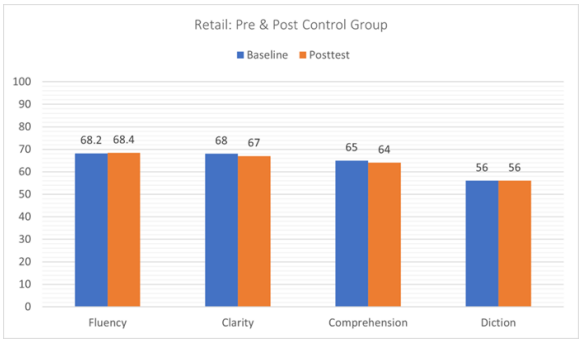

Figure 2. Control group pre and post-test results for pronunciation

Experimental Group (N=19)	Pronunciation Parameter	Pre-test mean (SD) Baseline	Post-test mean (SD)
	Fluency	47 (13)	54 (11)
	Clarity	47 (17)	54 (10)
	Comprehension	41 (9)	56 (12)
	Diction	40 (9)	51 (10)
Control group (N=13)	Pronunciation Parameter	Pre-test mean (SD) Baseline	Post-test mean (SD)
	Fluency	68 (18)	68 (14)
	Clarity	68 (21)	67 (14)
	Comprehension	65 (17)	64 (16)
	Diction	56 (15)	56 (19)

Table 1. Pronunciation scores for experimental and control groups.

B. *Reading Comprehension:* Post-testing was done with two passages, the first being the same one as the one used in pre-testing and the second was a new passage. This was to check for any error due to recall of the passage used in the pre-test.

The experimental group gained in reading comprehension over the experimental period, as can be seen in Figure 3. The gains in means were significant to a confidence level of 0.05. The control group scores for reading comprehension did not change significantly over the experimental period.

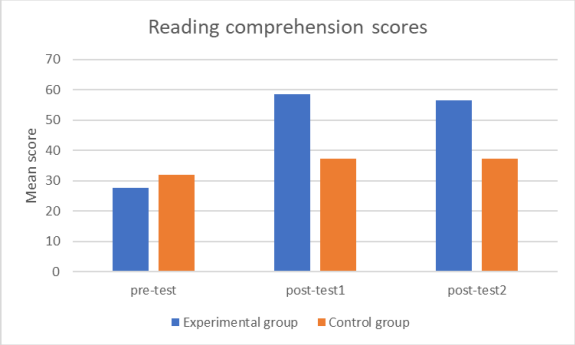

Figure 3. Reading comprehension scores for both groups.

Details of the data for the mean reading comprehension scores are shown in Table 2.

Group	**pre-test**		**post-test1**		**post-test2**	
Experimental (N=19)	27.8	15.4	58.6	4.5	56.4	7.5
Control (N=13)	31.9	8.6	37.4	9.3	37.4	17

Table 2. Reading comprehension scores for experimental and control groups

C. Qualitative perceptions of mentors and students: The results of asking mentors and students to describe each other using single words are summarized in Table 3.

Table 3. Mentors and Students assessment of each other

Domain	Mentors describing students	Students describing mentors
Affective	Enthusiastic	liked your behavior
	Shaky and nervous	very nice voice
	Hesitant	speaking fast
	Fairly loud	liked your smile
	Scared	nurturing
	Reserved	proud of you
	Shy	liked your style
	Eagerness/Willingness to learn	fresh
	Not confident	Amazing class
	Very nervous	Enjoyed class
	Unique face	Inspirational
	Beautiful smile	very understanding
	Lovely eyes	encouraging
	Creepy	loved your style
	Sad	Awesome
	Fearful	Voice is lovely
	Serious face	Very sweet
	anxious	Enjoyed/happy
	curly hair	Very Patient
	dark complexion	Very caring
	Seems notorious	So good looking
	Needs attention	Good behaviour
	Inquisitive	Looking pretty
	Quiet	So beautiful
	Not interactive	gorgeous looking

	Inactive Participative Takes Initiative	Loved confidence Good person Nice personality Liked his talking Handsome looking Nice voice/voice so sweet Good nature Very nice overall Liked hairstyle
Cognitive	1. Poor English 2. Good in reading 3. Poor in pronunciation	Class was very nice/informative Good trainer Great knowledge Excellent communication Explains so well very motivating great speaker

We note from Table 3 that the perceptions of both mentors and students are mostly affective in nature.

X. FINDINGS

While we cannot come to conclusive evidence due to small sample sizes, our results did indicate that:

- Reading comprehension improved significantly in the experimental group.
- English pronunciation improved significantly in the experimental group.
- Sessions that included informal yet engaging conversation in English, use of internet resources like YouTube, stories, online software and SOLEs, have led to an overall improvement among the students.
- There is a difference in how mentors and students perceived each other.
- The perceptions recorded are mostly in the affective domain with few descriptions in the cognitive domain.

XI. SUGGESTIONS FOR FURTHER RESEARCH

The present experiment shows that there may be merit in the training scheme described above. A study with a larger sample would be desirable.

A study on the effects of perception of mentors and students for each other, on the training outcome, could provide important support for the use of university students as mentors for the Indian BPO industry.

XII. STATEMENTS AND DECLARATIONS

- The authors have no relevant financial or non-financial interests to disclose.
- The authors have no competing interests to declare that are relevant to the content of this article.
- All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.
- The authors have no financial or proprietary interests in any material discussed in this article.

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