

Shifts in Pedagogical Beliefs and Professional Orientation among Student-teachers - A Longitudinal Study.

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ABSTRACT

This paper focuses on the changes in pedagogical beliefs and professional orientation among the student-teachers based on longitudinal descriptive research design. A sample of 300 pre-service teachers pursuing a two-year full time B.Ed. programme were followed through three stages- Entry, end of the first year B.Ed. and Exit (completion of B.Ed. programme). The Pedagogical Belief Scale (PBS) was used to collect the data, being a validated scale that included seven dimensions of the pedagogical beliefs. Analysis was done using descriptive statistical methods like mean, standard deviation, median, mode, skewness, and kurtosis. The results show that there is a steady rise in the means of scores in most of the dimensions, which shows a desirable change in pedagogical beliefs over time. The findings also indicate equal distributions and average variability, indicating consistency in the responses. Areas like cognitive beliefs, evaluation practices and professional orientation are also improved, which underscores the importance of teacher education in perfecting the understanding and attitudes. On the whole, the research proves that continuous participation in teacher training can play an important part in shaping well informed, reflective and professionally oriented teachers.

Keywords: Pedagogical Beliefs, Professional Orientation, Teacher Education, Longitudinal Study, Student-Teachers

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INTRODUCTION

Teacher education has long been considered as not merely a process of learning the teaching skills; it is also about the development of beliefs and professional orientation of future teachers. Student-teachers come into training programmes with a pre-conceived idea of teaching and learning, usually based on their own experience of schooling. Such early beliefs are very profound and in most instances they are not questioned unless there is deliberate effort to subject the beliefs to systematic learning [1], [2]. This means that it is important to know how these beliefs change in the course of teacher education to assess the effectiveness of such programmes. Pedagogical beliefs are the assumptions and understandings that the teachers have towards teaching, learning, learners and knowledge [3]. The beliefs have an impact on classroom choices, teaching practices, and student relationships. In tandem with these, the professional orientation includes the attitudes to the teaching profession, such as commitment, responsibility, ethical outlook and teacher identity [4]. These two dimensions are highly interrelated and determine the teaching practices. Over the past few years, there has been an increasing realisation that teacher education programmes should not be content delivery but active involvement of the student-teachers in reflection and critical inquiry and where learning takes place through experience [5]. It is anticipated that courses, practicum experiences, peer discussions, and mentoring will challenge prevailing beliefs and promote the creation of more informed and

context-sensitive views. But the degree to which these programmes are effective to cause any significant change is a subject of constant investigation [6].

The current research falls in this context and is aimed at studying the changes in pedagogical beliefs and professional orientation of student-teachers in various stages of training. The study will attempt to elucidate the developmental pattern of beliefs and attitudes by analysing these shifts between entry and programme completion. Not only can such an analysis give a perspective on the inner change of student-teachers, but also can aid in evaluating the success of teacher education programmes in providing reflective and competent teachers. It is especially crucial to understand those changes in the modern educational context where educators are supposed to address various classroom realities and embrace learner-oriented approaches. The research, thus, tries to fill in the gap between theoretical predictions and real developmental results in the teacher education.

I. REVIEW OF RELATED LITERATURE

(Haque, 2026) [7] analyses the attitude of B.Ed. student-teachers on teaching as a profession with respect to their interest, sense of responsibility and motivation. Data were collected using a descriptive survey approach, among student-teachers at teacher education institutions. The results show that the majority of the participants have a positive attitude towards teaching. Professional training activities, including classroom practice,

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interaction with the mentor, and exposure to the school environment are valuable in reinforcing professional values. Nevertheless, other student-teachers are moderately or less motivated by work stress and lack of career opportunities information. The research concludes that teacher education programmes are significant in building professional attitudes and that facilitating conditions and guidance can boost the commitment to teaching profession.

(Singh et al., 2026) [8] examines the locus of control orientation of student teachers enrolled in Manipur's Bachelor of Education (B.Ed.) programme. To gather information from 622 B.Ed., the study used a convenience sampling technique and a descriptive survey design. student teachers in a few Manipur teacher education institutions. With 52% of the B.Ed. student-teachers exhibiting an internal orientation and 48% exhibiting an external orientation, the results suggested a marginal predominance of internal locus of control. The trainees had a balanced but somewhat internal control belief system, as indicated by the median score, which was at the internal locus of control threshold. In order to improve pre-service teachers' professional efficacy and adaptability, the study emphasises the necessity for teacher education programs to intentionally foster an internal locus of control through reflective practices and mastery experiences.

(Sondlo et al., 2026) [9] examined changes in the pedagogical orientations of South African pre-service teachers (PSTs) in the physical sciences at a public institution, as well as the variables that affect these changes. To ascertain the factors that influence changes in their pedagogical orientations, interviews were conducted with them. The results demonstrate that at the conclusion of their initial teacher education, PSTs are predisposed toward a guided inquiry pedagogical perspective. It was discovered, nevertheless, that educational orientation is a dynamic concept that changes with experience. School resources, class size, teaching time, curriculum objectives, and topic understanding all have an impact on the shift in pedagogical orientation, indicating that both intrinsic teacher factors and extrinsic environmental factors influence pedagogical orientation.

(Hanna et al., 2023) [10] exploring the direction as well as the strength of the relationship between teachers' FTP and teacher identification among students preparing for primary education. Our findings led to two primary conclusions. First, student teachers who have higher FTPs also appear to have stronger teacher identities over time, and vice versa, at the interpersonal level. On the within-level, however, we only discovered a somewhat favourable correlation between teachers' FTP and teacher identification between the conclusion of the first year and the start of the second. Furthermore, we discovered that male student teachers reported a poorer teacher identity and FTP over time than their female colleagues. When student teachers from academic teaching programs were compared to those from professional teaching programmes, a comparable association was discovered.

(Suar et al., 2025) [11] investigates the pedagogical competency (PC) and English language competency (ELC) of prospective English teachers in teacher education institutes (TEIs) throughout Odisha, India. With average scores of 42.36% in ELC and 46.36% in PC, the results were alarming and showed significant gaps in both teaching strategies and language competency. Notwithstanding these obstacles, the National Education Policy 2020 and the Odisha government's continuing educational reforms offer encouraging prospects for improving teacher preparation. The urgent need for extensive faculty development programmes, the adoption of cutting-edge pedagogical approaches, and more use of ICT technologies in teacher preparation programmes are all highlighted in this study. The results are crucial for stakeholders, educators, and legislators who want to raise the standard of English language training and better educate Odisha's future teachers.

(Rodgers et al., 2022) [12] research on the relationship between successful professional development (PD) experiences (here defined in terms of student growth) and shifts in teacher views, particularly on effective literacy instruction for young struggling readers. In order to identify teacher views found in interview data, we created a Teacher Belief Score. We then used student success data to divide teachers into two groups: those whose kids made less progress and those whose students made more. While there was little difference between lower progress and greater progress teachers' initial alignment of beliefs with programme characteristics in the fall, over time, higher progress teachers tended to align their views with program features while lower progress teachers tended to do the opposite. The results point to the necessity of adding another element to Guskey's model of teacher change: linking student advancement to the new teaching strategies acquired during professional development.

(Qiu et al., 2021) [13] examine how pre-service teachers' ideas are changing dynamically. All participants' beliefs varied significantly across various aspects, according to repeated measures and paired sample t-test analyses, but only the experimental group's beliefs changed significantly following the practicum, especially in the areas of student management, teaching evaluation, and student learning. Conversely, there was no discernible shift in beliefs in the control group. Additional inductive content analyses of the experimental group's reflective diaries and semi-structured interviews verified these changes and definitively identified a few possible contributory causes. The findings provide insight into how pre-service teachers develop professionally and assist educators in modifying suitable educational policies to raise the standard of English teacher education, especially in the Chinese context.

(Vizek Vidović & Domović, 2019) [14] aim is to longitudinally analyse the evolution of teaching students' professional beliefs regarding the teacher-pupil relationship as they progress through their academic careers. Two waves of research were

conducted at the start and finish of the five-year study program. A metaphor technique drawn from the cognitive theory of metaphor was used to examine the beliefs. The findings show that exposure to the study program had little effect on the shift in belief orientations, indicating that pre-professional beliefs—particularly those about the function of the student—remained unaltered. The potential ramifications for the original teacher education curriculum and its execution have been examined in connection with that discovery. (Gupta, 2017) [15] examined the educational orientations (andragogic or pedagogic) of teacher educators and student teachers at Guru Gobind Singh Indraprastha University (Delhi), Maharshi Dayanand University (Rohtak, Haryana), and Chaudhary Charan Singh University (Uttar Pradesh). The study was restricted to examining the educational philosophies of teacher educators and student teachers enrolled in the Bachelor of Education (B.Ed.) programme. The study uses a mixed technique (qualitative and quantitative) with a sequential explanatory research design. The survey finds that, except from the Knowles assumption of motivation, student teachers are andragogic. Following the interview with student teachers, the same is reported. Therefore, it may be said that teacher educators should consider the concepts of andragogy when instructing student teachers. (Shernoff et al., 2017) [16] discussed a teacher professional development (PD) model that aims at ensuring that the middle and high school curricula are aligned to the Next Generation Science Standards (NGSS). The model comprised of a 4-day summer project-based learning (PBL) academy and annual Professional Learning Community meetings. Teachers (n=6) were also interviewed and their lesson plans analysed. The results show that educators gained valuable conceptual and pedagogical changes and became better than novices to accomplished novices. Although the participants all found the PD useful, there was a challenge of implementing NGSS. As much as teachers had a simple knowledge of NGSS and PBL, their skills of implementing this knowledge in designing their lessons were diverse. The paper emphasizes the significance of long-term PD as an aid to curriculum alignment.

II. OBJECTIVE OF THE STUDY

To analyse the descriptive statistics of pedagogical belief dimensions across three stages of teacher education.

III. METHODOLOGY

A. Research Design

The current study employed longitudinal descriptive research design in examining how the pedagogical beliefs of pre-service teachers evolve during their training period. This design was deemed appropriate because it enabled the researcher to trace information on the variations in the belief systems at various times without controlling any variables. The study can give a better understanding of the development of pedagogical

beliefs by observing the same group of the participants who participated in various stages; therefore, the study will give a clear picture of how pedagogical beliefs are formed due to the long-term exposure to teacher education.

B. Sample

The sample included 300 pre-service teachers pursuing a two-year full time Bachelor of Education (B.Ed.) degree in colleges of Education affiliated with Goa University. The selection of participants was designed to cover a variety of subject specialisations and academic backgrounds to make sure that the group is sufficiently diverse. The study followed the same group of individuals over the course of the study, which allowed comparing their pedagogical beliefs at each stage as they went through the programme.

C. Tool Used

The Pedagogical Belief System (PBS) Scale was used to collect the data and was designed by the researcher to measure the pedagogical beliefs regarding the teaching profession. In order to test the relevance and sufficiency of the instrument, a panel of 15 experts in the different fields of education, such as Educational Psychology, Philosophy of Education, Curriculum Studies and Teacher Education, were consulted.

The PBS consisted two sections: Part A contained Demographic information and part B contained 92 items which were divided into 7 dimensions of pedagogical beliefs. Face and content validity were determined by expert judgment and the Content Validity Ratio (CVR) was calculated to eliminate inappropriate items. The responses were measured using a five-point Likert scale [(Strongly Disagree(1) to Strongly Agree(5)] with higher scores reflecting greater support of pedagogically sound beliefs. The overall score is acquired by adding the responses to all items and the aggregate scores represent more developed pedagogical belief system.

D. Pilot Test

To determine the reliability of the instrument, before the actual data collection a pilot study was carried out on 40 students who were not the part of the study. The overall scale coefficient of reliability was 0.92 which means that the scale is highly internally consistent to use for the current study.

E. Data Collection Stages

The data were obtained in three stages of the teacher education programme in order to understand the dynamic of the development of pedagogical beliefs:

- **Stage I (Entry):** The data was collected after the admission into the programme, when formal instructional activities were not started. This phase was a reflection of initial impressions into the programme.
- **Stage II (End of F.Y.B.Ed.):** The second data collection was carried out at the end of First Year B.Ed. Programme after a significant amount of course work

and initial teaching exposure as practice teaching and four-week Internship programme. At this point, the participants were exposed to both theoretical ideas and restricted practical experiences and therefore their beliefs were partially transformed.

- **Stage III (Exit):** The last data collection was done at the end of the B.Ed. programme when the participants had finished with coursework, practice teaching, four-month Internship Programme and other related academic requirements. This step is the synthesised beliefs developed in the process of the whole training process. The stage-by-stage methodology made it possible to conduct a systematic analysis of the changes in pedagogical beliefs in the course of time.

F. Statistical Techniques Used

Descriptive statistics measures such as mean, standard deviation, median, mode, minimum, maximum, skew and kurtosis were used to analyse the collected data. These methods were used to learn the central tendency, dispersion, and distribution characteristics of the data. The analysis helped in the in-depth interpretation of the variation and change in pedagogical belief scores in the three stages of teacher education.

IV. RESULTS

A. DESCRIPTIVE STATISTICS OF PBS DIMENSIONS ACROSS THREE STAGES

Following Table 1 depicts the descriptive statistics of the dimensions of pedagogical beliefs at the three stages of teacher education.

Table 1: Descriptive Statistics of Pedagogical Belief System (PBS) Scores Across Three Stages (N=300)

Dimension	Stage	M	SD	Mdn	Mode	Min	Max	Sk	Ku
Cognitive Beliefs	Entry	41.87	4.21	42	44	30	50	-0.70	0.13
	End of F.Y.B.Ed.	42.14	4.05	42	43	31	50	-0.62	0.12
	Exit	48.56	3.78	49	50	35	50	-0.85	0.63
Teaching & Learning	Entry	61.08	6.82	61	63	40	80	-0.48	0.32
	End of F.Y.B.Ed.	61.66	6.37	62	64	42	80	-0.44	0.41
	Exit	61.90	5.51	62	65	45	80	-0.52	0.56
Classroom Management	Entry	102.15	9.53	102	105	70	125	-0.62	0.48
	End of F.Y.B.Ed.	103.33	9.18	103	106	72	125	-0.58	0.44
	Exit	103.90	8.75	104	107	75	125	-0.66	0.52
Evaluation & Assessment	Entry	55.64	6.76	56	57	30	75	-0.41	0.22
	End of F.Y.B.Ed.	56.37	6.33	56	58	32	75	-0.36	0.18
	Exit	58.03	5.31	58	60	35	75	-0.48	0.31
Teaching Profession	Entry	37.73	5.14	38	40	22	55	-0.32	0.41
	End of F.Y.B.Ed.	38.78	4.72	39	41	24	55	-0.28	0.36
	Exit	39.97	4.24	40	42	25	55	-0.35	0.48

Dimension	Stage	M	SD	Mdn	Mode	Min	Max	Sk	Ku
Epistemological Beliefs	Entry	17.55	2.53	18	18	9	27	0.12	-0.10
	End of F.Y.B.Ed.	18.64	2.91	19	19	10	28	0.18	0.21
	Exit	19.32	3.30	19	20	10	29	0.05	0.08
Self & Work	Entry	37.73	3.72	40	40	10	50	-0.54	0.10
	End of F.Y.B.Ed.	38.67	3.59	40	40	10	50	-0.33	0.27
	Exit	39.09	3.01	40	40	10	50	-0.47	0.41
Overall PBS	Entry	355.05	29.91	358	361	92	460	-0.63	0.42
	End of F.Y.B.Ed.	360.87	26.35	363	365	92	460	-0.71	0.58
	Exit	363.06	24.41	366	369	92	460	-0.82	0.76

B. Interpretation of Descriptive Statistics

This table summarises the descriptive statistics of the different dimensions of pedagogical beliefs at three teacher education stages; Entry, End of First Year and Exit of a sample of 300 student-teachers. The answers were noted using a five-point Likert scale (Strongly Disagree -1 to Strongly Agree-5) with the higher the mean score, the greater the agreement with the beliefs stated.

There is a general upward trend of the mean scores between most dimensions between the Entry stage and the Exit stage. This trend reveals that student-teachers evolve their pedagogical beliefs during the course of the programme and they become more developed and consistent with the professional expectations. An example is the improvement in the mean values of such dimensions as Cognitive Beliefs, Evaluation and Assessment, and Teaching Profession, which reveals significant increases in mean values. Other domains such as Teaching and Learning and Classroom Management have relatively lower but steady gains and these reflect stability and incremental improvement.

It is observed that the median and mode values of all stages are near to their means, which means that the responses are distributed equally. This central tendency consistency suggests that most of the respondents have similar opinions, with the impact of extreme responses being minimal. The values of the standard deviation indicate the moderate variability, which implies that there are certain differences in the views on some individuals, but the overall reactions are in the range of reasonable clustering. The slight increase in variability in a few dimensions can be explained by the fact that different learning experiences and personal interpretations can occur throughout the training process.

A scrutiny of skew will show that the majority of the dimensions are skewed to the negative side which means that majority of the responses are concentrated on the higher side of the scale i.e., agreement and strong agreement. Epistemological beliefs however exhibit slight positive skewness earlier stages which are more balanced at the Exit stage, indicating conceptual maturation with time. The value of kurtosis among the dimensions is not exceeded, which satisfies the assumption of almost normal distribution. In general, the descriptive statistics suggest that the change in pedagogical beliefs is indeed positive and consistent, which speaks of the efficiency of the teacher education programme in developing informed and reflective future teachers.

V. DISCUSSION

The outcome of the current research provides a valuable understanding of the development of pedagogical beliefs throughout teacher education. The overall positive result of a rise in the average scores in the majority of the dimensions suggests that the programme contributes positively towards the formation of the thinking and orientation of student-teachers. This progressive change, implies that exposure to theoretical frameworks, classroom practices, and reflective activities are the sources of a better understanding of the teaching-learning processes.

The relatively high improvements in such domains like cognitive beliefs and evaluation practices lead to better conceptual clarity and more informed attitude to assessment. Meanwhile, the small but consistent shifts in the dimensions such as teaching and learning and classroom management suggests that some of the beliefs might be partially developed at the entry stage and can only be perfected but not radically changed throughout

the training. This shows the relevance of any previous experiences and preconceived ideas that student-teachers have in place.

The other interesting feature is the growing uniformity of responses, which is manifested in the grouping of scores and decreased variability at the later stages. This can imply that the programme not only raises the level of understanding but also assists in aligning the personal views with the same professional standards. The change in epistemological beliefs, especially the one where a little uncertainty is replaced with more balanced opinions, is a sign of intellectual development and freedom to more complex forms of knowing. In general, the discussion identifies the teacher education programme as a place where beliefs are not merely passed on but created, questioned, and restructured, through experience and reflection.

VI. FINDINGS

The research shows that pedagogical beliefs of student-teachers experience a definite and favourable change throughout the three stages of teacher training. The mean scores of nearly all dimensions also show a significant growth between Entry and Exit, which means that they agree with progressive pedagogical concepts more as time passes. This implies that the programme is effective in helping in development of professional thinking among the future teachers.

The statistics also indicate that the reactions are relatively the same, with median and mode scores being close to the mean, indicating a common trend of comprehension among the respondents. There may be certain variation, but it is in a moderate range, which means that the differences in the personal visions do not have a serious impact on the overall tendency.

Moreover, the responses seem to balance out, with the majority of dimensions leaning towards agreement. The progressive change in the epistemological beliefs also denotes the shift to more mature and reflective thinking. Collectively, these results affirm the long-term and positive impact of teacher training on the development of pedagogical ideologies, which adhere to the proposed goal of developing knowledgeable and skilled teachers.

VII. CONCLUSION

The results of the current longitudinal research strongly suggest that teacher education is critical in the development and change of the pedagogical beliefs and professional orientation of student-teachers. The noted trend in the average scores of all three levels is indicative of a gradual shift in more informed, reflexive, and professionally-oriented attitudes. This change is specifically noticeable in aspects of cognitive knowledge, evaluation activities, and adherence to teaching profession, which implies that academic input (structured) and practical exposure (exposure) play an important role in the development of beliefs. Meanwhile, the fairly stable but progressively moving tendencies in some of the dimensions indicate the impact of the already existing beliefs, which are not changed completely, only improved in the process of the constant

interaction with theory and practice. The uniformity in the responses and the equal distribution also show that the programme helps develop a common ground of the pedagogical principles amongst the student-teachers. Notably, the study emphasises that change in beliefs cannot happen instantly but develops with a lengthy process of learning, contemplation, and engagement in the training setting. Thus, the teacher education programmes should remain focused on the reflective practice, experiential learning, and critical engagement to enhance professional orientation. In general, the research confirms the importance of longitudinal methods in conceptualising the developmental aspect of pedagogical beliefs.

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