Bridging the Career Guidance Gap: Curriculum, Pedagogy, and NEP 2020 in India's Tribal Schools

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Abstract

Background: Career decision-making among secondary school students in marginalised contexts is shaped by personal, socio-cultural, and institutional factors. In India's tribal districts, poverty, geographical remoteness, and limited access to career information intersect with curriculum relevance, pedagogical quality, and policy implementation to constrain students' career horizons.

Purpose: This study aims to examine the determinants of career decision-making among Grade 10 students in government secondary schools of the tribal district of Koraput, Odisha, India, with emphasis on the role of curriculum, pedagogy, career counselling, and National Education Policy (NEP) 2020 provisions in shaping career outcomes.

Methods: A mixed-methods design with QUAL-Quan model was employed, combining a primary survey of 320 students drawn through multistage random sampling from Koraput and Jeypore blocks with secondary analysis of policy documents, government audit reports, and programme data. Exploratory factor analysis was used to generate latent construct scores, which were then analysed using regression models.

Results: The findings indicated that parenting style emerged as the strongest predictor of career decision-making, followed by urban locality, while career counselling demonstrated a positive but emerging influence. Secondary data analysis identified persistent policy-practice shortfalls in NEP 2020 implementation particularly in the context of career guidance in tribal schools. The examination-oriented state curriculum and absence of a formal career guidance module limit students' career prospects leaving career awareness largely unstructured. Moreover, prescriptive pedagogy offered limited scope for career exploration, though schools adopting experiential teaching methods reported positive outcome.

Conclusion: The study concludes that policy-practice discrepancies in NEP 2020, curriculum is aligned with local realities, lack of structured career guidance module and persistent didactic pedagogy collectively create career guidance gaps in tribal schools. It underscores the need for embedding career orientation within formal curriculum, adopting experiential and culturally responsive pedagogy, strengthening counselling infrastructure and implementing gender-sensitive interventions to support equitable career decision-making among tribal secondary school students.

Keywords: career decision-making, secondary school students, tribal education, NEP 2020, career counselling, curriculum, pedagogy

1. Introduction

Career decision-making refers to the cognitive and developmental process through which individuals evaluate their interests, abilities, values, and environmental opportunities to select a vocational pathway (Super, 1990; Lent et al., 1994). Among secondary school students, this process is shaped by a constellation of personal, socio-cultural, and educational factors, including self-efficacy beliefs, family socialisation, institutional support, and exposure to career information (Akosah-Twumasi et al., 2018; Fantinelli et al., 2023; Tang et al., 2008). Career guidance is the provision of systematic support to assist individuals in understanding their potential and making informed occupational choices

(Dodd et al., 2022). It is widely recognized as a critical institutional mechanism for the transition from general to professional education (Santilli et al., 2019).

Grade 10 represents a pivotal juncture in the Indian education system, marking the transition from general education to specialised academic or vocational streams. For students in government secondary schools within tribal districts, this transition is further complicated by issues of educational equity, resource constraints, and limited exposure to diverse career pathways (Agumba et al., 2023; Sowl & Crain, 2021). In India, disparities in educational access and career preparedness remain pronounced along axes of gender, caste, and geography. Adolescents in tribal districts face structural disadvantages stemming from poverty, geographical remoteness, linguistic barriers, and limited access to career information (Bindhani, 2021; Sucharita, 2025). These challenges intersect with broader determinants curriculum relevance, pedagogical approaches, the availability of career counselling services, and the policy framework established by the NEP 2020 to collectively shape students' aspirations and eventual career trajectories (Arulmani, 2019; Keshf & Khanum, 2021; Le et al., 2025).

1.1 Policy Context and Issues

NEP 2020 has introduced transformative reforms aimed at fostering holistic education, vocational integration, multidisciplinary learning, and strengthened guidance services for marginalised contexts (Ministry of Education, Government of India, 2020). The policy explicitly mandates integrating professional career counselling into the school system and encourages experiential learning and multilingual education provisions of direct relevance to tribal districts. However, the extent to which these policy aspirations have been translated into ground-level practice remains insufficiently examined in resource-constrained tribal settings (Kulal et al., 2024). The problem of policy-practice gaps in career guidance is not unique to India; studies across educational systems have documented that deficiencies in career guidance during schooling adversely affect students' post-school career trajectories (Arfasa & Weldmeskel, 2020; Keshf & Khanum, 2021).

1.2 Research Gap and Statement of the Problem

Despite the growing recognition of career guidance as an essential component of secondary education, empirical evidence on the determinants of career decision-making among students in tribal educational contexts remains scarce. Most of the studies on career decision-making in India have focused on urban or semi-urban populations, leaving a significant gap in understanding the specific challenges faced by tribal secondary school students (Bindhani, 2021; Lahiri & Jha, 2022). Internationally, while studies have examined teacher competence in career guidance (Le et al., 2025), pedagogical challenges in geographically isolated schools (Loso, 2025), and culturally responsive pedagogy in diverse settings (Hanis et al., 2025), these investigations have not been situated within the context of India's tribal education system. The intersection of gender, locality, curriculum quality, and policy implementation in shaping career outcomes among tribal youth particularly in the wake of NEP 2020 has not been systematically investigated. This gap is consequential: without evidence-based insights, interventions risk being insufficiently targeted, and policy reforms may fail to reach the most marginalised beneficiaries.

1.3 Study Area and Motivation

Located in the southern hill tract of Odisha, Koraput district serves as an instructive case for this study. As a Fifth Schedule tribal district, it is characterised by a significant indigenous presence with 50.60% of its population belonging to Schedules Tribes and an overall literacy rate of 49.21% (Census of India, 2011). Koraput's government secondary schools, largely affiliated with the Board of Secondary Education (BSE), Odisha, cater to students who are often first-generation learners and whose career horizons have traditionally been narrow. Recent initiatives, including the Odisha Career Portal launched in December 2020 in collaboration with UNICEF (Department of School and Mass Education, Government of Odisha, 2020), school-based career counselling desks under the ST and SC Development Department (ST & SC Development, Minorities & Backward Classes Welfare Department, Government of Odisha, n.d.), and block-level career counsellor appointments under Samagra Shiksha (Department of School Education & Literacy, Ministry of Education, Government of India, 2023), have sought to expand these horizons. Understanding how these efforts interact with gender and locality factors in shaping student decisions is essential for informing policy and practice.

1.4 Objectives of the Study

The current research intends to achieve the following objectives:

1) To study the role of curriculum, pedagogy, and career counselling in career decision-making among secondary school students in Koraput district of Odisha.

2) To analyse NEP-2020 provisions in addressing career decision challenges among secondary school students in Odisha, India.

The study contributes to the literature by providing empirical evidence from a tribal educational context that has received limited scholarly attention, while simultaneously bridging the gap between quantitative survey findings and qualitative policy analysis to situate India's tribal career guidance challenges within a broader international framework.

2. Literature Review

2.1 Theoretical Perspectives on Adolescent Career Decision-Making

Career development theories provide a foundational lens for understanding the processes by which adolescents form career choices. Super's (1990) Life-Span, Life-Space theory posits that career development is a lifelong process of evolving self-concept, with adolescence constituting a crucial stage for crystallising vocational identity. Social Cognitive Career Theory (SCCT), advanced by Lent et al. (1994), emphasises how self-efficacy beliefs, learning experiences, and environmental supports or barriers interact to shape career interests and choices (Tang et al., 2008). In this approach, students' self-concept pertains to beliefs in their self-efficacy and parenting style, locality, and access to career counselling function as environments that facilitate and limit career determination. However, due to structural and institutional complexities of tribal contexts, the current study also utilizes Bronfenbrenner Ecological Systems Theory, which place career decision making in nested social systems such as family, school, and policy contexts (Bronfenbrenner, 1979).In addition,Gottfredson's (1981) theory of circumscription and compromise offers additional insight into tribal contexts, suggesting that adolescents progressively eliminate career options deemed unfeasible due to gender-role acceptability, social class, or accessibility. In tribal communities, limited exposure to career options and prevailing gender norms may lead students to circumscribe aspirations to a narrow range aligned with familiar local roles (Mozahem et al., 2020). Arulmani's (2019) Cultural Preparedness Model extends these perspectives to the Indian context, arguing that culturally embedded beliefs about work and social hierarchies profoundly shape career aspirations among marginalised youth. The integrated perspective, therefore, allows us to provide a more holistic understanding of how curriculum design, pedagogical practices, and policy implementation, particularly under NEP 2020 interact with socio-cultural and economic conditions to shape career outcomes among students in marginalised settings.These theories collectively imply that career adaptability, bolstered by supportive educational environments, counselling, and enabling policies, is critical for adolescents in marginalised settings (Santilli et al., 2019).

2.2 Gender Influences on Career Decisions

Research documents persistent gender-based disparities in career aspirations among adolescents. Female students generally demonstrate higher educational aspirations yet face stereotyping and narrower occupational expectations, while male students may express broader career interests but are more susceptible to external social influences such as parental expectations (Rampino & Taylor, 2013; van der Vleuten et al., 2016; Mozahem et al., 2020; Zafar, 2019). Gender ideologies can channel students into stereotypical tracks: even when girls outperform boys academically, they may be guided into fields perceived as "suitable" rather than STEM disciplines (van der Vleuten et al., 2016). In the Indian context, families often prioritise boys' careers or assume girls will follow a marriage-oriented trajectory, affecting the resources and encouragement provided (Closson et al., 2022; Lahiri & Jha, 2022). Social factors including familial expectations and peer judgements profoundly impact career aspirations and participation in career guidance activities (Le et al., 2025). Research among tribal and non-tribal adolescents in eastern India specifically highlights that tribal girls face compounded barriers from both patriarchal norms and structural exclusion (Lahiri & Jha, 2022).

2.3 Locality and Geographical Disparities

Whether a student grows up in an urban, rural, or tribal environment profoundly affects career decision-making by mediating access to quality education, information networks, and exposure to role models (Wang et al., 2024). Urban students typically benefit from better-resourced schools, diverse subject offerings, internet access, and greater visibility of varied professions. In contrast, students in rural and remote tribal areas face spatial inequalities. The shortages of trained teachers, poorly equipped laboratories, and few local examples of professional careers beyond traditional occupations create spatial differences (Agumba et al., 2023; Sowl & Crain, 2021).

Research highlights that rural youth often lack the "career capital" the networks and knowledge that urban youth acquire, adversely affecting college enrolment and career attainment (Ault et al., 2024). Loso (2025) documented how schools in geographically isolated areas are characterised by makeshift classrooms, limited government subsidies, multi-grade classes, and severe teacher shortages conditions that closely parallel India's tribal districts and fundamentally constrain career-related education. The cultural and linguistic differences in tribal localities mean that

mainstream curricula and counselling approaches may not address indigenous knowledge systems or the realities of tribal economies (Adhikari & Kunwar, 2023; Hanis et al., 2025). The intersectionality of gender and locality compounds disadvantages: a tribal girl in a remote village faces dual barriers of gender bias and geographical isolation, making her among the least represented in higher education and formal-sector careers in India (Bhagavatheeswaran et al., 2016; Olmos-Gomez et al., 2021).

2.4 Curriculum and Pedagogy in Tribal Education

The design of the curriculum and the pedagogical approaches employed in classrooms play a pivotal role in shaping students' skills, knowledge, attitudes, and envisioning of future pathways. In many government secondary schools serving tribal communities, the curriculum has historically been uniform and examination-oriented, with minimal local customisation (Adhikari & Kunwar, 2023). A curriculum disconnected from local context may fail to engage tribal students thereby leading to diminished motivation and early dropout (Bindhani, 2021). Hanis et al. (2025) developed a Values-Based Pedagogy Model for multiracial educational contexts, integrating four dimensions i.e. Universal Values, Understanding, Respect for Differences, and Inclusivity demonstrating that effective pedagogy in diverse settings must balance universal ethical principles with culturally specific practices. This framework is directly applicable to tribal education in India, where the challenge lies in reconciling a standardised national curriculum with the cultural realities of tribal communities.

Culturally responsive curricula incorporating local history, indigenous knowledge, and context-specific vocational skills have been shown to improve engagement and achievement among marginalised groups (Adhikari & Kunwar, 2023; Agumba et al., 2023; Hanis et al., 2025). Pedagogically, progressive strategies such as differentiated instruction, experiential learning, and trauma-informed pedagogy can support diverse learners but require teacher training and resources often lacking in tribal schools (Arbour et al., 2023; Damyanov, 2024). Teachers remain the linchpin for curricular and pedagogical reform; Le et al. (2025) found that teachers' competence in designing career guidance activities was the most influential factor in developing students' career orientation capacities. However, Loso (2025) documented the challenge of out-of-field teaching in remote schools, where teachers lack preparation in their assigned content area and cannot ensure alignment of learning outcomes, teaching activities, and assessment a phenomenon with direct parallels in India's tribal schools.

2.5 Role of Career Guidance and Counselling

Effective career counselling significantly improves students' decision-making self-efficacy, career awareness, and academic performance (Dodd et al., 2022; Lubawa et al., 2021; Miles & Naidoo, 2017). The quality of career guidance not merely its availability determines its impact; programme design, delivery mechanisms, and sensitivity to diverse student needs all influence outcomes (Dodd et al., 2022; Maree & Magere, 2023). Where counselling is implemented in schools, evidence of positive impact is strong, and the school environment can serve as a compensatory mechanism for students whose home environments provide limited career support (Le et al., 2025; Otwine et al., 2022).

In Indian secondary schools, career guidance services have traditionally been scarce, particularly in government schools. Until recently, most government schools lacked trained counsellors; any guidance was ad hoc, provided by subject teachers as an additional responsibility. Rural and tribal schools have the least access to career counselling, and negative perceptions or low awareness further hinder utilisation (Arfasa & Weldmeskel, 2020; Keshf & Khanum, 2021).

2.6 Policy Context: NEP 2020 and Emerging Reforms

India's NEP 2020 marks a paradigm shift in the country's approach to education. At the secondary level, it advocates experiential learning, vocational skill exposure, flexible subject choices, and the embedding of professional career counselling into the school system (Ministry of Education, Government of India, 2020). For states like Odisha, NEP 2020 has catalysed the strengthening of career guidance infrastructure. The Ministry issued guidelines in 2023 to appoint at least one Academic Guidance Counsellor per block, ensuring regular counselling sessions in all government schools (Department of School Education & Literacy, Ministry of Education, Government of India, 2023). NEP 2020 emphasises on multilingual education and cultural relevance is particularly significant for tribal districts, as it encourages curricular materials in local languages and inclusion of local content (Hanis et al., 2025; Kumar et al., 2021).

However, early studies on NEP 2020 implementation reveal gaps: teachers may be aware of the policy goals but lack resources or clarity on execution; infrastructural deficits impede digital initiatives; and there is a persistent policy-practice divide where ambitious provisions lack sufficient ground-level support (Kulal et al., 2024; Loso, 2025; Sulthana & Rani, 2025). The Comptroller and Auditor General of India's performance audit of school education in

Odisha (CAG, 2025) underscores these challenges, reporting that fund utilisation under Samagra Shiksha ranged between only 44% and 50% during 2018-23, with the Gross Enrolment Ratio at the secondary level declining against national trends. These gaps disproportionately affect marginalised tribal students, exacerbating educational inequities (Sapale et al., 2021; Angrist & Dercon, 2024).

3. Methodology

3.1 Research Design

This study employs a mixed-methods research design with QUAN-Quan model combining a primary quantitative survey with secondary qualitative analysis of policy documents and programme data. The quantitative component follows a descriptive-analytical approach, while the qualitative component involves content analysis of curriculum frameworks, government circulars, official audit reports, and programme reports related to career counselling and NEP 2020 implementation in Odisha.

3.2 Study Area and Population

The Koraput a predominantly tribal and economically disadvantaged district of Odisha, India constitutes the area of study. The population comprises male and female students studying in Grade 10 (Class X) of government secondary schools affiliated with the Board of Secondary Education (BSE), Odisha, within Koraput district.

3.3 Sampling Technique and Sample Size

A multistage random sampling technique was employed. In the first stage, out of the fourteen blocks of Koraput district, two blocks namely, Koraput and Jeypore possessing both rural and urban localities were selected randomly. In the second stage, government secondary schools were randomly selected from each block, ensuring representation of both rural and urban settings. In the third stage, Grade 10 students were randomly drawn from the selected schools. The total sample comprised 320 students (178 males and 142 females; 158 rural and 162 urban).

3.4 Data Collection

Primary data were collected through a structured schedule administered to the sample of 320 students. The questionnaire comprised sections measuring four latent constructs: (a) *Self-Perception* consists of 30 items on confidence, academic self-concept, (b) *Parenting Style* with 44 items *on* parental involvement, encouragement, and guidance, (c) *Career Decision-Making* with 17 items on career choice, decision and planning, and (d) *Career Counselling* comprised of 5 items on infrastructure, quality of content, content delivery, student readiness, and post-counselling follow-up. Items were measured on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), consistent with measurement approaches used in comparable studies (Le et al., 2025). Negatively worded items were included to control for response bias. Demographic information (gender, location, caste category) was also collected. The reliability statistics for Cronbach's alpha are shown in the table-1 below. Results show acceptable to good levels of internal consistency for self-perception ($\alpha = 0.773$), parenting style ($\alpha = 0.898$), and career decision ($\alpha = 0.753$). By comparison, career counselling has a lower Cronbach's alpha ($\alpha = 0.551$). Though smaller than the conventional threshold of 0.70, this could be acceptable in exploratory research contexts (Hair et al., 2010, pp. 161). In addition, as the construct is multidimensional in nature and coming under social science research, slightly lower reliability coefficients can also be accepted (Nunnally & Bernstein, 1994, p. 265).

Table 1. Reliability Test of Constructs and Cronbach's Alpha Value

Latent Constructs	Number of Items	Cronbach's Alpha Value
Self-Perception	30	.773
Parenting Styles	44	.898
Career Decisions	17	.753
Career Counselling	5	.551

Source: Author's Calculation from Primary Survey Data (2025)

Secondary data related to curriculum structure, pedagogical practices, career counselling programmes, and NEP 2020 implementation were obtained from the Odisha State Education Programme Authority (OSEPA), Bhubaneswar; the ST & SC Development, Minorities & Backward Classes Welfare Department, Government of Odisha; and the Ministry of School and Mass Education, Government of Odisha.Additionally, the Comptroller and Auditor General of India

(CAG), an independent constitutional authority under Article 148, conducted a performance audit of school education in Odisha (CAG, 2025). This audit served as an independently verified source for data on educational infrastructure, fund utilisation, and programme implementation.

3.5 Data Analysis

Quantitative data was analysed using STATA statistical software. For each construct, negatively worded items were reverse coded to ensure directional consistency, and items were standardised to remove scale differences. Single latent factor scores were generated through one-factor exploratory factor analysis (EFA) using the regression (Thomson) scoring method. Pairwise Pearson correlations were computed to examine bivariate associations among the constructs. The primary analytical model employed Ordinary Least Squares (OLS) regression with Career Decision-Making as the dependent variable and Parenting Style, Career Counselling, Self-Perception, caste category, and location as predictors. Model diagnostics included variance inflation factor (VIF) analysis for multicollinearity and the Shapiro-Wilk test for normality of residuals.

To address Objective 1, a two-way interaction regression model (Gender × Location) was estimated to examine whether gender differences in career decision-making varied across rural and urban settings. Independent samples t-tests were also conducted to test for mean differences in career decision scores by gender and by location separately.

Qualitative data from policy documents and programme reports were subjected to thematic content analysis, with coding aligned to the research objectives: curriculum relevance, pedagogy, counselling effectiveness, and policy implementation (Loso, 2025).

3.6 Ethical Considerations

Informed consent was obtained from participating students and their schools. Anonymity and confidentiality of responses were assured. The study adhered to ethical guidelines for social science research.

4. Results

4.1 Bivariate Associations among Constructs

Pairwise Pearson correlation analysis reveals a strong and statistically significant positive association between parenting style and career decision-making ($r = 0.740$, $p < 0.01$), indicating that students exposed to supportive and structured parental environments exhibit substantially higher levels of career clarity and confidence. Career counselling and self-perception do not show significant bivariate associations with career decision-making. However, a moderate negative correlation is observed between career counselling and self-perception ($r = -0.396$, $p < 0.01$), suggesting that counselling services are more frequently accessed by students with lower self-confidence. Table 2 presents the complete correlation matrix.

Table 2. Pairwise Correlation Matrix of Latent Constructs

Variable	Career Decision	Parenting Style	Career Counselling	Self-Perception
Career Decision	1.000			
Parenting Style	0.740***	1.000		
Career Counselling	−0.020	−0.164***	1.000	
Self-Perception	0.004	0.073	−0.396***	1.000

Note. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Source: Author's Calculation from Primary Survey Data (2025)

4.2 Predictors of Career Decision-Making

The OLS regression model (Table 3) is statistically significant and robust ($R^2 = 0.574$; $F = 59.99$; $p < 0.001$), indicating that approximately 57% of the variation in students' career decision-making ability is jointly explained by parenting style, career counselling, self-perception, caste, and location.

Parenting Style emerges as the strongest and most decisive predictor ($\beta = 0.688$, $p < 0.001$), demonstrating that supportive and structured parenting substantially enhances students' ability to make informed career decisions. Career Counselling also shows a positive and marginally significant effect ($\beta = 0.137$, $p = 0.082$), suggesting that counselling

contributes to career decision-making, though its influence is weaker and may depend on quality and engagement. Self-Perception does not show a statistically significant independent effect once parenting and counselling are controlled for, implying that individual confidence may operate indirectly through family and institutional support.

Caste categories do not exhibit significant differences relative to the Scheduled Caste reference group, whereas Urban location has a significant positive association (β = 0.230, p = 0.002), reflecting better access to information, exposure, and opportunities that facilitate career choices.

Table 3. OLS Regression Results: Predictors of Career Decision-Making

Variable	β	SE	t	p	95% CI
Parenting Style	0.688	0.037	18.53	<0.001	[0.615, 0.761]
Career Counselling	0.137	0.078	1.75	0.082	[−0.017, 0.291]
Self-Perception	−0.028	0.040	−0.69	0.493	[−0.107, 0.052]
Caste: ST (vs. SC)	−0.031	0.088	−0.35	0.727	[−0.205, 0.143]
Caste: OBC (vs. SC)	−0.131	0.115	−1.14	0.255	[−0.357, 0.095]
Caste: Unreserved (vs. SC)	−0.083	0.098	−0.85	0.396	[−0.276, 0.109]
Location: Urban (vs. Rural)	0.230	0.075	3.09	0.002	[0.084, 0.377]
Constant	−0.067	0.073	−0.91	0.361	[−0.212, 0.077]

Note. R^2 = 0.574; N = 320; $F(7, 312)$ = 59.99, p< 0.001.

Source: Author's Calculation from Primary Survey Data (2025)

4.3 Model Diagnostics

Variance inflation factor (VIF) analysis confirms no multicollinearity concerns. All predictors have VIF values ranging between 1.14 and 1.55, with a mean VIF of 1.32 is well below the commonly accepted threshold of 5.0 (Table 3). The Shapiro-Wilk test indicates that the residuals are approximately normally distributed (W = 0.993, p = 0.127), satisfying the normality assumption for OLS regression.

Table 4. Variance Inflation Factor (VIF) Results

Variable	VIF	1/VIF
Parenting Style	1.136	0.881
Career Counselling	1.269	0.788
Self-Perception	1.222	0.818
Caste (ST)	1.521	0.657
Caste (OBC)	1.347	0.743
Caste (Unreserved)	1.549	0.646
Location (Urban)	1.197	0.835
Mean VIF	1.320	—

Source: Author's Calculation from Primary Survey Data (2025)

4.4 Gender and Locality Interaction Effects

To examine whether gender differences in career decision-making vary across localities (Objective 1), a two-way interaction regression model was estimated with Gender, Location, and their interaction as predictors. The results (Table 5) are noteworthy.

Taking rural male students as the reference group, the main effect of gender is not statistically significant among rural students (β = -0.146, p = 0.287), indicating that male and female students in rural areas exhibit comparable levels of career decision clarity. However, urban male students demonstrate a substantially higher level of career decision-making compared to their rural counterparts (β = 0.701, p< 0.001). Critically, the significant negative Gender × Urban interaction (β = -0.482, p = 0.015) indicates that this urban advantage is considerably weaker for female students: female students do not benefit from the urban context to the same extent as male students.

Table 5. Interaction Regression: Gender × Location on Career Decision-Making

Variable	β	SE	t	p	95% CI
Female (vs. Male)	−0.146	0.137	−1.07	0.287	[−0.415, 0.123]
Urban (vs. Rural)	0.701	0.131	5.37	<0.001	[0.444, 0.958]
Female × Urban	−0.482	0.196	−2.45	0.015	[−0.868, −0.095]
Constant	−0.206	0.101	−2.04	0.042	[−0.404, −0.007]

Note. $R^2 = 0.150$; $N = 320$; $F(3, 316) = 18.53$, $p < 0.001$.

Source: Author's Calculation from Primary Survey Data (2025)

Supplementary independent samples t-tests confirm that career decision scores differ significantly by gender ($t = 4.75$, $p < 0.001$; male mean = 0.211, female mean = -0.265) and by location ($t = -5.70$, $p < 0.001$; rural mean = -0.285, urban mean = 0.278).

4.5 Role of Curriculum and Pedagogy: Secondary Data Analysis

Analysis of secondary data from the OSEPA, and the CAG performance audit (CAG, 2025) reveals that the BSE Odisha curriculum has historically been academic and theoretical, with limited incorporation of local context or practical skills. Until recently, the state syllabus made little reference to local industries (such as Koraput's horticulture potential or tribal arts) or livelihood skills that could connect education to community development. Students rarely encountered their culture or environment in textbooks, contributing to disengagement among tribal learners (Bindhani, 2021). This curricular disconnect reflects the broader challenge of educational models that fail to provide culturally responsive pedagogy catering to diverse learners (Hanis et al., 2025).

Under Samagra Shiksha and NEP 2020-aligned reforms, Odisha has begun introducing vocational subjects in approximately 400 schools in sectors such as agriculture, apparel, and electronics. Schools offering vocational courses report enhanced student engagement and improved career clarity promoting higher interest in pursuing related training or diplomas after Class 10. However, the CAG (2025) audit noted that vocational education has been implemented in far fewer schools than the targeted 877, and Koraput's tribal schools have been particularly slow to receive these vocational modules due to a shortage of trained vocational teachers and workshop infrastructure.

Pedagogically, many tribal classrooms continue to rely on traditional didactic methods and lecture-based instruction. This method focuses on board examination preparation that owes to large class sizes and limited teacher training in modern approaches. The CAG audit reported that 42% of secondary schools and 57% of higher secondary schools in Odisha had adverse student-classroom ratios during 2018-23 (CAG, 2025). Loso (2025) documented analogous conditions in geographically isolated Philippine schools, where teachers faced out-of-field content assignments, scarcity of instructional materials, and limited professional development as improvised strategies that mirror the experiences of teachers in India's tribal schools. Some teachers trained under UNICEF-supported programmes have adopted interactive methods, including career role-play exercises and field visits to local institutions (such as the Hindustan Aeronautics Limited facility in Koraput), which reportedly increased student enthusiasm and understanding of diverse career options.

A comparative analysis of the Board of Secondary Education (BSE) Odisha and Central Board of Secondary Education (CBSE) systems further illuminates structural disparities. CBSE has historically mandated counselling and guidance cells in all affiliated schools, with revised affiliation norms requiring at least one career counsellor per 500 students in Classes 9-12 that is a far more favourable ratio than Odisha's state system currently provides. While CBSE schools often employ full-time professional counsellors and offer systematic aptitude testing by Grade 10, BSE Odisha schools had no comparable provision until 2020. The introduction of the Odisha Career Portal and block-level counsellor appointments represent steps towards alignment, but qualitative disparities persist: CBSE students typically receive personalised counselling supplemented by alumni mentoring, whereas government school students rely on group sessions with teacher-counsellors managing multiple duties.

Inter-district analysis within Odisha reveals uneven progress. Coastal and urbanised districts (Khordha, Cuttack) have registered higher usage of the career portal and counselling services, while deeply tribal districts like Koraput and Malkangiri experienced initially low uptake due to connectivity challenges. Some districts have taken local initiatives: Jharsuguda launched a CSR-funded counselling project covering nearly 15,000 students, and Koraput held its first Career Mela in 2022, bringing over 1,000 students to interact with higher education institutions.

Table 6. Comparison of Career Guidance Provisions: BSE Odisha vs. CBSE

Aspect	BSE Odisha (State Board)	CBSE (Central Board)
Curriculum Focus	State-specific curriculum (Odia medium); gradually aligning with NCERT. Limited electives historically; vocational subjects are now introduced in 400 schools.	National NCERT-based curriculum. Wide range of electives including vocational subjects offered across affiliated schools.
In-School Counselling	Until 2020, no formal counsellors. From 2021, teacher-counsellors in tribal schools; from 2023, one block-level counsellor per block. Counsellor-to-student ratio 1:1000+.	Mandated Counselling/Guidance cell in every school. Full-time counsellor for every 500 students. Many schools have qualified counsellors on staff.
Career Portal & Resources	Odisha Career Portal (launched Dec 2020); bilingual (Odia/English); 550+ careers, 262,000+ colleges, 1,120+ scholarships.	CBSE Career Guidance Portal (launched 2021); English/Hindi. Career guidance modules are integrated into curriculum.
Exposure Opportunities	Career fairs (Career Mela), occasional industry visits. Guest lectures mandated in SSD schools (₹10,000/school/year). Limited by budget and rural access.	Schools independently organise field exposure, internships. Urban location advantage for industry visits. Alumni networks often provide mentorship.

Sources: Compiled from Department of School and Mass Education, Government of Odisha, & UNICEF (2020); ST & SC Development, Minorities & Backward Classes Welfare Department, Government of Odisha (n.d.); Central Board of Secondary Education (2018); Department of School Education & Literacy, Ministry of Education, Government of India (2023); Comptroller and Auditor General of India (2025); Odisha State Education Programme Authority (OSEPA) records.

4.6 Career Counselling Implementation and Effectiveness

Secondary data analysis and programme documentation reveal that career counselling in Koraput has evolved rapidly since 2020. The Odisha Career Portal, launched in December 2020 in collaboration with UNICEF and technical partner Aasman Foundation, provides access to information on over 550 career paths, 262,000 colleges and vocational institutes, and 1,120 scholarships (Department of School and Mass Education, Government of Odisha, 2020).

The ST and SC Development Department established Career Counselling Desks in all 422 of its tribal secondary schools. There are two designated teacher-counsellors per school conducting at least two sessions per month and organising one guest lecture per month, with an annual allocation of ₹10,000 per school for counselling activities (ST & SC Development, Minorities & Backward Classes Welfare Department, Government of Odisha, n.d.). These teacher-counsellors have been trained in collaboration with UNFPA, Kalinga Institute of Social Sciences (KISS), and the Rajiv Gandhi National Institute of Youth Development (RGNIYD), Chennai. The Department has also published a Compendium of Career Opportunity as reference material for schools. These sessions have normalised career discussions and introduced students to a broader array of fields, including vocational trades. Schools conducting regular guidance sessions report near-universal student attendance, indicating high latent demand.

At the mainstream school level, block-level career counsellors are being appointed (one per block) as of 2023–24, directly responding to NEP 2020 recommendations, translating to 14 dedicated counsellors for Koraput's 14 blocks. Despite these advances, challenges persist: the counsellor-to-student ratio remains high (approximately 1:1000+) (Table-6); counselling is predominantly delivered in group formats, limiting individualised attention; and a digital divide constrains the impact of online resources, with the CAG (2025) audit documenting significant connectivity challenges in tribal areas.

4.7 NEP 2020: Implementation and Policy-Practice Gaps

Analysis of policy documents, government reports, and the CAG (2025) performance audit indicates that Odisha has aligned several initiatives with NEP 2020 directives. The state formally notified NEP 2020 implementation in all schools in January 2025, adopting the National Curriculum Framework as the State Curriculum Framework and initiating the transition from the 10+2 to the NEP 2020 aligned 5+3+3+4 academic structure (Department of School and Mass Education, Government of Odisha, 2025). These initiatives involve the appointment of block-level career counsellors, expansion of vocational education, the development of career counselling materials in tribal languages, and the trial of experiential learning initiatives. While teachers across the state are reporting moderate to high knowledge of provisions in NEP 2020 (Sulthana & Rani, 2025; Kulal et al., 2024), at the same time they highlight

significant gaps in technology infrastructure and training opportunity in the system, indicating a disconnect between policy awareness and effective implementation at ground level.

The persistent policy-practice gap is most pronounced in tribal districts, where infrastructural deficits (unreliable electricity, limited internet connectivity), insufficient teacher preparedness, and the digital divide collectively impede the realisation of NEP 2020 goals. The CAG (2025) audit found that fund utilisation under Samagra Shiksha ranged between only 44% and 50% during 2018–23, the Gross Enrolment Ratio at the secondary level declined against national trends, and 351,000 eligible students were deprived of free uniforms. Vocational education was implemented in substantially fewer schools than targeted, with interior tribal districts (Koraput, Malkangiri, Nabarangpur) experiencing the slowest uptake.

5. Discussion

The findings of this study illuminate the complex, intersecting determinants of career decision-making among secondary school students in a tribal educational context and offer implications for theory, policy, and practice.

5.1 Parenting and Contextual Support as Primary Drivers

The dominance of parenting style as a predictor of career decision-making ($\beta = 0.688$, $p < 0.001$) is consistent with a substantial body of international literature documenting the central role of family socialisation in adolescent career development (Olmos-Gomez et al., 2021). Formal career guidance has been historically absent among tribal communities. Parents constitute the primary and the only source of career-related information and encouragement. Akosah-Twumasi et al.'s (2018) systematic review similarly found that cultural context and family influence are among the most powerful determinants of youth career choices, particularly in collectivist societies. However, this finding carries a dual implication of supportive parenting enhances career decision-making and misdirected parental influence can also constrain students' horizons. Lack of awareness among parents especially in diverse career pathways beyond traditional occupations hinders the career progress. The strength of this association underscores the importance of engaging parents in career guidance programmes, particularly in communities where parental literacy and exposure to professional careers are limited.

5.2 The Urban Advantage and Its Gendered Dimensions

The significant positive effect of urban location ($\beta = 0.230$, $p = 0.002$) confirms that access to information, institutional resources, and exposure to diverse career options are more abundant in urban settings that substantially enhances career decision-making (Ault et al., 2024; Wang et al., 2024). This finding is consistent with research on spatial inequalities in career capital (Sowl & Crain, 2021), suggesting that the urban advantage operates through both institutional resources and household economic capacity.

More critically, the significant Gender × Location interaction ($\beta = -0.482$, $p = 0.015$) reveals that urban settings amplify rather than reduce gender disparities in career decision-making. While urban males demonstrate the highest career clarity, urban females do not benefit proportionally from urban advantages. This finding aligns with Gottfredson's (1981) theory of circumscription: in urban environments where more options are visible, gender stereotypes may become more salient as students and their families navigate a wider but still socially constrained choice set. The pattern also resonates with evidence from Lebanon (Mozahem et al., 2020) and with Lahiri and Jha's (2022) finding that gender equity perceptions among tribal adolescents in eastern India differ markedly from those in non-tribal settings. Social factors including societal norms and cultural expectations significantly shape career preferences by portraying certain professions as more appealing based on gender (Le et al., 2025). For tribal girls transitioning into urban school environments, cultural conservatism regarding female roles may persist despite greater information availability, creating a gap between awareness and actionable career planning (Closson et al., 2022; Bhagavatheeswaran et al., 2016).

5.3 Career Counselling: Promising but Insufficient

Career counselling shows a marginally significant positive effect ($\beta = 0.137$, $p = 0.082$), suggesting that even the nascent counselling infrastructure in Koraput is beginning to contribute to improved career decision-making. This finding aligns with international evidence on counselling effectiveness (Dodd et al., 2022; Miles & Naidoo, 2017; Santilli et al., 2019). The marginal significance in the present study likely reflects the recency and inconsistency of implementation rather than an inherent limitation of counselling as an intervention. Le et al. (2025) found that teacher competence in organising career guidance activities was the most influential factor in developing students' career orientation capacities, suggesting that more systematic implementation with adequately trained personnel would yield stronger effects.

The negative bivariate correlation between career counselling and self-perception (r = -0.396, p< 0.01) indicating that students with lower self-confidence access counselling more frequently suggests that counselling services are reaching those who need them most, which is an encouraging finding from an equity perspective. This implies that counselling interventions should focus not only on providing career information but also on building students' confidence and self-efficacy in making career decisions.

5.4 Curriculum, Pedagogy, and the NEP 2020 Promise

The secondary data analysis reveals that curriculum relevance and pedagogical quality are critical mediating factors in career decision-making, consistent with literature emphasising culturally responsive education (Adhikari & Kunwar, 2023; Hanis et al., 2025). The introduction of vocational subjects and career-related project work under NEP 2020 has shown early positive effects in enhancing career clarity, though schools presently fail to prioritise career guidance activities sufficiently (Le et al., 2025). The benefits remain unevenly distributed, with tribal schools facing continuing challenges of teacher shortages, infrastructure gaps, and limited vocational training capacity.

Loso (2025) illuminated the pedagogical dimensions of this challenge that teachers in geographically isolated schools could not ensure alignment of learning outcomes, teaching activities, and assessment due to out-of-field teaching. Absent of professional development like conditions directly parallel to India's tribal schools are affecting career advancements. The comparative analysis of BSE Odisha and CBSE systems underscores a structural inequity: CBSE students benefit from systematic aptitude testing, dedicated counsellors, and alumni networks, whereas BSE Odisha students are only now receiving comparable attention through state initiatives. The establishment of 314 Odisha Adarsha Vidyalayas as CBSE-affiliated model schools (Odisha Adarsha Vidyalaya Sangathan, n.d.) represents a promising bridge.

The policy-practice gap identified in this study echoes broader findings in education policy research (Angrist & Dercon, 2024; Kumar et al., 2021). NEP 2020 provides a visionary framework, but its transformative potential in tribal districts hinges on sustained investment in infrastructure, targeted teacher training, and systematic monitoring. Community engagement remains a complementary strategy comprising parental counselling workshops and the multilingual SAMHATI programme address critical barriers to educational engagement in tribal communities (Ministry of Tribal Affairs, Government of India, n.d.).

5.5 Limitations

This study has two principal limitations. First, the cross-sectional design precludes causal inferences regarding the relationships between predictors and career decision-making; longitudinal research would be needed to establish directionality. Second, the sample is drawn from a single district, which limits its applicability, although the findings are likely relevant to similar tribal and rural contexts across India. Future research could employ longitudinal designs, include direct classroom observations, and expand the geographic scope to strengthen the evidence base.

6. Conclusion and Recommendations

In alignment with the stated objectives and through the systematic application of appropriate data and analytical methods, the study was meticulously undertaken. The results contribute meaningful insights into career guidance practices within marginalized educational contexts, advancing the understanding of how such support can be effectively adapted to these settings.

With respect to the first objective, the quantitative analysis establishes that parenting style is the most influential predictor of career decision-making. It underscores the central role of family support in shaping students' career clarity. Urban locality also exerts a significant positive influence, reflecting the advantages of better access to information, institutional resources, and exposure to diverse occupations. Career counselling, though still at an early stage of implementation but demonstrates a positive and emerging effect. It suggests that even nascent counselling efforts contribute meaningfully to students' career development. The gender-location interaction reveals a particularly important finding that urban settings amplify rather than reduce gender disparities. The benefits of urbanisation are not equitably distributed between male and female students. This pattern calls for gender-sensitive approaches that go beyond general provision.

With respect to the second objective, the study identifies persistent gaps between the aspirations of NEP 2020 and the ground-level realities of tribal schools, particularly regarding infrastructure, trained counselling personnel, digital access, and vocational education delivery which ultimately affect career guidance. Further, examination-oriented state curriculum and the absence of a structured career guidance module restrict the scope of career-oriented learning in tribal schools. The prevailing didactic pedagogy lowers scope for career exploration. However, experiential teaching

methods such as career role-play and industry field visits have improved career awareness among students.

Drawing on these findings, the study outlines the following recommendations. First, career counselling infrastructure should be strengthened through accelerated deployment of trained counsellors and expansion of the Career Counselling Desk model to mainstream government schools. Second, a formal career guidance module should be integrated into the secondary curriculum, drawing on approaches that prioritise teacher competence in designing and delivering career guidance activities (Le et al., 2025). Third, teacher capacity-building programmes should be expanded to include career guidance techniques and gender-sensitive counseling. Along with it, institutional support should be provided for the teachers in geographically isolated schools who face out-of-field teaching and limited professional development opportunities (Loso, 2025). Fourth, targeted interventions for girls in tribal areas including mentoring by women professionals and parental engagement programmes are essential to address the gendered dimensions of career decision-making (Bhagavatheeswaran et al., 2016; Lahiri & Jha, 2022). Fifth, the digital divide should be addressed through parallel investment in offline career resources in local dialects alongside improved connectivity. Sixth, community and industry linkages should be developed within a pedagogical framework that balances universal values with culturally specific practices (Hanis et al., 2025).

Career guidance is not a peripheral supplement but a fundamental component of equitable secondary education. When supported by culturally responsive curricula, effective pedagogy, engaged families, and sustained policy commitment, it can empower tribal youth to make informed career choices that contribute to both individual advancement and the broader goals of educational equity and social justice.

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Authors contributions

Ms. S. Das and Dr. P. K. Behera were responsible for study design, data collection, and drafting the manuscript. Dr. J. Sahoo contributed to data analysis and critical revision. Prof. M. K. Pradhan supervised the research and reviewed the final manuscript. All authors read and approved the final manuscript.

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Data sharing statement

No additional data are available.