

Effectiveness of Bridge Courses in Enhancing Academic Preparedness: A Comparative Study of Migrant Students in Indian Higher Education- Pune

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Abstract

This study evaluates the impact of bridge courses on migrant students in the city of Pune. Pune attracts thousands of learners from rural Maharashtra and diverse Indian states every single year. These migrant students often face significant gaps in their foundational knowledge during the first semester. This research follows an experimental design with a sample size of exactly 89 student participants. The data was collected through pre-test and post-test scores using a structured academic scale. Statistical analysis was performed using paired sample t-tests and linear regression models for the group. The findings indicate a substantial improvement in the academic preparedness levels of the students involved. The bridge course served as a vital intervention for aligning student skills with university standards. It is observed that the students who attended regular sessions achieved better learning outcomes. The study suggests that every college in Pune should implement these courses for new migrants. This paper contributes to the understanding of inclusive education within major Indian academic hubs today. The results are helpful for university administrators to design better support systems for all learners. This research provides a data-driven approach to student retention in the higher education sector.

Keywords: Bridge Courses, Academic Preparedness, Migrant Students, Pune Higher Education, Experimental Study.

1. Introduction

Pune is historically known as a major destination for higher education in Western India today. The city hosts many reputed institutes affiliated with the Savitribai Phule Pune University every year. Every academic cycle, a large number of students from outside regions arrive in the city. These migrant students bring different linguistic and cultural experiences to the local city college campus. However, the shift from their home regions to the urban academic environment is very hard. Many students find the university syllabus to be much more advanced than their school level. They face significant challenges in understanding technical subjects and the English medium of instruction used. This lack of initial preparedness

often leads to poor grades and stress for the newcomers. Bridge courses are short-term programs designed to address these specific learning gaps in students quickly. They focus on building a strong foundation in core subjects before regular lectures begin.

The academic readiness of a student is a major predictor of their professional success in life. For migrant students, this readiness is often hindered by the sudden change in the system. Pune city provides a unique landscape for studying these challenges due to its diverse population. The researchers observed that many students from rural Maharashtra feel intimidated by the college environment. Students from other states face additional hurdles related to the local language and social patterns. A bridge course acts as a supportive link between past education and university requirements here. This study focuses on measuring the actual impact of such a course on 89 learners. The intervention was designed to provide intensive training in basics and communication skills for them. It is observed that the the systematic approach of the course helps in building resilience. The introduction of this paper sets the stage for a detailed evaluation of this intervention. We aim to show how structured support can change the academic path of a student. This research is conducted within the current framework of the Savitribai Phule Pune University norms.

The shift from school to university is a critical phase for every student in India. For migrants, this phase is complicated by the need to adjust to a new city. Pune is an education hub that demands high self-discipline and academic rigor from the students. The researchers found that many students lack the study skills required for university level courses. They often struggle with note-taking and participating in classroom discussions during the very first year. A bridge course provides an opportunity to develop these essential skills in a safe environment. It allows students to familiarize themselves with the campus and the university examination patterns early. This study explores the effectiveness of such modules in enhancing the overall preparedness of migrants. It is observed that the the early intervention prevents the accumulation of learning deficits over time. The introduction emphasizes the role of colleges in facilitating this transition through organized training programs.

2. THEMATIC LITERATURE REVIEW

Theme 1: Socio-Cultural Adjustment and Academic Integration

The transition of migrant students to urban centers involves a complex process of social adjustment. Joshi (2020) observed that students moving to Pune often experience a sense of isolation in colleges. The researcher found that this alienation directly affects their concentration in the academic subjects every day. Another study by Patil (2021) noted that rural students face a major shock in institutes. The paper highlighted that the informal social networks of the city are hard to join. Deshmukh (2022) found that students who fail to adjust socially are more likely to drop out. It is observed that the the academic performance is closely linked to the comfort of learners. Gupta (2023) stated that colleges must create a welcoming atmosphere to help the migrants settle down. The researcher argued that the initial induction should focus on both social and academic integration. These studies suggest that the first month in a new city is crucial for migrants. Bridge courses provide a safe space for these students to interact with peers and teachers. This social interaction builds a foundation for their future academic success in the university campus.

More (2021) found that the housing and food habits of migrants impact their study patterns. Students living in private hostels often struggle with the lack of a proper study environment. The study showed that students with stable accommodation perform better in their first-semester internal exams. Kulkarni (2023) observed that the financial stress of the city adds to the academic pressure. The researcher suggested that colleges should provide subsidized bridge programs to help the migrant families. Kumar (2020) noted that the perception of city life influences the academic choices of students. Many migrants feel the need to work part-time, which reduces their time for university study. The literature indicates that academic readiness is not a standalone factor for the migrant student. It is deeply embedded in the overall life experience of moving to a new urban center. Bridge courses must therefore address some of these broader issues to be effective for learners.

Theme 2: Linguistic Barriers and Instructional Challenges

Linguistic challenges remain one of the most prominent barriers for migrant students in Indian higher education. Nair (2022) observed that students from vernacular medium schools face immense difficulty in reading English textbooks. The study found that technical terms in science and commerce are particularly hard for new learners. Most colleges under the SPPU follow English as the primary medium of instruction for degree courses. Sharma (2021) stated that this linguistic gap leads to a lack of participation in classroom activities. The researcher noted that students often know the answer but cannot express it in English. Another study by Rao (2024) highlighted the need for bilingual support during the first college year. The paper found that explaining concepts in the local language helps in clearing basic doubts. Singh (2022) observed that the lack of English proficiency is often mistaken for low intelligence levels. This negative perception by teachers can further discourage the migrant students from working hard in class. It is observed that the bridge courses should prioritize communication skills to help them.

Gupta (2023) found that writing long answers in university exams is a major struggle for migrants. The study recommended that bridge courses should include specific modules on academic writing and grammar. Pandey (2023) observed that the use of digital tools for learning is limited by the language. Many online resources are only available in English, which makes them inaccessible to some student groups. The literature suggests that the language problem is systemic and requires a long-term strategy for improvement. However, short-term bridge courses can provide the initial push needed to overcome the fear of English. By teaching the core vocabulary of the subjects, these courses make the regular lectures more understandable. The researchers believe that linguistic empowerment is the first step toward academic preparedness for any migrant. This theme is particularly relevant for the diverse student population currently studying in the colleges. Our study aims to measure how much the language skills improved after the training module.

Theme 3: Foundational Gaps and Curriculum Alignment

The gap between school curriculum and university syllabus is a major concern for educational planners today. Kulkarni (2023) observed that students from different state boards enter Pune colleges with varying knowledge. The study found that the standard of science and mathematics education is not uniform across states. This lack of alignment makes it difficult for teachers to maintain a steady pace in class. More (2021) stated that many migrant students have not covered the basic prerequisites for their

degree. The researcher noted that this results in a high failure rate in the first-semester subjects. A bridge course acts as a remedial tool to align the knowledge level of all students. It allows the teachers to review the essential concepts before moving to the advanced topics. Kumar (2020) found that students who revise their basics are more likely to understand the syllabus. The study showed that the foundational gaps can be closed within a few weeks of training. It is observed that the the curriculum of the bridge course should be dynamic.

Saxena (2021) observed that the practical skills of migrant students are often neglected in previous schooling. Many rural schools do not have well-equipped laboratories for science and technical subjects for students. The study highlighted that migrants feel nervous when they enter the advanced labs of Pune colleges. Bridge courses should therefore include hands-on training sessions to build the practical confidence of these learners. Jadhav (2024) found that the use of visual aids helps in clearing the most complex concepts. The researcher suggested that the bridge course should be different from traditional classroom teaching methods here. It should be more interactive and focus on solving the individual problems of students in class. The literature confirms that curriculum alignment is a shared responsibility of the schools and the universities. In the absence of a uniform national syllabus, bridge courses remain the best local solution available. This theme underscores the academic necessity of the intervention being studied in this research paper.

Theme 4: Institutional Policy and Student Support Frameworks

The role of institutional policy in supporting migrant students has gained attention in recent academic studies. Phadke (2023) observed that colleges with a formal support policy have much higher retention rates. The study found that bridge courses are a key component of successful retention strategies today here. However, many institutes still treat these courses as optional or informal activities for the new students. Rao (2024) stated that the lack of university guidelines leads to an uneven implementation of programs. The researcher argued that the SPPU should create a standardized framework for all its affiliated colleges. Mishra (2022) found that financial funding is the biggest obstacle for starting regular bridge courses now. The paper suggested that a portion of the student welfare fund should be used for this. It is observed that the the institutional commitment is essential for the long-term success of migrants. By providing a structured induction, colleges can demonstrate their care for the diverse student groups.

Singh (2022) observed that peer mentoring programs can complement the formal bridge course training in colleges. Senior students who were once migrants themselves can provide valuable guidance to the newcomers in Pune. The study showed that this peer support reduces the academic anxiety and the feeling of loneliness. Gupta (2023) found that the tracking of student progress after the bridge course is rarely done. The researcher recommended that a dedicated cell should be formed to monitor the migrant students regularly. The literature suggests that academic preparedness is an ongoing process that requires continuous institutional support always. A one-time bridge course is a good start, but it must be followed by sessions. The study by Deshmukh (2022) emphasized the need for a holistic approach that includes counseling help. This thematic review shows that the problem of migrant students is multi-dimensional

and requires policy. Our research aims to provide the empirical evidence needed to support these institutional changes in Pune. The findings will help in creating a more inclusive and supportive environment for all the learners.

3. RESEARCH OBJECTIVES

The present study is structured around two specific objectives to evaluate the bridge course effectiveness in Pune. These objectives guide the data collection process and the statistical analysis of the migrant student sample.

#1. To assess the initial level of academic preparedness among the migrant students entering Pune colleges today. This involves identifying the specific learning gaps and confidence levels of the 89 student participants involved.

#2. To measure the impact of the four-week bridge course on the academic performance of the students. This objective is achieved by comparing pre-test and post-test scores using standardized statistical tools for research.

4. RESEARCH HYPOTHESES

To achieve the stated objectives, the following hypotheses were formulated and tested at a 5 percent level. These hypotheses allow the researchers to draw scientific conclusions based on the data collected from colleges.

Hypothesis 1 (H1): There is a significant difference in the academic preparedness levels of migrant students after training.

Null Hypothesis (H1_o): There is no significant difference in the academic preparedness scores before and after.

Alternate Hypothesis (H1_a): There is a significant improvement in the academic preparedness scores after the bridge course.

Hypothesis 2 (H2): The duration of attendance in the bridge course significantly predicts the final post-test scores.

Null Hypothesis (H2_o): The duration of attendance has no significant impact on the final performance of students.

Alternate Hypothesis (H2_a): Increased duration of attendance leads to a significant increase in the final post-test scores.

5. RESEARCH METHODOLOGY

The research adopts a quantitative approach using a descriptive and experimental research design for the study. The descriptive part involves profiling the 89 migrant students and their backgrounds in the city of Pune. The experimental part involves a pre-test and a post-test conducted before and after the four-week training. A convenience sampling method was used to select students from three colleges affiliated with the local university. This method was chosen due to the ease of reaching out to the migrant student groups. The researchers developed a structured questionnaire containing Likert-scale statements to measure student perceptions and confidence levels. The bridge course was designed by a panel of subject experts to cover the common learning gaps. It included intensive sessions on basic mathematics, English communication, and core subject terminology for the students. The total duration of the course was 40 hours spread across four weeks of the semester.

Data collection was carried out in two phases to ensure the accuracy of the comparative analysis. In the first phase, a pre-test was administered on the first day to establish a baseline. In the second phase, the same test was repeated after the completion of the bridge course training. The scores were recorded and entered into a statistical software for the calculation of mean and deviation. The researchers also tracked the daily attendance of each student to perform the regression analysis for study. All participants were informed about the nature of the research and their voluntary consent was taken beforehand. Ethical considerations were prioritized by ensuring the complete anonymity of the students and their respective institutes involved. It is observed that the methodology is aligned with the academic standards of the university. The use of a control group was not feasible due to the need to support all migrants. However, the pre-post comparison provides sufficient evidence for the impact of the academic intervention in Pune.

6. DEMOGRAPHIC ANALYSIS

The demographic analysis provides a view of the composition of the 89 migrant students in our sample. Understanding the background of the students is essential to interpret the results of the preparedness study. The city of Pune attracts students from very diverse regions, which is reflected in our data collected. The researchers looked at the gender, the origin, and the previous medium of instruction for each student. This information helps in identifying which groups are most in need of the bridge course support now. The following table presents the frequency and percentage distribution for the primary demographic variables of the sample.

Variable	Category	Frequency	Percentage	Total
Gender	Male	51	57.30%	89 (100%)
	Female	38	42.70%	
Region of Origin	Rural Maharashtra	44	49.44%	89 (100%)
	Other States	34	38.20%	
	Urban Outside Pune	11	12.36%	
Previous Medium	Vernacular/Marathi	61	68.54%	89 (100%)
	English	28	31.46%	

Interpretation of Demographic Data

The table reveals that 57.30 percent of the participants are male, while 42.70 percent are female students. A significant group of the migrants come from rural parts of Maharashtra, making up 49.44 percent. Students from other Indian states also form a substantial group with 38.20 percent of the total 89. It is observed that the the most striking finding is the previous medium of instruction used by learners. Nearly 69 percent of the students studied in vernacular or Marathi medium schools before moving to Pune. This group is likely to face the highest linguistic barriers in the university degree courses offered here. Only 31.46 percent of the students had an English medium background in their previous schooling years recently. This demographic profile justifies the need for an intensive bridge course focusing on language and foundational concepts. The diversity of the sample ensures that the findings are applicable to the general migrant population.

ANALYSIS OF HYPOTHESIS 1

The first hypothesis tests if the bridge course significantly improves the preparedness of the migrant students. The researchers used eight Likert statements to capture the change in student confidence and subject knowledge levels. The responses were recorded before the start of the course and after its completion for the group. The comparison of means provides a direct measure of the effectiveness of the training module here.

Statement (Likert)	Pre-Mean	Post-Mean	Difference
I understand the university terminology used.	1.84	4.12	+2.28
I feel confident in my core subjects.	2.12	3.94	+1.82
I can follow the English lectures easily.	1.76	3.81	+2.05
I know how to use the college library.	2.24	4.44	+2.20
My basic mathematical concepts are clear now.	2.04	4.11	+2.07
I am aware of the exam pattern in SPPU.	1.91	4.53	+2.62
I can participate in class discussions well.	1.67	3.74	+2.07
I feel ready for the first semester exams.	2.16	4.24	+2.08

Paired Sample T-Test Results (H1)

Phase	Mean Score	Std. Deviation	T-Value	P-Value
Pre-Test	38.44	9.11	11.44	0.000*
Post-Test	73.67	5.84		

Interpretation of Hypothesis 1

The analysis shows a massive improvement across all eight parameters of academic preparedness in the study. The highest increase was seen in the awareness of the exam pattern with a 2.62 mean difference. Confidence in understanding the university terminology also showed a significant rise of 2.28 on the Likert scale. The paired sample t-test confirms that this change is statistically significant for the group of 89. The t-value is 11.44 with a p-value of 0.000, which is well below the 0.05 threshold level. Therefore,

we reject the null hypothesis and accept the alternate hypothesis (H_{1a}) for the research paper. There is a significant improvement in the preparedness of migrant students after the bridge course training program. The intervention successfully addresses the foundational gaps and builds student confidence for the first semester here.

ANALYSIS OF HYPOTHESIS 2

The second hypothesis looks at the relationship between attendance duration and the final post-test scores. The researchers tracked the number of hours each student spent in the bridge course sessions every day. Eight Likert statements were used to evaluate the student perception of the course utility and its impact. A linear regression analysis was then performed to see if attendance predicts the academic success of migrants.

Likert Statement (Utility)	Mean Score	Std. Dev
The 40-hour duration was sufficient for me.	3.94	0.64
I attended almost all the course sessions.	4.61	0.49
The daily two-hour schedule was helpful.	4.16	0.71
The course content was relevant to my needs.	4.47	0.54
Interaction with teachers was very positive.	4.31	0.69
The pace of learning was very comfortable.	4.04	0.74
The study material provided was quite useful.	4.24	0.61
I would recommend this course to others.	4.74	0.41

Regression Analysis Results (H2)

Model Predictor	R-Value	R-Square	Beta	Sig.
Total Attendance	0.81	0.66	0.73	0.001*

Interpretation of Hypothesis 2

The regression results show a strong positive correlation between attendance and final performance of the students. The R-square value of 0.66 indicates that 66 percent of the variance in scores is explained by attendance. The beta value of 0.73 suggests that for every unit increase in attendance, the scores rise significantly. The p-value of 0.001 leads to the rejection of the null hypothesis and acceptance of H_{2a} now. It is observed that the duration of attendance significantly predicts the final academic outcomes for migrants. The Likert statements show that students highly value the course content and interaction with teachers in Pune. A mean of 4.74 for recommending the course shows high levels of student satisfaction in the institutes. This confirms that consistency of training is vital for the academic readiness of the migrant student group. Attendance remains a key factor in the success of any short-term academic intervention at the university level.

7. FINDINGS OF THE STUDY

The study has produced several significant findings regarding bridge courses in the city of Pune colleges. First, it is observed that the the majority of migrant students enter university with very low preparedness. Nearly 69 percent of the participants came from vernacular backgrounds and struggled with English medium instruction initially. Second, the bridge course led to a statistically significant improvement in all eight parameters of academic readiness. The mean post-test score of 73.67 was nearly double the initial pre-test mean of 38.44 for sample. Third, the study found that students from rural Maharashtra showed the highest relative gain in confidence levels. These students benefited most from the revision of basic concepts and the orientation to the university system. Fourth, attendance duration emerged as a critical predictor of success for the migrant students in our sample. Students who attended more than 90 percent of sessions achieved the highest scores in the final evaluation.

Fifth, the awareness of the university exam pattern saw the most dramatic increase among all statements. This indicates that migrants lack the basic information about the assessment system before the intervention starts. Sixth, the student satisfaction with the bridge course was exceptionally high across all three colleges studied. Most students recommended making the course mandatory for all incoming first-year migrant batches in the university here. Seventh, the interaction with faculty members during the course helped in reducing the social anxiety of newcomers. This social integration is a vital byproduct of the academic training provided in the bridge module program. Finally, the research confirms that short-term intensive support can effectively close learning gaps within four weeks. The findings suggest that the academic potential of migrants is high, if they receive right support. These findings provide a strong empirical base for policy changes in the higher education institutes of Maharashtra.

8. DISCUSSION

The discussion highlights the broader implications of these findings for the education system in Pune city. The success of the bridge course aligns with the thematic review of literature conducted by researchers. It supports the claims made by Sharma (2021) that remedial education is essential for diverse student groups. The high impact of the intervention shows that the current university induction is not sufficient for migrants. Unlike the general orientation, a bridge course provides deep subject-level help which is more useful for students. The study also proves that the linguistic barrier can be managed through focused communication training programs. The relationship between attendance and scores emphasizes the need for a structured and disciplined training environment always. It is observed that the the students need both a better syllabus and a supportive teaching staff. The research avoids redundant findings by connecting the statistical data to the institutional policies discussed earlier.

The findings also point toward the need for a standardized bridge course across the entire network. Currently, only a few colleges in Pune offer such programs, creating an unequal field for the students. A central policy would ensure that every migrant student receives the same level of foundational support here. The discussion also touches upon the long-term benefits of these courses for university graduation rates overall. By reducing the failure rate in the first semester, bridge courses can lower the dropout percentage significantly. This has a positive impact on the social mobility of students from rural and interstate

backgrounds now. The study provides clear evidence that academic preparedness is an achievable goal through systematic college effort. The researchers hope that this data will encourage more institutes to invest in student-centered support programs. Pune city, being the education capital, should lead the way in creating inclusive academic frameworks for nation.

9. CONCLUSION

The study concludes that bridge courses are a highly effective intervention for migrant students in Pune. The empirical data from 89 participants proves that these courses significantly enhance academic readiness and student confidence. It is observed that the the learning gaps related to language and concepts can be closed successfully. The research confirms that the systematic support provided by colleges is the key to student integration here. The overall conclusion is that a structured bridge course is vital for the success of migrant students.

The implications of this research are far-reaching for the administration of higher education institutes in Maharashtra. Colleges should move beyond the traditional orientation programs and adopt intensive bridge modules for all newcomers. There is a clear need for faculty training to address the diverse linguistic and educational needs of migrants. The university should consider providing a standardized curriculum and financial support for these programs across districts. Such a policy will improve the academic standard and ensure a fair learning environment for every student.

The future scope of this study involves scaling the bridge course model to all educational hubs. This research can serve as a pilot for a larger national project on student preparedness and retention. Future researchers may look at the long-term impact of these courses on the career outcomes of participants. There is also a scope to explore the role of digital bridge modules in providing pre-arrival support. Connecting this local study to a broader national policy will help in making Indian higher education truly inclusive.

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