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Editorial

In the contemporary academic landscape, the pursuit of knowledge has become increasingly systematic and rigorous, with scholars across diverse disciplines engaging in structured inquiry and empirical investigation. Research, functioning both as a methodological framework and an epistemological tool, plays a central role in the expansion and advancement of human knowledge and understanding. Through sustained and critical intellectual engagement, researchers not only extend existing theoretical paradigms but also interrogate and, where necessary, challenge established assumptions, thereby contributing to the emergence of new theoretical perspectives and practical applications. This ongoing process underscores research as a disciplined and methodical endeavor dedicated to the generation, validation, and dissemination of knowledge. Furthermore, scholarly research extends beyond individual academic achievement, serving as a cornerstone for collective intellectual development, societal advancement, and evidence-based policy formulation. Accordingly, research should be regarded not merely as an academic activity but as a vital mechanism for promoting innovation, critical thinking, and informed decision-making within an increasingly complex global environment.

In the course of sustained intellectual practice, university professors have engaged in a wide range of scholarly inquiries and research activities, drawing systematically on their disciplinary expertise and accumulated academic experience. In recent years, the Research Management Cell of Sanothimi Campus has accorded high priority to the publication of *The Educational Journal*, with the objective of coherently compiling scholars' ideas, reflections, empirical investigations, and research contributions, thereby fostering and enriching academic discourse.

This issue of the journal comprises fourteen research-based articles—ten in English and four in Nepali—that examine authors' scholarly knowledge and professional experiences across a range of disciplines. All submissions underwent a rigorous peer-review process conducted by subject specialists and were published only after incorporating the required revisions and enhancements. The present issue has been made possible through the valuable contributions of the authors, the diligent efforts of the peer reviewers, and the consistent support of the campus administration, staff, and individuals involved in technical and editorial assistance. The editorial board gratefully acknowledges and extends sincere appreciation to all who contributed to the successful publication of this issue.

Editorial team

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From Childhood to Queerness: The Social Construction of Sexuality in Shyam Selvadurai's *Funny Boy*

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Abstract

This article examines the distinction between sex and sexuality through Shyam Selvadurai's Funny Boy (1994). It situates Arjie's coming-of-age struggle with his queer identity within the wider context of societal expectations and cultural narratives, emphasising how these forces construct sexuality in adulthood amid Sri Lanka's escalating Sinhalese–Tamil conflict. While sex denotes the biological state of being male or female, the socialisation process crucially shapes one's sexuality. The paper thus analyses sexuality as a socially constructed identity in Funny Boy, exploring how cultural norms and heteronormative discourses influence its formation and psychological implications for young adults. Employing qualitative textual analysis and secondary sources—books, journals, and research articles—the study draws on Michel Foucault's The History of Sexuality, Judith Butler's Gender Trouble, and Homi Bhabha's The Location of Culture. Their theories of social construction, performativity, and hybridity suggest that society and culture play formative, rather than merely influential, roles in shaping identity.

Keywords: *biological, formation, gender, identity, performative*

Introduction

Sexuality, deeply rooted in social and cultural systems, profoundly shapes individual Shyam Selvadurai's Funny Boy portrays sexuality as a socially constructed identity, shaped and reinforced by the compelling norms of society. Arjie's growing recognition of himself as queer is not merely an individual realization but is continually interpreted in opposition to the rigid expectations of his Tamil family and the 1980s Sri Lankan society. His childhood transgression—preferring to play the "bride" rather than the "groom"—is not inherently deviant but becomes framed as such by his family, who fear social ostracization. As the narrator recalls, this "punishment was not for the playing… but for the way I had played it" (Selvadurai, 1994, p. 11), underscoring how natural inclinations are reframed as deviance through social judgment.

The novel also links Arjie's emerging sexual awareness with the intensifying ethnic tensions of the Sri Lankan civil war, suggesting that both national and sexual identities are contested constructs. His relationship with Shehan compels him to navigate a world in which his desires are deemed illegitimate. As Neloufer de Mel (2001) observes, the text demonstrates how "the private sphere of sexuality is… a site for the contestation of public, national norms" (p. 157). Thus, Arjie's identity is forged through the tension between personal desire and

societal constraint, leading him to understand his sexuality as an act of resistance against a culture determined to erase it.

In this way, the novel interrogates the intricate intersections of sexuality, identity, and cultural norms from the perspective of Arjie, a young boy growing up in Sri Lanka during the socio-political upheavals of the 1970s and 1980sexperiences, expressions, behaviors, and ultimately identity—functioning through every sphere of society.

The controversy of sexuality, its emergence, formation, existence and identity has long existed in academia. It is basically the debate between the essentialists and constructionists about sexuality. Although the essentialists' view that sexuality as such is the universal entity which has nothing to do with the experiences and external social environment, the constructionists refute that it is mediated by society and historically transferable. Their logic is that sexuality, especially homosexual category, is not absolute from the social and cultural or socio-cultural conditioning. In this regard, Carole Vance says:

> . . . Instead, the focus turned to placing same-sex experiences in much under social and historical context. No longer should the "homosexual" be seen as a universal entity but instead the homosexual category should itself be analyzed and its relative historical, economic and political base be scrutinized. (Vance, 1998, p. 4)

Vance's idea about homosexual sexuality is supportive of the constructionist view. It emphasizes on the socio-economic and historical context to form the identity of a person based on sexuality. Homosexual identity has been interpreted as an ethnographic phenomenon rather than purely biological. So, we can infer that homosexual identity as a deviance is more of a societal reaction which is not separate but a relative phenomenon that receives its many characteristics from the societal reactions. The social prejudices give birth to such categories. It is a process that goes with the socialization of a child.

In *Funny Boy* the protagonist, Arjie, has been identified as a homosexual. But his being homo or hetero as the identity marker is not necessarily biological, as Jane Kroger says identity is formed in a process in a context ". . . historical, socio-cultural and developmental traditions have all decisions to account for various dimensions of human development, including identity" (Kroger, 2004, p.3). According to Kroger, the identity of a child is a social construct of cultural, ethnic, social and class contexts. Therefore, it is a synthesis of the inborn (self) and the outer world (other). Although Arjie is a male, he performs certain so-called feminine roles repeatedly, like opting for the bride role. This repetition is at once a reenactment and re-experiencing of a set of meanings already socially established.

Methodology

This study employs a qualitative textual analysis, taking Shyam Selvadurai's *Funny Boy* (1994) as both a literary text and a cultural document negotiating questions of identity and sexuality. Through close reading of key narrative episodes where gender roles, sexual identity, and cultural norms converge—particularly in the characterization of Arjie—the study examines how meaning is produced through narrative voice, symbolism, and language.

The research is grounded in postcolonial and sexuality studies, drawing on Homi K. Bhabha's theories of hybridity, mimicry, and ambivalence to explore Arjie's identity as one situated between conflicting cultural, familial, and colonial influences. Michel Foucault's concept of sexuality as a discursive construct provides insight into how power and institutional norms regulate bodies and desires, revealing sexuality as a historical and social production rather than a natural state. Judith Butler's theory of performativity further illuminates how gender and sexuality are enacted through repeated performances rather than fixed identities,

while her notion of subversion through re-signification informs the reading of Arjie's defiance of heteronormative roles. Additionally, Coates' feminist and cultural perspectives contextualise the novel within broader discourses of sexuality and representation.

Methodologically, the study integrates close reading with theoretical interpretation. Selected episodes are analysed through the frameworks of Bhabha, Foucault, Butler, and Coates to reveal how *Funny Boy* participates in the cultural discourse of sexuality formation. This is exemplified in the chapter "Pigs Can't Fly," where Arjie's choice to play the "bride" subverts gender expectations, embodying Butler's performativity and Foucault's discursive regulation, thereby illustrating how Selvadurai reimagines cultural constructions of sexuality.

Results and Discussion

Funny Boy portrays young adult sexuality not as an innate essence but as a socially constructed identity shaped by cultural norms, family expectations, and colonial legacies. Arjie's "girl-boy" identity is constantly policed by his relatives, showing how gender and sexuality are regulated through social practices rather than biological determinism (Butler, 1990). Furthermore, the novel situates Arjie's experiences against the backdrop of ethnic conflict, demonstrating that sexuality intersects with broader structures of race and nationalism (Gopinath, 2005, p. 76). By weaving together desire, politics, and identity, Selvadurai illustrates not only how young adult sexuality is constructed through cultural norms but also contested through personal agency. In the episode of the story, Arjie and Meena's option for the opposite games to their traditionally supposed roles can be associated with the idea of Robert Selinger Trites that the power and repression on the child leads to crossing it. His idea of crossing the barriers of culture, social norms and suppositions about the traditionally allocated gender roles to make out a boy or a girl, have been disturbed by Arjie and Meena. To quote Robert Selinger:

> Children's literature often affirms the child's sense of self and his or her personal power, but in adolescent novels, protagonists must learn about the social forces that have made them what they are. They learn to negotiate the level of power that exists in the myriad social institutions within which they must function . . . social construction of sexuality, gender, race, class, and cultural more surrounding death. (Trites, 2000, p. 3)

Sexuality, as a social construction, can be derived from the statement of Selinger. If gender and sexuality are the social performative matters, they are very likely to be reconstructed and subverted, as in the case of Arjie. Although Arjie and the girls play a variety of games, the most fundamental site of disrupting and subverting performativity is the game *bride-bride*. It includes the whole process of wedding ceremony. As the title of the game suggests, the most important role is that of the bride, while in the hierarchy of bride-bride, the least important role is that of the groom. Although the game is based on the ceremony which culturally formalizes and elaborates heteronormative logic, the sex of the children playing the ceremony is not a determining principle in the allotment of roles.

Although he is a boy, he always naturally fills the definitive female role. In this portrayal of Arjie's dressing up rituals, Selvadurai maintains a delicate balance between the perceived wholeness and the stability of gender identities and performance which constitutes those identities. Arjie's feminine identification clearly matches for him as a deeper inner level, but the level of his "self", the writer emphasizes the process of identification as Arjie assumes a glamorous feminine appearance. In this connection, he says, "the dreaming up the bride would now begin, and then by the transfiguration . . . I was able to leave the constraints of myself and ascent??? into another more brilliant ????more beautiful self, a self to whom this day was dedicated" (Selvadurai,1994, p. 40). At this point, we can see Arjie inventing his inner

self. Here, he does not feel that he is crossing the established gender borders, and he does not experience any violation. In this connection, Karen coats points, "Renouncing one's jouissance doesn't mean that it disappears. Rather, it circulates in the other, kind of like a sick-day pool" (Coats, 2004, p. 3). Arjie leaves the pleasure of being a boy or playing the role of a groom and finds more pleasure in playing the role of bridge. Being a boy, he seems to adopt the bride's position, which does not mean that he has subverted his male sex. It is merely a matter of pleasure rather than the identity as a female. But it is the outer reality that gears up the subversion of his sexuality as homosexual.

When Arjie understands that he is feeling comfortable and happy in femininity at the age of seven, he is not aware of the connection between his gender and biological sex. He does not feel any shame for crossing the boundary of social expectations. But he is simply treated as an odd male having a feminine nature based on his performance or the roles he plays among his friends. In this regard, Butler's argument supports the idea of gender identity as gender identity is always a *doing*. He gives priority to the performativity rather than the biological reality. In terms of the roles in society gender identity can be formed/reformed, constructed/deconstructed, but it cannot be generalized in subverting the sex (a biological reality). A person may be tagged as homosexual or lesbian by the roles, but sexually he/she cannot be generalized, like Arjie. But the majority heteronormative power in society can subvert the sexuality by exercising power and creating discourse about sexuality, like that of gender. Michael Foucault's argument about sexuality in his book *The History of Sexuality* is that "the pleasure that comes of exercising a power that questions, monitors, watches, spies, searches out, palpates, brings to light" (Foucault, 1978, p. 45). For Foucault, pleasure that is related to sexuality does have a relation with power as it can create sexuality too.

In applying Foucauldian idea of sexuality to the case of Arjie, he is subjugated to the power exercised upon him by the parents, relatives and the entire society. His behaviour and inclination to the female role rather than to the male has been taken as taboo. It has multiplied his identity as abnormal. The bullying fashion of Kanthy Aunty of Arjie is because of the power she possesses and practices to make him meet the social standard of heteronormative sexuality of the society.

The sexuality of Arjie as a social construction can be further clarified by the term 'funny' used by the family members. It was given to him to mean abnormal sex. The nicknames like 'Pangy', 'faggot' and 'sissy' (Selvadurai,1994, p.11) resonating with the female names are suggestive of the transformative sexuality of Arjie. Amma's injunction and Arjie's protest to follow the forceful imposition to maintain his normativity is the contradiction between the essentialist and constructionist views of sexuality. This inherent contradiction can be clarified by the statement of Gyatri Gopinath: "rhetoric of non-conformity as perversion is undercut by Arjie's mother making apparent the nonsensical nature of gender codification" (Gopinath,2005, p.475). Despite the parents' weak logical soundness, the mother tries to regulate and maintain Arjie's gender identity. She even forces him to perform masculinity by playing cricket. It means that the sexuality of a child can be manipulated or changed. All the efforts of the parents are targeted at making him a boy. If sexuality is merely a natural phenomenon why does the culture of Arjie play so much of a role in changing him into so-called heteronormativity? This is a question to be pondered to prove sexuality as social construct.

The climax of Arjie's sexuality to be the matter of construction is in *The Best School of All* in the novel, *Funny Boy*. It reveals the hope of the parents that Arjie can be transformed from homosexuality. They can regulate his sexual identity with support of British Modelled School, supposedly a sex converter. Appa's explanation in this regard can be the evidence of it, "The Academy will force you to become a man" (Selvadurai,1994, p.210). Presumably, the

academy will cleanse Arjie of the broadly inclusive "funny" identity. In this statement, Appa also believes that Arjie can grow into heteronormativity with the proper application of the institutional force of The Queen Victoria Academy. By making Arjie get rid of the existing company, the parents mean to reconstruct Arjie's sexuality. This relocation of him from St. Gabriel to Victoria is supposed to change the culture, community and company which can make Arjie a full masculine.

In addition to theories of gender and sexuality, Homi Bhabha's postcolonial concept of the "mimic man," outlined in *Of Mimicry and Man: The Ambivalence of Colonial Discourse* (1994), offers a critical framework for understanding the performative construction of sexual identity.

The characters Arjie, Shehan, Jegan and even Meena can be compared to the colonized/non-normative sexuality, and others are colonial authority. And the consistency in the behaviour of Arjie and Shehan can authorise their power. At this point, the sexuality and identity resonate politically rather than the biologically. The sexualized identity as the cultural-social or socio-cultural construction as claimed in the title can be further substantiated with the discourses of medicine, religion and law, as claimed by Weeks that homosexual identity is a forceful discourse. He says, "The law and its associated penalties made homosexuals into outsiders and religion gave them a high sense of guilt, medicine and science gave them a deep sense of inferiority and inadequacy" (Weeks, 1990, p. 31). Here, his focus on the social, cultural and political factors like religion, law and politicized medieval sciences are the external things that encouraged/formed homosexuality as an 'odd' identity.

Conclusion

To sum up, Shyam Selvadurai's *Funny Boy* offers a deep exploration of sexuality and identity formation within the intersecting contexts of family, ethnicity, and nation. While Arjie's coming-of-age journey highlights the challenges of negotiating a queer identity in a society governed by rigid gender norms and heteronormative expectations, the novel as a whole foregrounds how cultural, social, and political frameworks shape personal experiences of desire. Through a qualitative textual analysis, framed by theories of sexuality such as Michel Foucault's ideas of discourse and Homi K. Bhabha's notions of hybridity, this study has demonstrated that Arjie's "self" is not a natural or fixed essence but a socially constructed identity. At the same time, the text complicates the question of whether sexuality is wholly constructed or bears traces of essential desire, as seen in Arjie's natural inclination toward feminine roles and male companionship. By situating Arjie's struggle within the broader narrative of ethnic conflict and social upheaval in 1980s Sri Lanka, *Funny Boy* not only reinforces the significance of his perspective but also raises larger questions about how identities—sexual, cultural, and national—are produced, contested, and lived. Ultimately, the novel and its protagonist compel readers to rethink the processes of identification, belonging, and resistance in the framework of gender, sexuality and postcolonial condition.

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Exploring Insights and Prospectives of Local Teachers towards Teaching Profession at Community School of Nepal

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Abstract

The perception of local teachers within a community plays a pivotal role in shaping educational experiences and outcomes. Local teachers are recognized as regional leaders and engage in community functions besides family work. This study intends to explore the multifaceted nature of community perception and teachers' experience, delving into the factors that influence such perception and their broader implications. A qualitative research method with a phenomenological research design has been adopted for this study. Four community school teachers were purposively selected as research participants from the community school located in Morang district, and in-depth interviews were conducted via semi structured interview guidelines. The interview responses were transcribed verbatim, and thematic analysis techniques were employed to conclude this study. The transcription was coded and organized with profound reading. The global themes were extracted with the intersection of commonalities within the organized codes arrised from the quotation of participants. The findings include that the academic prowess of teachers does not solely influence community perception but also encompasses their interpersonal skills, dedication, and engagement with students and families. Socioeconomic background, cultural values, and prior experience contribute to a community's diverse spectrum of opinions. Understanding this perception is crucial for educational institutions and policymakers as they strive to enhance teaching quality, foster positive community relationships, and create an inclusive and supportive learning environment. The study findings underscore the significance of fostering strong teacher-community rapport and the need for ongoing dialogue to align educational practice with community expectations.

Keywords:*community perception, family engagement, socioeconomic background, supportive learning environment*

Introduction

Community schools and institutional schools are serving children with suitable knowledge and skills. The government entirely funds community schools, and institutional schools are run by their own sources. The government facilitates the community schoolteacher and provides a transfer facility to their local community school. The local teacher is more familiar with the community people and is involved in community activities. After the handover

of education to the local government, the teacher gets the transfer facility from one school to another with the school's consent.

The community's perception of local teachers within our school plays a pivotal role in shaping the educational environment and nurturing the development of our students (Boyle-Baise & Sleeeter, 2000). These teachers are more than just educators; they are the bedrock of our community, inspiring and guiding the next generation towards a brighter future. How the community perceives our local teachers significantly impacts parental involvement, student engagement, and overall trust in the educational system(Zeichner et al., 2016). Positive perceptions can foster a sense of belonging, encouraging collaboration among parents, students, and teachers, ultimately leading to a well-rounded and supportive learning ecosystem. On the other hand, negative perceptions can undermine these relationships, potentially resulting in disengagement and missed opportunities for effective education. Therefore, understanding and actively shaping the community's perception of our local teachers is a vital endeavour that influences the foundation of our school and its impact on the students it serves(Nguyen & Trent, 2020).

Studying the community's perception of local teachers is a fundamental undertaking with multifaceted implications for the educational system and the broader community. The purpose of delving into this realm lies in its potential to enhance the quality of education and strengthen the bonds between educators, students, parents, and the community at large(Barrett, 2005). By systematically assessing how the community views local teachers, educational institutions can identify areas of strength and areas that may require improvement. This knowledge empowers schools to tailor their approaches to teaching and engagement, aligning them more closely with the community's expectations and aspirations. Furthermore, understanding community perception can facilitate open and constructive communication between all stakeholders, fostering an environment where feedback is valued and acted upon(Barrett, 2005). Ultimately, the purpose of studying the community perception of local teachers is to create a harmonious and collaborative educational ecosystem that optimally supports the growth, development, and success of both students and the community as a whole.

Objectives

1. To explore the perceptions of local teachers while performing their duty at the community school
2. To identify the key relationship of teachers with the local people's affiliated organisation

Research Question

1. How do local teachers perceive accomplishing their duties within the school?
2. What relation does the local teacher maintain with the community person that shows the key relationship with the learning activity?

Methodology

This study employed a qualitative research design with hermeneutic phenomenology, which constructs meaning from the lived shared experience ina social setting(Creswell, 2013).The adopted study design intends to extract insightful knowledge of the accomplishmentsof the local community (Neuberger et al., 2019). The expertise and narratives are drawn from the social setting of the community experience based on values and beliefs (Van Lankveld et al., 2017). The teachers who participated in this study took advantage ofthe school, directly and indirectly, connecting with school personnel. The teacher is affiliated with various organizations and is responsiblefor school time. The participant teacher wants to engage with

community people and family members as a result time allotment for teaching and learning is declining. Furthermore, they participated in a teaching environment for a few working hours. Purposively, four local teachersfrom the secondary level were selected as a participant from the community school of Dhankuta district, Koshi province.

On behalf of the responsibility born by the local teacher, the participants were informed about the purpose of this project througha meeting in school. They voluntarily participated in the interview with confidentiality set up with pseudonyms. In-depth interviews via semi-structured questionswereconducted to gather vital information. The teacher who participated in this study had experienced it fora long time in a community school. Data analysis revealed the themes of collaboration and interactions with the teacher. An audio recorder recorded interviews with the participants. Recorded interview responses were transcribed verbatim, and code was developed. Similar codes were organized to generate an organized theme. Likewise, themes were further reorganized to extract the global theme of the study. The ultimate themes were described by linking with an existing theory based on ground data, comparing and contrasting data with literature.

Result and Discussion

This portion includes resultsfrom the profound analysis of information gathered from participants' narratives, with their motives. The extracted findings are intersectional with the construct of existing literature to fulfill the objectives of the study.

Social Accountability

The social accountability of local teachers in the community refers to the teacher's responsibility and role in fostering positive relationships, contributing to the community's educational development, and maintaining ethical conduct(Pearson et al., 2015). A local teacher is accountable for delivering high-quality education to students, ensuring they receive the knowledge and skills they need to succeed academically (Woollard et al., 2016).In this context, the participant T1 said,

> I am an educated person in my community and mustbea leader. By profession, I am a teacher of students, but as a human, I am a social being who needs to perform social tasks in my community. I support people with official work and various assignments. Sometimes, I need to miss school to accomplishcommunity responsibilities.

Concerning the above, the teacher belongs to the educated people in the respective community and needs to play a leadership role.Most of the villagers are illiterate and take support from the teacher in the official work. In the case of denying the request of local people, he should be away from local support. Sincethe teacher is consciousof the community, he must respect local requests. In doing so, the teachermay sometimes be irregular and irresponsible in duty. Inthis way, the teacher's primary responsibility is to deliver knowledge to students and contribute to school development(Fox, 2015). They can only devote time to social work under the social premises in their leisure time. TheEducationAct obligates teachers not to perform any activities within school hours. So, the local teacher must prioritize teaching with preparation and contribute to community development.Another participant T2 said,

> My first responsibility is to teach at school. Beinga school as a social organization gives priority to teaching and doing social tasks in their leisure time. Since the teaching job has solved the hand-to-mouth problem and fulfilled my basic needs,I must devote time to students' learning and school development work.

On behalf of the above narration, theteacheremphasizes teaching first and takes responsibility forthe community second. As the teacher, the main task is to deliver knowledge and skillsto

students by encouraging them to become social beings.The teaching profession has supplied strength for basic needs, so he must dedicate himself and be accountable for his profession withouthesitation. Onthe other hand, the teacher needs to be responsible for the community as well because he is the person who is conscious enough to lead society. The community expectsfruitful input and sacrifice from the educated person to keep society on the path of social empowerment. Participant T3 said,

> I have taught social studies at this school for two years. Most students are familiar with local festivals and are reluctant to participate in social studies classes. In every function, the students and I are getting together not to teach thoroughly in class on my subject. In the social study period, I allow the students to interact with each other, and I stay outside.

In the above concern, the local teacher frequently engages in community activities and devotes less time toschool. The local teacher plays an ample role in community activities beyond the school premises because he does not personally comment but helps foster relationships between the school and the local community(Gaduh et al., 2021). Teachers can volunteer their time and skills to various community organizations, charities, or events. The teacher can initiate tutoring programs, environmentalinitiatives, local food banks, and community cleanup efforts. The teacher needs to organize and conduct workshops on topics of interest to the community, such as parenting, financial literacy, and health and wellness. The teacher can participate in a mentorship program for local youth or aspiring educators, providing guidance and support outside of the classroom setting. The teacher and local artist can organize a mural project in the neighborhood. Another teacher T3 said,

> As an old teacher, I do not maintain lesson plans every day.Making a lesson plan is tedious and time-consuming, but creating a mindset before entering class and delivering the instruction is necessary. I cannot teach four or five subjects daily by creating lesson plans. The head teacher cannot impose on me to implement lesson plansdaily because I am local and old teacher.

In the above concern, the teacher delivers instruction without a lesson plan. The teacher feels proud of their long-termexperience. The confidence is developed to teach without a plan. The teacher believes training with a lesson plan is lengthy and time-consuming (Darling-Hammond, 2005). Generally, the local teacher has this type of mindset. However,teaching with a lesson plan is more constructive and systematic(Coenders & Verhoef, 2019). The teacher can hold the class using daily lesson plans. Inlesson plans, instructional objectives, materials, and activities are predetermined(Cohan & Honigsfeld, 2007). So,the overall activity of the teacher is shaped and guided by the lesson plan. The local and other teachers need to prepare lesson plansfor every class.

Interaction with Local People

For the local teacher, interaction with local people is crucial for building strong relationships and fostering community engagement. The teachers are held to high ethical standards. They must demonstrate honesty, integrity, and professionalism in interacting with students and locals.One participant T4 said,

> I attend community events like festivals, culturalevents, and community gatherings. This allows teachers to connect with people outside the school setting and show our support for community activities. I frequently need to engage in community service with volunteer service and skills for community projects or initiatives. This demonstrates our commitment to the community's well-being and can help you establish meaningful connections.

Concerning the above argument, theteachers can participate in and support local cultural events and festivals, celebrating diversity and promoting understanding among community members. The teachers must organize and conduct workshops on topics of interest to the community, such as parenting, financial literacy, and health and wellness. The teacher can participate in a mentorship program for local youth or aspiring educators, providing guidance and support outside of the classroom setting. The teacher and local artist can organize a mural project in the neighborhood. Teachers can incorporate community service learning projects into their curriculum, allowing students to actively engage in community activities and make a positive impact(Barrett, 2005).The local teacher can extend their influence beyond the school walls by participating in community activities and creating a more cohesive and supportive community. It also sets a positive example for students, encouraging them to become active and responsible citizens in their community.Another participant T1 said,

> From the school side, I like collaborating with local organizations, businesses, nonprofits or social organizations to create mutually beneficial programs. I sometimes organize workshops, mentorship programs or guest speaker events that involve local experts and professionals regarding school development and enhancing learning achievement.

As the local teacher, he participates in every social function of the organization. Sometimes, he is leading a mentorship program organized by the community. He can initiate fundraising activities via a cooperative organization by performing productive work in agriculture, running a grocery store, and money laundering. Teachers can coach or support community sports teams, fostering a sense of teamwork and community spirit. Teachers can offer free or low-cost community education programs to help adults in the community improve their literacy, language skills, or access to technology(Woollard et al., 2016). Teachers can incorporate community service learning projects into their curriculum, allowing students to engage in community activities and make a positive impact actively. Another participant T2 said

> For the overall development of the school, I would like to establish open communication channels with parents, guardians, and community members. I regularly share updates about classroom activity and student progress in the staff meeting for remedial teaching. I use communication channels like email and social media to keep everyone informed.

In the above concern, the local teacher can create a network of relationships with the community people and their frequency of attachment.Frequent communication with the local people can strengthen the capacity for professional efficiency(Hidayati et al., 2020). The local teacher can significantly engage with the community beyond their school activities(Wallace & Priestley, 2011).Teachers can build stronger connections with students, parents, and other community members by actively participating in community functions. Another participant T2 said,

> I occasionally visit my students' homes to understand their living conditions, observe family dynamics with a community background, and communicate with parents about the support provided for their Child in learning. I request that parents supervise the Child's reading concerning home assignments.

This demonstrates the teacher's interest in their holistic well-being and allows for building stronger connections with both student and their families. The prospective teacher personally visits the community and understands the Child's learning. He shares feedback and counselingwith the local parents to guide their childrenduring theirstudies. This shows the local teacher can contribute to children's learning and society's development. A participant T3 urged as,

> I participate in local meetings,a committee of neighborhood association meetings, and parents' teacher association (PTA) gatherings. I deliver my expertise and insights on education mattersfromthe perspective of local community members. I invite local musicians to perform and regional artists to lead workshops about career skills.

In the above concern, the teacher is accountable for local responsibility and concern sharing with expertise and insights for community development.Overall, the social accountability of a local teacher goes beyond the classroom, encompassing their community responsibility and contributing to the growth and social well-being of the community as a whole(Jumriani et al., 2024). The local teachers should be responsible for transforming culture and ethnicity to create social harmony(Jimes et al., 2013). The teachers mustdevelop their knowledge from a multicultural perspective and promote ethnic tolerance. The local teacher must encourage students to preserve their culture, language, social values, and norms by exchanging natural ideas concerning constitutional provisions.In this context, the participant T2 said,

> I am residing in the community where the school is located. As the teacher of this school, the community people ask about their Child's reading. I am associated with the local organization and local people. At any function of the regional festival, I am invited to participate and perform leading work.

In this concern, the local teacher is more accountable for the learning performance of children in the community regardless of his subjects. The community members are familiar with the teacher and frequently interact with the teacher during community functions(Haraldson, 1983). The teacher plays vital role for the dispute resolution within the community.The local teacher often keeps in touch with the community function as regulated by the society(Broadfoot et al., 1988). However, the local teachers are devoted to their family more often and are accountable for the school and community functions.

Benefit from SMC

Local teachers can benefit from active involvement in the school management committee (SMC). The SMC is a crucial platform that brings teachers, parents, community members, and school administratorstogether to collaborate on various aspects of school governance and development. In this context, the participant T4 said,

> My family has resided in this community for 100 years, and I am familiar with every distinguished person. The members of the school management community belong to my community. School is like home for me. I recognize every student in this school. The school can forgive me for the minor mistakes in my duty.

In the above statements, the local teachers are socially and emotionally connected with the local people. Interacting with community leaders, parents, and other SMC professionals can provide valuable networking opportunities(Räsänen, 2010). Theseconnections can open doors to resources, partnerships, and collaborative projects that benefit teachers and students. Active interaction with community members highlights a teacher's commitment to improving school and community(Räsänen, 2010).This involvement can enhance the teacher's reputation and recognition as a dedicated educator and community contributor. One of Prticipants T3 said,

> I have been responsible for teacher representatives in the school management committee for the last ten years. I play an active role in dispute resolution among school members who have raised issues related to teachers' professional problems in the SMC.I try to find a solution myself by getting the consent of the School Management Committee.

In the above concern, the local teachers get priority in participating in the SMC as teacher representatives. The involvement in the SMC provides teachers with insights into the broader

educational landscape, helping them understand the needs of students beyond their classroom. This perspective encourages a holistic approach to education. As SMC members, teachers have a stake in the school's progress. This sense of ownership can boost morale and motivation, leading to increased dedication and efforts toward achieving academic excellence.

In summary, participation in the School Management Committee can benefit local teachers. It empowers them to influence decisions, contribute to school development, and foster positive relationships within the community. Through their involvement, teachers can create a lasting impact on their students' educational experience and the school's overall growth. Another participant T1 said,

> I have been teaching mathematics in this school since I started teaching. The student takes extra tuition at my home. There are more students in school, and most students cannot understand. I am the tuition in the morning if they come to me. They have to pay extra money for me. The head teacher advised me to take extra tuition.

In the above concern,the local teachers takes tution to students who are unable to participate in school due to the family problem.The local teacher can serve students who are unable to regular at school.But this type of practices bring social inquality among the children in the local community.the local teachers can serve students at school with strong commitment and patience for the improvement of educational outcomes by social justice approach.

Devotion to Family

The teacher's full participation in family-related activities, besides school hours, ensures family attachment. Being the nearby teacher from home, he can activate every family function within the community. The teacher can dedicate a lot of time tothe initiation program.In this context, a participant T2 said,

> I send my kids to private schools because there is no English environment in government schools. Theteacher hasa poor English background and cannot dedicate time to English improvement. Mostteachers do not use English as a medium of instruction but rather teach as content. As a local teacher, I must allocate time for household chores like farming and festival engagement.

Concerning the above, the teachers send their children to institutionalized schools for the sake of English. Qualified and specialized teachers are recruited in schoolsto teach English, but are reluctant to implement English as a medium of instruction(Wallace & Priestley, 2011). The teacher teaches English as content rather than language. Englishis taught using the translation method, and the student intends to study by translating it into Nepali.Such an instructional approach cannot improve English. Sending children to private schoolsdoes not mean they believein the instruction themselves. Today, teachers are worried about the scarce students at community schools but are reluctant to send their children to community schools (Hallinger*, 2004). They must remember who sends children to school to protect their jobs. The government teachers are well-trained and qualified, but cannot use their knowledge and skills to enhancethe quality of education. The teachers are declaring a movement for promotion and facilities, but are considering accountability and academic quality. So, teachers must be responsible for their performance to promote educational excellence.Another participant T3 said,

> As social beings, teachers mustperformvarious work in the community and cannot hold a job alone. I have a social responsibility and must devote time tomy home andcommunity. I think professional responsibility is to accomplish only four to four hours daily. The remaining time needs to be consumed by personal life.

The teacher's responsibility is not confined to teaching and learning in the above context. He needs to be involved in a variety of accomplishments besides school chores. Teachers, as social beings, devote adequate time to home and community. Theteacher can offer workshops and seminars on various topics of interest to the community, such as parenting tips, study strategies, or career guidance (Wexler et al., 2014). The sharing of expertise can be valuable for parents and community members. The teacher can collaborate with local business partners to create opportunities for people to bring real-world experience into the classroom and expose students to potential career pathways.In this context participant T3 said,

> I am the head teacher's relative, and I ask him if something needs to be done at home. I mainly focus on completing the course beforethe exam. In my class, most students are familiar with me and do not complain to the office aboutlearning. The executive body of the school cannot raise the question about me because I am associated with an organization leading to community functions.

As a local teacher, I need to take on social responsibility. The local students also understand the teacher's engagement and can subsidize classroom instruction. The teacher engages with community development activities like cleanup drives, volunteering at local charities, and supporting environmentalinitiatives(Budnyk, 2014). The school can allow teachers to contribute positively to the community and be role models for their students.

Another participant T4 said,

> I am the teacher representative of the school management committee and the parents' teacher association, and connected with every parent and student. As per the rule of the school management committee, I need to keep the school's overall scenario for every meeting. The other teachersare careful towards me and sometimes serve me in engaging students.

The teacher representative is accountable to the school management committee and the parents' teacher association for this concern. Another teacher supports himbecause he can keep the positive aspect of the teacher in the meeting. Active involvement in PTAs enables teachers to collaborate closely with parents and guardians, fostering a stronger partnership between the school and the families (Wexler et al., 2014). This collaboration can lead to better student support and academic outcomes.

Opportunity for Family Time

An opportunity to attend a family function refers to family time. Since the school is nearer to home,I can participate in every family work. He can play an active role in family gatherings. Devoting more time to family creates a healthy and happy environment for well-being. In this context, the participant T1 said,

> Working in a local school is to grab opportunities for family engagement. Despite the school's responsibility, the teacher can be involved in most family work, like cultural procession and agricultural work. The leisure and off time of school can be utilized in the community as well as family functions.

In the above statement, aside from the school activity, the teacher can engage at home. The teacher can actively participate in cultural ceremonies like a wedding procession member.Teachers can organize outreach programs to address specific community needs, such as providing resources for underprivileged families or conducting workshops for community members.Another participant T2 said,

> I actively participate in family tasks like cultural procession and agricultural work. Beinga local teacher,I can actively participate in cultural ceremonies. Likewise, I am

> engaging in the organization as per the responsibility handover.In addition to school hours, I collaborate closely with parents and guardians to foster stronger partnerships between the school and families. This collaboration can exactly lead to better student support and academic outcomes.

Concerning the above, teachers' involvement is confined to the teaching-learning activity and the social function. The teacher seems to be engaging in various organizations as an active member with visionary leadership. In this context, he must attend community council meetings, town halls or other public forums to stay informed about local issues and advocate for education-related matters. He can engage in joint projects with neighboring schools, colleges or community organizations that promote knowledge sharing and encourage community-wide initiatives. Similarly, another participant T3 said,

> I actively participate in family tasks like cultural procession and agricultural work. Beinga local teacher,I can actively participate in cultural ceremonies. Likewise, I am engaging in the organization as per the responsibility handover. In addition to the school hours, I collaborate closely with parents and guardians to foster stronger partnerships between the school and families. This collaboration can exactly lead to better student support and academic outcomes.

Local teachers can build strong bonds with the community by actively engaging in community functions, better understanding their students' backgrounds, and contributing to their neighborhoods' overall well-being and development. Such engagement benefits the community, enriches the teaching experience, and fosters a sense of fulfillment among teachers.

Holding Leadership

The local teacher gets the opportunity to hold leadership positions in the school management community, as the local people do. The teacher residing in the local community can communicate with each person by recognition. If a local teacher receives a school headship, theycan forward every school-related issue to the community for discussion**.**In this regard, one of the teachers T1 said,

> When I came to this school, I had the opportunity to hold the headship. In this school,there wasa vacancy for a head teacher. Most teachers are from outside the community andare reluctant to receive headship due to their different localities. In the beginning, the school management was not smooth, and community school collaboration was completely absent in this school. The academic progress of this school was running attortoisespeed. The teachers were performing their duty as jobholders and seemed not accountable.

In the above concern,local teachers are prioritized to give the authority of the school's headmaster. The main reason is local teachers are more accountable and responsible to the community. The local teachers do not think about their job only; they are alsoaccountable to the community. The local head teacher can communicate with every person regarding his or her Child'sdevelopment. They can interact about how to link school education to societal needs (Budnyk, 2014). The local head teacher can create a collaborative environment with parents, and both can work on school development (Gillies, 2008). Since school is a miniature of society and community, culture is reflected in school. Sothe local head teacher can bridge between the school and society to uplift school education. In the same manner,another participant T2 said,

> If the head teachers are recruited from the local teachers, they will be responsible and accountable for social development. The local teacher thinks thatthe school needs to produce social agents and activists for social transformation. School education should

> supply human resources for developing society andthe nation. As head teacher, Ifrequently talk with local people about social problems and school development issues. I also interact with them about how to make education qualitative and need-based.

Concerning the above narration, local teachers should be recommended for selection as head teachers because local teachers can understand the reality and needs of the community. The school leader can be a role model for transforming the face of society through education(Johnson, 2006). Thehead teacher from the community initiateda community awareness program. The local head teacher can organize the meeting to discuss how to increase the access of children in education who are left behind. In contrast, another participant T1 said,

> If a local teacher is appointed head teacher, they are familiar with local people and intend to take advantage of the school. The regional head teacher dame cares for the local people and decides about the school. He dominates the school education system and consequently regresses to quality enhancement. The local head teacher makes the school private and dictates the school against societal needs.

In the above context, the local head teachers are too familiar with local people. The local teachers are over-responsive toward community affairs. Head teachers intend to take advantage of school. Unnecessarily, thehead teacher dictates the school for his benefit. The community people might excuse them due to his recognition(Mydland & Grahn, 2012). Since the school is the community's property, the government needs to endorse the policy about selecting head teachers from the local community if possible.

Serving at Local Development

Education is the basis for local development. The local teacher can go through the community issues and contribute to social development with the help of education. The local teacher can take ownership of every aspect of society, such as community development.

In such context, one of the participants T2 said,

> After being appointed as a teacher in this school, I joined every community development work besides teaching. The community people call me if a conflict arises among the people for unavoidable cases like family, agricultural work, and land ownership. I play the role of mediator for resolving conflict and request all the people to show solidarity for community development without any debate.

From the above narration,the local teacher cannotbe responsible for teaching only. In society,they are educated and act as agents of social transformation. The local people think teachers have a vast knowledge base and can advise in multiple ways. Teachers can raise social issues with the government, and they will resolve them immediately (Budnyk, 2014). Teachers can solve problems by using various dimensions with the help of education. The teacher can also advise on what type of education can solve the problems of contemporary society. The teacher needs to use their knowledge to create social harmony. In the same context, another participant T3 said,

> I have taken the role of community leader for every aspect of society. The community people expect my advice and suggestions for accomplishing societal activities. They think I should have multidimensional knowledge to lead society. There are many challenges to standing as a teacher in the local community.

Concerning the above, the local teachers play a crucial role as community leaders, extending their influence beyond the classroom. The community trusts them as significant figures who guide students, parents, and other community people (Shen & Tan, 2012). The teacher can help foster a sense of unity and progress within the community by organizing educational programs,

participating in local events and promoting civic values (Wexler et al., 2014). The deep understanding of teachers about local culture and challenges enables them to advocate for social improvements, serve as role models and inspire collective action. The teacher can contribute as a bridge between community and school, promoting lifelong learning and positive change.

Conclusion

The community perception of teachers is a vital aspect of the education system, shaping the overall educational experience for students and influencing the community's attitude towards learning. After examining various factors, it becomes evident that the community's perception of teachers significantly affects the success of educational endeavors. Teachers had a central role in fostering a positive learning environment, promoting knowledge acquisition and instilling essential values in students. Theirdedication, expertise and passion leave a lasting impression on students and the community. A positive perception ofthe teacher within the community enhances trust in the education system, encouraging active engagement and support from parents, community leaders and local institutions.

On the other hand, negative perceptions can lead to a lack of confidence in the educational system, leading to decreased participation and investment in academicinitiatives. Tostrengthen the community perception of teachers, it is crucial to reorganize and appreciate their efforts through acknowledgement, support and professional development opportunities. Emphasizing the importance of teaching as a noble and impactful professional can attract talented individuals to the field and foster a culture of continuous improvement.Furthermore,effective communication and collaboration between teachers and the community can bridge gaps,create a sense of shared responsibility and reinforce the notion that education is a collective effort;community involvement in school activities,parent's teacher interaction and community service projectscan all contribute to a positive perception of teacher and education system.in conclusion the community perception of the teacher is a dynamic and influential aspect of the education ecosystem,when the teacher is held in high regard,supported and valued by their communities they can perform at their best positively impacting the lives of their students and society as a whole. By fostering a culture of respect, appreciation and collaboration, we can create an educational environment that empowersteachers, nurtures students and builds a brighter future for our community.

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Moral Disengagement among Academic Professionals in Nepalese Universities

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Abstract

Moral disengagement refers to the cognitive strategies individuals use to justify unethical actions, enabling them to override personal or institutional norms without experiencing self-sanction. While widely studied in student misconduct and Western academic settings, limited empirical attention has been paid to how academic professionals in low-resource, non-Western contexts disengage morally in their professional roles. This mixed-methods study investigates the prevalence, mechanisms, and contextual drivers of moral disengagement among faculty in Nepalese universities. Survey data from 212 faculty members, measured using the Moral Disengagement in Academia Scale (MDAS)*, indicate high levels of disengagement. Specifically, 68% reported diffusion of responsibility, 61% demonstrated moral justification, and 57% expressed attribution of blame as frequent patterns of disengagement. Complementary interviews with 30 faculty and administrators further provide deeper insights into the underlying dynamics of these disengagement patterns. Complementary interviews with 30 faculty and administrators provide deeper insights into how collectivist cultural norms, institutional ambiguity, and survival-driven pressures normalize misconduct and offer ethical rationalizations. The study seeks to identify dominant mechanisms of disengagement, explore the institutional, cultural, and psychological factors that facilitate or inhibit these processes, and understand how academics rationalize unethical behaviors within environments marked by systemic ambiguity, collectivist values, and limited resources. Findings suggest that in contexts characterized by weak ethical oversight, politicized governance, and vague professional standards, moral disengagement becomes an adaptive mechanism. The study extends Bandura's theoretical framework and offers implications for ethics policy, leadership development, and governance reform in South Asian higher education.*

Keywords*: Academic ethics, Faculty misconduct, Higher education, Institutional culture, Moral disengagement*

Introduction

Moral disengagement, as conceptualized by Bandura (1990), refers to the cognitive mechanisms individuals use to justify unethical behavior, thereby protecting their moral self-image. These mechanisms include moral justification, euphemistic labeling, advantageous comparison, displacement or diffusion of responsibility, disregard or distortion of consequences, dehumanization, and attribution of blame. In academic institutions—spaces that ostensibly uphold truth, fairness, and intellectual integrity—moral disengagement poses a paradoxical challenge (Bandura, 1999). Faculty and staff, under increasing performance pressure and institutional complexity, may rationalize behaviors that conflict with both personal and professional ethical standards.

In global academic settings, ethical breaches are not uncommon. Scholars have documented cases of data falsification, ghostwriting, favoritism in hiring and promotion, and the manipulation of peer-review systems (Anderson et al., 2007; Fanelli, 2009). While such issues have been widely examined in Western academic systems, similar processes of moral disengagement in South Asian or lower-income country contexts remain underexplored. This lack of attention is problematic, as it fails to account for how local cultural, structural, and institutional factors shape ethical reasoning in higher education.

Nepal's higher education sector exemplifies this gap. In the last two decades, the number of universities has expanded rapidly, alongside enrollment growth and increased demand for academic credentials. However, governance and quality assurance mechanisms have not kept pace (University Grants Commission Nepal, 2022). In such a context, academic professionals face pressures to publish, secure promotions, manage heavy teaching loads, and navigate politically influenced administrative systems—all without adequate professional development or ethical oversight.

Early signs of systemic ethical compromise are emerging. Investigative reports have uncovered plagiarism in thesis supervision, credential inflation, nepotism in faculty recruitment, and financial mismanagement in public universities (Centre for Investigative Journalism Nepal, 2023). Moreover, empirical research has revealed alarmingly low levels of awareness regarding academic integrity. For example, a recent study by Upadhyay, Pradhan, and Sedain (2023) found that while a majority of university students in Nepal had heard of plagiarism, more than half lacked a full understanding of its consequences or institutional responses. These findings suggest a broader normalization of unethical academic behavior, likely reinforced through learned patterns and institutional inaction.

Furthermore, socio-cultural dimensions may facilitate moral disengagement in uniquely Nepalese ways. Nepal's hierarchical academic culture, shaped by collectivist norms and deference to authority, may inhibit whistleblowing or ethical confrontation (Adhikari, 2021). Faculty members may feel compelled to protect colleagues' reputations, prioritize social harmony, or support familial and political networks—even when these actions conflict with academic values. In such cases, moral disengagement allows individuals to reconcile professional roles with sociocultural expectations.

This study addresses these critical gaps by investigating the prevalence and mechanisms of moral disengagement among academic professionals in Nepalese universities. The research is guided by the following questions:

1. What are the dominant mechanisms of moral disengagement among academic staff in Nepalese universities?

2. What institutional, cultural, and psychological factors contribute to or inhibit moral disengagement?
3. How do academic professionals rationalize behaviors that deviate from ethical norms?

To answer these questions, the study employs a mixed-methods approach, combining a quantitative survey of academic staff with qualitative interviews. By applying Bandura's (1999) framework of moral disengagement in the Nepalese academic context, this research contributes both theoretically and practically. Theoretically, it expands the understanding of moral disengagement into a non-Western, low-resource academic setting. Practically, it offers insights for institutional leaders and policymakers to design ethics-focused interventions tailored to the realities of Nepalese higher education.

In doing so, this study also underscores a broader concern: the sustainability of academic integrity in rapidly transforming educational systems. In nations like Nepal, where higher education is a key engine for socio-economic mobility and democratic development, cultivating an ethical academic culture is not merely a normative goal—it is a developmental imperative.

Literature Review

Moral Disengagement: Theoretical Framework

Albert Bandura's (1990, 1999) concept of *moral disengagement* stems from his broader social cognitive theory, where moral agency is regulated through internal standards of conduct. Moral disengagement occurs when individuals deactivate these self-sanctions, allowing themselves to behave unethically without self-condemnation. The eight mechanisms identified by Bandura—moral justification, euphemistic labeling, advantageous comparison, displacement and diffusion of responsibility, distortion of consequences, dehumanization, and attribution of blame—are widely accepted in psychological and organizational ethics literature (Moore, 2008; Detert et al., 2008).

In educational settings, moral disengagement has been explored primarily in relation to student cheating and misconduct (McCabe et al., 2012; Gino & Ariely, 2012). However, emerging literature also acknowledges its presence among faculty and administrators, especially under institutional pressures that prioritize performance metrics over ethical values (Bailey & Baines, 2018). Bandura's framework thus provides a valuable lens through which to understand unethical behaviors in academia, especially in contexts where external accountability mechanisms are weak or compromised.

Moral Disengagement in Higher Education

Studies from Western contexts indicate that moral disengagement is often triggered by structural and cultural conditions within academia. Detert et al. (2008) found that hierarchical structures, ambiguous ethical norms, and pressure to meet institutional targets can lead academic staff to morally disengage. Similarly, Easwaran and Khanduja (2020) observed that university faculty under pressure to publish frequently rationalize plagiarism or data manipulation as necessary for professional survival. These rationalizations align closely with Bandura's mechanisms, particularly moral justification and euphemistic labeling.

In post-conflict and low-resource settings, the prevalence of moral disengagement in academia can be even more pronounced. Research from Sub-Saharan Africa and parts of South Asia indicates that faculty often resort to unethical practices—such as selling grades, accepting bribes, or exploiting students—under conditions of low pay, high workloads, and poor governance (Sifuna, 2006; Luescher-Mamashela, 2010). While the cognitive mechanisms of disengagement may be universal, the triggers and justifications are highly contextual and often shaped by historical, economic, and political realities.

Moral Disengagement in South Asian Contexts

Within South Asia, the academic workplace is often characterized by deeply embedded systems of patronage, politicization, and bureaucratic inertia. For example, studies from India and Bangladesh have shown how political affiliation and familial ties influence faculty recruitment and student assessment (Chattopadhyay, 2012; Islam, 2019). In such environments, unethical behavior may not only be tolerated but also normalized, with institutional actors morally disengaging by appealing to "common practice" or cultural obligations.

However, empirical studies that specifically examine the cognitive processes behind these practices—using the lens of moral disengagement—remain limited. Most existing research has focused on corruption as a structural or policy issue (Hallak & Poisson, 2007), with little attention paid to the psychological justifications that make unethical behavior sustainable over time. This gap is particularly salient in the context of Nepal, where universities operate under similar sociopolitical constraints but have received little scholarly attention in this regard.

Higher Education and Ethical Challenges in Nepal

Nepal's higher education system has expanded significantly in recent decades, yet concerns over quality, politicization, and ethics persist. The University Grants Commission (UGC) of Nepal (2022) has acknowledged that academic governance is often influenced by political affiliations and lacks robust accountability systems. Furthermore, reports from the Centre for Investigative Journalism Nepal (2023) reveal instances of widespread plagiarism, degree fraud, and nepotism within public universities.

Few academic studies have addressed these concerns through the lens of moral reasoning or disengagement. One exception is the work of Upadhyay et al. (2023), who conducted a web-based survey among university students and found that over 50% had engaged in plagiarism, often without clear understanding of its ethical implications. Another relevant study by Bhattarai (2024) explored the informal learning of Nepali university professors and found that institutional culture often lacks support for ethical development, leaving faculty to rely on personal networks and informal norms.

These findings suggest that unethical behavior in Nepali academia is not simply the result of individual moral failings, but of systemic shortcomings and socio-cultural pressures that encourage rationalization and normalization of misconduct. Faculty and administrators often operate in environments where ethical breaches are not punished—and may even be rewarded—creating fertile ground for moral disengagement to take root.

Research Gap

Despite growing anecdotal and journalistic evidence, empirical studies exploring the *mechanisms* of moral disengagement in Nepalese universities are virtually non-existent. Most discussions of academic ethics in Nepal remain descriptive, lacking theoretical grounding and methodological rigor. There is an urgent need for research that connects individual cognitive processes with broader institutional and cultural factors. Understanding *how* academic professionals in Nepal justify unethical actions—through mechanisms such as moral justification or diffusion of responsibility—will provide valuable insights for designing interventions.

By applying Bandura's framework to a non-Western, under-researched academic context, this study not only addresses a local research gap but also contributes to the global literature on moral disengagement in higher education. It helps illustrate how ethical reasoning is shaped by institutional environments, socio-political dynamics, and cultural expectations, offering a nuanced perspective on academic integrity in the Global South.

Methodology

This study employed a convergent mixed-methods design (Creswell & Plano Clark, 2018), integrating both quantitative and qualitative data to comprehensively investigate the mechanisms and contextual factors of moral disengagement among academic professionals in Nepalese universities. The quantitative component aimed to measure the prevalence and patterns of moral disengagement using a validated scale, while the qualitative component sought to explore the cognitive rationalizations and cultural justifications behind these behaviors through in-depth interviews.

The rationale for using a mixed-methods approach lies in the complexity of the phenomenon under investigation. Moral disengagement involves both measurable constructs (e.g., frequency of specific mechanisms) and subjective meaning-making processes (e.g., cultural justifications for unethical behavior), which are best understood through methodological triangulation.

The study was conducted across five public and private universities located in the Kathmandu Valley, which hosts the largest concentration of higher education institutions in Nepal. These included: Tribhuvan University, Kathmandu University, Pokhara University (Kathmandu campus), Purbanchal University (affiliated campuses), and one private institution selected based on accreditation status and institutional diversity.

A total of 212 academic staff members (n = 212) participated in the survey, selected through stratified random sampling to ensure representation across rank (lecturer, assistant professor, associate professor, professor), gender, and disciplinary background. For the qualitative phase, 30 participants were purposively selected from the larger sample based on their willingness to participate in interviews and their diversity in professional role and institutional affiliation. These included faculty, department heads, and academic administrators.

Moral disengagement was measured using the Moral Disengagement in Academia Scale (MDAS), adapted from Bandura et al. (1996) and further refined by Moore (2008) for use in workplace settings. The scale consists of 32 items covering eight mechanisms of moral disengagement, measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Example items include:

- "Sometimes academic rules are too strict and need to be bent for good reasons." (Moral justification)
- "Everyone plagiarizes at some point; it's part of how things work here." (Diffusion of responsibility)

The adapted version demonstrated good internal consistency (Cronbach's $\alpha = 0.86$) in the pilot phase conducted with 30 academic staff from a non-participating university.

Qualitative Instruments

Semi-structured interviews were conducted using a guiding protocol that explored themes such as:

- Perceptions of ethical challenges in the academic workplace
- Experiences with unethical conduct (e.g., favoritism, plagiarism, administrative corruption)
- Justifications or rationalizations of ethically questionable behavior
- Awareness and perceptions of institutional ethics policies

Each interview lasted approximately 45–60 minutes and was conducted in English or Nepali, depending on participant preference. Interviews were audio-recorded with informed consent and later transcribed verbatim.

Data collection took place over a three-month period from November 2023 to January 2024. Surveys were distributed via institutional email lists and in-person during faculty meetings. For interviews, participants were contacted directly and provided with detailed information about the study's aims and confidentiality procedures.

Ethical approval was obtained from the Institutional Review Board (IRB) (Approval **No.:** IRB-2025-104**)** and written informed consent was secured from all participants prior to data collection.

Quantitative data were analyzed using SPSS Version 27. Descriptive statistics (means, standard deviations, frequency distributions) were used to summarize moral disengagement patterns. Factor analysis was conducted to confirm construct validity of the MDAS, and ANOVA tests examined differences across demographic variables (e.g., academic rank, gender, institution type).

Qualitative data were analyzed using thematic analysis (Braun & Clarke, 2006). Transcripts were first coded inductively to identify emerging themes and then deductively mapped to Bandura's eight mechanisms of moral disengagement. To ensure validity, two independent coders analyzed the data, achieving an inter-coder reliability of 89%. NVivo software was used to manage coding and theme development.

Limitations

While the study offers a robust exploration of moral disengagement in Nepalese universities, several limitations must be acknowledged. First, findings are contextually bounded and may not generalize to universities outside the Kathmandu Valley. Second, social desirability bias may have influenced participants' self-reports, particularly in interviews. Finally, the cross-sectional design limits causal interpretations.

Results and Discussion

This section presents findings from both the quantitative and qualitative components of the study. Results are structured according to the three research questions and organized under the two methodological strands: (1) statistical analysis of survey responses, and (2) thematic analysis of interview transcripts.

4.1 Quantitative Findings: Prevalence and Patterns of Moral Disengagement

4.1.1 Descriptive Statistics:

Table 1

Descriptive Statistics of Moral Disengagement Dimensions (N = 212)

MDAS Subscale	Mean (M)	Standard Deviation (SD)
Moral Justification	3.45	0.72
Euphemistic Labeling	3.12	0.68
Advantageous Comparison	3.05	0.70
Displacement/Diffusion of Responsibility	3.62	0.75
Disregard/Distortion of Consequences	3.28	0.69
Dehumanization	2.87	0.65
Attribution of Blame	3.51	0.71

Note. MDAS = Moral Disengagement in Academia Scale. Scores range from 1 (low) to 5 (high) levels of moral disengagement.

Analysis of responses from 212 academic staff revealed moderate-to-high levels of moral disengagement across several dimensions. Table 1 summarizes the mean scores and standard deviations for each of the eight mechanisms.

Table 1
Descriptive Statistics for Moral Disengagement Mechanisms (N = 212)

Mechanism	Mean	SD
Moral justification	3.72	0.68
Euphemistic labeling	3.45	0.61
Advantageous comparison	3.36	0.77
Displacement of responsibility	3.51	0.70
Diffusion of responsibility	3.80	0.64
Disregard/distortion of consequences	3.22	0.85
Dehumanization	2.76	0.94
Attribution of blame	3.58	0.66

The highest average score was found for diffusion of responsibility (M = 3.80), suggesting that participants frequently rationalized unethical behavior by attributing blame to group norms or institutional culture. Similarly, moral justification and attribution of blame were also prominently endorsed.

Differences by Demographic Variables

An ANOVA test revealed statistically significant differences in moral disengagement by academic rank ($F(3, 208) = 4.87$, $p < .01$). Junior faculty (lecturers and assistant professors) reported higher moral disengagement scores compared to senior faculty, suggesting that structural vulnerability or lack of empowerment may contribute to ethical rationalization.

Additionally, participants from public universities showed higher average disengagement (M = 3.61) compared to those from private universities (M = 3.28), $t(210) = 2.45$, $p = .015$. This may reflect variations in institutional culture, accountability, and autonomy.

Qualitative Findings: Mechanisms and Cultural Rationalizations

Thematic analysis of 30 interviews yielded four dominant themes; each aligned with Bandura's framework. Select participant quotes are included for authenticity.

Theme 1: "Everyone does it"—Normalization of Misconduct

Several participants described a culture in which minor unethical practices, such as inflating grades, overlooking plagiarism, or bypassing formal procedures, were perceived as routine or widely accepted. One faculty member noted:

"It's just the way things work here. Everyone bends the rules a little; if you don't, you're at a disadvantage." Another administrator reflected on this normalization: *"New faculties quickly learn that certain shortcuts or informal practices are common. It's almost an unspoken rule—if you want to survive, you follow along."* Such narratives highlight how moral

disengagement can become institutionalized, with faculty rationalizing questionable behaviors as standard practice rather than ethically problematic. The perception that "everyone does it" reduces personal accountability and fosters a collective tolerance for misconduct. Participants frequently used diffusion of responsibility to justify unethical practices. Faculty often described unethical behavior as "institutionalized" or "routine," diminishing their sense of individual accountability. *"Sometimes you are just part of the system. If you don't adjust, you become the outlier."* (Assistant Professor, Public University)

Theme 2: "Helping others is our culture"—Moral Justification via Collectivism

Moral justification was often framed within Nepali collectivist values. Favoritism in hiring or thesis evaluation was justified as helping relatives, juniors, or political affiliates.

"It's not unethical if you're helping someone who would otherwise be neglected. We are human before we are officials." (Department Head, Public University)

Theme 3: "Policy is unclear"—Displacement of Responsibility

Faculty members cited ambiguous institutional policies or lack of enforcement as reasons for noncompliance with ethical norms. This reflects displacement of responsibility toward institutional leadership.

"There's no proper ethics policy here. Even if there is, nobody follows it, and no one is punished." (Senior Lecturer, Private University)

Theme 4: "We must survive"—Ethics Under Pressure

Several respondents rationalized minor ethical breaches as necessary for professional survival, particularly under publish-or-perish conditions. Euphemistic labeling (e.g., "borrowing ideas") and advantageous comparison (e.g., "At least we're not fabricating data") were commonly observed.

"If I don't publish, I won't be promoted. Using templates or rephrasing from old research is a strategy, not plagiarism." (Lecturer, Science Faculty)

4.3 Integration of Quantitative and Qualitative Findings

The convergence of data points reveals a consistent pattern: moral disengagement is prevalent, especially where institutional accountability is weak and sociocultural pressures are strong. Quantitative results confirm the dominance of diffusion of responsibility and moral justification, while qualitative findings provide cultural and contextual depth to these mechanisms. Faculty often saw unethical conduct as *systemic rather than personal*, shaped by both organizational ambiguity and societal expectations.

Discussion and Implications

This study explored the mechanisms and contextual drivers of moral disengagement among academic staff in Nepalese universities using a mixed-methods approach. The findings offer compelling evidence that moral disengagement is not only prevalent but also deeply embedded within both institutional and cultural dimensions of the academic workplace in Nepal. Quantitatively, diffusion of responsibility, moral justification, and attribution of blame emerged as the most endorsed mechanisms. These findings align with Bandura's (1999) assertion that individuals often displace ethical accountability when situated within ambiguous or collectivized organizational structures. Qualitative data further illuminated these dynamics, revealing that ethical lapses are frequently justified as survival strategies, cultural norms, or institutional expectations. Participants often framed their behavior within narratives of loyalty, social obligation, and professional insecurity.

Theoretical Implications

The study makes several contributions to the theoretical literature on moral disengagement. First, it affirms that Bandura's framework is culturally and contextually adaptable, even in non-Western, low-resource settings. However, the data also suggest the need to expand this model by incorporating socio-cultural norms, such as collectivism, deference to authority, and relational ethics, which shape how moral disengagement manifests in Nepalese academia.

Second, this research bridges the gap between micro-level cognitive processes and macro-level institutional structures. While Bandura's model is primarily psychological, this study demonstrates that organizational culture and governance structures significantly mediate moral disengagement, particularly in environments with weak accountability systems and politicized leadership.

Practical Implications

The findings highlight several areas for policy intervention and institutional reform:

- Strengthening Institutional Ethics Frameworks: Most universities in Nepal lack clearly articulated or effectively enforced codes of ethics. University Grants Commission Nepal and individual institutions must develop comprehensive ethical guidelines tailored to academic contexts, supported by training, monitoring, and enforcement mechanisms.
- Ethics Education and Faculty Development: Faculty often rationalized unethical behavior due to lack of awareness or clarity. Integrating ethics training into faculty development programs—particularly for junior staff—can reinforce moral accountability. This should include case-based learning on ethical dilemmas in teaching, research, and administration.
- Reforming Performance Metrics: The "publish or perish" culture was frequently cited as a driver of rationalized misconduct. Institutions should balance quantitative research expectations with qualitative assessments of academic integrity, teaching effectiveness, and community engagement.
- Promoting Ethical Leadership: Senior faculty and administrators often model or excuse unethical behavior, contributing to a culture of normalization. Universities must invest in leadership development programs that emphasize integrity, fairness, and procedural justice.

Conclusion

This study provides critical insights into moral disengagement among academic staff in Nepalese universities, revealing that diffusion of responsibility, moral justification, and attribution of blame are the primary mechanisms through which faculty rationalize ethically questionable behavior. These patterns are not merely individual cognitive lapses but are deeply embedded within institutional cultures, hierarchical structures, and socio-cultural norms, including collectivism, deference to authority, and relational obligations.

The findings underscore that ethical lapses are often normalized as survival strategies within resource-constrained and politically influenced academic environments. Junior faculty and staff in public universities appear particularly vulnerable, highlighting the role of power dynamics, institutional ambiguity, and limited accountability mechanisms in shaping moral behavior.

From a practical perspective, promoting ethical integrity in Nepalese higher education requires systemic interventions rather than reliance on individual moral reasoning alone. Key strategies include strengthening institutional ethics frameworks, integrating ethics education into

faculty development, reforming performance metrics to balance productivity with integrity, promoting ethical leadership, and reducing bureaucratic and political interference in governance. At the national level, policies such as ethics audits, empowered institutional ethics committees, and a national academic integrity charter can further reinforce accountability and professional standards.

Ultimately, this study demonstrates that moral disengagement in academia is a complex phenomenon shaped by cognitive, institutional, and cultural forces. By situating Bandura's theoretical framework within the lived realities of Nepalese universities, the research highlights the need for locally grounded, culturally sensitive approaches to fostering ethical behavior. For policymakers, university leaders, and academic professionals, the take-home message is clear: sustainable improvements in academic integrity require coordinated, systemic, and contextually informed interventions that address both individual and structural dimensions of moral behavior.

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Enhancing Science Education Through Laboratory-Based Learning in Secondary Schools in Nepal

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Abstract

The study assessed the pull and push factors influencing the Laboratory Teaching Method compared to the traditional lecture method on learning science. Employing a mixed-method research design, the study has collected quantitative data from achievement tests of experimental and control groups, alongside qualitative data from interviews with teachers and students. Analysis revealed a significant difference in the achievement levels, with a t-value of 12.388 for the experimental group. It indicates that the laboratory method enhanced students' utilization skills and adoption of behavior with practical knowledge and information. However, qualitative findings highlighted challenges encountered by both teachers and students in implementing this method. Addressing these challenges is essential for further improving student outcomes in science education, underlining the necessity of innovative pedagogies in teaching.

Keywords: *learning science, laboratory method, teaching method, secondary school*

Introduction

Science is a broad area of learning in the world through which the development and progress of any nation are based. It is viewed generally as a systematic study of nature. Bradford (2015) defined science as a systematic and logical approach to discovering how things in the universe work. Knowledge of science is linked to technologies. Acquiring scientific and

technological knowledge and information directly enhances the nation's development. Scientific principles are an essential tool required by all countries to assist them in developing technological innovation in the present competitive world. For any nation to develop socially, economically, and technologically, it requires a strong scientific background. Science education is instrumental to the development of any country (Kola, 2013). Science education is the art of sharing science content and its process with individuals (Umana, 2018). Science is, therefore, an integral part of every educational endeavor. It is one of the core components of the school curriculum. Thus, science has been incorporated into the school curriculum as an essential separate subject. The introduction of science as a compulsory subject in a school curriculum aimed to develop a scientific attitude, temperament, critical thinking, active inquiry, independent work, and understanding of the physical world from different perspectives.

A student's abysmal performance in a science examination has been linked to many factors, such as the available teaching and learning resources and facilities. This performance can also be related to the methods and tools used in teaching. Tambo (2012) defines a teaching method as a standard procedure for presenting subject matter and organizing teacher-student interaction during a lesson. According to Ada (2006), a teaching method is a mode of organization of the instructional content and materials, the manner of presentation to the learners, and the activities that learners and teachers carry out. There are several teaching methods available for teachers to use in teaching science. These methods are classified under two groups: traditional and contemporary methods. The conventional method is more teacher-centered, such as the lecture, demonstration, and descriptive methods. Modern teaching methods are a student-centered teaching approach. Examples are the laboratory method, computer-based approach, concept mapping, and cooperative learning.

Agwagah (2008) viewed traditional methods as imposing a poor concept formation and reducing interest and retention, thereby leading to poor achievement among science students. It calls for the laboratory teaching method, one of the contemporary methods that could help increase students' performance. Davis (1997) suggests that the design and selection of teaching methods should consider students' learning curves on subject matters.

Laboratory Method

According to Akuto, Aduloju, and Odeh (2012), the laboratory teaching method is a process where the students are in direct contact with the concept and processes they are learning. It includes: any activity involving students in real situations using genuine materials and proper equipment application. The authors added that the use of laboratory methods of teaching aids the development of visual, perceptual, and manipulative skills and also makes learning permanent among students.

According to Cardak, Onder, and Dikmenli (2007), the laboratory method argues that the students' activity carries a grade value in education, whereby new information is developed by sighting, generating ideas, and interpreting the data by students. A teaching procedure dealing with first-hand experiences regarding material or facts, obtained from investigation or experimentation: it is experimentation, observation, or application by individuals or a small group dealing with actual material. Essentially, it is the experimental method enlarged and expanded.

In the laboratory method, a science teacher can provide various kinds of learning experiences to the students, as a result of which the information gained by them turns out to be a practical application. With this method, students learn to explore various things on their own. They

also learn to verify multiple scientific facts and principles (Gericke et al., 2023). This process builds self-confidence in the students when solving different problems. As no students are required to accept the beliefs and order of the teachers and complete freedom is provided to them to participate in the laboratory activities, they begin to learn various information by doing things themselves. In any teaching and learning process, the cardinal objective is to see that the learners can perform tasks and, if possible, transfer the experience in solving a problem to a new situation. This objective has hardly been achieved over the years. The rate of failure in local and external science examinations results from the poor foundation of students in science. It may also be connected to the method of teaching used by the science teachers, because good learning is a product of an exemplary teaching method (Ngozi, 2021). The persistent poor achievement of students in science, exhibited in practical examinations, leaves no doubt about the use of teaching methods by science teachers for teaching this subject. It may be because the teachers' teaching method was teacher-centered and did not allow student participation, imposing poor concept formation and reducing students' interest in science. It makes students resort to learning by memorization, which results in consistent mass failure. Thus, the laboratory learning method plays an essential role in science learning. Hence, this study seeks to investigate the effectiveness of the laboratory teaching method in learning science.

Objectives of the Study

The following objectives guided the study.

- To compare the mean achievement of the students taught using lecture and laboratory methods.
- To identify teachers' and students' challenges while incorporating the laboratory teaching approach.

Research Questions

The study will answer the following research questions.

- What are the mean achievement scores of students taught by the lecture and laboratory method?
- What is the role of laboratory learning methods for science learning?
- What challenges do teachers and students face while using the laboratory learning method?
- How can they solve the problem while using the laboratory learning method?

Theoretical Framework

This study is grounded in the cognitive development theories of Jean Piaget and Jerome Bruner. Piaget observed that children's understanding evolves as they mature, believing they can only handle specific tasks when psychologically ready. His key principles include adaptation, which involves assimilation and accommodation; classification; class inclusion; and conservation, which shape how children perceive objects (Kohnstamm, 2021). He emphasized that children can learn more by being involved in the practice; in the meantime, they also formulate their creativity by constructing the knowledge and information they have acquired. In contrast, Bruner focused on intellectual development rather than memorization, advocating for learning through discovery (Ozdem-Yilmaz & Bilican, 2025). He identified three stages of cognitive representation: enactive,

iconic, and symbolic. Both theories align with the laboratory teaching method, which promotes active student involvement and skill development in science.

Methodology

This study investigates the effectiveness of the Laboratory Teaching Method in Learning Science in secondary schools in Nepal, using a mixed-methods approach for the research methodology. The objectives include comparing the mean scores of students taught through lecture versus laboratory methods and identifying challenges faced while implementing laboratory methods. Quantitative data were gathered through achievement tests administered to experimental and control groups. At the same time, qualitative insights were obtained from interviews with teachers and students to justify the quantitative data. The quantitative data were analysed using SPSS, and the thematic description was used to analyse qualitative data.

Results and Discussion

Analysis of Quantitative Response

The quantitative data analysis is based on mean, standard deviation, t-test, and the analysis of students' achievement of pre-test and post-test, as discussed in the following table.

Table. 1: *Mean and standard deviation of pre-test and post-test of the control*

Group	Mean	N	Standard Deviation	Standard Error Mean
Pre-test Control	16.70	40	2.719	.430
Post-test Control	19.13	40	1.842	.291

Table 1 shows that the mean achievement of pre-test and post-test of the control group is 16.70 and 19.13, respectively. The standard deviation of the post-test is decreased compared to the pre-test scores. It means that the average achievementlevel of the students has increased, although the students were not provided with the intervention.

The t-test calculation shows that the p-value (0.00) is less than 0.05. So, there is a significant difference between the two means in achieving the control groups in the pre-test andpost-test. It means that the students' achievement is uniform in learningscience. Also, the t-value is 8.160 with 39 degrees of freedom. It shows that theachievement of the pre-test and post-test of the control group has significantly increased.

Pre-test, Experimental group, Post-test of the Experimental group

Table no. 2: *Mean and standard deviation of pre-test and post-test of the Experimental*

Group	Mean	N	SD	Standard Error Mean
Pre-test Experimental	18.40	39	2.540	.402

Post-test Experimental	24.35	39	1.861	.294

Table 2 shows that the average achievements of students before and afterintervention are 18.40 and 24.35, respectively. And the standard deviation is lower in the post-test (1.861) than in the pre-test (2.540). The data show that the achievement level of students after the intervention has improved. The t-test indicates that the p-value (0.00) is less than 0.05, with a t-value of 12.388. It means there is a significant difference between the mean achievement of the students before and after the intervention. There is a positive effect of the implementation of the laboratory teaching method in science learning.

Post-test Experimental group - Post-test Control group

Table no. 3 *mean and standard deviation of the post-test control group and experimental group*

Group	Mean	N	SD	Standard ErrorMean
Post-test Control	19.13	40	1.861	.291
Post-test Experimental	24.35	40	1.842	.294

Table 3 shows the mean and the standard deviation of the students' achievementin the post-test of both experimental and control groups. The mean achievement of the experimental group students is higher than that of the control group in the post-test. Also, the standard deviation of the post-test of the experimental group (1.842) is less than that of the control group (1.861). It shows that the achievement of the experimental group is higher than that of the control group.

The t-value of the post-test of both groups is 14.557. The p-value (0.00) is less than 0.05. It means the intervention of the laboratory method significantly affects students' achievement in science learning. Moreover, the standard deviation of thestudents' successes from the experimental groups is less than that of the controlgroup. It means that the laboratory method played a significant role in the uniformity of learning science. The above statistical analysis shows that the control and experimental groups achieved substantial results after the intervention. It means thatlearning is a continuous and uniform process. Although the data show a significant difference between the control and experimental groups, the increases in mean achievement of the experimental group are higher than those of the control group. According to Constructivism, pair and group work improve students' achievement. The data also showed a significant difference between the achievements of the students taught using the laboratory method.

An Analysis of Teachers' and Students' Responses

The study's quantitative analysis found that the achievement of the experimental group, composed of science students taught using a laboratory teaching method, was significantly higher than that of the control group, which was instructed through traditional lectures. Teachers from both schools emphasized the strengths of the laboratory method, noting its foundation in

experiential learning, which fosters a scientific attitude, captures students' attention, encourages collaboration, and supports long-term retention of knowledge. However, the research revealed that laboratory methods were inconsistent across both experimental schools due to a lack of properly equipped functional laboratories, inadequate laboratory skills, insufficient training, and challenges in managing time for demonstrations and practical experiments. Additionally, a marked disparity in student performance and achievement levels between private and community schools is attributed to factors such as class size, teacher training, student diversity, time management issues, funding constraints, physical conditions of schools, lack of oversight by qualified personnel, poor administration, and political interference. Students asserted that opportunities for laboratory-based experimental work could enhance their knowledge and skills in using scientific equipment correctly and safely, improving their overall learning experience. Without these hands-on opportunities, students find science notably difficult. Thus, it is evident that effective science teaching and learning are achievable only through applying laboratory pedagogies.

Advantages of using the laboratory teaching method in science learning

According to statistical data and analysis, the laboratory method is more effective in achieving higher student performance in science than traditional methods. Teachers noted several advantages of using the laboratory approach, highlighting that it allows learners to construct their knowledge through a hands-on, experiential learning process that fosters long-term retention. This method provides a variety of learning experiences, accommodating individual differences and interests, making it a psychological method of teaching. Additionally, students are encouraged to explore independently, verify scientific facts and principles, and strengthen the relationship between students and teachers. Ultimately, this approach helps students develop problem-solving skills and enhances their self-confidence, preparing them to tackle various life challenges.

Challenges Faced by Teachers and Students

The use of the laboratory method in teaching science has become a dogma among educators, who praise its importance while often only paying lip service to its actual implementation. Science teachers frequently find it inconvenient to make laboratory work central to their instruction, citing a lack of materials and equipment as major obstacles. Many reports have shown that conducting laboratory methods is more challenging than traditional teaching approaches due to established habits of teacher-centered instruction (Cole-Onaifo, 2022). Moreover, insufficient laboratory facilities, such as inadequate equipment and water supply, further hinder the process. Some theories cannot be verified through experiments, leading students to perceive the subject as difficult. While the laboratory method can benefit smaller classes with adequate resources, it can also become burdensome for students, preventing them from fully engaging in exploration and investigation. Teachers often struggle to balance practical work with theoretical learning under these conditions.

Discussion of Finding

The study reveals a narrow difference in mean scores between the control and experimental groups during the pre-test, indicating their equivalence. However, a significant disparity emerged in the post-test results, with a p-value of (.000) signaling a noteworthy difference in achievement due to the laboratory method employed with the experimental group. In contrast, the control group showed minimal variation between pre-test and post-test scores, with no significant difference in their achievement attributed to the traditional lecture method. However, the experimental group's

scores showed marked improvement post-intervention, also reflected in a p-value of (.000), highlighting the effectiveness of practical engagement alongside theoretical knowledge. This result resonates with Dewey's (1919) theory of pragmatism. Qualitative analysis indicated that few science teachers favored the laboratory method, citing challenges such as inadequate competency, reliance on traditional teaching practices, and a lack of support and appreciation from administration. The results converge with the study of Anto et al. (2023). These factors contributed to the issues educators and students face in adopting laboratory approaches. Ultimately, the findings suggest that the laboratory method is more effective than traditional lecture methods in enhancing student learning.

Conclusion

It concluded that there is a significant difference in the mean score of the experimental and control groups. Therefore, the laboratory-based teaching methods play a vital role in students' achievement. Using the laboratory teaching method in science at the secondary level increases students' performance at the post-test. During the teaching period, it was found that experimental groups showed enthusiasm and creativity through meaningful participation. Spirit of cooperation and a scientific attitude were developed in students. Interviews with teachers and students concluded that the laboratory teaching method in science is more effective at the secondary level. Still, there are some problems in applying the laboratory method at school. Some of them are large class sizes, diversity of students, lack of teacher training, insufficient equipment/infrastructure and environment, difficulty in time management to complete the course, and the teachers' lack of the necessary confidence to conduct practical classes with students, etc. These vivid problems must be addressed for sustainable and proper science learning. Finally, this study summarized that applying the laboratory teaching method contributes to students' practical knowledge in science. Consequently, students' performance is comparatively better than conventional teaching methods.

Implications

Based on the findings and conclusions of the study, the researcher suggests several recommendations for practical learning science in schools. Constant rigorous study should be conducted to assess the application of laboratory methods in various schools nationwide. Authentic institutions must provide training for teachers to adopt innovative teaching methods in science. Schools must also have well-maintained infrastructure, including adequately furnished classrooms, laboratories, and necessary equipment. The administration should recognize and reward dedicated teachers for their efforts.

Furthermore, students should have opportunities to construct their knowledge through hands-on experiments in the lab. It is also essential for schools to be periodically supervised by authoritative personnel to ensure the effective use of laboratory methods in teaching. Given the importance of these methods in science education, further research is warranted, particularly in a broader context beyond the two schools in the Banke district studied here. Potential research titles could include the application of laboratory teaching methods in science learning, the impact of such methods on student achievement, and the challenges teachers face in implementing laboratory teaching.

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Exploring Perceptions and Challenges of ICT Integration in Secondary Mathematics Education: A Multi-Stockholders' Qualitative Analysis

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Abstract

The study explores perception and problems of integrating information and communication technology (ICT) into the teaching of mathematics at secondary level of Nepal. The qualitative data were collected through four major stakeholder groups: headmasters, municipality (Paalika) education officers, mathematics teacher and secondary-level students. Respondent experiences were acquired through semi-structured questionnaires with open-ended questions, retrieving narrative-rich descriptions of existing practices, opportunities and barriers. Thematic data analysis led to the production of three predominant findings. To begin with, the stakeholders recognized the pedagogical use of ICT as the widespread consensus was based on the factors that explain how this technology can be used in capturing the attention of learners, visualizing abstract concepts in mathematics, fostering problem-solving activities, and increasing instructional options. Second, they still integrate hindrances to effective ICT adoption that include the bad infrastructure, unreliable electricity, lack of digital devices, low quality online resources, as well as inadequate education of teachers. Third, there was consensus on the need to focus on capacity building and systemic support, such as subject-specific teacher training, early ICT literacy among students, better infrastructure at municipal-level, creation of smart classrooms and digital learning portals. Although the potential opportunities of ICT are considerably acknowledged, there is still the issue of concrete integration which is often informal, localized and nothing to be based on the establishment of specific policies. This study provides such contextually and multi-stakeholder evidence that will support the policymakers, town officials, school administrators, and teacher training educators in the Nepalese context to introduce equitable and effective ICT integration in secondary mathematics teaching.

Keywords: *ICT integration, mathematics education, secondary schools, qualitative study, perceptions*

Introduction

The integrations of information and communication technology (ICT) in education has turned out to be an international concern in the furthering of education processes both teaching and learning, especially mathematics, where abstract contents usually bewilder students on their understanding. Analysis programs (e.g., dynamic geometry) or graphing programs, interactive simulations software can offer possibilities to develop deeper conceptual ideas, engagement, and enable differentiation (Trouche & Drijvers, 2014; Viberg et al., 2023). ICT provides exceptional opportunities in secondary mathematics classrooms, where it is possible to visualize, get real-time feedback, and engage in collaborative problem-solving (Abel et al., 2022; Mailizar & Fan, 2021).

The government of Nepal has identified ICT as the means of education enhancement and thus its ICT in Education Master Plan, that will aim at providing schools with infrastructural support, upskilling teachers, and facilitating digital pedagogy. There is however, a complexity of the reality of the implementation particularly in mathematics education. Available research also emphasizes how restricted access to devices, unpredictable internet connection, poor professional development, and strict curricula usually complicate the efficient use of ICT integration (Adhikari, 2021; Naidoo, 2025). Besides, inequalities increase, and a lot of students are deprived of equal possibilities to participate in digital learning, due to differences between urban and rural schools (Dogbey & Kpadin, 2025; Nicholson et al., 2025).

ICT integration in mathematics is a popular research topic that expanded globally; however, most of the studies continue to be quantitative and examine measurable metrics of academic achievement or the rate of technology adoption (Dincc, 2019; Msambwa et al., 2023). Comparative desired absence of qualitative, context-specific research that gives voice to various stakeholders teachers, students, school leaders and policy makers within the Nepal education system. It is important to understand these views given that infrastructure is not the only determinant of the success of ICT integration, but rather, human perceptions, attitudes and situational challenges as well (Arhin et al., 2024; Irakarama et al., 2024).

Thus, study uses qualitative approach to explore the perceptions and challenges associated with ICT integration in secondary mathematics classrooms in Nepal. The study of headmasters, municipal education officers, mathematics teachers, and students' efforts gives a multi-stakeholder data overview of the opportunities and the obstacles of digital pedagogy. The results hope to guide policy, school administrators and teacher educators on how to promote successful and egalitarian use of ICT in math education.

Statement of the Problem

Although the Government of Nepal has made efforts, such as ICT in Education Master Plan, there is still little, unequal, and disjointed integration of ICT in secondary mathematics education. Although ICT is promising in terms of boosting conceptual knowledge, student interaction, and group learning, it is highly hindered by a number of limitations in its practical use. These are poor infrastructure, unreliable electricity, poor internet connection, poor access to devices, incomplete teacher training, and lack of proper implementation of policies (Adhikari, 2021; Naidoo, 2025; Nicholson et al., 2025). Moreover, urban and rural schools digital differences contribute to the widening of the educational gap, as many students will lack equal opportunities in assisting with the learning process through ICT means (Dogbey & Kpadin, 2025).Despite a wealth of global research on ICT integration in mathematics, most of it is quantitative by nature, focusing on the rates of integration adoption or gauging performance but ignoring the experiences and perceptions of the key stakeholders, including teachers, students, school leaders, and policymakers (Dinç, 2019; Msambwa et al., 2023). Also in the context of Nepal, the qualitative

and context-specific research to examine these human and institutional aspects is lacking substantively. In the absence of these insights, there is potential for policymakers and educators to develop strategies that do not represent classroom realities, thus undermining equitable and sustainable ICT adoption; and This study aims to fill this gap by examining perceptions, challenges, and context that influence the integration of ICT in secondary mathematics education using multi-stakeholder qualitative research, aiming at producing evidence-based recommendations for enhancing digital pedagogy as well as bridging the gap between policy and practice.

Objectives of the Study

The main objective of this study is to explore the perceptions and challenges related to the integration of ICT in secondary mathematics education in Nepal through a qualitative, multi-stakeholder lens.

The specific objectives are:

- To examine the perceptions of mathematics teachers, students, headmasters, and municipal officers on using ICT in teaching and learning mathematics.
- To identify the major challenges in integrating ICT into secondary mathematics classrooms in Nepal.
- To explore contextual factors influencing ICT adoption and sustainability in the teaching of mathematics.
- To propose practical, context-specific recommendations for improving ICT integration using the experiences and recommendations of the participants.

These all the above objectives aim to enhance understanding of the human and institutional dimensions of ICT integration, providing rich qualitative insights to complement existing quantitative studies.

Literature Review

Integration of information and communication technology (ICT) in education has been a major seductiveness of educational reforms globally, and the emphasis is on how it paves the way for the progression of conceptual knowledge, interaction, and critical thinking (Abel et al., 2022; Viberg et al., 2023). ICT uses a huge number of tools like interactive whiteboards, computer algebra systems, simulations and internet systems and in the process make the classrooms more participatory and learner-directed. Its effective uptake, however, is largely related to the perceptions of stakeholders, institutional preparedness and situational challenges.

The Technological Pedagogical Content Knowledge (TPACK) framework and the models of digital orchestration emphasize the idea that to effectively use ICT, students need not just technical competence, but that they need to create pedagogically sound, curriculum-related activities. The beliefs and attitudes of teachers have a potent effect on the level and type of integration (Stoilescu, 2014; Trouche and Drijvers, 2014; Dinci, 2019; Arhin et al., 2024).

The attitudes and willingness of teachers are in the focus as ICT is commonly seen as the method to increase motivation, visualize abstract ideas, and provide differentiated instructions (Adhikari, 2021; Mailizar and Fan, 2021). Nevertheless, a lack of training, a deficiency of digital confidence, and institutional support are still important obstacles (Naidoo, 2025; Nicholson et al., 2025). Competence and confidence have been shown to be enhanced by subject-specific pedagogical professional development (Abel et al., 2022; Irakarama et al., 2024).

The students have an overall positive attitude towards ICT, considering that it contributes to active learning, collaboration, and the exploration of information independently (Zamir and Ali,

2023). Yet, inequalities in access to devices, internet connectivity, and teacher support especially in rural schools limit its benefits (Dogbey & Kpadin, 2025).

The institutional and policy forces are also a factor in ICT integration. Adoption is encouraged by leadership, sufficient investment in infrastructure, and strategies and discouraged by insufficient funding, inadequate policies, and insufficient monitoring (Irakarama et al., 2024; Msambwa et al., 2023).

Despite these advancements, significant research gaps persist. Majority of the studies are quantitative in nature and not the lived experiences of the teachers, students, policymakers and administrators especially in developing countries such as Nepal. To study perceptions, challenges and opportunities related to ICT integration, context-specific qualitative research is required (Viberg et al., 2023; Zamir and Ali, 2023).

Methodology

This study was qualitative in nature by seeking to understand the perceptions and challenges related to the introduction of information and communication technology (ICT) in mathematics education in secondary schools in Nepal (Creswell and Poth, 2018). The method enabled a deep interpretation of the experiences, attitudes and realities of context that participants face but is not considered in quantitative studies. The research was carried out in two municipalities chosen because of their different educational settings in that Madhyapur Thimi in Bhaktapur District (Bagmati Province) has comparatively good education facilities whereas Harion in Sarlahi District (Madhesh Province) reflects resource-constrained environments. To achieve a wide range of insights on pedagogical, institutional and policy levels, eleven participants were purposely identified based on four stakeholder groups, such as two mathematics teachers, five students, two headmasters, and two municipal education officers.

Semi-structured questionnaires that included open-ended questions were used to collect data that sought to create detailed accounts of the experiences of participants in teaching and learning mathematics using ICT, their perceived benefits of ICT, challenges and suggestions on how ICT could be improved. The open format has allowed each group of stakeholders to provide responses in detail and context-specifically. Thematic analysis was performed on the gathered qualitative data along the 6 steps of the framework developed by Braun and Clarke (2006). The responses were read with care to familiarize with them, coded inductively and organized into larger themes that included perceived benefits, infrastructural barriers, the need to develop professionally and gaps in the policy. Data were tabulated and managed in Microsoft Excel and quotations of participants added to facilitate interpretation and to generate authenticity.

Triangulation between the perspectives of stakeholders and member checking was used to provide confirmation to the findings to ensure credibility. The ethics was approved and informed consent was collected. Pseudonyms were employed in order to preserve confidentiality, and surnames were given in accordance with the traditional cultural pattern. The principles of beneficence, respect and justice were strictly followed in the study.

Results and Discussion

In these sections the findings of eleven participants two municipalities Madhyapur Thimi of Bhaktapur District (Bagmati Province) and Harion in Solahi District (Madhesh Province) are presented. The respondents division consisted of two headmasters, two municipal workers, two mathematics lecturers and five students (three of Bhaktapur and two of Sarlahi). In all cases I use pseudonyms (false names followed by caste) to preserve anonymity. These results are categorized into stakeholder groups thematically.

Headmaster's Perspective

Ram Shrestha and Hari Thapa, the headmasters of two secondary schools (in Bhaktapur and Sarlahi), gave their thoughts on the topic of ICT and mathematics teaching. It was on consensus when both agreed that the adoption of ICT is very early. Although some effort of applying technology in teaching has been exerted, ICT is yet to be a regular or habitual routine in the daily classroom activities.

Ram Shrestha has noted that ICT has already impacted positively on student motivation and inquisitiveness despite its limited implementation. According to him, *"Students have developed greater interest in learning."* Likewise, Hari Thapa mentioned that, even incidental interaction with ICT serves to make students more involved and less fearful of mathematics, in particular at operating with the abstract issues.

The preparation of teachers also was highlighted by both headmasters as being the most important issue. Ram Shrestha observed that, *"We have realized the need for ICT-based training,"* and Hari Thapa concurred that most mathematics teachers are not very comfortable with the effective use of digital tools. In as much as the two schools have planned professional training sessions, it is still in the stage of intention, not fully implemented: *"We have made plans to conduct training."*

Moreover, neither of the two headmasters insisted that basic knowledge of ICT is sufficient in teaching mathematics. They concurred that instructors need to be trained specifically on software like GeoGebra, graphing, and mathematical modelling software. Ram Shresth as noted, "*There is a need for training in handling mathematical tools."*

When their views are combined, they provide evidence of a common interest in the possibilities of ICT but a recognition of systemic issues, especially in the area of a lack of sustained and subject-specific professional development in relation to mathematics teaching.

Paalika Officers' Perspective

Two of the municipal education officers involved in educational programs were Deepak Thapa and Hari Magar with whom they continually underlined the concept of ICT as a strong strategy on advancing mathematics education. Deepak Thapa said, "*Use of ICT helps improve the quality of mathematics education* ". Pointing out that digital learning tools improve the interactivity of instruction and add some meaning. And Hari Magar said ICT has been particularly helpful in the formation of how students learn: *"Real time feedback – Real time growth. Faster learning"* .This view emphasizes on how ICT may be used to hasten learning as it will offer instant feedback, errors and directions to learners throughout the process of learning.

The officers have pointed out visualization and retention as per the request of a specific benefit. Deepak Thapa observed, *"ICT helps students understand concepts and increases their interest in mathematics"* .This is strengthened by Hari Magar who says, of the process, *"Improved visualization of concepts and increased student engagement."* Such answers imply that the role of ICT is viewed not only as a supplement but as a differentiating tool to simplify and attract mathematics to students.

Although enthusiastic about it, both officers also admitted that schools in their municipalities have systemic challenges. They kept the total number of issues in a broad description that includes a lack of an educated teaching workforce, insufficient physical conditions, and poor access to digital resources. Deepak Thapa was brief on this point: *"Lack of teacher skills, absence of infrastructure, and shortage of digital resources."* Such impediments imply that although municipalities are cognizant of the potential of ICT, they have been neglected and semi-consistent in implementation.

The officers also explained steps that have already been taken. Cities have begun to roll out digital classrooms and specific teachers have gained ICT training. As an example, Hari Magar highlighted, *"Introduction of digital classrooms and ICT training for teachers."*. In the future prospects, they had generous proposals of having the fully equipped smart classrooms and constructing teacher assistance and resource sharing portals on the internet. Deepak Thapa outlined this vision as, *"Fully equipped smart classroom. Build teaching portal for teachers."* One other one was, *"Development of ICT infrastructure, teacher training, and creation of learning portals."* These answers indicate that although the task is far from accomplished, cities are trying to bridge the gap that exists between the dream and the reality of the classroom.

Students' Perspective

Students like Raju Tamang, Maya Thapa, Sita Magar, Hari Shrestha and Anita Rai mostly explained the use of ICT to support their studies in mathematics as an occasional and complimentary activity, but not a fully integrated part of classroom teaching. They stated that their primary tools were mobile phones, computers and internet searches, frequently to find answers to a particular problem. According to Raju Tamang, this was how the practice was straightforwardly explained: *"it is based on the ability to see question and then solve it".* Although this form of use depicts that it is a restricted type of use, it equally represents that, ICT can provide urgent assistance towards solving of problems beyond the confinement of the conventional classroom.

Some students emphasized that ICT made mathematical concepts that were tough to understand clear. Maya Thapa said, *"It helps to clear the concept,"* and Sita Magar said, *"When I watch a video about a theorem, it feels clearer than just reading from the book."* These are just remarks that demonstrate that students have realized that ICT is a method of making abstract content visual and understandable especially in certain subjects like geometry and algebra.

But there are several frustrations and obstacles that students identified also. This was a complaint by Hari Shrestha that it was not always easy to find good reliable resources: *"The exact topic I am searching for is not easily found."* Raju Tamang reported issues with distracting ads, with the one word, "Ads." Maya Thapa also complained about confusing materials with, *"Not getting the exact concept."* Anita Rai gave a concrete example of lack of device availability; she explained: *"It is difficult when I don't have a laptop."* All these observations show that ICT is a great opportunity, yet at the same time in many cases, unequal access and unmoderated online information make this tool less productive.

When we questioned them in the effort of finding solutions to these problems, the majority of them indicated that they consulted teachers, peers or would search again on the internet. Sita Magar said, *"If I don't find it, I ask teachers or friends in class."* This implies that teaching and learning in a classroom cannot be replaced by ICT but serves best as an addition with a teacher's guide and additional reinforcement by fellow learners.

Finally, students came up with suggestions on how ICT can be better integrated. Maya Thapa recommended that ICT must be taught as early as possible and familiarity will be created with time. She emphasized, *"It should be taught from basic classes onwards."* Anita Rai indicated that teacher preparation was important, and said, *"First of all, teachers should be given training on ICT."* These observations clarify the fact that students do not view ICT as a convenience only but as a tool that has the potential to fundamentally transform the learning of mathematics, in the event that it is used in a systematic manner.

Teachers' Perspective

The experience of teachers like Kiran Rai (Bhaktapur) and Maya Tamang (Sarlahi) was more coherent with ICT application than those of students, but their reports still verified that ICT integration is incomplete and not properly developed. They explained such tools as YouTube videos, 3D models, GeoGebra, multimedia presentations. According to Kiran Rai, *Sometimes I show YouTube videos related to the lesson and use 3D models."* Maya Tamang also stated that she utilized the software of GeoGebra. These two cases indicate that educators are actively striving to use the technology as a part of their lessons, but there have been limitations.

It was also evident to the teachers on the benefits they saw. ICT enabled them to make mathematical concepts more pictorial, arouse the student's curiosity and use a variety of examples. This was summarized over by Maya Tamang, *"Students learn with curiosity and enthusiasm."* Kiran Rai continued to add that *"Concept can be visualized."* These remarks establish the fact that teachers also understand ICT as a means of enhancing teaching rather than a form of abstract exposition into concrete, interactive learning process.

They also found several key hurdles at the same time. These were power cuts, unavailability of smartboards, low digital competence and the additional time consumed in getting ICT-based lessons ready. Kiran Rai said, *"Problems of electricity shortage and lack of smartboards."* Maya Tamang said, *"Maybe lack of ideas operating them and lack of training."* These considerations foreground the manner in which structural deficiencies in infrastructure and training make it impossible to take full advantage of ICT as a means of enhancing the practice of teaching.

Although the teachers had these challenges, they exhibited individual effort in attempting to address them. Kiran Rai explained how as a method of securing access he had bought his own laptop, saying, I bought my own laptop. Maya Tamang described how she consulted more technically competent workmates: I consult with technical persons. These tactics depict their determination as well as the pressure on individuals when a necessary support is lacking at the institutions.

On identifying what additional training would make ICT more effective both teachers responded that they needed a thorough professional training, access to e-libraries and availing of ICT resources in schools. Maya Tamang observed,*"All ICT tools should be available in schools, and teachers should be trained."* Kiran Rai also contributed, including: *"E-library, access to appropriate websites and training."* These answers imply that the teachers not only perceive the usefulness of ICT, but also have a concrete idea of the fundamental changes, which need to be implemented within the system, to ensure that ICT integration is sustained.

Cross-Stakeholder Themes

Collectively, the voices of Ram Shrestha (headmaster, Bhaktapur) Hari Thapa (headmaster, Sarlahi), Deepak Thapa, Hari Magar (municipal officers, Bhaktapur and Sarlahi), Kiran Rai (teacher, Bhaktapur), Maya Tamang (teacher, Sarlahi), student Raju Tamang, Maya Thapa, Sita Magar, Hari Shrestha and Anita Rai exhibit three intertwining themes that cut across all stakeholder groups.

To begin with, it was the pedagogical value of ICT that attracted attention of all stakeholders because, at that, ICT was perceived as a means to engender interaction and model abstract mathematical ideas. As an illustration, Kiran Rai argued, that it is possible to visualize concept, and Maya Thapa (a student at Bhaktapur) stated, that it assists in clearing the concept. In a parallel way, Sita Magar stated that videos helped me understand theorems and Raju Tamang mentioned that ICT tools could be used directly related to problem-solving activities. Anita Rai

said further that ICT not only supported in clarifying learning but also provided her with the desire to stick to mathematics. Both headmasters also pointed out that ICT also promoted curiosity among students even when used in a modest way. Taken together the views indicate a universal appreciated understanding that ICT enhances teaching and learning.

Second, the outstanding issue of ICT adoption is systemic impediments. The predicament on limited infrastructure, unreliable electricity, inadequate devices, and the unavailability of teacher training were identified by the stakeholders as recurring as well. The teachers explained they have a problem with poor digital literacy and no smartboards at all, whereas students provided graphic reports of their trouble. Anita Rai said that she did not have a laptop, Hari Shrestha complained that finding credible sources online is associated with problems, and others noted the presence of distractors such as adverts or opaque explanations. Municipal officers said that even with programs like the use of digital classrooms they were not yet in a position to offer the ICT support to an equally desired number of schools. Head masters also indicated that although they had strategies on training, they had not been realized since they lacked resources. Such reports provide evidence of the fact that the interest in ICT is balanced by the line of structural barriers.

Third, across the groups there was a consensus on capacity building and systemic support. The stakeholders stressed numerous times on professional teacher training, equal supply of ICT resource and more pronounced institution frameworks. Learners argued that teachers were the first to be trained; Maya Thapa and Sita Magar reiterated that ICT literacy needed to commence at the lower grades. Anita Rai further adder that the competency of teachers, leaves students unable to enjoy ICT to optimum. The two headmasters were in accord that subject-level training, in particular the mathematical tools, was a key. Municipal officials like Deepak Thapa and Hari Magar articulated visionary plans of smart classrooms, better digital infrastructure and internet-based learning platforms and portals to teachers and students.

In short, despite the high value placed on ICT, the incorporation of ICT into Nepal secondary mathematics teaching has been patchy and localized, frequently not well integrated but a matter of personal initiative and not part of a systematically embedded school-wide programme. Together, the stories of students, teachers, headmasters and municipal officers bring out the potential and the prevailing limitations that determine the current state of mathematics classrooms in Nepal when it comes to the use of ICT.

Discussion

The findings indicates that the adoption of ICT in Nepalese secondary mathematics education was in its infancy and disjointed, even though its pedagogical possibilities were widely recognized. It was found that ICT was a useful tool in increasing engagement, simplifying abstract concepts, and learning collaboratively, with stakeholders (such as headmasters, municipal education officers, teachers, and students) identifying it as such. Videos, interactive simulations and online tutorials, in particular, were found by students to be extremely useful when studying complex concepts such as theorems and algebraic transformations, whereas teachers found the tools such as GeoGebra, multimedia presentation and 3D model especially useful in visualizing mathematical processes.The results are consistent with the international literature that proves the effectiveness of ICT in motivating students, differentiated instruction, and deeper conceptual learning (Abel et al., 2022; Viberg et al., 2023; Trouche and Drijvers, 2014). It is not, however, an acknowledgement that in spite of this collective acknowledgement of the benefits of ICT, systemic and structural impediments still curtail the meaningful incorporation of ICT.

The participants always cited the lack of sufficient infrastructure, unstable electricity, low access to devices, and inadequate internet connectivity as key problems, especially in rural and

resource-limited regions (Naidoo, 2025; Dogbey and Kpadin, 2025). Inadequate institutional support has caused teachers to depend on personal devices and self-funded resources when they should, and the students to experience inequalities in having access to digital tools, resulting in uneven and unfair integration in the classroom. There were also gaps in competence among teachers, and most of the teachers were not confident in the ability to use ICT effectively. There are still limited opportunities when it comes to professional development, and even training programs tend to be very focused not on the adoption of ICT in pedagogically sound, subject-specific approaches but on the acquisition of limited technical skills. These results align with the previous studies in Nepal because teacher preparedness is already found to be a key determinant of ICT success (Adhikari, 2021; Abel et al., 2022).

Policy and institutional shortcomings further compound these challenges. Although municipal officers have been keen on the proliferation of smart classrooms, online learning portals and the enhancement of teacher training, there has been a sluggish and uneven implementation process. The hopes of the ICT in Education Master Plan of Nepal have not been met because of lack of funds, proper monitoring and accountability (Msambwa et al., 2023). Consequently, the adoption of ICT in mathematics classrooms is usually at an individual level and not necessarily universal institutional support, resulting in inequality between schools and municipalities.

Overall, the findings make a strong case for concerted action among stakeholders to build infrastructure, scale-up teacher capacity through mathematics-related ICT training and early ICT literacy among learners to close digital divides. Classroom realities should be more appropriately aligned with policy frameworks so that they can be sustained and fair. This research provides an important addition to the qualitative literature on ICT integration in revealing how ICT's transformative potential for the advancement of mathematics education in Nepal will only be fulfilled if the potential investments are evenly spread across infrastructure, human capacity, and stable policies.

Conclusion

This study explored the views and issues of ICT integration in the teaching of mathematics in the secondary schools in Nepal based on the views of the headmasters, municipal officers, mathematics teachers and students, as a case study within a qualitative design. The results showed a high level of knowledge about the pedagogical usefulness of ICT and its impact on improving the engagement and interest of students, the visualization of abstract ideas, and an increase in the interactivity of learning activities. Meanwhile, major challenges were also identified, such as ineffective infrastructure, unreliable electricity and internet connectivity, inadequate teacher education, and the ongoing disconnect between policy ambitions and classroom practice.

The research also indicated that ICT integration has not been implemented uniformly, although its concept is appreciated. Many municipal programs see smart classrooms and digital portals, but at the school level, integration majorly relies on the actions of individual stakeholders, like teachers buying laptops independently or pupils seeking out online resources on their own. This highlights the structural mismatch between national or local policy aspirations and the feasibility of schools to implement them.

This study adds to the qualitative body of research regarding the role of ICT in teaching by allowing the triangulation of various stakeholder perspectives on the matter to emphasize the experience of people directly involved in the integration process. Puts the Nepalese case in the context of global discussions about digital pedagogy, highlighting that the transformative potential of ICT for teaching mathematics can only be delivered if a balance is maintained between investments in infrastructure, teacher capacity and policy coherence.

Recommendations

This study has significant policy, practice as well as research implications in the context of ICT integration in secondary mathematics education in Nepal. At the policy level, sustained investment in ICT infrastructure is critical, especially in rural and poorly resourced schools, for reducing inequalities in access. Clear monitoring and accountability structures should be implemented in the ICT in Education Master Plan to monitor schools to ensure that they get the planned school resources and facilities. Additionally, an integrated approach to strengthening early ICT literacy programs at lower education levels will enable students to build foundational digital competencies prior to learning and engaging with advanced mathematics applications at the secondary school level. At the school level, heads should arrange for professional development programmes that are specifically related to mathematics-specific applications of ICT, such as dynamic geometry applications, interactive simulations and digital assessment tools. Such programs must extend beyond technical training to incorporate pedagogical approaches that can guide successful incorporation of ICT in lesson planning and curriculum delivery. Peer-learning networks across and within schools may further support innovation, resource sharing, and continuous teacher support. In order to open up ICT integration to not substituting a process of instruction, teachers need a systematic support to build their Technological Pedagogical Content Knowledge (TPACK). Teachers can use continuous mentoring and chances of learning how to use ICT tools to make them meaningful learning opportunities to the students. Lastly, the study needs to be extended by examining how the inclusion of ICT should and actually influence student learning over time in mathematics, as well as to examine how the gap between policy intentions and classroom-level implementation can be mediated in the future. The in-service and pre-service education ought to focus on the use of technological equipment beyond merely how they are technically used but in the planning of lessons, the organization of classrooms and evaluation in the technology-abounding classes. On the same note, provision of blended learning where ICT and conventional teaching are harmonized to address variety in the needs of learners is right on point.

On the learner level, pathways to equitable access are still important to create. Schools may introduce the lending schemes of the devices or community ICT centers, or work with municipalities to allow access to the digital resources. Creating localized, relevant, student-centered networked materials on topics of the mathematics curriculum that are curated and free of commercial clutter would help exert control over the chaos of unstructured online information that bothered the students. Enhancement of digital literacy would, additionally, allow the students to have better inner resources to critically filter information and make the best use of ICT in real-life situations, as opposed to passively orienting to it.

Lastly, integration of ICT must be achieved through constant cooperation between municipal officers, school leaders, teachers, and students. Having review forums on regular basis, formation of localized mathematics resource banks would make sure that the initiatives are sensitive to local needs and sustainable in the long run.

Directions for Future Research

In future, this research needs to have a wider scope by covering large areas or regions to accommodate diverse differences in integration of ICT in individual municipalities. It is also possible that comparative studies of rural and urban schools would provide useful information on local problems and solutions, whereas longitudinal studies would enable the researcher to evaluate the long-term consequences of the long-term investments (its infrastructure and professional development of teachers). ICT would also have a more balanced picture of the effects of ICT in mathematics education by using mixed- methods research that incorporates both qualitative views

regarding the effects of ICT using qualitative assessment of achievement levels of students in mathematics education.

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Perceptions of Student Learning Facilitation During COVID-19 Pandemic in Community Schools of Shankharapur Municipality, Nepal

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Abstract

The COVID-19 pandemic shattered the education system worldwide with a sudden transition to online and blended learning, particularly in low- and middle-income countries like Nepal. Nepal's community schools were hit hard with students, teachers, and parents adapting to Alternative Learning Facilitation (ALF) such as online learning, radio, and television learning. This study examines the perception of students, teachers, and parents regarding ALF in Shankharapur Municipality, namely on issues of slow internet connection, lack of access to devices, and technical problems. The research employed qualitative methodology with descriptive research design using primary and secondary data. Primary data were collected from students, teachers, and parents of Shankharapur Municipality, while secondary data were collected from relevant newspapers, books, and websites. Parent support was vital in the learning process of students, but parents' digital illiteracy aggravated the situation. The study centers on the need for a combined learning process, both online and offline, to improve students' engagement and performance. The study also calls for the need for teacher and parental guidance, closing the digital divide, and providing even access to educational materials. While ALF was inevitable during lockdowns, its limitations, such as a lack of interactivity and real-time evaluation, were evident. The research offers recommendations to close the digital divide, enhance teacher and parent training, and integrate hybrid models of learning to improve the overall effectiveness of ALF in future learning environments.

Keywords: *Covid-19, Challenges, Collaborative Learning Perception, Alternative Learning Facilitation*

Introduction

COVID-19 had a huge disruption to the global education system as mass school closures affected close to 1.6 billion learners globally (Shrestha & Gnawali, 2021). The pandemic created an unwavering demand for schools to adopt a swift movement toward online and blended forms of learning. This, nonetheless, entailed enormous challenges, especially in low- and middle-income nations such as Nepal, where there is poor technological infrastructure and access to online resources. In Nepal, community schools play an important function in providing education to the majority of the students, who are economically disadvantaged persons or members of economically disadvantaged groups themselves. School closures during the pandemic put traditional classroom teaching on hold,

denying about 9 million school-age children meaningful access to learning (Giri & Dawadi, 2020).

Parents, policymakers, teachers, and stakeholders have complained of long-term academic losses and expanded learning gaps in students. Those who lacked access to digital tools, quality internet connectivity, and learning-friendly environments performed worse in an effort to keep up with school assignments. In order to reduce these problems, the government of Nepal brought the Student Learning Facilitation (SLF) Guide 2077, which worked towards education continuity via distance and open learning modes (SLF Guide, 2077). The distribution of self-learning packages, online learning portals, and ICT-based educational policies were launched as well as training teachers on digital teaching practices and enhancing the involvement of students in distance learning. Despite all this, students were still facing gaps in learning as they had infrequent access to computers and a weak support mechanism for online studies. It was found that students who advanced to a higher level without acquiring essential knowledge and skills had tremendous difficulty adapting to tough coursework (Broad et al., 2023). A cause for worry, more students were feared to be dropping out, particularly when students from disadvantaged communities faced problems in reenrolling in online courses. The effectiveness of alternative learning methods and the engagement of stakeholders, including parents, teachers, and education authorities, remain core areas of investigation to ensure that students receive quality education and do not fall behind in academics (Khanal, 2011).

Learning refers to the development of skills to be applied in the society. As majority of students have been deprived of learning as per the national curriculum. According to CEHRD (2020), the number of children having internet access is 1,093,394. Children with no access to other media are 2,357,959 and the children at risk are 995,090. Reduced Curriculum has been designed to meet the academic objectives. Textbooks and teachers' guides have been made to support the teaching-learning activities. Self-learning materials have been made and provided. ICT training has been given to teachers to some extent to improve the teaching techniques and enhance the teaching knowledge in teachers and learning strategies in students (Dinon, 2024). Despite these realities, the learning capacity of the students has fallen and they have forgotten many things drastically. Many talented students have changed into weak ones. Many students fail their tests if they are not guided in the exam hall. There must be lacking in the perception of students, teachers, and parents on alternative learning facilitation as well as teaching-learning environments. This is necessary to be studied and analyzed for academic strength (Pei et al., 2024).

The existing literature highlights that while several initiatives such as the SLF Guide 2077, ICT training, and online portals were introduced to mitigate learning disruptions during COVID-19, students in Nepalese community schools continued to face significant challenges due to limited digital access, weak support mechanisms, and unequal learning opportunities (Shrestha & Gnawali, 2021; Giri & Dawadi, 2020; Dinon, 2024). However, there remains a research gap in understanding the perceptions of teachers, students, and parents regarding the effectiveness of alternative learning facilitation, particularly in rural and urban community school contexts, where socio-economic and infrastructural disparities persist (Broad et al., 2023; Pei et al., 2024).

There is a requirement in the future to develop more inclusive learning policies that address digital access and learning disparities. Infrastructure upgrade, internet connection development, and equitable access to instructional materials are measures necessary to see that no child is left behind in upcoming education emergencies. Alternative learning facilitation, learning setting, and assistance materials will be studied among students, instructors, and guardians, respectively. This study further strives to ascertain challenges of teaching and learning as well as the implication for developing instruction.

Research Methodology

In this research qualitative narrative review including an interviews and observation has used. The sources of data are teachers, students, parents, stakeholders, and educational reports. This qualitative narrative review study aims to find out from students, teachers, and parents about alternative facilitation of learning during Nepalese community schools in the time of the COVID-19 pandemic. The study employs participant observation, semi-structured interviews, and document analysis to collect data, as per tried qualitative research procedures for acquiring intensive knowledge of social and educational phenomena (Patton, 2015). Furthermore, thematic coding is used in an effort to systematize data in a manner that patterns, themes, and inconsistencies are uncovered and ethical research practices such as voluntary participation and confidentiality are ensured. The universe of my study is students, teachers, and parents, and their perception of alternative learning facilitation. The participants of this research are four community schools in Shankharapur. There are four schools, two from the urban area and the other two from the rural setting has been. Purposive sampling was employed to select participants, ensuring representation from various stakeholders involved in community schools, including teachers, students, parents, school administrators, and community members. Fundamentally this study was based on primary information sources. Therefore, on the way of collecting information, all sample schools has visited to observe teachers' classroom practices and students' activities, and to interview with them. The study was carried out in four community schools of Shankharapur Municipality, Kathmandu, comprising two urban and two rural schools, to explore alternative learning facilitation during the COVID-19 pandemic.

Results and Discussion

The study highlights how COVID-19 impacted learning facilitation at community schools in Shankharapur Municipality with a reference to students, teachers, and parents. Weak internet connectivity, insufficient access to devices, and technical issues were some of the principal challenges. Parental involvement was also crucial, wherein digital learning training was essential. Radio and community-based education approaches were also utilized, but ALF was challenged by students' indifference and substandard learning materials. A hybrid learning system, combining web-based and on-campus interactions, was recommended for increasing engagement and performance. The discussion also compares these findings with policies and global studies, giving insights for future education preparedness.

Perceptions of Alternative Learning Facilitation (ALF) at School

The student learned effectively by himself from textbooks and was helped by his sister at home. But he could not join virtual classes due to the lack of a mobile device and no means of access to instructors for guidance. Virtual tests were also challenging for him. Self-study fostered independence, but lacked instruction from instructors, and the lack of digital resources limited the extent of his learning. This generated an isolated learning experience. Implementation of ALF supported learners in engaging peers on Messenger to collaborate on learning. Media devices like television, radio, internet, and cell phones controlled education, with books still being crucial. The ability to contact teachers for guidance added to autonomous learning. But problems such as noise in online classrooms required active listening, and some students could not go for classes due to the lack of personal devices. Discrepancies between television classes and interpersonal learning created a void in the learning process. Technology was a key to the ALF program, and social interaction through Messenger boosted motivation. But no personal devices created a digital divide, limiting

access for some students and affecting learning opportunities. In this respect one of the student said,

> *Nepal government's Alternative Learning Facilitation (ALF) during COVID-19 has helped me to continue my studies despite numerous difficulties. Technologies like Messenger enabled interaction with peers, while mobiles, TV, radio, and virtual classrooms helped in making learning more accessible. Phone call and online media communication between teachers and students were also pivotal. However, voice, TV, and face-to-face learning differentials, as well as restricted access to personal devices, were significant barriers. Students managed to go through the challenges using common resources and self-directed learning. For effective equitable learning, there is a need for better access and facilitation.*

Just as another student explained,

> *The learning experience presents a major challenge because of limited digital tool access, especially mobile phones, affecting involvement in online learning and peer interaction. Dependence on textbooks for self-study cut him off from social learning chances and guidance from the teacher. While some aid from his sister was helpful, it was unable to replace the digital void, denying access to various learning sources. Despite such limitations, the independent study process of the learner aligns with Rogers' theory of facilitation. However, online test exercises and social-distance courses emphasize the need for additional accessible and inclusive learning solutions. His case brings to the fore the impact of the digital divide on educational equity, necessitating better access to technology and support for all students.*

In his opinion, the easy situation for teaching for him was that of availability of net connection and devices. Parent education is also essential because they do not know much about using devices and online classes. If they were well informed about the devices and online classes, they would be able to care for the children at home. Parents' role is necessary at home for better learning of the children. As regards the materials prescribed by the government as per ALF, He used Zoom on his mobile. He did not have a computer at home. Local government should provide materials for easy learning and teaching. Radio was not used for listening to classes. The better way is the visuals on TV. The weakness was that the presentation on TV class was not understood by our students. It was just for entertainment for them.

Teacher Teaching Strategies and Perception

A teacher faced significant technological obstacles, such as a lack of Wi-Fi and mobile phones, which made online education unaffordable for the majority of students. Despite efforts to use alternative modes of learning, students showed little interest in learning at home, indicating the need for more interactive and stimulating methods. Parental involvement was critical, but keeping parents involved on a full-time basis was difficult. In addressing these challenges, this teacher proposed improving internet connectivity, providing devices, and adhering to ALF guidelines, including practicing social distancing during in-class lessons in a bid to ease the learning process (Ertmer & Ottenbreit-Leftwich, 2010). Similarly, another teacher noted weak device connectivity and internet connectivity as major hindrances to online learning. Due to these limitations, social distancing classes face-to-face were the most chosen option because they provided a safer and more interactive learning environment. To mitigate the disadvantages of e-learning, that teacher proposed providing digital resources, increasing access to the internet, and educating parents on how to enhance supporting children's learning at home. These findings would close the digital divide gap and make learning more accessible and easier for all (Fullan, 2013).

The student also felt the importance of study material, particularly the use of mobile phones, and found door-to-door education a viable way to enhance education. They also

advocated increased support from the local authorities. Despite that, issues of low internet penetration in the rural areas brought down the level of access of students to online lessons to as low as 10 percent, while online teaching of math was particularly hard. Classes that involved direct meetings with social distancing were found to be optimal, and textbooks provided by the municipality proved useful in a modest way. Despite this, homeschooling was inhibited by parents' fear of COVID-19, while online classes were poorly done. Key findings revealed that infrastructural limitations impacted the implementation of ALF, and parent technology education would improve learner engagement. The student emphasized the role of government in providing internet and devices for efficient learning. Parent participation was considered vital in enhancing children's learning, and social learning theory identified the role of symbolic models like books in education. In addition, natural learning environments were beneficial where there was no digital connectivity. In this one of the teacher reported,

> *Alternative Learning Facilitation (ALF) was marred by the level of poverty and absence of technology in his area, thus making ALF ineffective. His belief was that equipping students with computers and the internet was the ideal classroom environment. Confronted with such a challenge, face-to-face contact with students arranged according to roll number was the option taken at the school. He stressed the role of smartphones as learning devices during the COVID-19 pandemic but pointed out that online classes were not effective, with below 10 percent attendance. Teacher A suggested home and door-to-door teaching and called on local governments to offer required infrastructure and learning materials. He also pointed out the necessity of educating parents on the use of devices and online platforms to support children's learning more effectively.*

Likewise, another teacher stated,

> *I had a positive general impression of ALF but felt its effect was circumscribed. Though parent books provided were slightly helpful, online lectures were not used effectively. In his opinion, learning situations could be enhanced if the government provided needed devices and internet. Due to a lack of resources, the students were taught face-to-face on a shift basis. He found that learning under natural conditions with social distancing worked better. He emphasized the importance of learning material and recommended adopting home visits and door-to-door education to maximize learning. He also emphasized the importance of making parents learn about using devices and online classes to help their children learn, and how parental participation played a critical role.*

Moreover, the two teachers agreed that the problem of Alternative Learning Facilitation (ALF) under the COVID-19 pandemic was poverty, less technology, and scarce resources, which rendered learning online useless. They also underlined the significance of technology, especially the use of smartphones, and the need for devices and connectivity. Because of these problems, they resorted to teaching face-to-face in shifts, observing social distance. They highlighted the central role of parent involvement and the requirement for parents to be taught digital literacy. In ALF's improvement, they suggested home visits, instruction at the doorsteps, and greater government involvement in providing learning material and resources.

Parents Strategies and Perception

A saw the value of Alternative Learning Formats (ALF) in preventing student dropouts but preferred face-to-face learning, which was more effective in inspiring students. Despite COVID-19 setbacks and the fact that it was difficult to access schools, a parent saw ALF as inevitable during the lockdown. ALF provided a conducive home learning environment, compelling the use of TV programs and mobile phones in education. But issues

like poor internet connectivity, large class sizes via the internet, and lack of interactive testing instruments slowed its effectiveness. TV instruction was seen as one-way and low in interaction, while computer-based applications enhanced learning but needed adequate instruction. Parent A suggested the inclusion of distance learning into face-to-face classes and giving students access to the internet and computer-based resources for a better learning experience (Doung-In, 2017). On the other hand, another parent complained about the challenges of rural settings, such as limited internet and resources, which made ALF less effective. Time management problems and the reluctance of children to prioritize entertainment over learning in the presence of TV and mobile phones were challenges. In order to improve ALF in rural settings, that parent advocated for the use of new models of learning, better internet connectivity, and the proper use of TV as a learning platform (Creswell, 2013).

One of the parents reported,

> *He thought ALF was not as efficient as regular classes due to problems like weak internet connections. Online classes were useful to some extent, but he would have preferred a combination of online classes and homeschooling in a welcoming, non-scolding environment. He suggested encouraging regular TV programs for increased learning and used mobiles, reference books, and TV as study tools. A major issue was large online class sizes. He emphasized the requirement for a stimulating home learning environment and active guardian involvement. Despite challenges, he still felt that ALF was worthwhile for student learning.*

As another parent described,

> *ALF in lockdown as a necessary evil, but they would have preferred teaching in person. They viewed it as providing "normal learning" but was flawed, particularly in testing, as it was mostly one-way. Materials that were provided, such as texts, graphs, and cellular phones, were adequate, but challenges were faced. Parent B believed there could be focus on motivation and suggested techniques like stories, phone messaging apps, and TV classes, but mentioned the limitations of television. They highlighted the use of computers in transferring education. Parent B, in general, thought ALF was beneficial but has to be bettered, especially with respect to evaluation and environmental factors.*

From above discussion, two parents recognized the value of Alternative Learning Facilitation (ALF) during the COVID-19 pandemic but noted drawbacks. A parent would rather attend classes in person than ALF, opting for online learning and homeschooling. Another parent recognized ALF to be effective during regular learning but noted areas of limitation in assessment. They gave improvement recommendations.

Role of Technology in Learning

The role of technology in improving learning experiences during pursuing alternative Learning Format (ALF) was significant. Especially for students who own contemporary digital devices such as mobile phones, internet, television, and radio, the contribution was vast. Students could access online classes, participate in virtual debates, and navigate a wide bank of educational content, all of which improved their understanding of the topics. However, the digital divide created massive inequalities, particularly among rural students or those without constant access to these essential technologies. Students without personal devices or constant internet access struggled to keep up with their peers, missing out on essential learning material, which led to uneven academic achievement and results. This gap in accessibility reflects the importance of closing the digital divide through equal opportunities for all learners to learn (UNESCO, 2020). To this effect one of the students stated,

> *Having mobile phone and internet helped me participate in online classes and grasp the lessons well, but some of my friends could not participate because they did not have devices. Personally, I also had an issue because I did not have my own phone, and my family was not able to cover every-day internet data.*

Likewise, the teacher reported,

> *Technology made it easy to teach and connect with the students, but many could not participate regularly due to poor internet connectivity. It was disheartening to see some students make good progress while others, especially those in rural areas, were left behind because they did not have digital tools.*

To this effect, the parent testified,

> *We tried providing mobile phones to our children, but given that there are many children in the household, it was difficult for all of them to participate. Not all families have the capacity for internet and smartphone, and it was disheartening to see my child lag behind while others enjoyed the opportunity for online education.*

This shows during the COVID-19 pandemic, students, teachers, and parents found it challenging to access online education due to limited access to devices and internet unaffordability. Low-income and rural households fell behind, and teachers faced inconsistent engagement. The digital divide led to parents and students feeling emotional pain, stressing the need for equal access to education and the need for more advanced digital infrastructure.

Social and Collaborative Learning

Cooperative and social learning were integral in enhancing student engagement in ALF. Discussion boards and peer-to-peer collaboration provided students with more than sufficient arenas for idea exchange, conceptual clarification, and co-operative project execution. Co-operative learning provides impetus to problem-solving, critical thinking, and exchange of information that lead to in-depth conceptual understanding. Those students who lacked internet connectivity were unable to contribute to co-operative processes that disadvantaged them. The absence of peer interaction denied them the chance to learn from group discussions and collaborative problem-solving, which are key components of active learning. This deprivation ultimately limited the students' overall learning experience and engagement (Vygotsky, 1978). On this, one student stated,

> *I enjoyed taking part in online discussions with friends in class, as it enabled me to understand lessons more and made learning more enjoyable. But I also felt left out when I could not take part in online discussions, which made learning a lot more challenging for me without working with others.*

Likewise, another teacher stated,

> *Collaborative learning encouraged problem-solving and critical thinking among students, but digital disadvantaged students were denied these enriching experiences. While there were students who excelled at peer discussion, other students, particularly those from disadvantaged communities, were disadvantaged by limited access.*

To this effect, the parent stated,

> *My child gained valuable knowledge from group discussions in online classes, but I concerned myself about those who could not participate. Nonetheless, without internet access, my child lost the opportunity to engage with friends and learn through discussion, which impacted their motivation and overall learning.*

This shows that the online learning has pros and cons. It is enjoyable for students, but exclusion on the basis of non-participation is likely. Teachers promote group learning for critical thinking, but digital unavailability can be against participation. Parents are also tested to advocate for digital accessibility in inclusive education.

Challenges in Remote Learning

Some challenges eroded the success of remote learning under ALF. Poor internet, lack of personal devices, and parents' digital illiteracy were some of the most significant challenges. These disproportionately impacted students who were from low-income or rural families and limited their access to online learning. Students were unable to take online classes and hence lost out on learning due to a lack of stable internet or devices. Furthermore, the parents' own deficiency in digital literacy also hampered them from supporting their children's learning, thus making such matters more complex. Furthermore, the online classes were often hampered by technical problems, ambient noise, and poor attendance, adding to student disengagement and academic performance (OECD, 2020). On this note, one student reported,

> *Limited access to technology and a reliable internet connection greatly affected students' ability to engage in online learning. Slow internet and shared resources hindered students' attendance and learning, highlighting the digital divide and the challenges they faced in participating in online learning and continuing their studies.*

The teacher mentioned,

> *Most students struggled to attend online classes due to a weak internet connection, and even those that did attend were constantly disrupted. At the same time, parents were unable to help their children because they had no idea how to use digital tools.*

Likewise, the parent stated,

> *I had no idea about how to work online learning applications, so I was unable to teach my kid accordingly. By remaining in a rural area where the internet connectivity is poor, it became more frustrating as my kid lost their education due to technical problems.*

Likewise, online learning is seriously handicapped by technology deficiency and uneven internet connection. The students are not able to attend classes, and parents are likewise not computer literate, so there are missed lessons and frustration in the rural area.

Importance of Teacher and Parental Guidance

Teachers played a vital role in motivating the students and guiding them through the ALF process. Their support and encouragement were critical in sustaining student motivation, especially when there was little face-to-face interaction. The instructors adapted the mode of teaching so that they would make maximum use of available resources, often going out of their way to give additional help through phone calls or other channels of alternative communication. Their involvement made ALF a success. Parent involvement was also instrumental in enabling the students to succeed in distance learning. Parents needed to become extremely involved in ensuring their children's education, time management, and motivation. But that was not always convenient, as parents' digital literacy was low in some cases, which forced them to learn alongside children (Jantzen, 2021).

To this end, the student remarked,

> *My teacher used to call and ask about me as well as explain lessons when I could not get it. Without their encouragement, I would have lost enthusiasm for studying in online classes.*

Likewise, the teacher also added,

> *We had to adopt new methods to help students, for instance, sending messages through mobile or explaining lessons through phone calls. Encouraging students without physical contact was difficult, but we tried our best to guide them.*

Similarly, the parent also added,

> *I tried to help my child with online studies, but sometimes I used to find it tough because I was not familiar with technology. I also had to modify my own timetable to*

> *enable my child's learning so that they could attend classes and complete assignments.*

This shows that the student appreciated the ongoing encouragement and support of the teacher in online classes, and it maintained the interest and understanding. Teachers managed the challenge of online learning by sending notes via mobile messages and conducting lessons via phone calls. Parents struggled with new technology but attempted to adjust schedules to get their child to attend lessons and complete homework. Ongoing encouragement from parents and teachers was necessary for student success.

Limitations of ALF

Even though ALF had provided a means for alternative continuing education, it had several limitations which impacted its success. Learning via television and radio, even though giving an alternative to physical classroom environments, had no interactivity and thus made the learning process more of a passive nature. The students were unable to engage in live discussions or raise questions, which are of great importance for participative learning and improved understanding. Moreover, ALF's evaluation procedure was not adequate, making tracking of students' progress difficult to assess effectively. Assignments and quizzes, the standard methods adopted for traditional appraisals, were challenging to implement in distant regions, therefore, without instant feedback and degrading learning experiences. Rural area students were at a disadvantage particularly by having less-than-suitable infrastructure access, sluggish internet, and limited access to devices and resources (Boserup, 2014).

To this effect, the student described,

> *Watching lessons on television was not the same as attending class because I couldn't ask questions when I didn't understand. We had homework, but without feedback, I didn't know if I was learning properly.*

Likewise, the teacher described,

> *Teaching through TV and radio was a challenge because we couldn't interact with students or see their understanding in real-time. Tracking student progress was also difficult since most students didn't have internet access to post assignments or quizzes.*

Likewise, the parent complained,

> *My child watched the lessons on television, but without the instruction of a teacher, it was hard for them to stay attentive. We live in a rural area with bad internet, so my child missed out on much learning.*

Globally, the research looks back at the crisis of students, teachers, and parents in the education sector. The students complained about concentration struggles through unclear questions and no immediate feedback, and the teachers against real-time interactions and internet connections. The parents also had a lack of ample opportunities to access learning in past rural areas.

Conclusion

The transition to Alternative Learning Formats (ALF) during the COVID-19 pandemic in Nepal exposed extreme barriers to learning, especially among students from disadvantaged groups. The digital divide with poor internet connection, few devices, and connectivity problems undermined online learning effectiveness. Parental participation, which plays a key role in student performance, was additionally hampered by digital illiteracy, creating a need for extensive training and assistance. The study also indicated that online learning and learning through television or radio, as a substitute, were less interactive and could not offer one-on-one instruction by teachers, thus limiting students' participation and attainment. Despite these limitations, a blended mode of online learning and traditional classroom interactions was proposed to amplify student participation and performance. This approach would be more successful in bridging the gaps of accessibility, particularly in rural

areas, where inadequate digital tools and poor internet connectivity were most evident. In the future, it should focus on building up infrastructure, offering equal access to learning technology, and performing digital literacy training for parents and teachers. By bridging the digital divide and enhancing interactive learning tools, ALF could become an even more effective and fairer vehicle for education, not just in times of crises but also in future learning contexts.

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Exploring Cognitive Skills and Academic Achievement in Geometry among Secondary Level Students in Nepal

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Abstract

Cognitive skills are essential for conceptual learning in geometry. In this study, the students' cognitive skills and academic achievement in learning geometry under four levels of cognitive domains have been explored through a mixed-method approach. Comprehensive analysis of the performance of students in geometry through achievement test have been used on the basis of Bloom's Taxonomy for Secondary Level Curriculum of Nepal in order to explore the cognitive skills of students. The achievement scores of geometry achievement test from the 32 students of grade IX in an institutional school located in Kathmandu district have been analyzed. The achievement scores were analyzed under gender, age, and correlations between different cognitive levels. The results of this study shows that the students' have high level of competencies in knowledge level problems (mean score: 8.59 out of 10) and faced greater challenges in higher ability thinking skills (mean score: 3.19 out of 10). Similarly, the scores based on gender pattern with male students' performance is higher in knowledge and application levels, whereas female students have better performance in understanding and higher ability levels. It is further suggested that the specific opportunities for targeted instructional interventions to enhance students' skills and achievement across all levels of cognitive domains, particularly in fulfilling the gap between conceptual understanding and practical aspects.

Keywords: *Assessment, cognitive complexity, performance analysis, geometry, educational measurement*

Introduction

Students' engagement, retention, and application of knowledge in education across different levels of cognitive domains has become a critical part of successful teaching and learning (Anderson et al., 2001). To find the variety of cognitive processes related to students' understanding, and thorough evaluation measures beyond one dimension assessments are necessary due to the complexity of mathematical learning, especially in geometry (Van de Walle

et al., 2019). In order to obtain a more pictures of learning outcomes, current educational research highlighted the significance of assessing students' performance across various levels of cognitive difficulty (Webb, 2002; Marzano & Kendall, 2007). Besides giving educators with useful information to guide instructional decisions and raise students' accomplishment, this multifaceted approach in assessment is accepted in educational frameworks (Stronge, 2018). The study based on the theoretical framework of important educational systems. The updated version of Bloom's Taxonomy by Anderson and Krathwohl (2002) suggest a hierarchical framework for comprehending cognitive tasks ranging from simple memory to intricate assessment and production. The development of assessment techniques that measure various degrees of cognitive engagement has benefited significantly from this method (Krathwohl, 2002). Furthermore, Webb's (2002) depth knowledge paradigm, which highlighted the difference between content complexity and cognitive demand, delivered supplementary insights on the cognitive complexity useful for various task. The significance of assessing mathematical literacy across several cognitive domains is further supported by the OECD's Programme for International Student Assessment (PISA) framework that defines mathematical competency as the capacity to formulate, apply, and interpret mathematics in a different context (OECD, 2021). This worldwide viewpoint focused on the multidimensional evaluation in mathematics education that is accepted widely.

Significance of Research

There are special opportunities and challenges for cognitive development in geometry education. Students studying geometry must develop logical thinking, abstract conceptualization, and visual-spatial reasoning, in contrast to other mathematical fields that mostly depend on computational processes (Battista, 2007). Similarly, Clements and Battista (1992) found that, geometric thinking changes at different stages, from formal deduction to visual recognition, demanding instructional strategies that simultaneously target several cognitive characteristics. The importance of this study determines its examination of students' performance in four levels of cognitive domain related to geometry instruction. This study adds to the expanding of the research on differentiated teaching and personalized learning strategies in mathematics education by looking along age factors, gender disparities, and achievement patterns (Tomlinson, 2017). In this context, this study has formulated the following research questions.

Research Questions

The main purpose of this study was to address the following research questions:

1. What is the overall achievement pattern of students in geometry across different cognitive domains?
2. How do performance patterns differ between male and female students across cognitive domains?
3. What relationships exist between age of students and their achievement across different cognitive complexity levels?

Review of Literature

This section explores the theoretical association of the literature related to the cognitive aspect of learning geometry and its importance for cognitive development of students. The following theoretical review of literature shows the important of cognitive development in geometry learning.

Cognitive Complexity in Mathematics Education

Over the past few decades, academicians have developed increasingly complicated frameworks to describe how pupils process mathematical information, leading to a considerable

evolution in the concept of cognitive complexity in mathematics education. Four stages of cognitive complexity are distinguished by Webb's (2002) such as: Depth of Knowledge model: it helps in expanded thinking, skills and concepts, recall and replication with strategic thinking. This framework gives teachers as a means to create tests and lessons that cater to various cognitive demands. It also has had a significant impact on mathematics education.

According to Stein et al. (2009), students' learning outcomes are substantively impacted by the degree of cognitive load in mathematics problems. Their research on the mathematical tasks' framework demonstrated that higher-level cognitively demands the tasks to enhance conceptual knowledge and problem-solving skills. They also indicated that careful attention to task execution and classroom discourse is necessary to sustain a high cognitive demand during education. This knowledge was expanded by Brookhart (2010), who looked into how educators might evaluate higher ability levels in the classroom. According to Brookhart (2010), many teachers found it difficult to create tests that fairly measure intricate cognitive processes; instead, they frequently fell back on simpler recall exercises that didn't adequately represent students' actual mathematical aptitude.

Gender Differences in Mathematical Performance

The picture highlighted by the research on gender disparities in mathematics ability is nuanced and constantly changing. Male advantages in mathematical reasoning significantly in spatial and quantitative tasks, that were shown by early studies by Maccoby and Jacklin (1974). These findings have been challenged by more recent meta-analytic research, which has shown more complex trends of performance disparities connected to gender. In an examination data from international mathematics assessments, according to Hyde and Mertz (2009) found gender disparities in mathematical ability fluctuate greatly depending on the culture and educational setting. According to them, gender inequalities in mathematics achievement are primarily caused by sociocultural variables rather than inborn cognitive differences. Moreover, women generally perform better than men in all areas of academic achievement, including mathematics (Voyer & Voyer, 2014). They asserted, nevertheless, that performance patterns change greatly based on the particular cognitive demands of various mathematics tasks and evaluation styles.

Similarly, Ganley and Lubienski (2016) claimed that the association between gender and mathematical performance is largely mediated by these affective characteristics that explicitly look into gender variations in mathematical confidence and fear. According to them, addressing the emotional and motivational components of learning mathematics might be essential to reducing achievement differences associated with gender.

Age and Developmental Factors in Mathematical Learning

Educational psychology has conducted a great work of the study on the connection between age, cognitive development, and mathematics learning. According to Piaget's theory of cognitive development, students in formal operational periods emerges throughout adolescence, and mathematical comprehension follows predictable developmental stages (Inhelder & Piaget, 1958). The idea of universal developmental phases has been contested by more recent research, which places more emphasis on the need of domain-specific knowledge and educational experiences in mathematics learning (Carey, 2009). According to Siegler and Chen (2008), learning trajectories are significantly influenced by individual differences, and mathematical progress is characterized by overlapping waves of method use rather than distinct stages.

Likewise, Kaya et al. (2015) verbal abilities and academic achievement have strong correlation than nonverbal abilities. Moreover, readiness to learn is related to verbal abilities while the potential to learn is related to the nonverbal abilities. This study specifically looks into the

association between age and mathematical skill in geometry. According to them, motivation, prior knowledge, and the quality of the education may have a greater impact on mathematics performance than developmental preparation.

Integrated Approaches to Cognitive Skill Development

The significance of integrated approach in the development of cognitive skills is being focused more and more in existing mathematics education research. Scholars support instructional practices that directly link to the knowledge, understanding, application, and higher-ability skills rather than treating various cognitive domains as different entities (King et al., 2013). The significance of iterative connection between procedural fluency and conceptual understanding in mathematics learning is established by Rittle-Johnson et al. (2015). Instead of having students move linearly through cognitive hierarchies, their findings implied that effective training should provide them to several opportunities to move freely between different forms of mathematical thinking. Willingham (2007) argued that content knowledge alone could not freely develop higher level thinking capabilities, which necessitate intentional training and practice. Besides scaffolding, numerous opportunities for application in a variety of circumstances might be necessary for the maximum development of complex cognitive skills.

Methodology

This section deals with research design, participants, and tools for data collection. data analysis procedures, including its conclusion of the study. To investigate students' performance trends in geometry education across several cognitive domains, this study used a quantitative descriptive research methodology. Using a cross-sectional methodology, this research investigated the correlations between age, gender, and cognitive ability by gathering data from achievement tests of students in a certain cross-sectional study. Given that it enables a methodological examination of current performance patterns without modifying instructional variables, the descriptive research design was a suitable selection for the goals of this study (Creswell & Creswell, 2017). By using this method, researchers have found special patterns and their connections in students who collected the data that might guide experimental research and future instructional interventions. Altogether thirty-two students studying in Grade IX from an institutional school in Kathmandu district made up the study sample. To guarantee equal representation across important demographic characteristics of the sample was carefully chosen as mentioned below:

Table 1.

Demographical Characteristics of the Sample

Gender		Age level	No. of Students	Mean Score	SD
Male	Female	13	5		
16	16	14	8		
Percentage		15	17	14.8	1.2
50%	50%	16	1		
		17	1		

In order to guarantee uniformity in teaching strategies and curriculum requirements, the institutional school was chosen. According to National Curriculum Framework 2015 for secondary level mathematics, all the students in the sample of the study has completed the specified course of geometry.

Construction of Geometry Achievement Test Items

For the use of students' performance in geometry, the teacher made achievement test items has constructed from the concept of geometry under four levels of cognitive domain. The constructed items were evaluated by the 4 experts (two university professors, and two schools' teachers). Researcher has calculated the p-value (difficulty level) and D- value (Discrimination index) of each of the items after taking the pilot test in any one of the schools other than sampled school. The items were selected after deletion and modification of items with its p-value ranges from 30% to 70% and D- value ranges from 0.30 to 0.70. The final items were constructed and applied for the achievement test in geometry (Ghimire, 2025). The achievement test items were constructed by considering the Bloom's Taxonomy by Anderson et al, (2001) as follows:

1. Knowledge level (10 ×1 = 10 marks) Evaluation of fundamental idea identification, terminology recognition, and factual recall.
2. Understanding level (10 ×1 = 10 marks): Assessment of interpretation, explanation, and conceptual comprehension capabilities.
3. Application level (10×1 = 10 marks): Evaluation of problem-solving skills in known contexts and knowledge transfer to novel ones.
4. Higher Ability level (10 ×1 = 10 marks): Evaluation, synthesis, analysis, and creative thinking abilities assessment.

Each domain made an equal contribution to the final evaluation, which had a maximum possible score of 40 points. All cognitive levels are given the proper attention during the examination process.

Content Validity and Reliability

To guarantee content validity and reliability, the evaluation tool was subjected to rigorous validation processes. All assessment items were examined by a panel of three experts in mathematics education to ensure that they were appropriate for the grade level and in line with cognitive domain criteria. To guarantee accuracy and clarity, items were updated with the response of experts. A different sample of 30 students from a community school were participated in pilot testing to assess item difficulty, discrimination, and exploration of internal consistency of each item. The structures, levels and clarity of language were improved for the construction of better test items.

Data Collection Procedures

In the process of data collection, regular class structures were taken to minimize disturbance in instructional practices, and achievement tests were conducted during regular class hours over two weeks. Under the same conditions with uniform instructions and time allotments for each participant, students have completed the test. To guarantee uniformity in execution, the researcher observed and administered the test. In order to reduce test anxiety and promote genuine achievement, students were told that their performance would only be utilized for research and would not have an impact on their academic results.

Data Analysis

Descriptive as well as inferential statistical were used in data analysis of quantitative data with SPSS 27. The mean, standard deviations and frequency were calculated with the help of geometry achievement test (GAT). Further, the Pearson coefficient of correlations was used in analyzing the connection between various cognitive levels. The analysis of the performance of students was calculated in 0.05 level of significance to determine the statistical significance. Cohen's d was used to compute effect sizes to access the observed differences with its practical importance.

Results and Discussion

This section deals the findings of data based on the students' performance under four levels of cognitive domain. The analysis was done by considering the scores obtained by the students in the geometry achievement test.

Overall Performance Analysis

Significant trends in achievement across the evaluated cognitive domains are shown by analyzing the total performance of the students. The students' overall achievement rate was 55.1%, with mean score 22.06 out of 40 available points. The majority of students cluster around the mean performance level, as indicated by the standard deviation of 2.84 shows there was reasonably consistent performance across the student group. Further information on achievement trends were collected from the distribution of total scores. Out of the 26 students, (81.3%) received scores in the 20–24 range. 9.4% of students (n = 3) achieved scores of 25 or higher. Three students, or 9.4% of the total, received scores below 20.

According to this distribution, comparatively few students performed the achievement range, indicating most students showed adequate understanding of the examined topic. This trend suggests generally successful training, however there are possibilities to improve achievement across all performance levels (Hattie, 2009).

Performance in all Cognitive Domains

A distinct pattern of diminishing achievement as cognitive difficulty rises has been revealed by the examination of performance across several cognitive aspect. This finding aligns with established research on cognitive hierarchy and learning progression (Anderson et al., 2001; Webb, 2002). In this context, the following table 1 shows the students' performance in geometry in different cognitive levels.

Table 1.

Student Performance in different Cognitive Levels

Cognitive Domain	Mean	SD	Proficiency Level
Knowledge	8.59	1.24	59.4%
Understanding	6.16	1.89	50.0%
Application	4.13	1.76	31.3%
Higher Ability	3.19	1.45	37.5%

Students' performance in the Knowledge level was the best, averaging 59.4 % of the possible marks. This shows that students remember fundamental geometric concepts, vocabulary, and procedures and have successfully absorbed fundamental and factual information. The very low standard deviation (1.24) suggests that there was the consistent performance of students in this area. Performance in the understanding domain decreased to 50 % of potential points, and more variability (SD = 1.89), indicating more individual variance in conceptual comprehension skills. This trend suggest that the majority of students are able to recall facts, fewer are able to effectively that there was a strong conceptual comprehension of geometric principles. In the application level, only 31.3% of students reached competence levels, indicating a more significant decreased in performance. Similarly, there was very low-level performance of students in higher ability (37.5 %) but it is more than the application level. This shows that students have insufficient application skills in geometry in real life. This conclusion raises serious concerns about the difficulties of applying expertise to innovative problem-solving situations, which is consistent with Willingham's (2007) research on the subject. In comparison to the application level, slightly more students (37.5%) attained proficiency in the Higher Ability domain. This surprising trend could be a result

of individual variances in analytical thinking skills or the design of the evaluation system and provided task.

Gender-based Performance Analysis

Complex patterns that differ greatly across cognitive domains are revealed by analyzing gender disparities in performance. With male students averaging 22.31 points (55.8%) and female students averaging 21.81 points (54.5%), the gender gap in overall performance was negligible. Statistical significance was not reached for this 0.50-point difference. The following table 2 represent the achievement of students according to their gender and cognitive domain.

Table 2.

Gender Differences by Cognitive Domain

Level of Cognitive domain	Mean and SD of boys	Mean and SD of Girls	Difference in Mean	Effect Size (d)
Knowledge	9.00 (1.03)	8.19 (1.33)	0.81 (M)	0.67
Understanding	5.94 (1.73)	6.38 (2.06)	0.44 (F)	-0.23
Application	4.44 (1.59)	3.81 (1.91)	0.63 (M)	0.36
Higher Ability	2.94 (1.34)	3.44 (1.53)	0.50 (F)	-0.35

Note: *Used by SPSS 27 with 0.05 level of significance*, *M= Male, F= Female*

Different patterns of cognitive capacities between genders have been revealed by the investigation. In the knowledge levels, male students showed statistically significant advantages (Mean 9.00, SD 1.03, d = 0.67), indicating better performance in tasks involving factual memory and fundamental concept recognition. In application level, male students also shown numerical advantages, although this difference was not statistically significant. Although these differences were not statistically significant, female students showed strengths in the understanding and higher ability level. According to the trend, male students did better on tasks requiring information recall and practical application, while female students perform better in conceptual comprehension and sophisticated analytical thinking. These results are somewhat consistent with Voyer and Voyer's (2014) meta-analytic study, which discovered that women generally did better than men on higher-level cognitive tests. The findings of the current study, however, point to a more complex pattern than is usually documented in the literature, with both genders displaying unique cognitive capabilities. Ghimire & Paudel (2024) found that High motivation, understanding of contents, self-paced learning, increase the achievement in mathematics.

Age-related Performance Patterns

Unexpected results from the examination of age-related performance patterns create doubt on widely held beliefs regarding cognitive task associated with development of child. Although these results were found in small sample sizes for specified age groups, they offer interesting new information for further study.

Table 3.

Age-Related Performance Analysis

Age (years)	n	Mean	SD	Mean (%)
13	5	22.40	2.30	56.0%
14	8	21.50	3.39	53.8%
15	17	21.56	2.96	53.9%
16	1	23.00	-	57.5%
17	1	22.00	-	55.0%

The youngest students with age 13 perform better with the group mean, attaining 56.0% which challenges the developmental theories. This research casts doubt on presumptions regarding age-related cognitive task benefits and increases the possibility that variables other than chronological age could be more important indicators of mathematical achievement. 14-year-olds did the worst performance i.e., 53.8%, while the largest group (15-year-olds) performed marginally worse at 53.9%. These trends imply that chronological age is not a good indicator of geometric achievement within the age range under study. Age did not significantly influence performance in this population, as demonstrated by the lack of statistically significant variations across age groups. This result is aligned with research by Kaya et al. (2015), which suggests that individual motivation, prior knowledge, and instructional quality may have a greater influence on mathematical performance than developmental preparation.

Correlation Analysis between Cognitive Domains

The relationships between various mathematical thought processes and the degree to which students acquire integrated cognitive skills can be understood through correlation analysis between various cognitive domains.

Table 4.

Correlation between Different Levels of Cognitive Domain

Levels of Cognitive Domain	**Knowledge**	**Understanding**	**Application**	**Higher Ability**
Knowledge	1.00	.34*	.52	.28
Understanding	.34*	1.00	-.12	.41*
Application	.52	-.12	1.00	.15
Higher Ability	.28	.41*	.15	1.00

Note 1. *Analyzed with SPSS 27 in 0.05 levels of significance*

** Represent the correlation is significant in 0 .05 level,*

Numerous significant patterns in the connections between cognitive domains are explored by the correlation analysis. The knowledge and application levels have the greatest positive connection (r =.52), indicating that students who have a solid foundation in factual knowledge are better equipped to situations involving problem-solving. Theoretical frameworks that stress the value of strong knowledge on efficient application skills are supported by this conclusion (Willingham, 2007). Although it is not a strong anticipate from hierarchical models of cognitive development, a moderately positive correlation between knowledge and understanding (r =.34, p <.05) suggests that factual information and conceptual understanding grow in complementary pattern. Students who exhibit excellent conceptual knowledge are more likely to succeed in difficult analytical tasks, according to the moderately positive correlation (r =.41, p <.05) between the knowledge and higher ability levels. This result is consistent with studies that highlight the value of profound conceptual knowledge for the development of higher-order thinking. Although, there is no statistically significant, the connection between the understanding and application levels is found surprisingly negative (r = -.12, p =.51). This surprising finding explores the possibility that some students may acquire comprehension and application skills on their own, that helps in applying teaching strategies that prioritize the different areas independently.

Conclusion

Multiple works decreased the capacity for processing the information and retain it for a long time that creates low performance in the work (Boere, Anderson, Hecker & Krigolson, 2024). Although this pattern is consistent with previous studies on cognitive hierarchies and learning development (Anderson et al., 2001; Webb, 2002), it also draws the attention to important instructional issues that need for precise interventions. The impressive performance in the knowledge area (85.9% of possible points) shows that the way that teaching is currently delivered supports factual learning and the acquisition of fundamental concepts. However, the significant declining in higher ability (31.9%), Understanding (61.6%), and Application (41.3%) performance suggests that students find it difficult to transition from memorization to deeper conceptual understanding and transfer of knowledge and skills. This pattern supports the findings of the study by Willingham (2007), who contends that learning content information alone is not sufficient to promote higher-order thinking skills; rather, specific training is necessary. The results imply that in order to support students in developing integrated cognitive skills that connect information, comprehension, and application, that gives more organized support. A remarkable difference that advantages more research is the comparatively higher performance in higher ability as opposed to application levels (31.9% vs. 41.3%). The nature of the assessment tasks may be reflected in this pattern, with higher ability items possibly offering more structured support for analytical thinking and application tasks requiring more autonomous knowledge transfer to new contexts. The study findings on gender-based performance patterns highlighted a more complex picture than is usually presented in the literature on mathematics education. While overall performance differences were minor, the different patterns of cognitive capabilities reveal substantial implications for personalized education.

The prominent performance advantage of male students in the Knowledge domain ($d = 0.67$), which might be due to their preferred methods of learning or to teaching strategies that emphasize factual recall and appreciation in tests. Nonetheless, the numerical advantages of female students in the understanding and higher ability level point to capabilities in analytical thinking and conceptual comprehension that should be acknowledged and used in instructional design. These results have the implication that both male and female students have unique cognitive talents that can support mathematical learning, which challenges conventional narratives about gender differences in mathematics. Teachers should think about how to build on these various strength patterns rather than concentrating on shortcomings in order to assist the growth of all students across cognitive areas. The trends found the consistent with the ones propounded by Ganley and Lubienski (2016), who stressed the significance of addressing emotional and motivational elements in the learning of mathematics. All children might benefit from instructional strategies that acknowledge and validate their unique cognitive abilities.

Common beliefs about age-related benefits in cognitive activities have called into question by the detection that younger students (age 13) scored better than average. This finding implies that, especially within the very small age range examined, chronological age may not be significant in predicting mathematical achievement as previously thought. This finding has significant consequences for educational practice, indicating that teachers should prioritize instructional quality and individual learning requirements over age-based goals. Younger pupils' excellent performance might be the result of things like individual cognitive powers that go beyond ideas of developmental stages, motivation, past knowledge, or educational experiences. The absence of notable age-related variations is consistent with recent studies that highlight the importance of domain-specific knowledge and educational experiences in mathematics learning (Carey, 2009).

These results indicate that individual characteristics and successful teaching methods might be more important predictors of success than age or expected developmental preparedness.

Important information about how children acquire integrated cognitive skills is revealed by the correlation analysis. Theoretical frameworks that stress the significance of knowledge bases for skill transfer are supported by the substantial positive correlation (r =.52) between knowledge and application, which implies that factual knowledge serves as a basis for problem-solving skills. Nonetheless, a significant instructional issue is the poor and negative association (r = -.12) between understanding and application level. This pattern suggests that students may be developing conceptual understanding and application skills in isolation rather than as integrated abilities. This conclusion suggests the necessity for methods that directly link conceptual learning with real-world application, which has important ramifications for instructional design. Though not as strong as one might anticipate, the moderate association between understanding and higher ability (r =.41) suggests that conceptual comprehension fosters analytical thinking. This implies that there may be chances to use focused teaching techniques to improve the relationships between conceptual knowledge and sophisticated reasoning abilities.

Implications for Instructional Practice

The conclusions of this study highlighted a number of significant implications for geometry instructional practices.

Explicit Higher-Order Thinking education. The need for explicit education in higher level thinking skills is indicated by the fall in performance throughout cognitive complexity levels. Instead of trusting that students would acquire analysis, synthesis, and assessment skills solely from content knowledge, educators should offer systematic guidance to help students develop these abilities.

Integrated Skill Development. The necessary requirement for effective teaching strategies that specifically link various forms of mathematical thinking. It is indicated by the weak connections found between several cognitive areas. Teachers' ought to create lessons that support students in bridging the gaps between their knowledge, comprehension, and application abilities. It helps for the unique patterns of cognitive strengths between the sexes focused for the possible advantages of using instructional tactics that are tailored to each individual. Teachers should identify and build on various patterns of strength while offering support for areas of relative weakness, rather than viewing gender differences as scarcities.

Individual-Centered. Since there aren't any significance age-related distinctions, instructional preparation that prioritize meeting to each student's unique learning needs over age-based expectations. Instead of making chronological age the main consideration in instructional design, educators should concentrate on diagnostic evaluation and individualized support.

Transfer Skill Development. The application domain comparatively poor performance indicates that transfer skills needed to develop special attention. Teachers should give students several chances to use their knowledge in different settings while providing the appropriate support and scaffolding.

This thorough examination of students' performance in geometry in different cognitive areas offers important and novel perspectives on the complex relationships between geometry learning and students' success. The study highlights the student cohort's advantages and disadvantages, with obvious implications for teaching methods and educational policies. Helping students transition from memorization to deeper conceptual engagement and skill transfer is a fundamental difficulty in mathematics education, as seen by the persistent performance loss that occurs as the rises of cognitive complexity. Students need extra help to build integrated cognitive

abilities that connect understanding, application, and higher ability thinking skills, even while they demonstrate great basic knowledge.

According to the study, gender-based performance patterns, male and female students each have unique cognitive capabilities that should be acknowledged and used to their advantage in instructional design. Teachers should think about ways to build on different strength patterns to assist the mathematical growth of all kids rather than seeing these variances as limitations. The discovery that chronological age is not a significant predictor of performance within the range under study calls into question accepted notions about developmental readiness and raises the possibility that learning experiences, individual characteristics, and instructional quality may have a greater influence on mathematical achievement than age-based expectations. Importantly, both the encouraging relationships and the distressing gaps in skill integration that have been revealed by the correlation patterns among cognitive levels. Although application skills seem to be supported by knowledge, the limited correlation between comprehension and application indicate important areas for instructional development through strategies that link conceptual learning to real-world problem-solving.

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Implications of Cognitive Learning Theory in ICT Education

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Abstract

This study examines how Cognitivist Learning Theory can be effectively applied in ICT education through the use of digital tools. While cognitivism emphasizes internal mental processes like attention, memory, and metacognition, its integration into technology-enhanced pedagogy, especially in developing contexts, remains underexplored. This mixed-method study utilized survey data from 65 ICT teachers, interviews with 12 instructors, and classroom observations in 10 Nepalese tertiary institutions. Data analysis focused on cognitivist principles such as schema activation, cognitive load management, metacognition, and learner motivation. Findings reveal that ICT tools, when aligned with cognitive principles, act as effective cognitive scaffolds. Teachers reported using multimedia, simulations, adaptive quizzes, gamified dashboards, and reflection journals to activate prior knowledge, manage cognitive load, and foster self-regulated learning. Observations confirmed improved conceptual organization, sustained attention, and learner persistence, though risks of cognitive overload from excessive multimedia were noted. The study identifies personalization, scaffolding, and timely feedback as crucial for strengthening cognitive engagement. This research contributes an implementation model and practical insights for integrating cognitivism into digital pedagogy, transforming ICT from a passive medium into an active enabler of deep learning.

Keywords*: Cognitivism, ICT education, cognitive load, multimedia learning, metacognition, schema theory.*

Introduction

The rapid integration of Information and Communication Technology (ICT) has profoundly reshaped educational paradigms, moving beyond traditional teacher-centric models towards dynamic, learner-focused environments (Sangrà & González-Sanmamed, 2010). Digital tools, including adaptive learning platforms, multimedia simulations, and Learning Management Systems (LMS), are increasingly leveraged to foster active learning, engagement, and higher-order thinking (Ertmer & Newby, 2013). Yet, while technology's role in pedagogy is evident, the underlying cognitive mechanisms through which learning occurs remain paramount (Bruner, 1966; Anderson, 1980). Cognitive psychology posits that learning involves

intricate mental processes such as attention, perception, memory, and metacognition, which are distinct from mere information transmission.

Meaningful learning, as Ausubel (1968) argued, relies on learners' ability to integrate new information with existing knowledge structures. Similarly, Sweller's Cognitive Load Theory (1988) highlights the critical role of working memory management in effective problem-solving and schema formation. These cognitive insights are particularly salient in ICT-rich learning environments, where digital tools can serve as powerful scaffolds to visualize abstract concepts, manage cognitive load, and facilitate deeper knowledge construction (Mayer, 2001; Fiorella & Mayer, 2015). Consequently, ICT should not be viewed as a mere delivery mechanism but as a strategic enabler of cognitive processes (Mooij, 2008).

In specialized fields like ICT education, learners frequently encounter abstract and layered concepts such as algorithms, network protocols (e.g., subnetting), or database normalization, which can present significant cognitive demands. Therefore, aligning digital instructional design with established cognitive principles is not just beneficial but crucial for effective learning outcomes (Paas, 2020; de Jong, 2010). This alignment ensures that technology use is theoretically grounded, optimizing mental processing rather than merely digitizing existing practices. Several constructs remain highly relevant in contemporary ICT pedagogy. Sweller's (1988) Cognitive Load Theory stresses that instructional design must reduce extraneous load and optimize germane processing for effective schema construction. For instance, in an ICT context, breaking down complex coding problems into smaller, manageable modules in an IDE (Integrated Development Environment) reduces extraneous cognitive load. Mayer's (2001) Cognitive Theory of Multimedia Learning further demonstrated that dual-channel processing, involving both visual and verbal modes, strengthens comprehension and retention (Fiorella & Mayer, 2018; Mayer, 2021). An example from ICT education would be using animated network diagrams with synchronized audio explanations to teach network topologies, rather than static text descriptions. Equally significant, Flavell's (1979) work on metacognition highlighted the learner's ability to monitor and regulate strategies, while Zimmerman (2002) extended this understanding by linking self-regulated learning with long-term achievement. In an ICT classroom, this could involve students using debugging tools to identify errors in their code, then reflecting on the process to improve their problem-solving strategy.

Cognitivism as a theoretical paradigm emerged in the mid-20th century as a response to the limitations of behaviorism, emphasizing the internal mental processes that shape learning. Learners are conceptualized not as passive recipients of information but as active processors who organize new knowledge into schemas and integrate it into existing cognitive structures (Anderson, 1980; Bruner, 1966). Several constructs remain highly relevant in contemporary ICT pedagogy. Sweller's (1988) Cognitive Load Theory stresses that instructional design must reduce extraneous load and optimize germane processing for effective schema construction. Mayer's (2001). Cognitive Theory of Multimedia Learning further demonstrated that dual-channel processing, involving both visual and verbal modes, strengthens comprehension and retention (Fiorella & Mayer, 2018; Mayer, 2021). Equally significant, Flavell's (1979) work on metacognition highlighted the learner's ability to monitor and regulate strategies, while Zimmerman (2002) extended this understanding by linking self-regulated learning with long-term achievement. More recent studies confirm that these cognitive processes remain central in digital environments. Liaw and Huang (2013) found that interactive ICT platforms enhanced learner motivation, metacognitive awareness, and knowledge retention, while Chiu and Churchill (2022) demonstrated that embedding metacognitive prompts in online courses significantly strengthened reflective learning. Adaptive systems, drawing directly on cognitive load principles, personalize complexity to learners' cognitive capacities and reduce overload (Kang & Kim, 2022; El-Sabagh, 2021).

Empirical studies increasingly affirm that ICT can function as a cognitive scaffold. Liaw and Huang (2013) reported that ICT-enhanced environments improved learner self-regulation and satisfaction. Mooij (2008) found that ICT-based environments, when designed for self-regulated learning, fostered learner autonomy and strategic thinking. Zheng et al. (2023) demonstrated that cognitive–motivational engagement mediates the relationship between ICT and achievement, highlighting how technology supports both affective and cognitive domains. Specific ICT applications align directly with cognitivist principles. Multimedia and visualization tools aid schema construction by externalizing abstract processes (Lindner, Schult, & Mayer, 2022). Simulations and animations reduce extraneous cognitive load by illustrating abstract systems step by step, which helps learners focus on essential processes (Fiorella & Mayer, 2020). Gamified learning systems foster persistence and engagement, motivating students to sustain cognitive effort (Huang, Hew, & Lo, 2022; Sailer & Homner, 2020). Adaptive platforms allow teachers to differentiate pathways based on learner performance, ensuring that students operate within their Zone of Proximal Development (Holmes, Porayska-Pomsta, & Holstein, 2021; Kang & Kim, 2022). In ICT education specifically, where abstract and layered topics are common, these affordances are particularly valuable. For example, animations of CPU–RAM interaction reduce memory load compared to text-based explanations (Mayer, 2001; Fiorella, 2023). Feedback-rich systems like Moodle quizzes or Google Forms support iterative self-regulation, consistent with Flavell's (1979) concept of metacognition.

Despite these advances, the cognitivist paradigm remains underexplored in ICT pedagogy relative to constructivist and behaviorist approaches (Ertmer & Newby, 2013; Zheng et al., 2023). Studies on digital pedagogy often foreground collaboration, discovery learning, or reinforcement, but fewer explicitly investigate cognitive mechanisms such as schema activation, cognitive load management, or metacognitive monitoring. This imbalance is particularly problematic in ICT education, where the content is abstract and cognitively demanding. Furthermore, much of the empirical evidence originates in developed contexts such as Europe, North America, and East Asia, leaving a notable absence of research in developing countries. In Nepal, for instance, ICT integration is expanding across heigher education, but teachers often adopt digital tools without explicit alignment to cognitive learning theory. This lack of theoretical grounding risks limiting the pedagogical effectiveness of ICT integration (Sangrà & González-Sanmamed, 2010; Mooij, 2008). There is therefore a pressing need for empirical research that investigates how cognitivist principles can be embedded into ICT education in the Nepalese context, where diverse learner backgrounds, infrastructural challenges, and limited teacher preparation create unique constraints.

The present study seeks to address these gaps by examining how Cognitivist Learning Theory can be applied in ICT education through digital tools. It pursues four main objectives. First, it investigates how ICT tools support cognitive processes such as attention, memory, schema activation, and metacognitive regulation. Second, it identifies strategies that teachers employ to align ICT use with cognitive principles, including advance organizers, multimedia scaffolds, feedback mechanisms, and adaptive personalization. Third, it explores the risks and challenges of ICT integration, particularly the problem of cognitive fatigue arising from excessive multimedia use. Finally, it proposes a practical implementation framework that translates cognitivist principles into actionable strategies for teachers, institutions, and policymakers.

This study makes several contributions to theory, practice, and policy, directly addressing its core objectives. Theoretically, it advances the underexplored relationship between Cognitivism and ICT pedagogy (objective 1), offering a structured framework for integrating cognitive principles into digital instruction. Empirically, it contributes evidence from Nepalese ICT classrooms, expanding the global conversation with insights from a

developing country context. Practically, it proposes a framework of strategies (objective 2) including advance organizers, multimedia scaffolding, metacognitive prompts, gamification, and adaptive learning that can guide teachers in designing cognitively supportive ICT learning environments. It also sheds light on the risks and challenges of ICT integration, such as cognitive fatigue (objective 3). More broadly, this research emphasizes that ICT should not be seen simply as a technological add-on but as a strategic scaffold for enhancing cognitive processes. By situating ICT within a cognitivist framework, it aims to inform curriculum design, teacher professional development, and education policy, ensuring that technology integration fosters not only engagement but also deeper, transferable, and sustainable learning outcomes, culminating in a practical implementation framework (objective 4).

Theoretical Framework

Cognitivist learning theory emphasizes the crucial role of internal mental processes such as attention, memory, schema activation, and metacognition in knowledge acquisition. Unlike behaviorism, which views learning as a response to external stimuli, cognitivism, championed by figures like Jean Piaget and Jerome Bruner, posits that learners are active processors of information. As Bruner (1966) noted, "to instruct someone in these disciplines is not a matter of getting him to learn facts and techniques... rather, it is a matter of leading him to think," emphasizing the construction of internal representations. David Ausubel (1968) further elaborated on meaningful learning, asserting that "The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly," highlighting the importance of connecting new material to existing cognitive structures or schemas (Anderson, 1980).

Classic models profoundly influence contemporary instructional design. John Sweller's Cognitive Load Theory (1988) stresses the importance of minimizing extraneous load and optimizing germane load for effective schema development, stating that "Instructional procedures should avoid imposing extraneous cognitive load on working memory." Similarly, Richard Mayer's Cognitive Theory of Multimedia Learning (2001) underscores the role of dual-channel processing in enhancing comprehension, summarized by his "multimedia principle" that "students learn better from words and pictures than from words alone." Additionally, Flavell (1979) conceptualized metacognition as "knowledge and cognition about cognitive phenomena," emphasizing the learner's ability to monitor and regulate their own strategies. Barry Zimmerman (2002) further extended this, defining self-regulated learning as "self-generated thoughts, feelings, and actions that are cyclically adapted to the attainment of personal goals," thereby linking metacognitive control with long-term academic achievement."

More recent scholarship has expanded these ideas into digital learning contexts. Zheng et al. (2023) demonstrated that ICT-enhanced environments can regulate cognitive-motivational engagement, improving academic outcomes. Similarly, Chiu and Churchill (2022) found that metacognitive scaffolds embedded within online learning platforms significantly enhanced self-regulated learning. The central implication is that digital tools, when aligned with cognitivist principles, can optimize learners' internal processing, resulting in deeper comprehension and retention.

Methodology

This study adopted a mixed-methods design to explore how ICT tools are implemented within a cognitivist framework in Nepalese higher education. 65 ICT teachers ware selected from colleges and universities participated in surveys and, from them, conduct the interviews with 12 instructors, which examined their use of digital tools to support schema activation, cognitive load management, metacognitive regulation, motivation, and personalization. The survey combined closed and open-ended items, allowing for both quantitative trends and qualitative insights. To gain a deeper understanding of pedagogical reasoning and challenges,

semi-structured interviews were conducted with a subset of teachers, highlighting strategies such as multimedia use for load reduction, feedback for metacognition, and gamification for engagement.

Additionally, ten classroom observations were carried out to document real-time ICT integration, confirming reported practices while also revealing inconsistencies. Data analysis employed descriptive statistics, thematic coding, and triangulation across methods to ensure reliability and contextual grounding. Ethical protocols, including informed consent, confidentiality, and voluntary participation, were strictly followed. Together, these methods provided a well-rounded picture of how ICT teachers in Nepal apply digital tools to enhance cognitive learning processes.

Results and Discussion

This section presents findings organized around core cognitivist principles: schema activation, cognitive load management, metacognition, motivational engagement, and personalization. Data from surveys (n = 65), interviews (n = 12), and classroom observations (n = 10) were triangulated to generate thematic insights.

Schema Activation and Conceptual Organization

Teachers widely used digital whiteboards, mind maps, and visual presentations to link new concepts with prior knowledge. For instance, subnetting lessons often began with IP addressing simulations, enabling learners to activate existing schemas and ease transitions into new topics.

- **Observation Example***: "In an operating systems class, concept-mapping software helped students connect components (kernel, memory management, I/O), supporting schema construction*."

Table 1: ICT Tools for Schema Activation

ICT Tool	Cognitive Function	Example Use in Classrooms	Supporting Literature
Mind-mapping software	Schema activation, recall	Linking OS components	Lai et al., 2022
Simulations (IP tools)	Retrieval, transfer	Subnetting introduction	Ausubel, 1968
Digital whiteboards	Visual schema reinforcement	Revising prior topics	Zheng et al., 2023

These findings align with Ausubel's theory of meaningful learning (1968), emphasising advance organisers for schema activation. International evidence supports this approach: Lai et al. (2022) found that visualization tools in STEM significantly improved conceptual transfer.

Cognitive Load Management via Multimedia Learning

Multimedia tools (short screencasts, simulations, animations) were central in reducing extraneous cognitive load**.** Teachers observed that visual demonstrations of CPU–RAM interaction enhanced learner focus. However, overuse of multimedia led to fatigue, echoing Sweller's cognitive load theory (1988).

- **Teacher Quote:** *"Too many videos back-to-back actually tire them out. I've learned to space them out and include discussions."*

This is consistent with Mayer's multimedia learning principles (2001) and supported by Fiorella & Mayer (2020), who advocate segmenting multimedia content to optimize germane load.

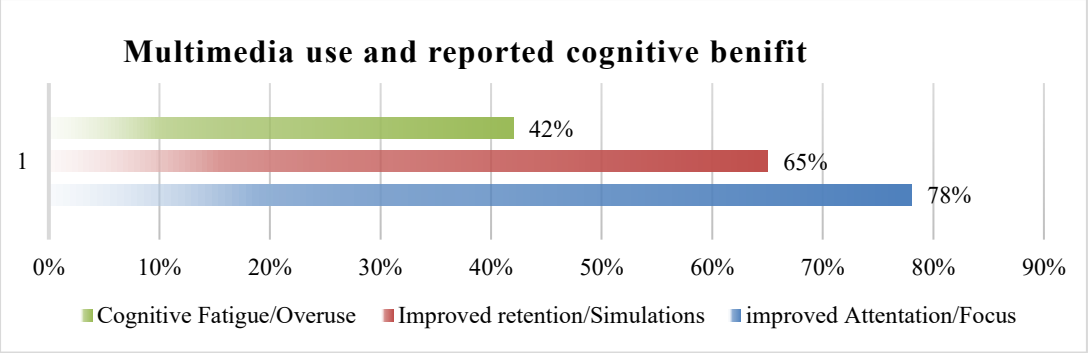

Figure 1: Multimedia Use and Reported Cognitive Benefits

The survey data (n = 65) highlights that multimedia use in ICT education has clear cognitive benefits but also presents challenges. A large majority of teachers (78%) reported that multimedia improved students' attention and focus, indicating its strong potential for managing cognitive engagement. Similarly, 65% of teachers observed that simulations enhanced retention, supporting Mayer's (2001) dual-channel processing principle. However, 42% cautioned that excessive reliance on multimedia led to cognitive fatigue, suggesting the need for careful design and balanced integration. These findings confirm that while multimedia is an effective cognitive scaffold, its impact depends on moderation and instructional alignment with cognitive load principles.

Metacognition Support through Feedback and Reflection

Feedback-driven ICT tools (Google Forms, Moodle quizzes, Quizziz) were widely used to support self-regulated learning. Students benefited from multiple attempts with immediate explanations, fostering metacognitive regulation.

- **Student Reflection:** *"I realized I was confusing IP classes with subnet masks. After two quiz attempts and reviewing explanations, it finally clicked."*

This aligns with Flavell's metacognition model (1979) and Zimmerman's (2002) theory of self-regulated learning. Recent studies confirm similar benefits: Chiu & Churchill (2022) found that metacognitive prompts in LMS platforms improved reflective thinking in higher education.

Cognitive-Motivational Engagement and Academic Outcomes

Gamified ICT elements (badges, leaderboards, dashboards) enhanced student persistence. Observations revealed quiet students excelling in online quizzes, supporting the role of ICT in **reducing participation anxiety**.

- **Teacher Observation:** *"Some students who never spoke in class are now top scorers in online quizzes."*

This demonstrates the synergy of cognitive effort and motivation, echoing Zheng et al. (2023), who showed that ICT fosters achievement via cognitive motivational engagement. International research by Huang et al. (2022) confirms gamification's role in sustaining learner effort.

Personalization and Differentiation through Adaptive Tools

Adaptive ICT tools enabled differentiated instruction. Teachers used LMS conditional release features to redirect weaker students to remedial content while allowing advanced learners to attempt challenges. This personalisation reflects Vygotsky's Zone of Proximal Development (applied within a cognitivist framework). Global evidence supports this: AI-based adaptive learning has been shown to reduce overload and improve mastery (Kang & Kim, 2022; Holmes et al., 2021).

Table 2: ICT-Supported Cognitivist Practices in Nepal vs. Global Findings

Cognitivist Principle	Nepalese Classroom Practice	International Evidence
Schema activation	Mind maps, simulations	Lai et al., 2022
Load management	Short screencasts, animations	Fiorella & Mayer, 2020
Metacognition	Quizzes with multiple attempts, reflections	Chiu & Churchill, 2022
Engagement	Gamified quizzes, dashboards	Huang et al., 2022; Zheng et al., 2023
Personalization	LMS conditional release	Kang & Kim, 2022; Holmes et al., 2021

The table illustrates how Nepalese classroom practices in ICT education align closely with established cognitivist principles and are consistent with international evidence. For schema activation, teachers frequently used mind maps and simulations to connect new concepts with prior knowledge, reflecting findings by Lai et al. (2022) on the effectiveness of visualization tools. In terms of load management, short screencasts and animations were employed to simplify complex topics, which corresponds to Fiorella and Mayer's (2020) recommendations on segmenting multimedia to reduce extraneous cognitive load. Metacognition was supported through multiple quiz attempts and reflection activities, echoing Chiu and Churchill's (2022) evidence that feedback-rich digital environments enhance reflective thinking. Likewise, student engagement was strengthened through gamified quizzes and dashboards, consistent with Huang et al. (2022) and Zheng et al. (2023), who emphasize the motivational role of gamification. Finally, personalization was facilitated through conditional release features in Implementation Framework The study findings suggest that ICT tools, when guided by cognitivist principles, can be deliberately structured to enhance mental processing and long-term learning outcomes. This section synthesizes those findings into a practical implementation framework that connects theory, pedagogy, and technology. learning management systems, aligning with global findings that adaptive systems improve differentiation and learner autonomy (Kang & Kim, 2022; Holmes et al., 2021). Overall, the convergence of Nepalese practices with international evidence suggests that cognitivist principles can be effectively implemented in diverse contexts through ICT.Practical The framework emphasizes strategies for activating prior knowledge, managing cognitive load, fostering metacognition, enhancing motivation and engagement, and personalizing learning pathways. Each strategy is linked with empirical evidence and pedagogical theory, providing both teachers and policymakers with actionable insights.

A fundamental principle of cognitivism is that new knowledge is best understood when linked to existing schemas. Teachers can facilitate this by using digital advance organizers such as concept maps, recap quizzes, and short review videos at the start of lessons. These tools enable learners to recall prior concepts and establish connections with upcoming material, thereby reducing abstraction and promoting meaningful learning. For example, an ICT teacher introducing subnetting may begin with an interactive simulation of IP addressing to reactivate earlier knowledge, which in turn makes the transition to complex topics smoother. Such strategies align with Ausubel's (1968) meaningful learning theory, which emphasizes the importance of anchoring new knowledge in prior cognitive structures.

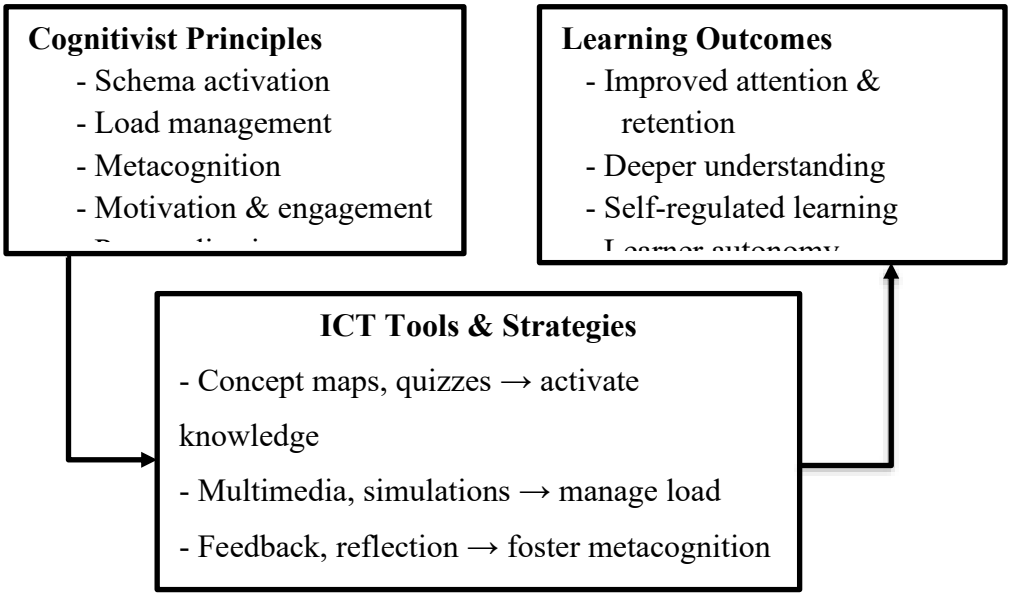

Figure 2: Cognitivist ICT Implementation Framework

Managing Cognitive Load

ICT subjects often involve abstract and technically dense material, making cognitive load management a critical instructional priority. Segmented multimedia resources such as screencasts, flow animations, and simulations can break down complex processes into manageable units. This approach is consistent with Mayer's (2001) dual-channel processing model and Sweller's (1988) cognitive load theory, which argue for the minimization of extraneous information and the optimization of germane processing. For example, presenting an animation of CPU–RAM interaction in short, modular clips allows learners to pause, replay, and focus on essential steps, thereby preventing overload. Teachers in this study observed that multimedia improved comprehension and retention, though some cautioned that excessive use led to fatigue. These insights affirm the importance of balance and instructional pacing in multimedia design.

Fostering Metacognition

Metacognition learners' ability to monitor, evaluate, and regulate their own learning is a central focus of cognitivist pedagogy. ICT tools provide unique opportunities for embedding feedback loops and reflective practices that strengthen metacognitive skills. In this study, platforms such as Google Forms, Moodle, and Quizziz were widely used to provide instant feedback and permit multiple quiz attempts. Students reported improved understanding after reviewing explanations and reflecting on errors, which demonstrates the role of digital feedback in reinforcing learning strategies. Reflection journals, where students summarized their weekly learning and identified areas of confusion, further promoted self-awareness. These findings align with Flavell's (1979) concept of metacognition and Zimmerman's (2002) self-regulated learning theory, underscoring that digital scaffolds can transform learners into active managers of their own cognition.

Enhancing Motivation and Engagement

Learning is not purely cognitive; it is also shaped by motivation and affective engagement. ICT tools that incorporate gamification such as leaderboards, badges, and dashboards can significantly enhance student persistence and willingness to engage with challenging material. Teachers observed that students who rarely participated in face-to-face classrooms became highly active in online quizzes and gamified platforms. This reflects Zheng

et al.'s (2023) findings that cognitive–motivational engagement is a key mediator between ICT use and achievement.

The study also revealed the necessity of balance: gamification must be tied to substantive learning goals rather than superficial competition. When paired with reflection and explanation tasks, gamification ensures that engagement remains cognitively meaningful rather than merely entertaining.

Personalizing Learning Pathways

Learners differ in prior knowledge, pace, and preferred learning strategies, making personalization a critical dimension of ICT pedagogy. Adaptive platforms and LMS features, such as conditional release of content, allow instruction to be differentiated according to learner performance. Teachers reported success in using these systems to direct stronger students toward advanced challenges while offering remedial exercises to those struggling with foundational material.

This aligns with Vygotsky's Zone of Proximal Development and reflects the broader cognitivist concern with ensuring that learners operate within optimal cognitive conditions. International research similarly demonstrates that adaptive learning reduces overload and fosters mastery (Kang & Kim, 2022; Holmes et al., 2021). In the Nepalese context, personalization also addresses equity, ensuring that students from diverse backgrounds can progress at their own pace without being left behind.

Framework Synthesis

The strategies outlined above converge in a unified model presented as the Cognitivist ICT Implementation Framework (Figure 2). The framework begins with the foundational cognitive principles of schema activation, load management, metacognition, motivation, and personalization. These are operationalized through ICT strategies such as advance organizers, multimedia scaffolds, metacognitive prompts, gamified dashboards, and adaptive learning tools. Together, these strategies generate measurable outcomes, including improved attention and retention, deeper conceptual understanding, enhanced self-regulation, greater learner autonomy, and sustainable academic performance.

The framework illustrates that ICT, when integrated with cognitivist learning theory, serves not merely as a delivery mechanism but as a transformative cognitive scaffold. This synthesis provides a roadmap for teachers, instructional designers, and policymakers seeking to align technology with evidence-based cognitive principles.

Conclusion and Recommendation

This study examined how Cognitivist Learning Theory can be applied in ICT education in the context of higher education in Nepal. The survey data, interviews, and classroom observations highlighted that digital tools are most effective when used as cognitive scaffolds rather than simple delivery mechanisms. Teachers frequently employed strategies such as concept maps, recap quizzes, and simulations to activate prior knowledge, while multimedia and animations helped reduce extraneous cognitive load. Feedback-rich platforms like Moodle and Google Forms supported metacognitive regulation, allowing students to reflect on their progress and adjust learning strategies. Similarly, gamification enhanced motivation, particularly for students who were less engaged in traditional classroom settings, and adaptive learning systems enabled personalized pathways, ensuring that learners remained within their optimal cognitive zones. At the same time, the study also uncovered limitations, including cognitive fatigue from overuse of multimedia and inadequate teacher training in cognitive instructional design, both of which hinder the full realization of ICT's potential.

Institutions need to provide more professional development opportunities focused on techno-pedagogical Cognitivism, while also investing in adaptive platforms and reliable infrastructure. Curriculum developers need to more focus in integrating cognitive principles into ICT education, and teacher training programs. By aligning theory with practice, ICT can

be repositioned as a strategic medium for developing deeper understanding, stronger metacognitive skills, and greater learner autonomy, thereby preparing students for success in increasingly knowledge-driven societies.

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Innovative Pedagogies in Realistic Mathematics Education: What, Why and How of Design-Based Classroom Research

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Abstract

Developing a mathematical mindset involves understanding the underlying cognitive processes. Mathematization, a key in realistic mathematics education (RME), is an activity of organizing a subject from reality or a mathematical subject. This literature-based paper intends to provide guiding principles for conducting design research in mathematics classrooms as guided by RME. Guided re-invention of mathematics and didactical phenomenology are two key philosophical underpinnings of RME. The activity, reality, level, intertwinement, interactivity, and guidance principles are central to how RME fosters mathematical understanding and problem-solving skills. The innovative plans in design-based research are developed by using design heuristics that follow the framework of the theory of realistic mathematics education. The main methodological intention of design-based research (DBR) is to actively influence and improve educational situations through designed interventions. Interventionist, theory-generative, prospective, and reflective analysis, iterative, and ecologically valid and practice-oriented are the key five characteristics of DBR. DBR is a process-oriented investigation focusing on how learning occurs, consisting of three successive, flexible, and iterative phases: Preliminary design, the teaching experiment, and retrospective analysis. Designing an innovation in mathematics education and finalizing for better learning can follow the sequence of RME principles to DBR phases.

Keywords*:Argumentative grammar, design-based research, mathematization, preliminary design Realistic mathematics education*

Background

It can be argued that the creation of mathematics would stem from counting. Counting by correspondence of sheep and pebbles can be considered as human-created mathematics. Since mathematics is essentially a human creation (Boaler, 2022), it is inherently tentative, transient, and always open to additional development (Tasić, 2001). The development of mathematics can be linked with the development trends of the world. This can be linked with the development of the application area of mathematics. Mathematics can be considered as an economic, social, and political entity. There are many different mathematical applications that are interwoven with different socioeconomic frameworks (Chen et al., 2025). Mathematical thoughts and applications are shaped by sociopolitical dimensions and historical contexts (Valero, 2004). Mathematics is

viewed as a dynamic human endeavor. It is intricately entwined with historical developments and societal structures, necessitating ongoing reevaluation and ethical consideration (Chen et al., 2025). Thus, it can rather be considered as a purely objective or absolute field. The nature of mathematics is linked with mathematics learning and applying it in different fields.

The field of mathematics education is dynamic and always changing to meet people's professional, social, and cognitive needs in a world that is changing quickly (Kaviya & Suryadharani, 2025). Determining what type of mathematics is to be taught and developing successful teaching strategies requires an understanding of the philosophical foundations of mathematics education (Ernest, 2012). Instead of concentrating only on performance, the cognitive science of mathematics examines how mathematical concepts are inferentially organized. The development of a mathematical mindset is necessary for learning mathematics (Boaler, 2019). Changing from a passive, memorization-focused approach to an active, inquiry-driven approach to mathematics, accepting mistakes, appreciating creativity, and using computational thinking abilities (Megawanti et al., 2024).

Developing a mathematical mindset involves understanding the underlying cognitive processes. Three components of mathematics education theory propose situational mathematics, verbalized mathematics, and symbolic mathematics as three parallel and independent components (Megawanti et al., 2024). Situational mathematics focuses on real-life problems and scenarios, making mathematics relatable (Kaviya & Suryadharani, 2025). Mathematical knowledge expressed in natural language fosters semantic understanding (Lange, 2013). Symbolic mathematics consists of traditional abstract symbols, formulas, computational procedures, etc. All three components of mathematics should be core learning objectives and mutually transformative and interrelated. The realistic approach of mathematics education brings mathematics and real-life situations together to facilitate better learning of mathematics.

Designs are used in different research, such as action research, experimental research, and classroom research. How to conduct design-based classroom research following the philosophical guidelines of realistic mathematics education is the main issue that is dealt with in the paper. So, this paper will deal with what, how, and why to use DBR in Mathematics Education.

Realistic Mathematics Education

Realistic mathematics education (RME) is rooted in the philosophical idea of Hans Freudenthal (1905-1990) that mathematics should be viewed as a human activity (Gravemeijer & Terwel, 2000). This perspective sees that mathematics is dynamic rather than static and an active process of mathematizing reality rather than passively receiving a closed system of rules and definitions. Mathematization is an activity of organizing a subject from reality or a mathematical subject (Jupri et al., 2021). Horizontal mathematization is the process of transforming real-life problems into mathematical problems. Students use different mathematical tools to understand and solve the problems situated in real-life scenarios (Acharya et al., 2025). The term ‘realistic’ in RME is extended beyond real-world situations in which students can imagine or realize the situation in their minds. This can be explained by the term ‘experientially real’(Van den Heuvel-Panhuizen & Drijvers, 2020), which is the lived or felt reality. Students express and define mathematics within a context. Then they visualize and formalize problems in different ways and establish relationships within real-life problems. Finally, students transform them into mathematical forms. Vertical mathematization is the process of reorganizing within the mathematical system itself by using connections between concepts and strategies. Students move

into the abstract world of symbols. Students relate and organize their findings during horizontal mathematization. Students express relationships in formulae, internalize and adapt examples, combine examples, and generalize from the examples, which leads to digging deeper into the mathematical understanding (Laurens et al., 2017). Thus, in general, horizontal mathematization precedes vertical one.

Guided re-invention of mathematics and didactical phenomenology are two key philosophical underpinnings of RME (Gravemeijer, 2008). Guided re-invention is to empower students to rediscover mathematical concepts, tools, and insights by themselves. The guided re-invention process suggests the proactive role of teachers and a carefully designed educational program to facilitate a shift in students' understanding. The goal of learning is not just for the concept to be discovered, but for the discovery to serve as a tool to bridge informal knowledge with formal knowledge (Inci et al., 2023). The didactical phenomenology refers to the method of describing mathematical concepts, structures, and ideas in relation to real-world phenomena. This tries to find real-life situations so that it helps in the generalization of the mathematical concepts and processes.

Problems and Objectives

RME provides philosophical guidelines for learning mathematics. Designing lessons and innovations for better learning is the main purpose of RME. How the core of design principles and guidelines is used in design-based research is the main concern in classroom research of mathematics education. The concerns regarding the design of lessons and/or innovations and the implementation of these ideas are guided by the core principles. There is literature separately discussed for RME and Design-based research, but there is limited research to bring these ideas together. The objective of the paper is to discuss the what, how, and why of DBR in mathematics education as guided by the core principles and guidelines of RME.

Method and Procedure

The literature-based research methodology was used in the analysis and generation of this paper. The researcher used Google Scholar for searching the literature. First, the researcher used the keywords: realistic mathematics education, Design-based research in mathematics, were used. The review article from 2015- 2025 was used in searching for realistic mathematics education. There were 17,900 resources found. Then the researcher used realistic mathematics education with mathematization and found 155 resources. The researcher selected 20 articles and book chapters based on the abstracts of these resources. Similarly, the researcher used design-based research in mathematics education and found that there were 8400 resources available. The researcher found 55 resources when the keywords design-based research in mathematics education with mathematization were used. The researcher selected 18 of these articles and book chapters to review. The paper, developed by reviewing 38 literature, presents core guiding principles of RME and then what, how, and why of DBR in developing and finalizing innovations in mathematics education.

Results and Analysis

Core Principles and Design Guidelines

How to design a lesson and facilitate learning mathematics as guided by RME is shaded by its core principles and design guidelines (Van den Heuvel-Panhuizen & Drijvers, 2020). These principles are central to how RME fosters mathematical understanding and problem-solving skills.

First, the activity principle posits that students are active participants in their learning. Learning by doing is best for learning mathematics. When students are actively participating in the learning process, they construct mathematical concepts themselves. Second, the reality principle emphasizes that mathematics learning should start from the problem situations that are meaningful and experientially real to students (Laurens et al., 2017). It is believed that rich contexts enable students to attach meaning to the mathematical concepts that they develop during the learning process. Third, the level principle acknowledges that the student's progression in learning mathematics involves various levels of understanding. The typical progress can be described from informal, context-related solutions, through creating shortcuts, and finally moves to schematizations. The schematization can also be an insight into models of how concepts and strategies are related. Thus, progressive schematization fosters a deeper understanding of concepts, algorithms, and strategies. Fourth, the intertwinement principle suggests that different mathematical contents, such as numbers, geometry, measurement, and data handling, are to be integrated so that this is helpful in a holistic understanding of mathematics. This will show how different concepts and strategies are connected across and within the domains. This intertwinement is necessary for addressing the challenge of isolated learning and fast forgetting, as suggested by Freudenthal. Fifth, the interactivity principle views mathematics learning as both an individual and a social activity. Thus, it is advisable to organize whole-class discussions, group work, etc., along with individual work. The interactions should allow students to gain ideas for improving their strategies, inventions with peers, and resolutions of misconceptions. Sixth, the guidance principle is linked with the guided re-invention. The teacher's proactive role should encourage students to rediscover concepts themselves. This will shift in thinking mathematically in students so that they can work as mathematicians.

RME emphasizes developing computational skills along with the 21st-century skills such as creative thinking, reasoning skills, problem-solving abilities, and adaptability (Vaezi et al., 2019; Van den Heuvel-Panhuizen & Drijvers, 2020). By the use of the activity and reality principle, RME leads to a more in-depth understanding rather than rote memorization. The use of level principles facilitates a gradual and profound grasp of mathematical concepts, algorithms, and strategies. Guidance principle encourages students to rediscover mathematical concepts themselves, which leads students to a deeper understanding of mathematics as well as working as mathematicians. By the use of the interactivity principle, it can be said that students learn from peers and reflect on their mathematics learning. As mathematization is a key process, it helps to empower students' learning from real-life scenarios. Finally, as RME is known to "increase students' logical, critical, and creative thinking abilities (Kusmaryono & Maharani, 2021), it helps to develop higher-order thinking skills. RME is considered a long-term and ongoing process of development (Inci et al., 2023) rather than a fixed and finished theory of learning. Flexibility is an important feature; RME allows researchers and developers to have different emphasis and accents. The adaptability feature enables RME to continuously evolve and address contemporary educational needs.

Design thinking in Mathematics is viewed as one of the approaches of RME. Though Design is primarily related to the engineering field, it can also be used in education. Design is more appropriate when we test innovative pedagogies in real-time situations and refine them for further applications. An innovative plan in design-based research is developed by using design heuristics that follow the framework of the theory of realistic mathematics education (Doorman et al., 2013).

Design-Based Research

The goals of innovations in mathematics education are to address inequality, enhance learning outcomes, and get students ready for the sophisticated world (Agbata et al., 2024). Together, these developments seek to change mathematics education from a specialized, methodical field that filters students to one that is open, innovative, and available to all students. A method and strategy for innovation aimed at gaining a competitive edge is design thinking (Martin, 2009). The iterative nature of strategy design and implementation is highlighted by design thinking (Beckman & Barry, 2007). Thus, observing, learning, designing, and validating are the four essential design thinking steps that are also incorporated into the strategy design process.

In recent years, design has become a popular approach for conceiving and creating educational innovations and technologies (Hall, 2020). Design-based research (DBR) is considered a prominent research methodology in education, especially in mathematics education (Hall, 2020; Prediger et al., 2015). The rise of DBR is the result of the gap between the theoretical research and its implications in the practices of mathematics education (Getenet, 2019). The relationship among educational research, policies, and practices has been considered as a complex and often characterized by a significant divide (Puntambekar, 2018). In other words, there is a divide between basic research and applied research. This divide is particularly evident in mathematics education. For example, research is about the curriculum development in an ideal setting, which is disseminated without being effectively implemented in school settings. Educational scholars crafted new theories and methodologies to bridge the gap between the researchers and practitioners. DBR has emerged as a research methodology to address the divide between theory and practice in education (Hall, 2020). Design thinking approaches such as design-research, design-experiment, and developmental research carry a similar notion to DBR, though each of them has a different foci (Vaezi et al., 2019).

DBR focusing on the learning process is informed by constructivist learning theories such as Piaget, Vygotsky, and Dewey (Pardjono, 2016). Students are considered as epistemic agents, a longitudinal study of change, and interconnected thought and action are three broad assumptions about learning. Accordingly, Students are active constructors of knowledge by utilizing their unique experiences and resources (Schuh, 2003). DBR is typically conducted over extended periods to examine gradual or dramatic changes as students learn substantial ideas, often focusing on conceptual learning (Doorman, 2019). Thought and action are intricately linked and influence each other. The main focus of design is usually to address two interconnected questions (Hall, 2020): is it possible to improve education, and if so, how?

The main methodological intention of DBR is to actively influence and improve educational situations through designed interventions. Thus, DBR is inherently interventionist (Alias, 2025; Mygdanis, 2025). To intervene in the educational situation, innovative interventions are created, investigated, and redesigned through successive iterations (McKenney & Reeves, 2013). DBR requires a cyclic process of design and research of innovative situations. This DBR has pragmatics as well as theoretical goals. Pragmatically, DBR involves investigating and improving an innovation for supportive learning. Theoretically, DBR involves developing, testing, and revisiting conjectures about the learning process as well as means of supporting that learning process (Doorman, 2019). DBR is regarded as a research methodology that is both principled and participatory. Educational designers, innovators, policymakers, and technologists get potential support to bridge practice and theory (Hall, 2020).

Key Characteristics of DBR

The characteristics of DBR can be explored by the three Is: interventional, innovative, and iterative (Hall, 2020). DBR must inevitably entail taking action to improve and modify a learning environment or experience. Usually, it entails doing something new or innovative. Something at the cutting edge of electronic education or learning and teaching. DBR must be iterative. Typically, there are a number of interconnected cycles that each include the internal processes of conception, design, implementation, and evaluation. Since each cycle of DBR seeks to build upon, enhance, and expand the preceding cycle or cycles, it is accretive. Polit studies can be the first of at least three consecutive design meso-cycles, followed by a second cycle, which could involve mainstreaming or scaling up the design, and a final, capstone iteration that should serve to confirm the improvements made to the design process overall as well as identify areas for additional research and development (Hall, 2020).

Interventionist, theory-generative, prospective, and reflective analysis, iterative, and ecologically valid and practice-oriented (Collective, 2003; Haagen-Schützenhöfer & Hopf, 2020; Prediger et al., 2015; Vaezi et al., 2019) are the key five characteristics among different characteristics of DBR. Design-based research is highly interventionist in nature (Design Based Research (Design-Based Research Collective, 2003). The core intent is to investigate possibilities for improvement in education by considering innovation as the solution. For example, the goal is to create and study a new form of instruction rather than simply observing classroom instructional practices. DBR aims to develop a theory that comprises substantiated conjectures about both processes of learning and the meaning of supporting that learning (Hall, 2020). The goal of interventions in DBR is to develop and refine theories, not just to test them in a narrow sense and produce theories that effectively inform the prospective design. The design of innovation is informed by theory prospectively and is further developed through retrospective reflection on any deviation between expected and observed teaching-learning process (Haagen-Schützenhöfer & Hopf, 2020). DBR involves iterative cycles of design and analysis (Cobb et al., 2015). There are micro and macro design cycles. When researchers adapt instructional activities and underlying theory based on ongoing analysis within a design experiment, it follows the micro-design cycles. When design experiments are repeated, the researchers build instructional activities upon one or more preceding studies; macro-design iterations help gain knowledge. The DBR are of pragmatic roots as the emphasis on ecological validity and practical orientation(Doorman, 2019). The research done in real classroom setting so that the research represents the complexity of actual practice. The theories generated are closely tied with the activities of teachers and students, tested locally, and repeatedly revised.

Phases in DBR

Design approaches typically make two contributions to education: proximal and distal to the integrative model of educational design research (Hall, 2020). In the proximal contribution, DBR focuses on making real-world improvements in the naturalistic learning environment, such as in a classroom. In the distal contribution, design-based approaches also focus on developing new conceptualizations of learning that other educators, educational designers, and technologists can use in their own unique educational contexts, depending on local demands, limitations, and specifications. DBR is a process-oriented investigation focusing on how learning occurs, consisting of three successive, flexible, and iterative phases: Preliminary design, the teaching experiment, and retrospective analysis (Cobb et al., 2015; Doorman, 2019).

Preliminary Design

This phase is the preparation of the design process, explicit choices, and expectations from the intervention for the students' learning, as well as teachers' learning. Design research typically aims to investigate students' learning by specifying carefully those mathematical reasoning that constitute the learning goals. It is expected to have evidence for instructional starting points. This can be done by identifying aspects of students' current reasoning or teachers' current practices upon which instruction can be built. The instructional starting point can be determined by creating and administering assessments such as one-on-one interviews, written assessments, class quizzes, and classroom observations. Next, the task is to delineate a hypothetical learning trajectory (HTL), which comprises testable conjectures on developing students' reasoning and mathematical learning. It is the conjectured learning route to be tested and revised during the study.

The design of instructional activities is often guided by specific principles: Guided reinvention, didactical phenomenology, and emergent models (Cobb et al., 2009). The reconstruction of a way of developing a mathematical concept from a problem situation is guided by reinvention. This is often linked with students' reasoning in a meaningful context. Didactical phenomenology is a theoretical as well as methodological approach to identify and analyse how students might experience and build certain mathematical concepts. Thus, didactical phenomenology guides in designing tasks that are grounded in students' experience and way of thinking. The emergent models are those models developed through students' learning activities and thinking, starting from a familiar context, and gradually evolving into more formal mathematical concepts. The innovative plan in design-based research is developed by using design heuristics that follow the framework of the theory of realistic mathematics education (Doorman et al., 2013). Accordingly, the emergent modelling is the design heuristic of design-based research in mathematics education. In learning mathematics, students are supported in recreating or reinventing mathematics. The emergent modelling design heuristic is meant to provide such a reinvention process so that students can think and work as mathematicians.

The Teaching Experiment

This phase is the experimentation to support learning and test the innovative plan developed in the preliminary design phase. The activities and expectations embedded in the hypothetical learning trajectory are confirmed with classroom reality. The main aim is to improve the envisioned trajectory by testing and revising conjectures about the learning process and supports (Doorman et al., 2013). Both the evidence of students' learning and evolving learning environment are collected by using pre-and post-interviews, written assessments, video recordings of the classroom sessions, copies of students' written work, and field notes of the researcher.

Retrospective Analysis

The systematic and reflective process of examining the dataset, generated during the teaching experiment phase, to decide how and why learning occurred or didn't occur. The retrospective analysis, the post-hoc analysis after the teaching experiment and learning processes, aims at identifying patterns, testing theoretical assumptions, and refining the intervention or instructional design and theory (Cobb et al., 2009). Throughout the implementation process, continuous analysis is typically conducted with a direct link to the immediate practical goal of supporting students' learning. The retrospective analysis further seeks to place this learning and the means of learning in a broader theoretical context (Cobb et al., 2015).

The argumentative grammar (Kelly, 2016) is the underpinned methodology that links research questions to data, data to analysis, and analysis to the final claims and assertions. The techniques of argumentative grammar, which lead the concerns about the warrant for claims (Cobb et al., 2015), can be used in retrospective analysis. The argumentative grammar mainly tries to confirm 'demonstrating impact and generalizability'(Barab & Squire, 2016). The demonstrating impact analyses the learning gains and conceptual change, whereas demonstrating generalizability refers to the transferable principles. Typically, argumentative grammar is a structured language and logic to make claims, provide evidence, offer warrants, acknowledge counterevidence, and draw a conclusion (Bakker, 2018). Thus, the first goal of argumentative grammar is to demonstrate that the students have developed the documented forms of mathematical reasoning in participating in the design study. The second is to demonstrate that the findings are potentially generalizable for the further references. Finally, documenting how each subsequent form of reasoning developed as a reorganization of earlier forms of reasoning and identifying the elements of the classroom learning environment that facilitated the students' development of these successive forms of reasoning are two of the main concerns when performing a retrospective analysis of the entire data corpus (Cobb et al., 2015).

Discussion and Conclusion

Designing mathematics lessons as guided by the RME principles of horizontal and vertical mathematizations. While designing innovations, there are certain guiding principles to check and confirm. We can prepare a checklist as given in Table 1 and check whether these are addressed or not.

Activity, reality, levels, intertwinement, interactivity, and guidance are the core principles of RME. These principles collectively foster mathematical understanding and problem-solving skills. As RME promotes an active, contextual, and interactive learning environment, it helps students in the mathematization process. When real-world problems are turned into mathematical ones, it is the horizontal mathematization, and when students recognize the problem within the mathematical system to find the solution, then it is vertical mathematization. Mathematization helps to develop students' logical, critical, and creative thinking. Teachers act as creative and innovative guides. RME environment motivates learning mathematics as well as helps to develop self-confidence. The emergent modelling is the design heuristic of design-based research in mathematics education. In learning mathematics, students are supported in recreating or reinventing mathematics. The emergent modelling design heuristic is meant to provide such a reinvention process so that students can think and work as mathematicians.

Table 1

Checklist of Design Principles of RME

Core Principle	Fully addressed	Partially addressed	Not addressed	Remarks
1) Innovation is helpful for active learning				

2) It is with problem-situation and addresses experientially real				
3) It has various levels of learning				
4) It is built based on the intertwinement principle.				
5) It has individual and group activities and interactivity.				
6) It is guided by the re-invention principle so that students can learn as mathematicians do.				

Once innovation is ready for testing, it is finalized by using the key stages of DBR. When we are interested in ways to change or innovate an educational situation for which no solution is at hand yet, something needs to be designed, and the process of teaching and learning that is triggered by this design needs to be investigated, and, in most cases, redesigned. Such a cyclic process of design and research is referred to as design-based research. In design-based research, theory development happens in interaction with experiments, experiments to understand and improve classroom situations (Bakker, Doorman & Drijvers, 2003). Design-based research is highly interventionist in nature. The core intent is to investigate possibilities for improvement in education by considering innovation as the solution. The design of innovation is informed by theory prospectively and is further developed through retrospective reflection on any deviation between expected and observed teaching-learning process (Haagen-Schützenhöfer & Hopf, 2020). DBR involves iterative cycles of design and analysis (Cobb et al., 2015). The pragmatics roots of DBR emphasize ecological validity and practical orientation(Doorman, 2019). The theories generated are closely tied to the activities of teachers and students, tested locally, and repeatedly revised.

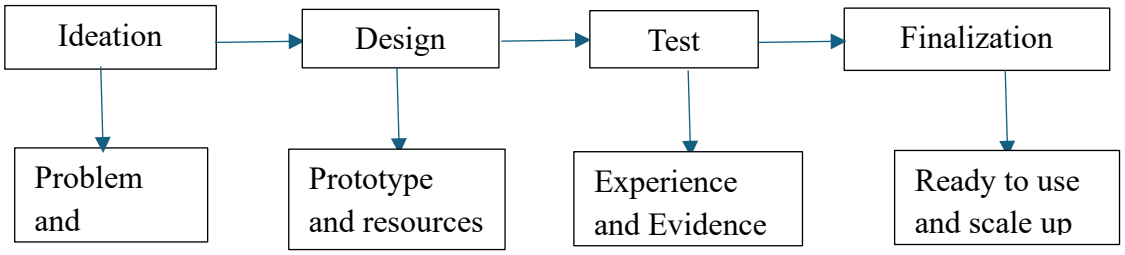
DBR is a process-oriented investigation focusing on how learning occurs, consisting of three successive, flexible, and iterative phases: Preliminary design, the teaching experiment, and retrospective analysis (Cobb et al., 2015; Doorman, 2019). These phases can be broken down into four phases: Ideation phase, design phase, test phase, and finalization phase, as shown in Figure 1.

The ideation phase is the phase of generating an innovative solution for a selected problem. The design phase is related to designing a prototype of the proposed solution. The preliminary design is the preparation of the design process, explicit choices, and expectations from the intervention for the students' learning, as well as teachers' learning. To delineate a hypothetical learning trajectory (HTL) is the next task in the preliminary design phase. The test phase is the teaching experiment phase and is the experimentation to support learning and test the innovative plan developed in the preliminary design phase. Different tools are used to collect data and evidence for analysis in the next phase. The main aim of the finalization phase is to improve the envisioned trajectory by testing and revising conjectures about the learning process and supports (Doorman et al., 2013). The retrospective analysis is the final phase and is the systematic and reflective process of examining the dataset generated during the teaching experiment phase to decide how and why learning occurred or didn't occur. The techniques of argumentative grammar,

which lead the concerns about the warrant for claims (Cobb et al., 2015), can be used in retrospective analysis. Documenting how each subsequent form of reasoning developed as a reorganization of earlier forms of reasoning and identifying the elements of the classroom learning environment that facilitated the students' development of these successive forms of reasoning are two of the main concerns when performing a retrospective analysis of the entire data corpus.

Figure 1

Phases and Product of Design-Research



In conclusion, designing an innovation in mathematics education and finalizing for better learning can follow the sequence of RME principles to DBR phases.

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Policy Analysis of Teacher Professional Development in Community Schools in Nepal

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Abstract

This study intends to analyze the Teacher Professional Development (TPD) policy provision for community schools' teachers in Nepal. Specifically, this paper examines the policy text, teachers' understanding, local practices, and how policies affect their professional lives. I adopted the qualitative research design to explore the subjective experiences of teachers. The unstructured interview was administered with three community school teachers. Along with the TPD policy document was analyzed to explore the policy provision on teacher training was analyzed. This study indicates that the teacher professional development framework emphasizes giving the competency-based training package in two phases for teachers. Teachers are perceiving positively to this training program, positively in the development of professional skills, viz., lesson plan preparation, teaching materials construction, and action research preparation. Though it was found that teachers are taking this training program only for their promotion purposes rather than improving the teaching and learning activities in the classroom. This study claims that the TPD policy is conceptually sound, but due to poor implementation, the policy does not seem to have achieved the expected results. However, it seems to have contributed to the professional knowledge, skills development and promotion of teachers in their professional lives.

Keywords*: teacher professional development, anthropology of policy, professional skills, promotion, modular training*

Introduction

Teacher professional development (TPD) refers to a teacher's professional growth, which helps to systematically increase professional knowledge, skills, and experience in the field of teaching (Villegas-Reimers, 2003). Professional development can be achieved through formal experiences, such as attending various workshops, professional meetings, and mentoring. On the other hand, the informal process also contributes to the growth of professional knowledge and skills, such as reading professional publications and watching professional development-related television documentaries (Villegas-Reimers, 2003). Teacher professional development (TPD) is necessary for quality education, and it makes the teachers' professional (Poudel, 2022).

Teacher professional development is concerned with the teachers' knowledge, skills, and expertise in his/her subject and profession. It is the essential aspect of quality education that helps to reform the traditional instructional practices and emphasizes adapting modern technological instructional tools into the teaching and learning process. Teacher professional development (TPD) plays an important role in the field of quality education. It emphasizes improving the knowledge, skills, and instructional techniques for teaching learning

activities. Teacher professional development helps to address the issues of teacher quality development and quality education. TPD is a key element of teacher quality development and quality education. Therefore, teacher professional development (TPD) is necessary for improving the quality of community school education in Nepal.

As a major component of TPD, the teacher training program began formally in Nepal after the establishment of the Basic Teaching Center in 2004 B.S. (Sharma, 2060, p.105). When the National Teaching Center was established in 2011 B.S., this center marked the beginning of teacher training in Nepal. At that time, among the trained teachers in the country, only one held an M.Ed., six had a B.A. or B.Ed., and twelve had received basic teacher training (Sharma, 2060, p. 105). At that time, the demand for trained primary teachers was increasing day by day. To fulfilment of these teachers' demands, a mobile teacher training center was established outside the valley in 2013 B.S. (Sharma, 2060, p.106). The SSRP 2009-2015 has prioritized teacher preparation and development. Similarly, this report proposes the minimum qualifications for teachers. In this context, this paper analyzes the policy provisions, understanding, and interpretation of TPD policies from the teachers' perspectives who have already taken TPD training.

Statement of the Problem

Regarding the professional development of teachers, the education policies developed and issued at various times addressed the teacher professional development issues. But the teacher professional development policies could not address the issues of teachers' profession and quality education. There is a lack of effective implementation and monitoring of the TPD policies. The TPD policies could not modify the teachers' instructional activities in the classroom and could not improve the quality of education; policies seem only for formality. It shows that the TPD policies could not address the teacher professional issues and the improvement of the quality of education. Many studies have been conducted in the field of teacher professional development, but there is a lack of research analyzing TPD policies from the teachers' perspectives and understanding. In the current situation, the government of Nepal issued the TPD framework 2072, but there is a lack of study about how teachers understand and interpret the TPD policies. How do the TPD policies work in their professional lives? So, this study will aim to fulfill this gap in policy studies.

Several numbers of studies have been done in the field of teacher professional development, but those studies explored the problems, challenges, and affecting factors in the field of TPD. For example, Bhujel (2020) found that there are many challenges to developing the quality teacher and quality education. Those challenges are a lack of relevant instructional skills, teachers' attitudes, and the unavailability of appropriate instructional materials. Moreover, other scholars, Khanal & Phyak (2021) found the affecting factors in teacher motivation towards the teaching profession. They claimed that many factors affect in teaching profession. Among them policy policy-related factors also affect the teaching profession, like compensation and benefits, leave facility, upgrading, training, and pension. In this way, I studied several research articles, but those articles do not explore the teachers' understanding and interpretation of TPD policies. Therefore, I hope this study will explore the teachers' understanding and interpretation of TPD policies.

Purpose of the Study

The purpose of this study is to analyze TPD policies based on textual analysis, teachers' understanding, interpretations, and local practices.

Research Questions

1) What are the key policy provisions for teacher professional development in community schools?
2) How do teachers understand and interpret existing TPD policies, and in what ways do these policies work in their professional lives?

Methodology

In my study, I adopted a qualitative research design and interpretivism philosophical world view. Interpretivism emphasize the individual's understanding, interpretations and draw the multiple subjective meaning and realities of the research phenomena (Hesse-Biber, 2010; William, 2024). In this study, I collected the individual understanding, interpretations and experiences about the teacher professional development policy. So, this study is based on the interpretivism philosophy. In this study. I used two methods for data collection and analysis. They are document analysis and unstructured interview. Document analysis is a systematic procedure for reviewing or evaluating documents, both printed and electronic materials (Bowen, 2009). In this study, I collected, studied, and analyzed the TPD-related printed and electronic materials. So, document analysis is also a key tool for analyzing the TPD policies for this study.

For understanding and interpreting the TPD policies, I selected three community secondary schools from Kathmandu valley through purposive sampling. The selection was based on my prior familiarity with the schools. I purposely selected one teacher from each school who had already taken TPD training. I used unstructured interview schedule for data collection. Unstructured interview is informal, exploratory, and there are no pre-determined interview questions (Merriam, 2009). This type of interview is based on open-ended questions; like a conversation. It is flexible in nature and explores the in-depth data from the participants. During the data collection period, I recorded the data on my mobile phone by obtaining permission from the participants. I maintained the ethical norms and values during the interview and data analyzing time. After collecting the data, I transcribed the interviews into text and the textual data was coded, categorized, and organized into themes and sub-themes based on the research questions and purpose of the study. Finally. I analyzed the data using thematic analysis approach (Brown & Clark, 2006).

Policy Perspective: Anthropology of Policy

In this study, I have adopted the anthropology of policy approach to analyze the Teacher Professional Development (TPD) policy. According to this approach, policy analysis involves examining how policies are constructed and implemented. How is policy experienced and interpreted by stakeholders (Shore & Wright,1997). This study focuses on key policy provisions and understanding the lived experiences and interpretations of community school teachers regarding the TPD policy. This approach emphasizes the experiences, understandings, and interpretations of policy from the implementer's perspectives. In particular, this approach claimed that how policies are practiced, enacted, and understood and interpreted by the community and school staff, and administrators. According to Wedel et al. (2005), the anthropology of policy emphasizes how policy works and affects society. For this purpose, using the ethnographic study method is most important while analyzing policy from an anthropological policy perspective. It shows that this anthropology policy approach follows participatory observation, talking to and living with the community members in a natural setting (Wedel et al., 2005). Therefore, this approach explores how the community member understands and interprets the policy. Similarly, Shore & Wright (1997) argued that the anthropology of policy approach uses the macro and micro levels for analyzing policy (Cited in Khanal, 2012). Macro level investigates how the state

develops policies and engages with communities and their members. The micro level examines how policies are perceived, interpreted, and enacted by local stakeholders like teachers and administrators. In this study, I have explored how the TPD policy was constructed and implemented. How TPD policy understand and interpret from the community teachers' perspectives? Therefore, I have adopted the anthropology of policy approach for this study.

Result and Discussion

In this study, I have analyzed the data based on the hierarchy of research questions and purpose by formulating theme and sub-theme accordingly obtained data from the documents and informants. Basically, focuses on main three theme; TPD policy provision, understanding and interpretation of TPD policy, and works of TPD policy for professional lives of the teacher.

Policy Provisions for Teacher Professional Development

There is a policy provision to provide professional development for teachers as in-service training. For this, the teacher professional development framework – 2072 prescribes the two phases of training. Each phase is 15 days. Among the 15 days, the teacher directly involved 10 days in the training center and 5 days do practice in their school. Specifically, certification training, refresher training, and local need-based training are prescribed in the framework. Certification training could be taken by the permanent teacher on a subject-wise. Refresher training could be taken who have completed the certification training. Local need-based modular two-day training could be designed and conducted through the training resource center. This modular training intends to develop specific skills in teachers. There is a written evaluation examination policy provision for the teachers' progress in the 10-day training. And the teacher submits the report based on practice teaching in their school. There is a policy provision for preparing the lesson plan, class observation by a peer or subject teacher, and doing the action research on an educational issue during the practice teaching period.

Understanding and Interpretation of TPD Policy

Teachers generally understand that TPD policies offer teachers professional knowledge and skills related to competency development in the profession. This knowledge and these skills bring a change in professional skills of the teacher, which helps to improve students' learning outcomes (Darling-Hammond et al., 2017). In this context, my participant T1 said, *"The teacher professional development policy provides the opportunity to participate in the teacher training. This training supports the development of teacher professional knowledge and skills, but the teacher professional development policy could be effectively implemented."* This statement makes it clear that if the government effectively implemented the Teacher Professional Development (TPD) policy in Nepal there will be developed teachers' professional knowledge and skills through the teacher training. Again,

T1 interprets that "*There is no possibility to take teacher training at the same time for all teachers, if it is possible, the quality of education and students' performance will be increased."* This statement emphasizes that the teacher professional development training should be provided to all teachers to improve the students' performance and the quality of education. Similarly, participants T2, & T3 argued that *"Teachers' professional development policies are fine and important for teachers' professional knowledge, skills, and competency development. If the TPD policies are effectively implemented, the teachers become professionally competent."* This statement clarifies that TPD policies are necessary and important for developing the teachers' professional knowledge, skills, and competence. For

this purpose, the policies should be effectively implemented. In this way, as my participants suggest, the teacher professional development policy is necessary and important for professional competence.

Focus on Dissemination, Implementation, and Monitoring of TPD Policy

As the participant understands, the TPD policy requires effective dissemination, implementation, and monitoring of its activities regularly. In this study, my participant T1 said, "*TPD policy is well formulated for teacher professional knowledge and skills development. But it is impossible to provide the training to all the teachers at the same time. If it is possible, they will develop professional knowledge and skills. There is a lack of dissemination and monitoring of the implementing TPD policies*." This indicates that the TPD policy is well formulated, but there is a lack of dissemination and monitoring of effective implementation. If it is possible to provide the training to all teachers, it helps to develop their professional knowledge and skills. On the other hand, participant T2 said

"TPD policies are well formulated and fine. TPD policy has emphasized developing professional competence and skills. But in practice, teachers only take training for certificate and promotion purposes. It is necessary to disseminate, implement, and monitor the TPD policy and training in the real classroom."

This opinion of participant T2 clarifies that TPD policies are well developed, fine, and emphasize developing the professional knowledge, skills, and competence of teachers. The teachers give priority to certificates and promotion rather than the transformation of TPD knowledge and skills in the classroom. There is an unavailability of dissemination, effective implementation, and an evaluation mechanism of the implementation of TPD policies and training. Similarly, participant T3 said, "*TPD policy is necessary and important for the development of teachers' professional knowledge and skills. It makes professional competence in teachers, but there is a need to disseminate and monitor the policy implementation."* This opinion stated that the TPD policy is necessary and important for developing the professional knowledge, skills, and competence in teachers, but policy dissemination and implementation should be evaluated by the policy developer and implementer. In this way, the participants emphasize the dissemination of TPD policy, effective implementation, and monitoring the implementation of TPD policy and training in the real classroom.

Promotion Tools for Teachers

Teachers take TPD policy and training as promotion tools rather than professional growth. In this study, T1 said, "*TPD policies provide the opportunities to participate in training, but most of the teachers take teacher training only for promotion purposes."* This statement shows that the TPD policies provide opportunities to participate and learn professional skills, but most of the teachers do not implement the learned skills in real teaching. They take training only for promotional purposes. Similarly, T2 argued that "*If there is no value of teacher training in promotion purpose, there is no meaning of TPD policy and training."* This also emphasizes teachers' focus only on promotion rather than quality education and pedagogical knowledge and skills. On the other hand, participant T3 argued that "*TPD policy is well formulated and this policy expects to develop the professional knowledge and skills manpower through teacher training, but generally teachers have taken teacher training for promotion. They could not implement the knowledge and skills in real teaching."* This statement clarifies that the TPD policy is formulated for the professional knowledge and skills growth of the teachers. Most of the teachers participate in teacher training and get the professional knowledge and skills, but they generally do not apply them in real teaching, and they only focus on promotion

certificate. In this way, in my study, most of the teachers emphasize the TPD policy and teacher training as promotion tools.

TPD Policy Works in Teachers' Professional Lives

The TPD policy offers teachers opportunities for professional skill development through training. In this context, T1 said, *"TPD policy provides opportunities to participate in teacher training. I have learned many skills, such as preparation of lesson plan, instructional materials, democratic practices in the learning process, and acquired the knowledge and skills for conducting action research."* This statement clarifies that the TPD policy works to support the teacher's professional skills development through different activities, the formulation of lesson plans, conducting action research, and a democratic classroom. Similarly, in the sense of professional skill development T2 said *"TPD policy works in our professional lives by providing the opportunity to participate in training and developing the teacher professional skills, like lesson plan, teaching method, materials, and preparing action research report"* This statement clarifies that TPD policy works the teacher's professional lives by providing opportunities to participant and gaining professional skills through training. On the other hand, T3 argued that *"TPD policy provides an opportunity to participate in training and gain professional knowledge and skills. It brought ease to the teaching learning process. So, TPD policy works by supporting the teacher's professional knowledge and skills development."* This shows that TPD policy works and supports the teachers' professional lives by developing the professional skills of teachers through training, and it has brought ease in teaching and learning activities. In this way, TPD policy enhances teachers' professional lives by developing the teacher's professional knowledge and skills.

Opportunity for Professional Promotion

TPD policy enhances teachers' professional lives by providing opportunities for professional growth and promotion. In this sense, T1 said *"TPD policy offers certain marks who have completed the TPD training. This score is most valuable for promotion."* This statement clarifies that the TPD policy provisions a score for teachers who have completed professional development training. This score plays a crucial role in supporting their promotion. Similarly, T2 argued that "*TPD policy provisions the teacher training for the permanent teacher, and after completing the training, the teacher gets the opportunity for promotion."* This clarifies that the TPD policy enhances the professional promotion of teachers in their professional lives. On the other hand, T3 said, "*TPD policy provisions the training for teachers, and after completing the training, the teacher obtains a certain score, which helps enhance their professional promotion."* This statement clarifies that the TPD policy helps teachers to participate in training and promotes professional promotion from the obtaining score of the training. In this way, the TPD policy provides opportunities for teachers to participate in training and supports them for professional promotion.

Conclusion

There is a policy provision to provide professional development for teachers as in-service training. For this, the teacher professional development framework-2072 prescribes the two phases of training. In the teacher's perception, this training is essential to develop their professional skills as well as for refreshment. However, most of the teachers are taking this training for their promotion purposes rather than for professional skills development. Along with this, the majority of teachers are not getting the chance to participate in this TPD training. Thus, the monitoring mechanism needs to be effective in how teachers transfer the skills in the classroom that they learn in the TPD training.

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आधुनिक साहित्य र अनुसन्धान

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लेखसार

आधुनिक साहित्य र अनुसन्धानका क्रममा अँगालिने क्रमवद्ध नियम, तरिका वा कार्यप्रणालीलाई आधुनिक साहित्यको अनुसन्धान पद्धति भनिन्छ । अनुसन्धानमा समस्या अनुरूप समाधानका निमित्त विभिन्न प्रकारका पद्धतिको प्रयोग गरिन्छ । प्रत्येक अनुसन्धान पद्धतिका आफ्ना आफ्नै प्रकारका उपयोगिता र सीमा हुन्छन् । एउटा समस्याविशेषको समाधानका लागि एउटै मात्र वा धेरै अनुसन्धान पद्धतिको प्रयोग गर्न सकिन्छ । सौन्दर्यशास्त्रीय, शैलीवैज्ञानिक, भाषावैज्ञानिक, मनोवैज्ञानिक, समाजशास्त्रीय जस्ता विषयका बीचमा विभिन्न अन्तर्विषयक पक्ष गाँसिएका हुन्छन् । सामाजिक, आर्थिक, राजनैतिक, दार्शनिक, साहित्यिक जस्ता कुनै पनि विषयको अर्को विषयसँग सह-सम्बन्ध राखेर मात्र पूर्ण अध्ययन गर्न सकिन्छ । एउटा विषय मात्र नभएर अन्तर्विषयात्मक पद्धतिवाट आजको अध्ययन अधि वढाइने भएकाले जटिल मिश्रित विशिष्टिकृत समाजमा गरिने अध्ययन अनुसन्धानको विभिन्न अन्तर्विषयक समस्याहरू पनि गाँसिएका हुन्छन् । अन्तर्विषयक समस्याहरूको अध्ययन अनुसन्धानका रूपमा आधुनिक साहित्यको अनुसन्धान गरिदा आजको अनुसन्धानले पुर्णता पाउने हुँन्छ । पुस्तकालय विधिको प्रयोग गरी यिनै कुराको अध्ययनको व्याख्यात्मक प्रस्तुती यस लेखमा गरिएको छ ।

विशेष शब्दकुञ्जी : *मनोवैज्ञानिक, शैलीवैज्ञानिक, समाजशास्त्र, सौन्दर्यशास्त्र*

विषय परिचय

साहित्यले समय, स्थान एवम् समाजको आवश्यकता अनुसार कुनै विशेष परिस्थितिलाई जोड दिने गर्दछ । आधुनिक साहित्य व्यञ्जना प्रधान र प्रतीकात्मक भइरहेको छ । साहित्यका कविता, कथा, निबन्ध, कहानी, उपन्यासहरूमा व्यञ्जना प्रधान र प्रतीकात्मक प्रवृत्ति बढिरहेको कारणले साहित्यमा बौद्धिकता आएको छ । यस बौद्धिकतामा ज्ञान-विज्ञानका अनेक शाखाहरूको योगदान छ । साहित्यका विद्यार्थीले केवल साहित्य पढ्दैमा उसको साहित्यिक जानकारी बढ्छ भन्न सकिदैन । समाजशास्त्र, इतिहास, दर्शन, मनोविज्ञान एवं ज्ञानविज्ञानका अन्य शाखाहरूबाट पनि परिचित हुन आवश्यक छ । ज्ञान-विज्ञान अनेक शाखामा विभक्त देखिन्छ । अनुसन्धानकर्तालाई अन्वेष्य विषय साहित्यमा कति प्रतिविम्बित भएको छ भन्ने नभई साहित्यद्वारा अन्वेष्य विषयका सम्बन्धमा कुन प्रकारको बोध हुन्छ भन्ने हो । अर्को कुरा साहित्यका उपकरणका सम्बन्धमा छ । लेखकले साहित्यका उपकरणको कसरी उपयोग गऱ्यो ? त्यसले कतिसम्म सफलता प्राप्त गऱ्यो ? भन्ने प्रश्नसँगै अनुसन्धानात्मक विषयवस्तुको अन्वेषण साहित्यमा हुने गरेको

पाइन्छ । हाल अर्न्तविषयक अनुसन्धानमा साहित्यिक विषयको चित्रण कसरी भएको छ भन्ने नभै साहित्यद्वारा यिनका सम्बन्धमा कुन प्रकारको बोध प्राप्त हुन्छ भन्ने हो । साहित्य चिन्तनको आधारमा साहित्यका कविता, नाटक रंगमञ्च, उपन्यास, कथा, आत्मकथा, निबन्ध, कहानीमा अर्न्तविषयक अनुसन्धानको प्रभाव कस्तो रहेको छ भन्ने अनुसन्धान हुन आवश्यक देखिन्छ। यो अर्न्तविषयक साहित्यिक अनुसन्धानको सौन्दर्यशास्त्रीय, शैलीवैज्ञानिक, मनोवैज्ञानिक र समाजशास्त्रीय स्वरूप आधुनिक अनुसन्धान र साहित्यसँग कसरी केन्द्रित हुन्छ भन्ने कुराको अध्ययन यहाँ गरिएको छ ।

समस्याकथन

साहित्यको उपयोग एक माध्यम वा साधनका रूपमा मात्र हुदैन, त्यो स्वयंमा एक सिद्ध वस्तु पनि हुन्छ । साहित्यमा कला फरक र कला बाह्यपक्ष हुन्छ । साहित्यको यो दोस्रो कला बाह्यपक्ष अनुसन्धानाध्ययनमा अन्तः साक्ष्यका रूपमा काम आउँछ । अर्कोतर्फ साहित्यको कलापरक रूप पनि परिपूर्ण स्वायत्त, स्वयंसिद्ध भएकोले स्वतन्त्र अध्ययन गर्न सकिन्छ । साहित्यमा ज्ञानका अलग अलग अनुशासन एकत्रित गर्ने प्रयास गर्नु जरूरी छ, गरिदै पनि छ । यस्तो एकत्रीकरण साहित्यमा देख्न सकिन्छ । ज्ञानलाई पचाउन नसकिएमा ज्ञान पाठकको संवेदना अंश नभएसम्म साहित्यिक ज्ञान बढ्न सक्तैन । आधुनिक साहित्यमा अनुसन्धानलाई संश्लिष्ट रूपमा चिन्नुपर्दछ यस चिनारीको ज्ञान गर्नका लागि प्राथमिक रूपमा साहित्यमा निहित ज्ञान विज्ञानका शाखाहरूका सन्दर्भको खोज गर्नुपर्दछ। साहित्य चिन्तनको आधारमा साहित्यका कविता, नाटक रंगमञ्च, उपन्यास, कथा, आत्मकथा, निबन्ध, कहानी जस्ता विद्याहरू रहेका छन् । अर्न्तविषयक साहित्यिक अनुसन्धानमा सौन्दर्यशास्त्रीय, शैलीवैज्ञानिक, मनोवैज्ञानिक र समाजशास्त्रीय स्वरूपसँग आधुनिक साहित्य र अनुसन्धानको अवस्था कस्तो रहेको छ भन्ने समस्याको कथनमा यो अध्ययन केन्द्रित रहेको छ ।

उद्देश्य

साहित्यमा कविता, नाटक रंगमञ्च, उपन्यास, कथा, आत्मकथा, निबन्ध, कहानी जस्ता विद्या रहेका छन् । यी विद्यासँग जोडिन आउने आधुनिक साहित्यक र अनुसन्धानका सौन्दर्यशास्त्रीय, शैलीवैज्ञानिक, मनोवैज्ञानिक र समाजशास्त्रीय अर्न्तविषयक स्वरूपको अवस्था पहिचान गर्नु नै यो अध्ययनको उद्देश्य हो ।

अध्ययनको औचित्य

यस अध्ययनले नेपाली साहित्यशास्त्र नेपाली साहित्यिक रचनाहरूका आधारमा लेखिनुपर्ने तर आज पनि संस्कृत साहित्यशास्त्र एवं अंग्रेजी साहित्यशास्त्रमा अधिकतम निर्भर छ। यस कमीलाई हटाउन साहित्यिक अनुसन्धान आवश्यक छ। साहित्यिक चिन्तनको आधारमा साहित्यमा कविता, नाटक रंगमञ्च, उपन्यास, कथा, आत्मकथा, निबन्ध, कहानी जस्ता विषय पर्न आउँछन् । यी विषयसँग सौन्दर्यशास्त्रीय, शैलीवैज्ञानिक, मनोवैज्ञानिक र समाजशास्त्रीय अर्न्तविषयक स्वरूप समावेश भएका हुन्छन्। यो अध्ययनले आधुनिक साहित्य र अनुसन्धानसँग सौन्दर्यशास्त्रीय, शैलीवैज्ञानिक, मनोवैज्ञानिक र समाजशास्त्रीय अर्न्तविषयक स्वरूपको अवस्था पहिचान गर्ने आधारलाई व्यवस्थित र स्तरीय तुल्याउने छ । यसले अर्न्तविषयक स्वरूपको अवस्था पहिचानलाई समेत सहयोग पुऱ्याउने हुँदा अध्ययनको औचित्य रहेको छ ।

सामग्री सङ्कलन विधि

समस्या कथनमा उल्लेख गरिएको समस्याको प्रमाणिक समाधानका लागि दुई प्रकृतिका सामग्रीको सङ्कलन गरिएको छ । पहिलो प्रकृतिका कविता, नाटक रंगमञ्च, उपन्यास, कथा, आत्मकथा, निबन्ध, कहानीमा सौन्दर्यशास्त्रीय, शैलीवैज्ञानिक, मनोवैज्ञानिक र समाजशास्त्रीय सामग्रीलाई प्राथमिक सामग्रीका रूपमा लिइएको छ । विभिन्न विद्वान्हरूका विचारलाई द्वितीयक सामग्रीका रूपमा लिई अध्ययन गरिएको छ । आवश्यक सामग्री पुस्तकालय विधिबाट सङ्कलन गरिएको छ ।

सामग्री विश्लेषण विधि

सामग्री विश्लेषण विधिमा साहित्य र अनुसन्धानसँग सम्बद्ध सिद्धान्तहरूलाई आधार मानि आवश्यक विवरण सङ्कलन गरी व्याख्यात्मक विधिको उपयोग गरिएको छ ।

सैद्धान्तिक आधार

सामग्री विश्लेषण सैद्धान्तिक आधारका लागि विभिन्न विद्वान्हरूद्वारा साहित्यका कविता, कथा, निबन्ध, कहानी, उपन्यासहरूमा समाजशास्त्र, मनोवैज्ञानिक, भाषा-वैज्ञानिक, शैलीवैज्ञानिक आधुनिक साहित्यको अनुसन्धान स्वरूपको अवस्था पहिचान गर्ने सिद्धान्तहरूलाई आधार मानिएको छ ।

आधुनिक साहित्यको सबभन्दा ठूलो समस्या प्रेषणीयता हो । यसलाई समिक्षा या अनुसन्धान मध्ये केले प्रेषणीय बनाउँछ ? साहित्यको चिनारी नहोउन्जेल मूल्याङ्कन र अनुसन्धान दुवै गर्न सकिदैन । आधुनिक साहित्यलाई प्रेषणीय बनाउन आवश्यक सन्दर्भ दिनु जरूरी छ । यो आवश्यक सन्दर्भ एक अर्थमा साहित्यको सृजना प्रक्रियाको भाग हो । यस आवश्यक सन्दर्भमा आधुनिकता छ । पहिलो काम साहित्यमा जानकारी बढाउनु हो । साहित्यमा जुन प्रकारको भाषाको उपयोग हुन्छ त्यस भाषाको संस्कार प्राप्त नभएसम्म संवेदना विस्तार हुदैन । साहित्यको माध्यमबाट नै पाठकका संवेदना विस्तार हुन्छन् (राजुरकर, १९९७, पृ. ९) । अर्को अर्थमा भाषा वस्तु, पात्र, संवाद, वातावरण जस्ता तत्व रचनाका अंग हुन् । रचना त एक जीवित एकाइ हुन् त्यसमा यी अंगद्वारा रचनाकारको जीवनानुभूति अभिव्यक्त हुन्छ । जुन प्रकार जीवनको चेतना ब्रह्म चेतनाका रूपमा व्यक्त हुन्छ त्यही प्रकार रचनाकारको अनुभूति चेतना विभिन्न साहित्य रूपहरूको माध्यमबाट अभिव्यक्त हुन्छ (चलेर, १९९७, पृ. १९७) । चेतनाको ग्रहण साहित्य रूपको समग्रताद्वारा नै सम्भव छ ।

साहित्य मूलतः आत्मचरित्रात्मक हुन्छ । यो आत्मचरित्रात्मकता मुख्यतः अभिव्यक्तिका लागि ल्याउने अनुभवहरूको संवेदनात्मक महत्व बोध हो । लेखकसँग संवेदनात्मक महत्व बोध नभएमा या क्षीण भएमा ती विशिष्ट अनुभवहरूको अभिव्यक्ति क्षीण हुन्छ (गजानन, १९८९, पृ. ९३) । प्रयत्न अधुरा हुन्छन् । यिनलाई स्पष्ट गर्नाले मानवीय मूल्य पनि स्पष्ट हुन्छन् । आधुनिकताका सन्दर्भलाई पहिचान गरेर साहित्यकारको संवेदनात्मक उद्देश्य बताउन सकिन्छ र त्यस स्थितिमा नै साहित्यिक अनुसन्धानको प्रयोजन हुन सक्छ । साहित्यिक विषयमा अनुसन्धान गर्दा ज्ञान-विज्ञानका अन्य शाखाहरूमा नित्य भइरहेका कार्यबारे विचार गर्नुपर्दछ । समवर्गी शाखाहरूका उपलब्धिहरूको परिचयको अभावमा आधुनिक साहित्यमा अनुसन्धान सम्भव देखिदैन (राजुरकर, १९९७, पृ ख) । साहित्यको सम्बन्ध विचारहरूको अपेक्षा भावसँग बढी छ । गद्यविचार प्रधान हुन्छ भाव प्रधान होइन । गद्य पद्यको विभाजन स्वयंमा विचार प्रधान तथा भाव प्रधान रूपमा हुन्छ ।

आधुनिक कालमा 'कविता' शुद्ध साहित्यको विधा रहेको छ । आधुनिक साहित्यका प्रवृत्ति आज गद्य साहित्यको अपेक्षा कविताका साथ बढी जोडिएको छ । कुनै वाद वा आन्दोलनको सम्बन्ध गद्यको अपेक्षा

पद्यका साथ बढी मान्नुपर्दछ । यसको कारण आज कविता साहित्यको बदलिने प्रतिमान बुझ्न सहायक हुन्छ (राजूरकर, १९९७, पृ ख) पहिले सबै विषय पद्यमा लेखिन्थे साहित्येतर विषय पनि पद्यमा लेखिन्थे । गद्यको प्रचार भएपछि साहित्य इतर विषयलाई पद्यबाट मुक्ति मिल्न गएको छ । गद्य, पद्यको स्थूल विभाजनको कारण आधुनिक कालका साहित्यमा पद्यको सम्बन्ध साहित्यसँग रहेको छ । यस क्रममा आधुनिक कालमा कविता शुद्ध साहित्यिक विधा रहेको छ। शुद्ध कवित्वको साधनको अनुपातमा अन्तर्राष्ट्रिय काव्यमा दुरूहताको वृद्धि त्यही अनुपातमा हुँदै आएको छ । कविताले दर्शन, इतिहास, समाजशास्त्र, धर्म, नैतिकता छोडेर शुद्धतातिर बढ्दा सामाजिकता, सुख, दुःख, भावना, समस्यालाई पाठकले अनावश्यक मानेर त्यसतिरबाट मुख मोडेका छन् र अरू कसैका लागि नभई आफ्ना लागि लेख्नुपरेको छ (राजूरकर, १९९७, पृ. छ) । यसबाट आधुनिक साहित्यमा अनुसन्धानकर्ताले यी कुराको उत्तर खोज्नु जरूरी छ ।

आधुनिक काललाई गद्य प्रधान भनिन्छ । गद्यका अनेक विधाहरूको विकास यी दिनमा भइरहेका छन् । कहानी, उपन्यास, एकाङ्की, निबन्ध, डायरी, रिपोर्ताज, जीवनी, संस्मरण आदि प्रमुख गद्य विधा हुन् । यी विधाहरूका अरू पनि भेद छन् । गद्यका यी विधाहरूको सम्बन्ध ज्ञान विज्ञानका समस्त शाखाहरूसँग छ । निबन्ध गद्यको केन्द्रीय विधा हो । कविता चाहिँ साहित्यकै केन्द्रीय विधा हो (राजूरकर, १९९७, पृ. ख) । ज्ञान विज्ञानका साहित्येतर शाखाहरू गद्यसँग सम्बन्ध राख्छन् र गद्य मूलतः विचारप्रधान छ । गद्यका विधाहरूलाई छाडेर पद्यमा नै विचार गरेमा पनि के प्रतीत हुन्छ भने आजको कविता गद्यबाट प्रभावित भैरहेको छ । कविता स्वयं गद्यमय भइरहेको छ । यस्तै गद्य-साहित्य जो अधिक रागमयी एवम् लालित्ययुक्त छ पद्यमय भइरहेको छ । पहिले कविता गीतयुक्त भएपनि गद्यको प्रभावबाट कविता गीतबाट अलग भएको छ । ठीक यही प्रकार गीतको प्रभाव गद्यमा पनि परेको छ र गद्य-गीत लेखिइरहेको छ । आधुनिक कालमा साहित्यका विभिन्न रूपको विकास भएको छ । यो गद्य र पद्य दुवैमा भएको छ (राजूरकर, १९९७, पृ. छ)। यी रूपहरूको प्राविधिक चिनारीका साथमा आधुनिक साहित्य र अनुसन्धानको कार्य जोडिएको छ । आधुनिक साहित्यका कविता, नाटक रंगमञ्च, उपन्यास, कथा, आत्मकथा, निबन्ध, कहानीहरूमा सौन्दर्यशास्त्रीय, शैलीवैज्ञानिक, मनोवैज्ञानिक र समाजशास्त्रीय अध्ययन गर्न सकिने आधार निर्माण भएको छ ।

सीमाङ्कन

प्रस्तुत अध्ययनको मुख्य उद्देश्य साहित्यका कविता, नाटक रंगमञ्च, उपन्यास, कथा, आत्मकथा, निबन्ध, कहानीमा सौन्दर्यशास्त्रीय, शैलीवैज्ञानिक, मनोवैज्ञानिक र समाजशास्त्रीय आधुनिक साहित्यको अनुसन्धान स्वरूपको अवस्था पहिचान कस्तो रहेको छ त्यसको मात्र विश्लेषण गर्नु यसको सीमा रहेको छ ।

नतिजा तथा बिश्लेषण

यस खण्डमा आधुनिक साहित्य र अनुसन्धान का सन्दर्भमा निम्नानुसारका उपशीर्षकमा केन्द्रित रही नतिजा तथा विश्लेषण प्रस्तुत गरिएको छ।

सौन्दर्यशास्त्रीय अनुसन्धान

आधुनिक युगमा ज्ञानको विशिष्टता भएकाले ज्ञानमा कतिपय नयाँ शाखाहरू सौन्दर्यशास्त्रीय अनुसन्धानका रूपमा उदय भएका छन् । यो नयाँ सौन्दर्यशास्त्रीय अनुसन्धानका परिप्रेक्ष्यमा गरिएको साहित्यिक अनुसन्धानलाई अर्न्तविषयात्मक अनुसन्धान भनिन्छ । सौन्दर्यशास्त्रजस्तो आधुनिक आधारमा गरिएको साहित्यिक अनुसन्धानलाई सौन्दर्यशास्त्रीय अनुसन्धान भनिन्छ । बालकृष्ण पोखेल र अन्यले

सौन्दर्यलाई राम्रो बनाउने तत्व, सुन्दर हुनाको भाव, सुन्दरताका दृष्टिले वस्तुलाई ग्रहण गर्ने चेतना: साहित्यका क्षेत्रमा प्रगाढ भूमिका खेल्ने चेतना, सुन्दर र असुन्दरका बीचमा रहेका अन्तर्बोध, लालित्य, कोमलता, शिष्ठता, माधुर्य आदि तर्फको झुकाउ, विशुद्ध सुन्दरताको प्राप्तिलाई लिएका छन् (पोखरेल, २०४०, पृ. १३८०)। साहित्य सामाजिक एवं सांस्कृतिकताका पृष्टभूमिबाट प्राप्त साहित्यकारको संश्लेषि तर निजी अभिव्यक्ति भएतापनि यसको लेखन निश्चित नियम र अनुशासनद्वारा निर्देशित हुन्छ। यस्तो प्रकारको लेखन प्रक्रियाको अनुशासन र नियम नै साहित्यमा सौन्दर्यशास्त्र हो। साहित्य लेखनको व्यावहारिक पक्ष, यसले पार्ने सामाजिक प्रभावको विश्लेषण र मूल्यांकनबाट नै साहित्य सौन्दर्यशास्त्रका नियमहरू स्थापित हुने गर्दछन्।

सौन्दर्य शास्त्रीय शोधको क्षेत्र व्यापक छ। यसमा जीवनका सबै मानवीय, आध्यात्मिक, नैतिक र प्राकृतिक पक्ष आउँछन्। साहित्य वा कवितामा भाव, कल्पना र अभिव्यक्ति तत्वहरूमा सामञ्जस्यता रहन्छ (सिंहल, १९९७, पृ. १६०)। कडवेल कवितालाई मानव मनको प्राथमिक सौन्दर्यव्यापार मान्दै इतिहास, धर्म, जादू, टुना र विधिलाई पनि यस अन्तर्गत अधिगृहीत भएको मान्दछन् (सीदारोव, १९८७, पृ. १०)। सौन्दर्यशास्त्र सौन्दर्यको अध्ययनकर्ता शास्त्र हो। साहित्यमा सौन्दर्य साहित्यिक कृतिको प्राण अथवा चेतनाका रूपमा रहन्छ। कोचेका अनुसार सौन्दर्यशास्त्रलाई लिखित कलाको दर्शन मानिन्छ। यति भएर पनि सौन्दर्यशास्त्रीय अध्ययन आवश्यक हुन्छ। साहित्य सर्वश्रेष्ठ कला भएको सर्वविदित छ। यसैले सौन्दर्यशास्त्रलाई कला विज्ञानको कलाशास्त्र मानिन्छ। जेम्स डेवर यसलाई सुन्दर असुन्दरको वैज्ञानिक तथा दार्शनिक अध्ययन मान्दछन् (ए डिक्सनरी अफ साइक्लोजी, १९८३, पृ. १०)। सौन्दर्यशास्त्रको सौन्दर्यानुभव अन्य भौतिक अनुभवहरूसँग भिन्न छ (जर्ज एलेन र अन्य, १९७९, पृ. २-३)। जीवनमा यसको मूल्य विवेचना गर्नु पर्दछ।

अर्न्तविषयात्मक अनुसन्धानअन्तर्गत सौन्दर्यशास्त्रीय दृष्टिले साहित्यमा अनुसन्धान हुनु आवश्यक छ। सौन्दर्यशास्त्रीय वा अर्न्तविषयात्मक स्तरको अनुसन्धान सिद्धान्त पक्षका लागि पहिले अनुसन्धान रचनाको स्वरूप बोधमा ध्यान दिन जरूरी हुन्छ। कला, कलारचना, कलाकृतिको दर्शन, मीमांसा, इतिहास र आसयलाई संयोजित गर्ने विद्या तथा विज्ञानलाई सौन्दर्यबोधशास्त्र भनिन्छ (डा. रमेश कुन्तल)। सौन्दर्यसत्तालाई सीमाबद्ध गर्न सकिदैन। प्रकृति र मानव जीवन तथा मानवका सबै सृजनात्मक क्रियाकलाप सौन्दर्य हुन्। यी सौन्दर्यका अभावमा कलात्मक सौन्दर्यको व्याख्या असम्भव नै मानिन्छ। यसैले सौन्दर्यशास्त्रको विषय त्यो समग्र सौन्दर्यको व्याख्या हो जुन प्रकृति मानव जीवन र कलाहरूमा अभिव्यक्त हुन्छ। साहित्यको सौन्दर्यशास्त्रीय अनुसन्धानमा अनुभूतिगत र अभिव्यक्तिगत सौन्दर्यको अध्ययन हुन्छ (सिंहल, १९९७, पृ. १५९)। यस प्रकार सौन्दर्य शास्त्रीय अनुसन्धान अन्तर्गत आफ्ना अनुभूति, प्रत्यक्ष स्मृति, कल्पना, आदिद्वारा आनन्द उत्पन्न गर्ने वस्तुका गुण, प्रकृति मानव जीवन तथा ललित कलाहरूको आनन्द दायक गुण अथवा स्थूल या सूक्ष्म जगत्मा आत्माको अभिव्यक्तिको अध्ययन गरिन्छ।

साहित्यकारको दृष्टि सौन्दर्यतिर अनिवार्य मानिन्छ चाहे त्यो वस्तुहरूको रंग रूपमा होस् वा मनुष्यका मन वचन र कर्ममा होस्। यस प्रकारका भावको सौन्दर्यबाट दीप्त शब्द अर्थको सौन्दर्य साहित्य बन्छ। अनुभूति सौन्दर्यमा भाव कल्पनाको विवेचन आउँछ र अभिव्यक्तिमा अलंकार, बिम्ब-प्रतीक छन्द र भाषागत सौन्दर्य आउँछ। यसका साथै मानव र प्रकृतिको आलम्वन रूप सौन्दर्य पनि अन्तर र बाह्य आधारमा सौन्दर्यशास्त्रीय अध्ययनमा ग्रहण गरिन्छ। बाह्य सौन्दर्यमा शारीरिक गठन, वर्णन, मुद्राहरूको सौन्दर्य देखाइन्छ भने आन्तरिकमा जीवनलाई सौन्दर्यता प्रदान गर्ने गुणहरूको सौन्दर्य हेरिन्छ। यस प्रकार साहित्यमा अर्न्तविषयात्मक अनुसन्धान हुनु अत्यन्त आवश्यक छ। सौन्दर्यशास्त्र वा अर्न्तविषयात्मक

स्तरको कुनै पनि अनुसन्धानमा सिद्धान्त पक्षका लागि अनुसन्धान रचनामा उपलब्ध बोधमा ध्यान दिनु जरूरी छ ।

शैलीवैज्ञानिक अनुसन्धान

शैलीको अध्ययन नै शैलीवैज्ञानिक अनुसन्धान हो । साहित्यिक रचनामा लेखकको व्यक्तित्व विशेषको छाप दिने वा विषयवस्तुको अनुकूल भाव अभिव्यक्त हुने खास ढाँचा शैली हो (पोखेल, २०४०, पृ. १२६७) । विचार तत्व वा अनुभूति रचना रूपमा रूपायित हुनासाथ शैलीको उदय हुन्छ । अभिव्यक्त विचार तत्वमा सारा परिवेश सन्दर्भ, परिस्थिति प्रस्तुत गर्न शैलीको सामर्थ्यको निर्भरता रहन्छ । भाषाको संरचनात्मक व्याख्यालाई लिएर काव्यशास्त्र र भाषा विज्ञानको परम्परामा शैली विज्ञान एक नवीनतम विज्ञान हो । साहित्यको शैली तात्विक अध्ययन भाषाको भाषा-वैज्ञानिक विश्लेषणको विधिसँग पुष्ट रहन्छ । शैलीवैज्ञानिकका लागि भाषा वैज्ञानिक हुनु अनिवार्य छ । भाषा वैज्ञानिक शैलीवैज्ञानिक साहित्यको संरचनात्मक व्याख्या गर्न सक्षम हुन्छ ।

शैली भाषा तथा अभिव्यक्तिको उद्देश्य र प्रसंग जोड्ने सूत्रको नाम हो । यहाँ भाषा पक्षको अपेक्षा साहित्यपक्षका दृष्टिले शैली बुझ्नुपर्दछ । साहित्यिक रचनामा शैलीको आधारभूत महत्व रहन्छ । शैली विशेषले कुनै पनि रचना साहित्यिक बन्दछ । यसरी बनेको साहित्यिक कृति तथा त्यसको साहित्यिक संस्कृतिको सौन्दर्यात्मकताले पाठक समीक्षकलाई अनुभव गराउँदछ । यस प्रकार विषय र रूपको समन्वित कथन भंगिमा शैली हो । साहित्यिक पक्षको दृष्टिबाट शैलीवैज्ञानिक अनुसन्धान बुझ्न लेखक या वक्ता पाठक वा श्रोताको दृष्टिबाट पनि शैलीको परिभाषा हेर्नु पर्दछ । लेखकको दृष्टिबाट शैली आत्मसंस्कारवादी वस्तुनिष्ठ प्रकारको हुन्छ । आत्मसंस्कारवादी रूपअनुसार व्यक्तिद्वारा आफ्ना विचारहरूको व्यवस्था र गति अथवा अन्त: करणको वाह्य आकृतिको नाम शैली हो । वस्तुनिष्ठ आधारमा शैली भाषा सामान्यको व्यवस्था भंगद्वारा अर्थको भंगिमाहरूमा समृद्धिको नाम हो । श्रोता पाठक समीक्षकको परिभाषा कथनको भव्य उदात्त रूपलाई लक्षित गर्दछ । आधुनिक शैली वा शैली विज्ञान विस्तारै विकसित हुँदै आज साहित्यिक रचनाका सन्दर्भमा लेखक र पाठकलाई महत्व नदिएर पाठलाई महत्व दिन्छ । अब शैलीबाट भाषाको शैली या लेखकको शैली जस्तो कुनै अर्थ ग्रहण गरिदैन । शैलीको अर्थ त पाठको शैलीसँग छ । अब पाठको सीमाभित्र वाक्यका बीच पाइने सम्बन्धलाई शैली भनिन्छ (सिंहल, १९९७, पृ. १६७) । साहित्यिक कृतिका परिप्रेक्ष्यमा भाषा शैलीको विलय साहित्य शैलीमा हुन्छ ।

शैली अमूर्त हुन्छ । यसको ग्रहणमा भाषाका स्तरमा भाषा-संरचनाको विश्लेषण र शब्द बोध सहायक हुन्छन् त्यही पाठका स्तरमा अभिव्यक्तिका उद्देश्य र प्रसंगको विश्लेषण पनि सहायक हुन्छन् । शैलीवैज्ञानिक अनुसन्धानमा पाठका आधारमा अभिव्यक्तिको उद्देश्य र प्रसंगको विश्लेषण नै प्रमुख हुन्छ । भाषाका स्तरमा शैली अन्तर्गत भाषाका विभिन्न उप-व्यवस्थाहरू तथा सामाजिक, शास्त्रीय, साहित्यिक आदि व्यवहारहरूमा अभिव्यक्तिको प्रसंग या उद्देश्य अनुरूप छानिएका भाषागत र शैलीगत उपकरणहरूको भाषाशैलीका रूपमा अध्ययन गरिन्छ । यस विपरीत साहित्यिक स्तरमा शैलीवैज्ञानिक अध्ययन ज्ञानअन्तर्गत साहित्यिक संरचनाका विभिन्न घटक, तिनका विशेषता तथा तिनमा विष्पन्न सौन्दर्य गुण अनुरूप भाषागत शैलीगत उपकरणहरूको अध्ययन गरिन्छ ।

शैलीवैज्ञानिक अनुसन्धानमा कथन भंगिमाबाट प्रसंगलाई खोज्दै उद्देश्यको चिनारीका लागि साहित्यको अध्ययन गरिन्छ । भंगिमाको विश्लेषण संश्लेषणद्वारा साहित्यिक रचनाका भाव हृदयगम गर्ने प्रक्रिया, शैली विज्ञान हो (सिंहल, १९८१, पृ. ७६) । यस प्रकारको अध्ययन एक पाठ, एक कृति, एक विधा, एक लेखक र एक युग मध्ये कसैको पनि अध्ययन हुन सक्तछ ।

भाषावैज्ञानिक अनुसन्धान

भाषाको अध्ययन नै भाषावैज्ञानिक अनुसन्धान हो । भाषा विज्ञान भाषाको उत्पत्ति, विकास, परिवार, संरचना परिवर्तन आदिलाई सूक्ष्म किसिमले अध्ययन गरिने शास्त्र हो (पोखेल, २०४०, पृ. १०११) । भाषा विज्ञान भाषाको संरचना र त्यसको स्वरूपको विश्लेषक विज्ञान हो । साहित्यकार लेखकको भाषाको संरचनाको विश्लेषणबाट उसको मानसिक संरचनाको जानकारी हुने गर्दछ । साहित्यकारको भाषामा शब्द एवं अर्थ परस्पर संयुक्त हुन्छन् । साहित्यमा प्रयुक्त भाषामा निहित अर्थ जान्नका लागि साहित्यको भाषावैज्ञानिक अध्ययन अपेक्षित हुन्छ । अनुसन्धानका दृष्टिले साहित्यलाई मोटामोटी भाषा र अभिव्यक्त विषय गरी दुई भागमा बाड्न सकिन्छ । यी दुवैको अन्योन्याश्रिततालाई हेर्दा यो विभाजन आत्यन्तिक होइन । यो साहित्यलाई बुझ्न सुगमताका दृष्टिले गरिएको हो । यी दुई वर्गलाई पृथक रूपमा प्रधानता दिदै साहित्यको अध्ययन गर्दा प्राप्त हुने विशिष्ट जानकारीको महत्व अक्षुण्ण छ । अभिव्यक्त विषय या अर्थलाई प्रधान मानेर गराइने अनुसन्धान वा अध्ययन साहित्यका प्रवृत्तिहरू, विचारधाराहरू, भावभंगिमाहरू जानकारी हुन्छ । भाषा या शब्दलाई प्रधान मानेर-साहित्यकारको मानसिक संरचना र उसको अभिव्यक्ति पक्षको सूक्ष्मातिसूक्ष्म अर्थ छाँया बुझिन्छ । यस प्रकारको अनुसन्धान वा अध्ययन साहित्यको भाषावैज्ञानिक अनुसन्धान हो (सिंहल, १९८१, पृ. १६४) । भाषा विज्ञान एक स्वतन्त्र विषय हो । यसको अध्ययन क्षेत्रलाई बोली, विभाषा, भाषा तथा भाषाहरूको अध्ययन, लोक साहित्यको अध्ययन, साहित्यको अध्ययन गरी तीन भागमा विभाजन गर्न सकिन्छ । भाषा विज्ञान ज्ञानअन्तर्गत पहिलोमा भाषा शास्त्रीय दृष्टिबाट भाषाको संरचनामा सहायक सबै शाखाहरूलाई आधार बनाएर अध्ययन गरिन्छ । यी शाखामा स्वन विज्ञान, स्वनिम विज्ञान, रूपिम विज्ञान, शब्द रूप प्रक्रिया, वाक्य विज्ञान पर्दछन् । दोस्रोमा भाषालाई व्यावहारिक रूप दिने भाषाविज्ञानका सबै शाखा प्रशाखालाई स्थान दिइन्छ । यसमा अर्थविज्ञान, लेखविज्ञान, शब्दार्थविज्ञान, शब्दकोश विज्ञान, भाषा भूगोल, समाज भाषाविज्ञान, भाषा शिक्षण, अनुवाद आदि पर्दछन् । शैली विज्ञान र पाठालोचन चाहिँ यस ज्ञानअन्तर्गत साविकमा रहे पनि अव अध्ययनका पृथक शास्त्र बनेका छन् ।

भाषाको यस प्रकारको भाषावैज्ञानिक अध्ययनका पद्धति वर्णनात्मक, ऐतिहासिक, तुलनात्मक, प्रयोगिक गरी चार छन् । वर्णनात्मक पद्धतिअन्तर्गत भाषाको रचना प्रक्रियाको समकालिन विश्लेषणात्मक विवेचना गरिन्छ । ऐतिहासिक पद्धतिअन्तर्गत कुनै भाषाको विकासको शृङ्खलाको अन्वेषण गरिन्छ । तुलनात्मक पद्धतिमा कुनै एक भाषाको समकालिक भाषा या भाषाहरूका साथ संरचनात्मक विशेषताहरूको तुलनात्मक आधार विश्लेषण गरिन्छ । प्रयोगात्मक पद्धतिमा भाषाको अन्यत्र उपयोग जस्ता यान्त्रिक उपकरण शब्दकोश निर्माण, लिपि सुधार इत्यादिमा विचार गरिन्छ । भाषाविज्ञानको यस प्रकारको अध्ययनलाई स्वतन्त्र क्षेत्रीय अध्ययन नै भनिन्छ । जुन भाषालाई लिएर यो अध्ययन गरिन्छ त्यही भाषा विशेषको अध्ययन पनि भनिन्छ । अनुसन्धानका स्तरमा भाषाको यस प्रकारको अध्ययन साहित्यलाई आधार बनाएर गर्दा त्यसमा पर्याप्त अन्तर आउँछ । अध्ययन प्रणालीमा अंशमा केही समानता भएर पनि त्यस समय अध्ययनको लक्ष्य प्रत्यक्षतः भाषाको अध्ययन नभएर साहित्यकार वा कृतिको अध्ययन हुन्छ । यस प्रकारको अध्ययनद्वारा भाषाको विश्लेषण अभिव्यक्ति विषयका अर्थ छविहरूको उद्घाटन हुन्छ । यसबाट साहित्यकारको मानसिक संरचना बुझ्न सकिन्छ । लोक साहित्यका सन्दर्भमा यस प्रकारको जानकारी सामूहिक आदिम लोकमानसको संरचनाका बारेमा लगाइन्छ । यसप्रकार भाषा वैज्ञानिक अनुसन्धानको साहित्यिक विश्लेषणद्वारा सांस्कृतिक, सामाजिक, मनोवैज्ञानिकको अध्ययन हुने गर्दछ । भाषावैज्ञानिक अनुसन्धानलाई शब्दावलीको स्रोत र व्युत्पत्ति परकका दृष्टिले पनि अध्ययन गर्न सकिन्छ ।

मनोवैज्ञानिक अनुसन्धान

मनको अध्ययन नै मनोवैज्ञानिक अनुसन्धान हो । आधुनिक कालमा ज्ञान विज्ञानका अनेक क्षेत्र अलग अलग भएका छन् र सबैको विकास स्वतन्त्र रूपले भइरहेको छ । प्राचीन, माध्यमिक र आधुनिक कालका विशेषज्ञ अलग अलग पाइन्छन् । साहित्यिक अनुसन्धानका लागि नियमित पठनका साथ मनन र तदनुसार लेखन कार्यको आवश्यकता रहन्छ । बर्टेण्ड रसेल भविष्यमा शक्तिको मनोभावले प्रेमको मनोभाव पूरा पराजित गर्ने गर्दछ, भन्छन् । रसेल प्रेमी, कवि र रहस्यवादीलाई प्राप्त हुने सन्तोष त्यसको अनुभूति शक्तिका अन्वेषीलाई कदापि नहुने ठान्छन् । साहित्यिक अनुसन्धानमा खास गरेर आधुनिक जीवनको परिप्रेक्ष्यलाई पूरा गर्ने प्रयत्न गर्नु पर्दछ । यस सन्दर्भमा रसेलले खोजेको समस्याको मनोवैज्ञानिक समाधान खोज्नु आवश्यक छ । समकालिन लेखन सामाजिक सन्दर्भलाई महत्व दिन्छ । यस प्रयत्नमा व्यक्ति र समाज दुवै मुक्तभावबाट निकट आउनु पर्दछ (राजुरकर, १९९७, पृ. ञ) । अनुसन्धानकर्ताहरूको कार्य जीवनको जटिलता र दुरूहतालाई बौद्धिक आधार दिनु हो, जो छ त्यसलाई स्पष्ट रूपमा बुझाएर भन्नु हो ।

मनोवैज्ञानिक स्तरमा अर्न्तविषयात्मक अनुसन्धान एक अनिवार्य र अपेक्षाकृत अधिक व्यापक छ । मनोविज्ञान मानिसका मनको प्रकृति, उसका विभिन्न अवस्था तथा क्रिया र त्यसको प्रभाव आदिको अध्ययन विश्लेषण गर्ने विज्ञान वा शास्त्र हो । मनोविश्लेषणले मनको विश्लेषण गर्दछ (पोखेल, २०४०, पृ. १०४८) । मनोविज्ञान मनको संरचना क्रिया र व्यवहारको अध्येता विज्ञान हो । यस अध्ययनज्ञानअन्तर्गत मनुष्यका व्यवहारलाई बुझ्नु, त्यसका भावी रूपलाई पत्ता लगाउनु र त्यसमा नियन्त्रण गर्नु पर्दछन् । प्राचीनकालमा यी सबै अध्ययनलाई तत्व ज्ञानअन्तर्गत ठानिन्थ्यो । आज यस मनोविज्ञानलाई नीतिशास्त्र जस्तो आदर्शवादी मानिदैन, किनकि वस्तुनिष्ठता र प्रायोगिक पद्धतिसँग बाँधिएको कारण यसलाई विज्ञान मानिन्छ ।

मनोविज्ञान शब्दको सर्वप्रथम प्रयोग सत्रौं शताब्दीमा पाइएतापनि यसपूर्व नै मानवका मानसिक क्रिया व्यापार वा व्यवहारमा विचार गरिएको पाइन्छ । ऋग्वेदमा मानस हृद (हृदय) शब्दको प्रयोग पाइन्छ (चलेर, १९९७, पृ. १०) । वैदिक ऋषि मनस्थितिहरूका विभिन्न धरातलबाट विभिन्न प्रकारका कविता जन्मन्छन् भन्ने कुरासँग सबै अवगत थिए (सिंहल, १९८१, पृ. १६१) । डा. हरिचन्द्र वर्माको खोज अनुसार "फ्रायडद्वारा प्रवर्तित आधुनिक मनोविश्लेषण शास्त्रमा भएको विवेचनाको व्यावहारिक उदाहरण ऋग्वेदमा सुलभ छ (चलेर, १९९७, पृ. ४९) । भारतीय दर्शनका सांख्य, न्याय, वैशेषिक, वेदान्तमा मनोवैज्ञानिक प्रश्नका गहिराइसम्म विचार गरिएको छ । सख्यामा मनको अध्ययन र मुण्डकोपनिषद हृदय ग्रन्थि र गुहाग्रन्थि शब्दको प्रयोग, गीतामा मन, बुद्धि, अहंकार, चित्त, राग, द्वेष, गुण, श्रद्धा, हृदय-दौर्बल्य, द्वन्द्व, द्वन्दातीत, हृदयग्रन्थि, काम, क्रोध, अहंकार आदि प्रशस्त मनोवैज्ञानिक शब्द प्रयुक्त छन् (सिंहल, १९८१, पृ. १६१) । आधुनिक कालमा आएर विषय र शास्त्र मध्ये मनोविज्ञान पनि एक हो । यो एक यस्तो शाखा जसको साहित्यसँग धेरै घनिष्ट सम्बन्ध छ । किनकि साहित्यले मानवीय मन र क्रियाकलापलाई चित्रण गर्दछ र मनोविज्ञानले त्यसको विश्लेषण गर्दछ ।

मनोविज्ञान नै एक यस्तो विद्याशाखा हो जो भक्ति, रहस्यवाद, धर्म दर्शन, आध्यात्मिकता र सौन्दर्य शास्त्रीय व्याख्याका क्षेत्रमा समेत उपयोगी छ (सिंहल, १९८१, पृ. १६२) । मनोविज्ञानका कैयौ शाखाहरू र संप्रदाय विकसित भएका छन् । तिनमा बाल मनोविज्ञान, असामान्य मनोविज्ञान वा मनोविकृति चिकित्सा मनोविज्ञान, औद्योगिक मनोविज्ञान प्रमुख छन् । साहित्यिक अनुसन्धान यी संप्रदाय वा शाखाका अधीन

त्यति अपेक्षित छैन जति मनोविज्ञानको समवेत रूपसँग छ । साहित्यमा भावहरू र मनोवेगहरूको चित्रण हुन्छ र भाव तथा मनोवेगको अध्ययन मनोविज्ञानको केन्द्रविन्दु हो । यसैले मानवीय व्यवहारको यथार्थ स्वरूपको चिनारीका लागि साहित्यको मनोवैज्ञानिक अध्ययन अनिवार्य छ । हर्वर्टरीडका अनुसार मनोवैज्ञानिक मानसिक प्रक्रियासम्म पुग्नका लागि रचनाको विश्लेषण गर्छ यस दृष्टिले कला त्यति महत्वपूर्ण छ (गुप्ता, १९६७, पृ.४०) । यस प्रकार मनोवैज्ञानिक अनुसन्धान साहित्यशास्त्रीय सिद्धान्तहरूमा पनि केही न केही नयाँ जोड्ने क्षमता राख्दछ ।

साहित्यको मनोवैज्ञानिक अनुसन्धानका कैयौं प्रकारका आधार हुन सक्छन् । साहित्यमा प्रतीकहरूको धेरै महत्व हुन्छ । मनोविज्ञानका प्रतीकहरूले मूल उद्गमसम्म पुगेर तिनलाई विश्लेषण गर्छ । यसप्रकार साहित्य मनोविश्लेषणका लागि जीवन प्रवाहबाट मूल विम्ब र सहज अनुभवहरूमा वाह्य यथार्थका समाजपरक व्याख्याको आधार जुटाउछ । मनोविज्ञानले काव्य प्रेरणालाई पनि व्याख्या गर्छ । मनोविज्ञान अनुसार प्रेरणाका सन्दर्भमा कलाकार एक स्तरमा आफ्नो चेतन नियन्त्रणबाट मुक्त भएर आद्य मानस अवचेतनामा प्रवेश गर्छ जहाँबाट त्यसलाई नयाँ तात्विक शक्ति प्राप्त हुन्छ । यो असंबद्ध अति कल्पना भएर पनि समृद्ध हुन्छ । यसप्रकार मनोविज्ञानले कलाकारका मनको रोमाण्टिसिज्म र क्लासिसिज्मको द्वन्द्वलाई पनि व्याख्या गर्छ । यस्तै मनोविज्ञानले मिथकीय विश्लेषणद्वारा मिथकीय आलोचनाको निर्धारणमा योगदान दिन्छ ।

समाजशास्त्रीय अनुसन्धान

समाजशास्त्रीय अनुसन्धान समाज र यसका संरचनाको सैद्धान्तिक अध्ययन गर्ने विधा हो । मानव समाज तथा संस्कृतिको उत्पत्ति, विकास आदिको विवेचना गरिएको शास्त्र समाजशास्त्र हो (पोखेल, २०४०, पृ. १३०७) । समाजशास्त्र शब्द अंग्रेजीको सोसोलोजीको नेपाली रूपान्तरण अनुवाद हो । यो शब्द ल्याटिनको सोशियम, ग्रिकको लागससँग मिलेर बनेको छ । समाजशास्त्रमा समाजका मूल संरचना तथा समाजका दुर्वल वा संगठित गर्ने सबै तत्वको अध्ययन गरिन्छ । सामाजिक सम्बन्ध वा समाजलाई प्रभावित गर्ने तत्वहरूको केही अध्ययन अर्थशास्त्र, मनोविज्ञान र अन्य समाजविज्ञानमा पनि हुन्छ । त्यसो भए तापनि समाजशास्त्र एक सर्वथा स्वतन्त्र विज्ञान वा शास्त्र हो (सिंहल, १९९७, पृ. १६) । समाजसँग सम्बन्धित सबै शास्त्र कुनै न कुनै रूपमा समाजशास्त्रका ऋणी हुन्छन् । कुनै क्षेत्र विशेषको अध्ययनका लागि केही सिद्धान्त निश्चित भएमा त्यस प्रकारका सिद्धान्तावलीलाई त्यस क्षेत्रको शास्त्रको संज्ञा दिइन्छ । समाजशास्त्रमा समाजको अध्ययन गरिने सिद्धान्त रहन्छ । शास्त्रीय अध्ययन सदैव वैज्ञानिक अध्ययन हुने भएकाले समाजशास्त्रीय अध्ययन पनि समाजको वैज्ञानिक अध्ययन नै हुन्छ ।

विश्वका सबै भौतिक अभौतिक वस्तुहरूको एक स्वरूप हुन्छ र यस स्वरूपको निर्माणमा अनेक अन्तर्वस्तुको योगदान रहन्छ । समाजका सन्दर्भमा प्रतिस्पर्धा, सहयोग, अधिनता, श्रमविभाजन आदि सम्बन्धका केही स्वरूप भएका ठाउँमा राजनीति, धर्म, अर्थ, दर्शन आदि अन्तर्वस्तुहरूसम्म सीमित हुन्छ । जब कि समाजशास्त्रमा सामाजिक सम्बन्धको स्वरूपको पनि अध्ययन गरिन्छ । प्रस्तुत यी अध्ययन प्रमुख हुन्छन् । समाजशास्त्रको यस अध्ययन प्रणालीलाई सम्प्रदाय अन्तर्गत ग्रहण गरिन्छ ।

समाजशास्त्रको अर्को सम्प्रदाय समन्वयात्मक सम्प्रदायमा अन्य समाज विज्ञानमा अध्ययन गरिने अन्तर्वस्तुहरूका अतिरिक्त यस्तो परिस्थितिलाई पनि अध्ययन गरिन्छ । जसको अध्ययन अन्य समाज विज्ञानमा गरिँदैन । समन्वयात्मक सम्प्रदायको अध्ययन क्षेत्रमा आउने अध्ययन सामग्रीलाई सामाजिक संरचनाशास्त्र, सामाजिक दैनिकी, सामान्य समाजशास्त्र गरी तीन भागमा बाँड्न सकिन्छ । सामाजिक संरचनाशास्त्रमा सामाजिक संगठनलाई प्रभावित गर्ने विभिन्न प्रकारका भौगोलिक आधारलाई अध्ययन

गरिन्छ । सामाजिक दैनिकी अन्तर्गत धर्म, दर्शन, राजनीति आदिलाई समाजको विविध अङ्ग मानेर तिनलाई अध्ययन गरिन्छ । सामान्य समाजशास्त्र पक्ष अन्तर्गत समाजका विभिन्न अङ्गमा व्याप्त सामान्य तथ्यहरू खोजेर तिनलाई अध्ययन गरिन्छ । साहित्यमा समाजशास्त्रीय अनुसन्धान अनिवार्य छ । साहित्य व्यक्ति, समुदाय, परिवार, संस्थाहरू र मूल्यहरूको ह्रास, विघटन तथा सांस्कृतिक प्रभाव लिएर हिँड्छ । सामाजिक परिवर्तन जहाँ सामाजिक संरचना, परिवर्तन र त्यसको नवगठन गर्छ । त्यही साहित्य आफ्नो दायित्व यस वस्तुस्थितिको भावात्मक चित्रण गर्छ ।

समाजशास्त्रीय अनुसन्धानको प्रक्रिया अर्न्तविषयात्मक अनुसन्धान अन्तर्गत आउने कुनै पनि अनुसन्धानदृष्टिमा तथ्याश्रित हुन्छ । अनुसन्धानकर्ताले पहिले अनूसन्धेय, रचनाहरूमा सम्भाव्य तत्वहरूको प्रकारमा समाजशास्त्रको अध्ययन गर्दै आफ्नो अनुसन्धानको सिद्धान्त पक्ष तयार गर्नु पर्दछ । यसका लागि त्यसको अध्ययन अत्यन्त सूक्ष्म र गम्भिर हुनु पर्दछ । किनकि यसैका आधारमा पछि अनुसन्धान प्रस्तुत गर्नु पर्दछ ।

निष्कर्ष

यो अनुसन्धान आधुनिक साहित्य र अनुसन्धानसँग सम्बद्ध विषयमा केन्द्रित रहेको छ । अर्न्तविषयक साहित्यिक अनुसन्धानमा सौन्दर्यशास्त्रीय, शैलीवैज्ञानिक, मनोवैज्ञानिक र समाजशास्त्रीय स्वरूपसँग आधुनिक साहित्य र अनुसन्धानको अवस्था कस्तो रहेको छ भन्ने समस्यासँग सम्बन्धित भएर यो अनुसन्धान गरिएको छ । यसमा व्याख्यात्मक विधिको उपयोग गरिएको छ । आधुनिक साहित्य अनुसन्धान पद्धति वैज्ञानिक पद्धति हो । यसको अध्ययन बहुविषयक र बहुविधिको समायोजनका रूपमा गरिन्छ । हरेक विषयका बीचमा विभिन्न अर्न्तविषयक पक्ष गाँसिएका हुन्छन् । सामाजिक, आर्थिक, राजनीतिक, दार्शनिक, साहित्यिक जस्ता कुनै पनि विषयको अर्को विषयसँग सहसम्बन्ध राखेर मात्र पुनः अध्ययन गर्न सकिन्छ । एउटा विषय मात्र नभएर अर्न्तविषयात्मक पद्धतिबाट आजको अध्ययन अघि बढाइने भएकाले जटिल मिश्रित विशिष्टिकृत अध्ययन अनुसन्धानका रूपमा आधुनिक साहित्य अनुसन्धानलाई लिन सकिन्छ । यसै आधारमा साहित्यको अध्ययन वा अनूसन्धान गर्दा सौन्दर्यशास्त्रीय, शैलीवैज्ञानिक, भाषावैज्ञानिक, मनोवैज्ञानिक, समाजशास्त्रीय जस्ता विभिन्न वा तीमध्ये कुनैसँग सम्बन्धित भएर अध्ययन गर्न सकिने र त्यसबाट नै अध्ययनमा पूर्णता आउन सक्छ भन्ने यसको प्राप्ति र निचोड रहेको छ ।

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लेखसार

प्रस्तुत लेख नेपाली मुक्तकको सिद्धान्त र परम्परामा आधारित रहेको छ । यसमा मुक्तक परिचयात्मकस्वरूप पहिल्याइएको छ । यसैगरी नेपाली मुक्तक लेखन परम्परा र यसका संरचक तत्वहरूबारे विश्लेषण गरिएको छ । यसमा मुक्तकको सैद्धान्तिक स्वरूप तयार पार्दा विभिन्न विद्वानद्वारा लेखिएका पुस्तक, लेख, रचना तथा उनीहरूका धारणालाई आधार बनाइएको छ । यसको उद्देश्य मुक्तकको सैद्धान्तिक स्वरूप पहिल्याउनु, परम्परा निरूपण गर्नु र संरचक तत्वहरूको विश्लेषण गर्नु रहेको छ । लेखमा गुणात्मक अनुसन्धान ढाँचाको प्रयोग गरिएको छ । पुस्तकालयीय कार्यबाट सामग्री सङ्कलन गरिएको छ । यसक्रममा सामग्री सङ्कलन द्वितीयक स्रोतबाट सङ्कलन गरिएको छ । यसमा आगमनात्मक विधिलाई अवलम्वन गरिएको छ । लेखमा साहित्यको पद्यात्मक रचना मानिने मुक्तकको मूल चिनारी चतुष्पदी हो भनिएको छ । वर्तमानमा निकै लोकप्रिय विधाका रूपमा स्थापित मुक्तकसम्बन्धी चर्चा संस्कृत साहित्यबाट भएको हो भने लेखन कार्य शक्तिबल्लभ अर्ज्यालको 'तनहूँ भकुण्डो' बाट भएको तथ्य प्राप्त भएको छ । मुक्तक ए, ए, बि, ए को संरचनामा तयार पारिने, विषयवस्तु, भाव वा विचार, भाषाशैली, संरचना, उद्देश्य, लय, बिम्ब, प्रतीक र अलङ्कार, अनुप्रास आदिको उचित संयोजनबाट मुक्तक तयार पारिने कुरा उल्लेख गरिएको छ । यस्तै आयामका दृष्टिले लघुतम भए पनि यो आफैमा पूर्ण, कसिलो, चोटिलो, प्रभावकारी तथा हृदयलाई चमत्कृत गर्ने खालको हुने कुरा निष्कर्षका रुपमा प्रस्तुत गरिएको छ । प्रस्तुत अध्ययनले सम्बन्धित क्षेत्रमा अध्ययन, अनुसन्धान गर्न चहने तथा यस विषय क्षेत्रप्रति रुचि राख्ने सरोकारवाला सम्पूर्णलाई सहयोग पुऱ्याउने अपेक्षा गरिएको छ ।

मुख्य शब्दावली *: साहित्य, लघुतम, चतुष्पदी, अनुप्रास, मुक्तलय, बद्धलय, संरचक तत्व*

अध्ययनको पृष्ठभूमि

छन्दका विविध प्रकारमध्ये मुक्तक अन्यदेशीय छन्द अन्तर्गत पर्दछ । यो कविताको लघुतम रूप हो । यो एक श्लोकमा लेखिएको कविताको सानो तर आफैमा पूर्ण, स्वतन्त्र र मावन हृदयलाई

विशेष प्रभाव पार्ने रचना हो । नेपाली मुक्तक अङ्ग्रेजीमा प्रचलित क्वाट्रेनसँग नजिक देखिन्छ भने अरबी-फारसीको रुबाईसँग मिल्छ (गौतम, २०८१, पृ. ५१) । कविता विधा अन्तर्गत पर्ने भए पनि यसको आफ्नै खालको संरचना छ । थोरैमा धेरै भन्न सक्नु र आनुप्रासिक झङ्कारले पाठकका मनमा विद्युतीय तरङ्ग उत्पन्न गराउन सक्नु मुक्तकको विशेषता हो (नेपाल, २०७८, पृ.२६) । मुक्तकमा यति नै पङ्क्ति हुनु पर्छ, हरेक पङ्क्तिमा यति नै अक्षर हुनु पर्छ भन्ने खास नियम त भेटिदैन तथापि जम्मा चार पाउमा संरचित हुनु र सबै पङ्क्तिमा अक्षरगत समानता हुनु सुन्दर मानिन्छ । मूलतः मुक्तकलाई चतुष्पदीय रचना मानिन्छ । मुक्तकको आदर्श वा मानक रूप चतुष्पदी नै हो (पराजूली, २०६७, पृ.४) । चार हरफमा संरचित हुनु, पहिलो, दोस्रो र चौथो हरफमा अनुप्रास/काफिया हुनु, तेस्रो हरफ स्वतन्त्र हुनु, एक आवृत्तिमा भाव सम्प्रेषण गर्न सक्नु, थोरैमा पनि धेरै कुरा भन्न सक्नु, सारगर्भित कुराले मुटु च्वास्स छुन सक्नु, मानव सुख, दुःख, हर्ष, पीडा, छटपटी जस्ता मानव हृदयका भावहरूको विशिष्ट शैलीमा प्रस्तुति रहनु, आफ्नै अस्तित्व हुनु, कविता विधामा छुट्टै प्रभाव पार्न सफल हुनु यसका मूल विशेषता हुन् ।

मुक्तकको चर्चा संस्कृत साहित्यबाट भएको हो । संस्कृत साहित्यमा प्रचलित मुक्तक र अरबी फारसी साहित्यमा प्रचलित रुबाई आपसमा निकट देखिन्छ । संस्कृत साहित्यमा प्रचलित मुक्तक र उर्दु साहित्यमा प्रचलित रुबाई बिचको संरचनात्मक र भावविन्यासगत निकटता रहेको स्पष्टै देखिन्छ (भट्टराई, २०७७, पृ.१९) । संस्कृत र उर्दु फारसी साहित्यमा जस्तै प्राचीनकालदेखि नै नेपाली साहित्यमा पनि यो निकै लोकप्रिय मानिएको छ । नेपाली कविता लेखन कार्यको थालनी भएसँगै यसको पनि थालनी भएको पाइन्छ । तथापि मुक्तक लेखनको परम्परा भने अग्निपुराणसँग जोडिन पुगेको भेटिन्छ । प्रारम्भमा प्रेमजन्य विषयमा मुक्तक लेख्ने प्रचलन बढी पाइन्छ । वर्तमानमा भने विविध विषयलाई अँगाली मुक्तक लेखिएको भेटिन्छ । विशेषतः लामा खालका रचनामा पाठकको ध्यान कम जान थालेपछि समसामयिक धारामा यसले फस्टाउने अवसर पाएको देखिन्छ ।

यस सन्दर्भमा नेपालमा साहित्यसँग सम्बन्धित रहेर थुप्रै अध्ययन अनुसन्धान भएका छन् । यद्यपि कविताकै लघुतम रूप मानिने मुक्तक सुरुवातदेखि पछिल्लो समयसम्म सबैको लोकप्रिय मानिएको देखिन्छ । वर्तमानमा यसबारे अध्ययन अनुसन्धान र लेखन कार्यले उच्च स्थान पाउन थालेको देखिन्छ । यसक्रममा निर्दिष्ट शीर्षक सम्बद्ध अध्ययन अनुसन्धान भने तुलनात्मक रूपमा कमै भएको पाइन्छ । यसर्थ त्यसको रिक्तताका लागि यस लेखको औचित्य छ भन्ने विश्वास गरिएको छ । समग्रत : प्रस्तुत लेखमा मुक्तक परिचय, परम्परा, संरचक तत्व र साहित्यमा यसको स्थान बारे विश्लेषण गरिएको छ

पूर्वकार्यको अध्ययन

कविता विधा अन्तर्गतको मुक्तक उपविधा सम्बन्धी विभिन्न अध्ययन, अनुसन्धान, पुस्तक प्रकाशन, लेख वा रचना प्रकाशन भएका छन् । मुरारी (२०६७), द्वारा *मुक्तक मीमांसा* पुस्तकमा नेपाली मुक्तकका आकार-प्रकार शीर्षक अन्तर्गत मुक्तकको परिचय, मुक्तकका आकार-प्रकारबारे चर्चा गरिएको छ । यसैगरी सोही पुस्तकमा नेपाली मुक्तक कवितामा समकालीन प्रवृत्तिहरू र विभिन्न मुक्तककारहरू तथा तिनका मुक्तकारिताबारे विस्तृतमा विश्लेषण गरिएको छ । त्यसैगरी भट्टराई (२०७७), द्वारा *प्रज्ञा नेपाली नारी मुक्तक* पुस्तकमा मुक्तकको परिचय, पृष्ठभूमि र नारी मुक्तककारहरू शीर्षक अन्तर्गत मुक्तकको परिचय तथा पृष्ठभूमि, मुक्तकको परिभाषा तथा मान्यता, मुक्तकको ऐतिहासिक पृष्ठभूमि र परम्पराबारे चर्चा गरिएको छ । नेपाल (२०७८), द्वारा *लेखन शिल्प* पुस्तकमा मुक्तक लेखन शीर्षक अन्तर्गत मुक्तकको सैद्धान्तिक, यसको संरचना, नेपाली साहित्यमा मुक्तक लेखन, मुक्तक लेखन प्रक्रियाबारे विस्तृत रूपमा चर्चा गरिएको छ । गौतम (२०८१) द्वारा *प्राज्ञिक विमर्श* नामक जर्नलमा नेपाली मुक्तकको संरचनात्मक विश्लेषण शीर्षकमा लेख प्रकाशन गरिएको छ । यस लेखमा मुक्तकको परिचय दिई मुक्तकको संरचनात्मक विश्लेषण अन्तर्गत

मुक्तकको संरचना, नेपाली मुक्तकको रचना विधान, मुक्तकमा भाव/विचार, मुक्तकमा भाषाशैलीय विन्यास, मुक्तकमा लय विधान, मुक्तकमा बिम्बको प्रयोग, मुक्तकमा प्रतिकको प्रयोग, मुक्तकमा छन्दको प्रयोग, मुक्तकमा अलङ्कारको प्रयोगबारे विस्तृत चर्चा गरिएको छ ।

उद्देश्य

यस लेखको उद्देश्य मुक्तकको सैद्धान्तिक स्वरूप पहिल्याउनु, यसको परम्पराको निरूपण गर्नु र संरचनात्मक तत्वहरूको विश्लेषण गर्नु रहेको छ ।

अध्ययनको परिसीमा

प्रस्तुत लेख मुक्तकको सैद्धान्तिक स्वरूप पहिल्याउनु, यसको परम्पराको निरूपण गर्नु र संरचनात्मक तत्वहरूको विश्लेषण गर्नमा मात्र केन्द्रित छ ।

अध्ययन विधि

प्रस्तुत लेखमा गुणात्मक अनुसन्धान विधिको प्रयोग गरिएको छ । यसमा पुस्तकालयीय कार्यबाट सामग्री सङ्कलन गरिएको छ । यसक्रममा द्वितीयक स्रोतबाट सामग्री सङ्कलन गरिएको छ । यसमा तथ्याङ्कको सङ्कलन, वर्गीकरण र विश्लेषणका लागि आगमनात्मक विधिको प्रयोग गरिएको छ । यसमा सामग्री सङ्कलन गर्दा मुक्तक सम्बन्धित आधिकारिक पुस्तकहरूलाई उपयोगमा ल्याइएको छ । यसका साथै प्रस्तुत विषयसँग सम्बन्धित शोधग्रन्थ, अनुसन्धानमूलक पत्रपत्रिकामा प्रकाशित लेख तथा रचनाहरूलाई पनि द्वितीयक स्रोतका रूपमा उपयोग गरिएको छ ।

नतिजा तथा बिश्लेषण

सैद्धान्तिक परिचय

साहित्य हृदयलाई चमत्कृत तुल्याउन विशिष्ट शैलीमा लेखिएको रचना हो । कविता, आख्यान, नाटक, निबन्ध साहित्यका मुख्य विधा हुन् । यस सन्दर्भमा कविता साहित्यको सर्वप्राचीन, समृद्ध र लोकप्रिय विधा हो । नेपालका अनुसार कविताका लघुतम्, लघु, मध्यम, बृहत् र बृहत्तर गरी पाँचओटा रूपहरू पाइन्छन् (२०७८, पृ.२१) । त्यसमध्ये मुक्तक आकारका दृष्टिले कविताको लघुतम विधा अन्तर्गत पर्दछ । यो मूलतः एक श्लोकमा संरचित हुन्छ । संरचनात्मक रूपमा मुक्तक छोटो भए पनि ओजपूर्ण र सारगर्भित हुन्छ ।

मुक्तक तत्सम शब्द हो । यो कविताको लघुतम रूप अन्तर्गतको एक लोकप्रिय र प्रसिद्ध विधा हो । मुक्त शब्दमा कन लागेर मुक्तक शब्दको निर्माण भएको हो । नेपाली बृहत् शब्दकोश (२०६९) मा "पूर्वीय काव्यशास्त्र अनुसार समासरहित गद्य; कथा सूत्रमा आवद्ध नभएको, हृदयका निरपेक्ष स्वतन्त्र कविता; टुक्रे कविता" लाई मुक्तकका रूपमा चिनाइएको छ (पृ.१०२०) । पाश्चात्य साहित्यमा पनि यससँग मिल्दो रूप पाइन्छ । मुक्तकमा एकपदी, द्विपदी, त्रिपदी, चतुष्पदी, पञ्चपदी र षट्पदीसम्मका कविता रूप पाइन्छन् । यस्ता विभिन्न रूपका कवितालाई त्यहाँ भिन्नभिन्न नाम दिइएको छ तापनि अङ्ग्रेजी क्वाट्रेन (Quatrain) भनिने चतुष्पदी कविता नै पूर्वीय मुक्तकको नजिक देखिन्छ (भट्टराई, २०७७, पृ. १७) । कविताको लघुतम रूप भए नि यो हृदयका भावलाई प्रभावकारी रूपमा अभिव्यक्त गर्ने तथा मनमा विद्युतीय झट्का मार्ने सन्दर्भमा वर्तमान समयमा यसको लोकप्रियता बढ्दो छ ।

मुक्तक पद्यात्मक रचना हो । गौतमका अनुसार यो चटनीको स्वाद दिने कविताको रूप हो । आकारका दृष्टिले मुक्तकलाई द्विपदी, त्रिपदी, चतुष्पदी हुँदै सप्तपदीसम्म वर्गीकरण गरिएको पाइन्छ । हाल प्रचलनमा रहेका नेपाली मुक्तकलाई आकारगत दृष्टिले चार स्वरूमा राखेर हेर्न सकिन्छ । ती यस प्रकार छन् :

(क) लघुतम मुक्तक : दुई वा तीन चरणसम्म विस्तारित

(ख) मानक मुक्तक : चार चरणका

(ग) विस्तारित मुक्तक : पाँचदेखि सात चरणसम्म विस्तारित

(ङ) अतिविस्तारित मुक्तक वा अमुक्तक : सात चरणभन्दा माथि (पराजुली, २०६७, पृ.६८)

यसरी आकारगत दृष्टिले मुक्तकलाई विभिन्न रूपमा विभाजन गरे पनि वर्तमानमा भने चतुष्पदी रचना नै यसको मूल चिनारी हो । विभिन्न सन्दर्भमा सामान्यतः मुक्तकहरू चार हरफदेखि आठ हरफ सम्मका हुन्छन् भनी परिभाषित गरिए पनि मूलतः मुक्तकको संरचना चतुष्पदी नै हो (नेपाल, २०७८, पृ. ६२) । छन्दका शास्त्रीय, लोक वा जातीय, आगन्तुक र मुक्त गरी चार प्रकारमध्ये मुक्तक आगन्तुक छन्दको विशिष्ट रूप हो । यसमा मनमा हर्ष, विस्मात्, खुसी, दुःखी, मिलन, विछोडका भावनाहरू खेलिरहेका हुन्छन् । मुक्तकमा तिनै भावलालाई छोटो तर सारपूर्ण तरिकाले प्रस्तुत गरिएको हुन्छ । आकारका दृष्टिले यो छोटो हुन्छ तर स्वयम्मा पूर्ण हुन्छ । यसले खास अर्थ वा सन्देश प्रवाह गर्न सक्ने क्षमता राखेको हुन्छ ।

मुक्तकमा विषयवस्तु, भाव, भाषाशैली, उद्देश्य, लय, बिम्ब, प्रतीक, अलङ्कार, अनुप्रास आदिको उचित संयोजन भेटिन्छ । अनुप्रासको त यसमा अनिवार्यता नै रहन्छ । प्रारम्भमा प्रायः प्रणय वा माया, प्रेम, विछोड जस्ता विषयले मुक्तकमा बढी स्थान पाए पनि आजभोलि सामाजिक, राजनीतिक, प्राकृतिक, धार्मिक, सांस्कृतिक, शैक्षिक, आर्थिक जुनसुकै विषयमा मुक्तक लेख्न गरिन्छ । मुक्तक जस्तै रुवाई पनि चतुष्पदी वा एक श्लोकको हुने र त्यसमा पनि एएबिएकै संरचना भेटिने हुँदा कतिपयले मुक्तक र रुबाईलाई उस्तै रूपमा लिने गरेका छन् । कतिपयले चाहिँ यी दुईलाई फरक रूपमा चिनाएको पाइन्छ । नेपाल (२०७८) का अनुसार यी दुईमा संरचनागत भिन्नता छ । उनका विचारमा मुक्तक बद्धलय र मुक्तलय दुवैमा लेखिन्छ तर रुबाई बद्धलय मात्र हुन्छ । त्यसैले सबै रुबाई मुक्तक हुन सक्छन् तर सबै मुक्तक रुबाई हुन सक्दैनन् (पृ.२६) । जेहोस् रुबाई शास्त्रीय छन्दमा मात्र लेखिने तर मुक्तक बद्ध वा स्वतन्त्र लयमा पनि लेखिन सकिने हुँदा यी दुईलाई केही भिन्न मान्न सकिन्छ ।

मुक्तकका हरेक हरफमा यति नै अक्षर हुनु पर्ने मान्यता त भेटिदैन तथापि सबै हरफमा अक्षरगत समानता सुन्दर मानिन्छ । एकश्लोकमा संरचित हुने मुक्तकमा समग्र भाव सम्प्रेषण गर्न सकिन्छ । एएबिएको संरचनामा तयार पारिने मुक्तकमो सुरुको पाउले विषयको उठान गर्छ । यसको दोस्रो पाउले पहिलो पाउकै विषयको समर्थनमा जोड दिन्छ । यसको तेस्रो पाउ स्वतन्त्र हुन्छ । अन्तिमको चौथो पाउ शक्तिशाली वा वजनपूर्ण हुन्छ । अन्तिमको चौंथो पाउले मुटुमा झड्का हान्छ । यी चार पाउमध्ये पहिलो, दोस्रो र अन्तिम वा चौंथो हरफमा अनुप्रासको प्रयोग अनिवार्य मानिन्छ । ए, ए, बी, ए को संरचना र भावगत उन्नयनलाई नेपालले भूपि शेरचनको रचनालाई आधार बनाएर यसरी स्पष्टसँग बुझाउन खोजेका छन् :

ए = प्रत्येक पहेँलो धातुलाई सुनको **गजुर** भन्न मन लाग्छ

ए = प्रत्येक पन्छीलाई वनको **मजुर** भन्न मन लाग्छ

बी = चाकरी गर्दा गर्दा यस्तो भइसकियो कि

ए = बाटामा भेटिएको गधालाई पनि **हजुर** भन्न मन लाग्छ । (२०७८, पृ.६३) ।

संरचनाका दृष्टिले जम्मा चार पाउको भए पनि यसले जनमानसमा खास सन्देश प्रवाह गर्छ । यस्ता रचनामार्फत मानव जीवन भोगाइलाई स्पस्ट रूपमा चित्रण गरिनुका साथै सामाजिक,

राजनैतिक, सांस्कृतिक, शैक्षिक, प्रशासनिक आदि क्षेत्रका विकृति, विसङ्गति, भ्रष्टाचार प्रति तिखो व्यङ्ग्य प्रहार गरिन्छ । साथै सुधारको अपेक्षा पनि गरिन्छ ।

नेपाली मुक्तक लेखन परम्परा

नेपाली कविता लेखन परम्पराको सुरुवात वि.सं १८२६ तिरबाट भएको पाइन्छ । प्राथमिक कालमा लघुतम, लघु, मझौला र बृहत् आकारका कविता लेखिएको भेटिन्छ । यसर्थ कविता लेखन कार्यको सुरुवातसँगै मुक्तक लेखनको पनि सुरुवात भएको हो भन्न सकिन्छ । यसको लेखन इतिहास पुरानो छ । नेपालमा मुक्तक लेखनको इतिहास करिब दुई सय वर्ष पुरानो पाइन्छ (भट्टराई, २०७७, पृ.२२) । पराजुलीका अनुसार शक्तिबल्लभ अर्ज्यालले लेखेका 'तनहूँ भकुण्डो' शीर्षकका दुई श्लोक नेपाली भाषामा भेटिएका सबभन्दा पुराना मुक्तक हुन् । त्यसकारण 'तनहूँ भकुण्डो' शीर्षकका यी दुई श्लोक नेपाली आदि मुक्तक हुन् र शक्तिबल्लभ अर्ज्याल नेपाली आदिमुक्तककार हुन् (२०६७, पृ.४२) । हरेक पाउमा अनुप्रास भेटिने मुक्तक स्वरूपमा लेखिएको उनको रचना यस प्रकारको थियो

धायको छ लमजुंग मकुण्डो

कास्की बाँध सुनको छ षुकुण्डो

पीउठानी कन देउ सुकुण्डो

मारि लेउ तनहूँ त भकुण्डो । (पराजुली, २०६७, पृ.४३)

प्राथमिककालीन नेपाली कवि शक्तिबल्लभ अर्ज्याललाई आदिमुक्तककारका रूपमा चिनाउने गरिए पनि यसका बारेमा चर्चा भने अग्निपुराणबाट नामक ग्रन्थबाट भएको भेटिन्छ । मुक्तकका बारेका प्रष्ट धारणा दिने पहिलो ग्रन्थ अग्निपुराण हो (पराजुली, २०६७, पृ.६६) । मुक्तकलाई सबैभन्दा पहिले परिभाषित गर्ने काम 'अग्निपुराण' ले गरेको छ । 'अग्निपुराण' ले हृदयलाई चमत्कृत पार्ने रचनालाई मुक्तक भनेको छ भने अभिनव गुप्तले अन्य श्लोकसँग असम्बद्ध भएर पनि स्वतन्त्र रूपमा पाठकलाई रसास्वादन गराउने रचनालाई मुक्तक भनी चिनाएका छन् (नेपाल, २०७८, पृ.६१) । जे होस् नेपाली प्राथमिक कालीन कवि शक्तिबल्लभ अर्ज्यालपछि गुमानी पन्त, रघुनाथ पोखर्याल, भानुभक्त आचार्य, माध्यमिककालीन कवि मोतीराम भट्ट, शम्भुप्रसाद ढुङ्ग्याल लगायतका कविहरूले मुक्तक शैलीमा थुप्रै रचना सिर्जना गरेको भेटिन्छ ।

मुक्तक लेखन कार्यलाई विभिन्न समयमका कविहरूले आआफ्नै तरिकाले अगाडि बढाए पनि कविताको आधुनिक कालपछि यसले खास स्वरूप ग्रहण गरेको पाइन्छ । यस समयका मुक्तकमा विषयवस्तुगत विविधता, भाव, लय, भाषाशैली तथा संरचनामा सन्तुलनता भेटिन्छ । आधुनिककालका कविहरूमा लघुतम रूपका कविता लेखनप्रति विशेष रुचि र पाठकको पनि लामाभन्दा आकारका दृष्टिले छोटा रचनाप्रति आकर्षण बढेकोसँगै मुक्तकले साहित्यमा विशेष स्थान प्राप्त ओगटेको भेटिन्छ । आधुनिककाल त्यसमा पनि वि.सं. २०१० पछि मुक्तकको पूर्ण संरचनालाई अँगाली यसको लेखन कार्य गरिएको पाइन्छ । यस समयमा कलम चलाएका लेखनाथ पौड्याल, बालकृष्ण सम, लक्ष्मीप्रसाद देवकोटा, माधवप्रसाद घिमिरे, भीमदर्शन रोका, भूपी शेरचन, कृष्णप्रसाद पराजुली, यादव खरेल, मोहन कोइराला, मोहन हिमांशु थापा, वैरागी काइँला, सरुभक्त, हरिदेवी कोइराला, उषा शेरचन, ज्ञानुवाकर पौडेल, बूँद राना लगायतका धेरै मुक्तककारले मुक्तकको विकास र विस्तारमा उल्लेख्य भूमिका खेलेको छन् । महान् हस्तीहरूले कलम चलाएको हुँनाले कविताको आधुनिक काललाई मुक्तक लेखनको उर्वर काल मानिन्छ ।

आधुनिक काल अन्तर्गत पनि समसामयिक धारामा मुक्तक लेखनको प्रभाव बढी भेटिन्छ । समसामयिक वा परवर्ती धारामा बृहत् र मझौला आकारका कविताहरू त्यति देखा पर्दैनन् । मुक्तक, गजल, फुटकर कविता र गीतहरूकै बाहुल्यता यसमा भेटिन्छ (भण्डारी र पौडेल, २०६६, पृ.३५) । यस सन्दर्भमा आधुनिक कालीन नेपाली मुक्तकलाई छुट्टै संरचनामा चिनाउन भीमदर्शन रोकाको योगदान विशेष भेटिन्छ । नेपाली साहित्यमा मुक्तक भनेरै मुक्तक लेख्ने पहिलो मुक्तककार भीमदर्शन रोका (१९८६-२०५९) हुन् । वि.सं. २०१० को प्रगति (वर्ष -१, अङ्क-३) मा प्रकाशित रोकाका 'केही मुक्तक' नै नेपाली मुक्तकपरम्परालाई आधुनिकतामा रूपान्तरण गर्ने कोसेढुङ्गा साबित भएका छन् (नेपाल, २०७८, पृ. ६६) । रोकाद्वारा रचित मुक्तकको एउटा नमुना यस प्रकार छ :

रात केवल एक प्रहर बाँकी छ

तीन प्रहरको अन्तिम असर बाँकी छ

पश्चिम पुगेकी एक्ली चाँदनीलाई

केवल एउटा मेरै भर बाँकी छ । (नेपाल, २०७८, पृ. ६७)

भीमदर्शन रोकाको उक्त रचनापछि विभिन्न मुक्तककारहरूले मुक्तक लेखन कार्यलाई अगाडि बढाएको पाइन्छ । यस सन्दर्भमा वि.सं २०१६ मा टेकबहादुर 'नवीन' को चोइटा शीर्षकको कृति प्रकाशन भयो । उनको यो कृति नेपालीमा प्रकाशित पहिलो मुक्तक सङ्ग्रह मान्निछ । यसैगरी वि.सं. २०४२ मा प्रकाशित उनकै 'मेरा केही चोइटाहरू' मुक्तकसङ्ग्रहले मुक्तक लेखन कार्यमा विशेष भूमिका खेलेको पाइन्छ । यसैगरी वि.सं. २०२४ मा प्रकाशित कृष्णप्रसाद पराजुलीको 'सय थुँगा फूल' नामक मुक्तकसङ्ग्रहले पनि मुक्तक लेखन परम्परामा अर्को नवीन उचाइ थप्ने काम गरेको पाइन्छ । यस समयमा माथि उल्लेख गरिएका बाहेक मोदनाथ प्रश्रित, रेणुका भट्टराई, दुबसु क्षेत्री, पुष्प अधिकारी 'अञ्जली', प्रकट पंगेनी शिव, देवी नेपाल, मुरारी पराजुली, रमेशचन्द्र घिमिरे, सन्तोष अम्गाई लगायतका अन्य थुप्रै मुक्तककारहरूबाट मुक्तक लेखन र प्रकाशन कार्य भइरहेको पाइन्छ ।

मुक्तक लेखनको विकास र विस्तारका लागि समयसमयमा थुप्रै व्यक्तिगत तथा संस्थागत प्रयास भएका छन् । विभिन्न समयमा भएको जनआन्दोलन, साहित्यिक आन्दोलन, लोकतन्त्र, गणतन्त्रको स्थापना आदिले यसको विकासमा प्रत्यक्ष प्रभाव पारेको पाइन्छ । राष्ट्रिय तथा जिल्ला र स्थानीय स्तरमा प्रकाशित पत्रपत्रिका, लेख रचना, यस सम्बन्धी भएका अध्ययन अनुसन्धाननात्मक कार्य, रेडियो, एफ. एम., टेलीभिजन आदिले यसको विकासमा उल्लेख्य भूमिका खेलेका छन् । यस्तै नेपाल प्रज्ञा प्रतिष्ठान, नेपाल मुक्तक प्रतिष्ठानलगायत नेपाली भाषा, साहित्यको समृद्धिका लागि स्थापना गरिएका साहित्यिक प्रतिष्ठानहरू, राष्ट्रिय नाचघर, पोखरेली, युवा सांस्कृतिक परिवार, समय समयमा गरिने गोष्ठि तथा सेमिनार, यस सम्बन्धी जारी घोषणा पत्र, मुक्तक मञ्च गठन, विविध साहित्यिक मञ्च गठन, विभिन्न सन्दर्भमा संस्थाहरूमा आयोजना गरिने कार्यक्रमहरू, मुक्तक लेखन प्रतियोगिता, मुक्तक वाचन, मुक्तक विशेषाङ्क प्रकाशन आदिले मुक्तक लेखन, प्रकाशन, विकास र सम्बर्द्धनमा उल्लेख्य भूमिका निर्वाह गरेका छन् ।

मुक्तकका संरचक तत्व

संरचक भन्नाले कुनै वस्तुको निर्माणको अवयव, घटक वा त्यसको तत्व भन्ने बुझिन्छ । मुक्तकका संरचक तत्वहरू भन्नाले मुक्तक निर्माणका लागि आवश्यक पर्ने घटक भन्ने हुन्छ । जुन नभई त्यो बन्दैन, त्यही त्यसको तत्व हुन्छ (लामिछाने, २०७७, पृ.१३३) । मुक्तकमा विषयवस्तु, भाव वा विचार, भाषाशैली, संरचना, उद्देश्य, लय, बिम्ब, प्रतीक र अलङ्कार, अनुप्रास, कथनपद्धति

आदिको उचित संयोजन हुन्छ । यहाँ मुक्तकका मुख्य संरचक तत्वहरूबारेसङ्क्षेपमा चर्चा गरिएको छ :

विषयवस्तु

विषयवस्तु मुक्तकको एक संरचक तत्व हो । यसले मुक्तक जेका बारेमा लेखिन्छ त्यसलाई बोध गराउँछ । मुक्तक जुनसुकै विषयमा लेख्न सकिन्छ । तथापि प्रारम्भमा बढी प्रणयसँग सम्बन्धित भएर मुक्तक रचना गरिएको पाइन्छ । वर्तमानमा प्रणयका साथै सामाजिक, राजनीतिक, प्राकृतिक, धार्मिक, सांस्कृतिक, शैक्षिक, आर्थिक, जीवनका यावत भोगाइ जुनसुकै विषयमा मुक्तक लेख्न गरिन्छ । साथै उक्त विषयक्षेत्रमा देखापरेका विकृति, क्षेत्रका विकृति, विसङ्गति, अन्याय, अत्याचार, भ्रष्टाचार प्रति तिखो व्यङ्ग्य प्रहार गरिन्छ ।

भाव वा विचार

भाव भन्नाले त्यसले प्रकट गर्न खोजेका कुरा, बुझाउन खोजेको सन्देश वा त्यसको सारतत्व भन्ने हुन्छ । अतः यो मानव हृदयसँग निकट हुन्छ । मुक्तकमा मानव जीवनसँग सम्बन्धित उकाली-ओराली, सुख-दुःख, हर्ष-विस्मात, आनन्द-पीडा, माया-प्रीति, मिलन-बिछोड, जीवन भोगाइ वा अनुभूति जस्ता भाव प्रकट भएको हुन्छ । यस्तै धर्म, संस्कार, मेलापात आदिसँग सम्बन्धित रहेर विचार अभिव्यक्त भएको हुन्छ र यसकै माध्यमबाट खास सन्देश पनि प्रवाह गरिएको हुन्छ ।

भाषाशैली

विषयको सम्प्रेषणका लागि 'भाषा' चाहिन्छ भने प्रस्तुतिको कलात्मकताका लागि 'शैली' को आवश्यकता पर्दछ (नेपाल, २०७८, पृ.१३९) । यस सन्दर्भमा मुक्तक अभिव्यक्तिको माध्यम भाषा हो भने शैली प्रस्तुतिको ढाँचा वा तरिका हो । यसर्थ भाषाशैली मुक्तकले जुन भाव व्यक्त गर्न खोजेको छ त्यसको माध्यम र प्रस्तुतिको कौशलतासँग सम्बन्धित हुन्छ । मुक्तकको भाषा खदिलो, अभिधाभन्दा बढी लाक्षणिक, ललित, कोमल, विशिष्ट, बोधगम्य र आलङ्कारिक हुनु पर्दछ । यससन्दर्भमा अनुप्रासीय पद वा पदावलीको प्रयोग अनिवार्य मानिन्छ । प्रस्तुतिको शैली आकर्षक, रोचक र उत्सुकता जगाउने खालको हुनु पर्दछ ।

उद्देश्य

हरेक कार्य गर्नुको आफ्नै उद्देश्य भए झैं मुक्तक लेखनको पनि खास उद्देश्य हुन्छ । मुक्तक लेखनको उद्देश्यले यसले व्यक्त गर्न खोजेको सन्देशलाई बुझाउँछ । यसको उद्देश्य विविध विषयबारे ज्ञान गराउनु, नीतिचेतना प्रदान गर्नु, विविध क्षेत्रमा देखिएका विकृति, विसङ्गतिप्रति व्यङ्ग्य गर्नुका साथै सुधारको अपेक्षा गर्नु, मनोरञ्जन प्रदान गर्नु आदि हुन सक्छ ।

संरचना

संरचना भन्नाले त्यसको बनोट र बुनोट वा त्यसको आयाम, लम्बाइ, चौडाइ र गहिराइ भन्ने बुझिन्छ । मुक्तक कविता विधाकै एक उपविधा भए पनि यसको आफ्नै संरचना हुन्छ । चतुष्पदी संरचनामा निर्मित हुनु यसको बाह्य स्वरूप हो भने बुनोटमा सहभागी भाव/विचार, भाषाशैलीय विन्यास, दृष्टिविन्दु, उद्देश्य आदि तत्वहरूको सहसम्बन्ध आन्तरिक बुनोट हो (गौतम, २०८१, पृ. ४५) । मुक्तक ए, ए, बि, ए को संरचनामा मूलतः चार हरफमा तयार पारिन्छ । यसमा पहिलो, दोस्रो र चौथो हरफ अनुप्रास युक्त हुन्छ तर तेस्रो हरफ स्वतन्त्र हुने भएकाले अनुप्रास आवश्यक पर्दैन । यस्तै पहिलो हरफले विषयको उठान, दोस्रोले पहिलो हरफलाई समर्थन र विकास गर्छ भने तेस्रो हरफले चौथो हरफलाई प्रभावकारी, ओजनदारबनाउन र कुतूहतला जगाउन बनाउन

विशेष भूमिका निर्वाह गर्दछ । चौथो हरफले मुटुमा विद्युतीय मार वा झट्का प्रहार गर्छ र सबैभन्दा बढी ओजनदार हरफ पनि यही हुन्छ ।

लय

कवितामा लय अनिवार्य मानिन्छ । मुक्तक पनि कविताकै लघुतम रूप भएकाले यसमा पनि लयको प्रयोग गरिन्छ । मुक्तक बद्धलय र मुक्तलय दुवैमा लेखिन्छ (नेपाल, २०७८, पृ.२६) । गौतमका अनुसार बद्ध लय अर्न्तगत वार्णिक, मात्रिक तथा लोकलय पर्दछन् भने मुक्तलय भनेको आन्तरिक लय विधान भएको गद्यलय हो (२०८१, पृ. ४९) । जेहोस् बद्धलय भन्नाले बाँधिएको र मुक्त लय भन्नाले स्वतन्त्र भन्ने बुझिन्छ । नेपालमा मुक्तक बद्ध वा मुक्तक मध्ये कुनै एक लयको प्रयोग गरी लेखिएको पाइन्छ ।

बिम्ब, प्रतीक र अलङ्कार

बिम्ब, प्रतीक तथा अङ्कार पनि मुक्तकको महत्त्वपूर्ण संरचक तत्व हो । यसको प्रयोगले मुक्तकको ओज बढाउँछ । मुक्तकमा प्रयोग गरिने बिम्बले अदृश्य कुरालाई दृश्यवान बनाउन, अभिव्यक्तिलाई चित्रात्मक बनाउँन र भाव सम्प्रेषणमलाई सरल बनाउन मद्धत गर्छ । यस्तै प्रतीकले कुनै एक वस्तु/विषयका माध्यमबाट अर्कै वस्तु/विषय बुझाउन मदत गर्छ । अलङ्कारले रचनालाई सौन्दर्य बनाउन मदत गर्छ । समगतः मुक्तकमा व्यक्त गर्न खोजिएको भावलाई सूत्रात्मक, प्रभावकारी बनाउन, अदृश्य कुरालाई बुझाउन तथा त्यसको सुन्दरता, मोहकता, चमकता अभिवृद्धि गर्न बिम्ब, प्रतीक तथा अङ्कारको प्रयोग गरिन्छ ।

अनुप्रास

अनुप्रासको प्रयोगले मुक्तकलाई सुन्दर बनाउँछ, श्रुतिमधुर र प्रभावकारी बनाउँछ । मुक्तक को पहिलो, दोस्रो र चौथो पङ्क्तिमा अनुप्रास अनिवार्य मानिन्छ । तेस्रो पङ्क्ति स्वतन्त्र हुने भएकाले यसमा अनुप्रासको आवश्यकता पर्दैन । यसलाई कतिपयले मूलतः गजलमा प्रयोग गरिने काफियाका रूपमा समेत चिनाएका छन् ।

निष्कर्ष

मुक्तक साहित्यको पद्यात्मक रचना हो । यो कविताकै लघुतम रूप हो । संस्कृत साहित्यबाट यसको चर्चा हुन थालेको हो । अग्निपुराण ग्रन्थमा यसको चर्चा भए पनि शक्तिबल्लभ अर्ज्यालले आदिमुक्तककारका रूपमा लिइन्छ । यो अङ्ग्रेजी साहित्यको क्वाट्रेन तथा अरबी फारसी साहित्यमा प्रचलित रुबाईसँग नजिक देखिन्छ । कविता लेखन कार्यसँगै अगाडि बढेको मुक्तक वर्तमानमा निकै लोकप्रिय विधाका रूपमा स्थापित छ । यो छोटो हुन्छ तर आफैमा पूर्ण, प्रभावकारी तथा हृदयलाई चमत्कृत गर्ने खालको हुन्छ । यस्तै कसिलो एवम् मनमा बाण हान्ने र हृदयलाई आनन्द प्रदान गर्ने खालको हुन्छ । चतुष्पदी मूल पहिचान बनेको मुक्तक ए, ए, बि, ए को संरचनामा तयार पारिन्छ । यसमा विषयवस्तु, भाव, भाषाशैली, उद्देश्य, बिम्ब, प्रतीक, अलङ्कार, लय, अनुप्रास आदिको संयोजन भेटिन्छ । यो विविध विषयमा लेखिन्छ । यस सन्दर्भमा मानव जीवनसँग सम्बन्धित उकाली-ओराली, सुख-दुःख, हर्ष-विस्मात, आनन्द-पीडा, माया-प्रीति, मिलन-बिछोड, चिन्ता, छटपटी जस्ता जीवन भोगाइ वा अनुभूतिहरूलाई समेटिएको हुन्छ । मुक्तक लेखनको विकास, विस्तार र उन्नयनका लागि समयसमयमा थुप्रै व्यक्तिगत तथा संस्थागत प्रयास भएका छन् ।

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लेखसार

प्रस्तुत लेख व्यतिरेक वा अर्थभेदकता सँग सम्बन्धित रहेको छ । यस लेखमा स्वर वर्ण र व्यञ्जन वर्णहरूको सूची दिनुका सथै ती सबै वर्णको विभिन्न व्यतिरेकी युग्मको माध्यमले विश्लेषण गरी परिवेशगत वितरण गर्नु यस लेखको मुख्य उद्देश्य रहेको छ । प्रस्तुत लेखमा गुणात्मक अध्ययन विधिको अवलम्बन गरिएको छ । प्राथमिक स्रोत अन्तर्गत तथ्याङ्कको सङ्कलन नमुना छनोट विधिमा आधारित छ । यस अन्तर्गत अजयमेरू गाउँपालिकाका विभिन्न उमेर समूह, लिंग, जातजाति, पेशा, वर्गका उद्देश्यमूलक नमुना छनोटमा परेका सूचकबाट शब्दसूची, प्रश्नावली, कुराकानी र अन्तर्वार्ताबाट सामग्री सङ्कलन गरिएको छ । यस भाषामा छ ओटा स्वरवर्ण र तिस ओटा व्यञ्जन वर्ण रहेका छन् । स्वरवर्ण जिब्राको सक्रियता, जिब्राको उचाइ र ओठको अवस्थाका आधारमा पदादि, पदमध्य र पदान्तमा व्यतिरेकी छन् । व्यञ्जनवर्णमा कोमलतालव्य, प्रकम्पित र पार्श्विक, स्वरयन्त्रमुखी र वर्त्स्य, कोमलतालु-स्पर्शी र अल्पप्राण, वर्त्स्य -स्पर्शसङ्घर्षी र अल्पप्राण, वर्त्स्य-स्पर्शी र अल्पप्राण, दन्त्य-स्पर्शी र अल्पप्राण, ओष्ठ्य-स्पर्शी र अल्पप्राण, कोमलतालु-स्पर्शी र अघोष, कोमलतालु-स्पर्शी र सघोष, वर्त्स्य-स्पर्शसङ्घर्षी र अघोष, वर्त्स्य-स्पर्शी र अघोषमा पदादि, पदमध्य र पदान्त गरी सबै तहमा व्यतिरेक रहेका छन् भने नासिक्यवर्ण पदादिमा व्यतिरेक देखिदैनन् । वर्त्स्य र जिह्वाफलक, स्पर्शसङ्घर्षी र जिह्वाफलक, स्पर्श र जिह्वाग्र, स्पर्श र दन्त्य, वर्त्स्य-स्पर्शसङ्घर्षी र महाप्राण, दन्त्य-स्पर्शी र महाप्राण, वर्त्स्य-स्पर्शसङ्घर्षी र सघोष, वर्त्स्य-स्पर्शी र सघोष, ओष्ठ्य-स्पर्शी र सघोषमा पदमध्य र पदान्तमा व्यतिरेक पाइँदैन । त्यसै गरी वर्त्स्य र जिह्वाग्र, दन्त्य, ओष्ठ्य, स्पर्श र ओष्ठ्य, कोमलतालु-स्पर्शी र महाप्राण, वर्त्स्य-स्पर्शसङ्घर्षी र महाप्राण, ओष्ठ्य-स्पर्शी र महाप्राण, दन्त्य-स्पर्शी र अघोष, ओष्ठ्य-स्पर्शी र अघोषमा पदान्तमा व्यतिरेक पाइँदैन ।

शब्दकुञ्जी : *व्यतिरेक, प्राण्, वर्ण, अर्थभेदक, युग्म*

परिचय

भाषा परिवर्तनशील वस्तु हो । त्यसैले कुनै पनि भाषा सबै ठाउँ र सबै स्थितिमा एकनासले प्रयोग भएको पाइँदैन । भौगोलिक दूरी, सम्पर्कको अभाव, समयको लामो अन्तराल, विभिन्न भाषिक समुदायसँगको सम्पर्क आदीका कारणले एउटै भाषाका विभिन्न भेदहरू निर्माण हुने गर्दछन् । डडेल्धुरा जिल्लामा बोलिने भाषा डडेल्धुरेली भाषा हो । यो भाषा डडेल्धुरा जिल्लामा बसोरबास गर्ने अधिकांश व्यक्तिहरूले बोल्दछन् । यस भाषामा भुतिउँ गर्खा, रुपाल गर्खा, पश्च गर्खा, भित्री मधेश र गड गर्खा जस्ता क्षेत्रीय भाषिक भेदहरू रहेका पाइन्छन् । यो अध्ययन भुतिउँ गर्खामा बोलिने भाषिक भेदमा आधारित छ र यस अध्ययनमा अजयमेरु कोटलाई केन्द्रबिन्दु बनाई सामग्री सङ्कलन गरी विश्लेषण गरिएको छ ।

वर्ण भाषाको पहिलो एकाइ हो । यसका बारेमा बन्धु (२०५३) ले भाषाका आन्तरिक रचनामा भाषाका वर्ण, व्याकरण र शब्दभण्डार आउँछन् भन्ने कुराको चर्चा गरेका छन् । संरचनावादी भाषाशास्त्रीहरूले वर्ण र व्याकरणलाई भाषा विज्ञानको केन्द्रीय क्षेत्र र ध्वनि र अर्थलाई परिधीय क्षेत्र मानेका छन् (न्यौपाने र अन्य, २०७३ पृ. १२) । वर्णको विश्लेषण गर्नका लागि संरचनावादी भाषा वैज्ञानिकहरूले आवश्यक सिद्धान्त बनाएका छन् । यिनै सिद्धान्तलाई अफ्नाएर वर्ण विश्लेषन गर्न सकिन्छ । वर्ण विश्लेषणका सिद्धान्तहरूमा व्येतिरेकी, परिपूरक वितरण र मुक्त परिवर्तनको सिद्धान्त रहेका छन् (बन्धु, २०५३,पृ. ५६) । यिनै सिद्धान्तका आधारमा डडेल्धुरेली भाषाका व्यतिरेकी वर्णहरूको विश्लेषण गर्ने उद्देश्य राखेर यो अध्ययन गरिएको छ । यस अध्ययनले नेपाली भाषामा रहेका व्यतिरेकी वर्णगत विशेषता पहिचान गरेर डडेल्धुरेली भाषी वक्ताालाई नेपाली भाषा सिकाइमा देखाइर्ने जटिलता पहिचान गर्न सहज गर्ने छ । नेपालको संविधानमा पनि मातृभाषामा शिक्षा पाउन सक्ने कुराको व्यवस्था गरिएको छ । त्यसैले मातृभाषाका सामग्री अध्ययन अनुसन्धान गर्नमा प्रस्तुत अध्ययनले सहयोग गर्ने छ भन्ने विश्वास गरिएको छ । डडेल्धुरेली भाषामा के कस्ता व्यतिरेकी वर्णहरू रहेका छन् ? व्यतिरेकी वर्णहरूको वितरण अवस्था के कस्तो छ ? भन्ने समस्याको समाधान खोज्ने कार्यमा केन्द्रीत रहेर यो अध्ययन गरिएको छ । साथै वर्ण विश्लेषण सिद्धान्तका आधारमा डडेल्धुरेली भाषाका व्यतिरेकी वर्ण निर्धारण गरी तिनको वितरण प्रक्रिया निरूपण गर्नु प्रस्तुत अध्ययनको मुख्य उद्देश्य हो । यस प्रकाको अध्ययनले डडेल्धुरेली भाषाको वर्ण निर्धारणमा महत्त्वपूर्ण भुमिका खेल्ने देखिन्छ । यसका अतिरिक्त भाषा भाषिका अध्ययन गर्नेहरूको प्राज्ञिक उन्नयनमा समेत यस अध्ययनले सहयोग गर्ने छ ।

अध्ययन विधि

गुणात्मक अनुसन्धान ढाँचामा केन्द्रीत रहेर प्रस्तुत अध्ययन गरिएको छ । शोध सामग्रीका लागि तथ्यहरूको सङ्कलन विशेषतः प्राथमिक स्रोतबाट गरिएको छ । प्राथमिक स्रोत अन्तर्गत तथ्याङ्को सङ्कलन नमुना छनोट विधिमा आधारित छ । यस अन्तर्गत अजयमेरू

गाउँपालिकालाई मुख्य मानिएको छ । यस गाउँपालिकाका विभिन्न उमेर समूह, लिंग, जातजाति, पेशा, वर्गका उद्देश्यमूलक नमुना छनोटमा परेका सूचकबाट शब्दसूची, प्रश्नावली, कुराकानी र अन्तर्वार्ताबाट सामग्री सङ्कलन गरिएको छ । साथै एउटा सूचकबाट प्राप्त सामग्री अर्को सूचकसँग संपरीक्षण गरिएको छ ।

तथ्य सङ्कलनका लागि भाषाविज्ञान विभागले तयार पारेको आधारभूत शब्दावली, स्वडेसका एक सय शब्दसूचीका साथै शोधकर्ता आफैंले तयार पारेको प्रश्नावलीको प्रयोग, प्रत्यक्ष अन्तर्वाता र वर्णन विधिद्वारा गरिएको छ । शब्द, लोककथा, लोकगाथा, माङल, फाग, डेउडा धुमारी आदि कथ्य पाठहरूको सङ्कलन गरिएको छ । यस क्रममा सामग्रीलाई सूचकद्वारा स्वतन्त्र रूपमा भन्न लगाएर अडासिटी (ब्यामबअष्तथ० सफ्टवयरमा अभिलिखित गरी आलेखन गरिएको छ । गौण सामग्रीका रूपमा भाषाविज्ञान र भाषिका शास्त्रसम्बन्धी सैद्धान्तिक पुस्तकहरूको यथेष्ट उपयोग गरिएको छ । डडेल्धुरेली भाषासँग सम्बन्धित द्वितीयक सामग्रीहरूलाई पनि यस अध्ययनमा प्रयोग गरिएको छ ।

परिणाम र छलफल

अर्थविभेदक लघुतम भाषिक एकाइलाई वर्ण भनिन्छ । वर्ण खास भाषिक व्यवस्थामा लघुतम व्यतिरेकी ध्वनि हो (यादव, २०५९ :१०९) । भाषाका ध्वनिहरु खास किसिमको संरचनामा आएर भाषाका वर्णका तहमा रहन्छन् । भाषापिच्छे ध्वनि व्यवस्था पनि फरक हुन्छ र भाषाका वर्णहरु पनि फरक फरक हुन सक्छन् । खास भाषिक व्यवस्थामा व्यतिरेकी भएर आउने ध्वनिलाई वर्ण भनिन्छ (न्यौपाने, २०६७ :५१) । युग्म न्यूनतम परीक्षण भनेको दुई शब्द वा वाक्यांशमा केवल एउटै स्थानमा फरक ध्वनि राखेर अर्थ परिवर्तन हुन्छ कि हुँदैन भनेर परीक्षण गर्ने प्रक्रिया हो। यदि अर्थ परिवर्तन भयो भने ती ध्वनिहरू व्यतिरेकी वितरण अन्तर्गत पर्दछन्, त्यसैले ती स्वतन्त्र ध्वन्यात्मक एकाइ ९उजयलझभक० हुन् । यस सिद्धान्तले कुनै पनि भाषाका वर्णहरूको विश्लेषण गर्दा तिनीहरूको वितरण अवस्थालाई देखाउँदै वर्णको निर्धारण, वर्णको वर्गीकरण तथा वर्णन र व्याख्या गर्ने कार्य गर्दछ । विभिन्न भाषिक सम्प्रदायहरूले भाषाका वर्णहरूको विश्लेषण गर्ने फरक फरक दृष्टिकोण र सैद्धान्तिक आधारहरू प्रस्तुत गरेका छन् ।

अमेरिकाली संरचनावादिहरूले व्यतिरेकी र परिपूरक वितरणको सिद्धान्त, ध्वनितात्विक समानताको सिद्धान्त, ढाँचामा स्वेच्छताको सिद्धान्त र मितव्ययिताको सिद्धान्तलाई प्रस्तुत गर्दै वर्णहरूको निर्धारण गर्ने आधार प्रदान गरेका छन् । यिनीहरूले वर्णलाई ध्वनितात्विक यथार्थ मानेको पाइन्छ । प्राग सम्प्रदायले वर्णलाई प्रकार्यवादी दृष्टिकोणबाट चिनाउँदै वर्णको निर्धारणका लागि प्रतिनिधान परीक्षण, विभेदक अभिलक्षण, द्विचर विरोध, मुक्त परिवर्तन जस्ता सिद्धान्तहरू प्रस्तुत गरेका छन् । मुलभूतरूपमा यी दुबै दृष्टिकोणहरूमा एकरूपता पाइने गर्छ । यस अध्ययनमा व्यतिरेक वितरणको सिद्धान्तलाई आधार बनाई डडेल्धुरेली भाषाका वर्णहरूको विश्लेषण गरिएको छ ।

व्यतिरेक वा अर्थभेदकता

कुनै पनि भाषाको वर्ण विश्लेषणमा महत्त्वपूर्ण र आधारभूत अवधारणा अर्थभेदक वा व्यतिरेक हो । व्यतिरेकद्वारा नै संसारका कुनै दुई वस्तुको भिन्नता थाहा भएझैं व्यतिरेकद्वारा नै वर्णको भिन्न स्वरूप स्थापित गरिन्छ । व्यतिरेकको अर्थ हो विरोध वा असमानता । कुनै एक वस्तुलाई अर्को वस्तुबाट अलग्याउने तत्त्व नै व्यतिरेक हो । यही व्यतिरेकी तत्त्वकै अधारमा कुन भाषामा कति वर्णहरू छन् भनेर छुट्याउने गरिन्छ । एउटा वर्ण अर्को वर्णभन्दा भिन्न हो भन्ने देखाउनका लागि ती वर्णले बनेका लघुतम भाषिक युग्म वा शब्दमा जानुपर्छ । त्यस्ता युग्महरूले अर्थ वा स्वरुपमा भिन्नाता ल्याए भने ती विभेदक वर्ण व्यतिरेकी वर्ण हुन् । यादव (२०५९:११३) का अनुसार एउटै स्थान र उही परिवेशमा आउने र अर्थमा भिन्नता ल्याउने दुई ध्वनिहरूलाई व्यतिरेकी वितरणमा रहेका ध्वनि भनिन्छ । समान परिवेशमा एउटा वर्ण उही हुने र अर्को वर्ण फेरिंदा अर्थमा भिन्नता आउने अवस्थामा त्यो भिन्न वर्ण हुन पुग्छ । अर्थात् समान परिवेशमा ध्वनिको परिवर्तनसँगै अर्थगत भिन्नता देखापर्ने स्थिति नै वर्ण व्यतिरेक हो जसले अर्थभेदकतालाई स्पष्ट पार्छ । वर्णको विश्लेषण गर्ने व्यतिरेक सिद्धान्तअनुसार प्रायः भाषाका दुई वा तीन वर्णका शब्द वा अक्षर लिई उच्चारणमा एउटा वर्णको मात्र भिन्नता भएर अर्थमा नै भिन्ता ल्याउने स्थितिमा वर्ण व्यवस्थाको निर्धारण गर्न सजिलो हुन्छ । सबै वर्णहरू सबै पपरिवेशमा आउन सक्दैनन् । निश्चित अर्थात विशिष्ट परिवेशमा रही केही वर्णहरूले काम गर्दछन् भने अन्य वर्णहरू त्यस्ता परिवेशमा आउन वा नआउन पनि सक्दछन् । डडेल्धुरी भाषाका वर्णहरूको वितरणगत परिवेश पदादि, पदमध्य र पदान्तमा हुने गरेको पाइन्छ ।

वर्णव्यवस्था सम्बन्धी सैद्धान्तिक आधार

अर्थविभेदक लघुतम भाषिक एकाइलाई वर्ण भनिन्छ । यस्ता एकाइ भाषापिच्छे फरक फरक सङ्ख्यामा पाइन्छन् । भाषिक एकाइहरूलाई लघुतम खण्डमा विभाजन गर्दा अन्तमा रहने अविभाज्य एकाइ ध्वनि हुन्छन् । यसरी प्राप्त हुने कतिपय ध्वनिहरू अर्थभेदक हुन्छन् भने कतिपय ध्वनिमा उच्चारणगत भेद मात्र हुन्छ । वर्ण विज्ञानमा अर्थभेदक ध्वनिलाई वर्ण र उच्चारणगत भेदमा आएका वर्णलाई संवर्ण भनिन्छ । वर्णहरू समान परिवेशमा अर्थभेदक ध्वनिका रूपमा प्रयोग हुन्छन् । यस्ता ध्वनिलाई व्यतिरेकी ध्वनि पनि भनिन्छ ।

वर्णलाई खण्डीय र खण्डेतर गरी दुई प्रमुख आधारमा वर्गीकरण गरिन्छ । खण्डीय वर्ण भनेका एकल ध्वनिका रूपमा उच्चारण हुन सक्ने अर्थभेदक ध्वनि हुन् । यस अन्तर्गत स्वर र व्यञ्जन वर्ण पर्दछन् । खण्डेतर वर्ण भनेका एकल ध्वनिका रूपमा उच्चारण हुन नसक्ने र खण्डीय ध्वनिमा आश्रित रही उच्चारण हुने ध्वनि हुन् । खण्डेतर वर्णअन्तर्गत दीर्घता, बल, सुर, लय आदी पर्दछन् । खण्डेतर ध्वनिहरू खण्डीय वर्णभन्दा ठूला एकाइ हुन्छन् । यिनीहरू कुनै एक वर्णमा मात्र आश्रित नभई अक्षर, शब्द र सिङ्गो वाक्यमा पनि आश्रित हुन सक्दछन् । अनुनासिकतालाई

सामान्यतया खण्डेतर वर्ण अन्तर्गत राखिँदैन तर यसको प्रकृति पनि ध्वनिगुण समान देखिन्छ । यसैले प्रस्तुत शोध प्रबन्धमा अनुनासिकतालाई खण्डेतर ध्वनिका रूपमा चर्चा गरिएको छ ।

वर्णमा पाइने अर्थभेदकतालाई लघुतम युग्महरूका आधारमा हेरिन्छ । यस्ता युग्महरूमा कुनै एक परिवेशमा कुनै एक ध्वनि मात्र भिन्न हुन्छ । यसैले उक्त परिवेशमा आउने ध्वनिका कारण शब्दको अर्थ भिन्न हुन पुग्यो भने त्यो ध्वनि अर्थभेदक वा व्यतिरेकी ध्वनि हुन्छ (पण्डित, २०६९: ४८) । यस्ता वर्णको अर्थभेदकतालाई पदादि, पदमध्य र पदान्त गरी भिन्न भिन्न परिवेशमा देखाउन सकिन्छ । वर्ण व्यतिरेक देखाउँदा कुनै ध्वनि कुनै एक परिवेशमा मात्र पनि व्यतिरेकी देखिएको अवस्थामा त्यस ध्वनिले वर्णको मान्यता प्राप्त गर्दछ ।

डडेल्धुरेली भाषाका स्वर र व्यञ्जन वर्णमा व्यतिरेकी युग्महरू अलग अलग खण्डमा देखाउने प्रयास गरिएको छ ।

स्वर वर्णको व्यतिरेकी युग्म

डडेल्धुरेली भाषाका स्वर वर्णहरू व्यतिरेकी युग्मका आधारमा पदादि, पदमध्य र पदान्त गरी तीनै परिवेशमा अर्थ विभेदक देखिन्छन् । यस्तो व्यतिरेक देखाउँदा जिब्राको सक्रियता, जिब्राको उचाइ र ओठको अवस्थाका आधारमा अलग अलग देखाउन सकिन्छ ।

(क) जिब्राको सक्रियताका आधारमा व्यतिरेक

जिब्राको सक्रियताका आधारमा डडेल्धुरेली भाषाका स्वर वर्णको व्यतिरेकी युग्म यस प्रकार रहेको छ :

अग्र स्वरमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
इ :	इन् यिनी	किलो किलो	कालि काली
ए :	एन् ऐन	केलो केरा	काले काले

मध्य स्वरमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
अ :	अरि गरी	कल् झगडा	तर् खोला तर
आ :	आरि आरी	काल् समय	तरा खोला तरा

पश्च स्वरमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
उ :	उडा उडाउ	कुल् कुलखानदान	मालु घाँस विशेष

ओ : ओड ओढाउ कोल् काख मालो गर्मी ठाउँ

(ख) जिब्राको उचाइका आधामा व्यतिरेक

जिब्राको उचाइका आधारमा डडेल्धुरेली भाषाका छ वटै स्वर वर्ण आदी, मध्य र अन्त परिवेशमा अर्थ विभेदक देखिन्धन् । जस्तै :

उच्च स्वरमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
इ :	इन् इनी	किलो किलो	नाइ नाइ
उ :	उन् उनी	कुलो कुलो	नाउ नाव

निम्नमध्य स्वरमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
ए :	एस् मस्ति	खेल् खेल्ने कार्य	काले काले
ओ :	ओस् सित	खोल खोल	कालो कालो

निम्नमध्य र निम्न स्वरमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
अ :	अरि गरी	गल् भारी बस्तु रोक्ने काठ	तर खोला तर
आ :	आरि आरी	गाल् समस्या	तार खोला तरा

(ग) ओठको अवस्थाका आधारमा व्यतिरेक

ओठको अवस्थाका आधारमा डडेल्धुरेली भाषाका छ वटै स्वर वर्ण आदी, मध्य र अन्तको परिवेशमा आएर अर्थ भेदक बन्छन् । यस्तो व्यतिरेक माथि (क) जिब्राको सक्रियतामा देखाइ सकिएको छ ।

डडेल्धुरेली भाषाका स्वर वर्णको वितरणलाई तलको तालिका नं. १ मा देखाइएको छ :

तालिका नं. १

स्वर वर्णको वितरण

स्वर वर्ण	पदादि	पदमध्य	पदान्त
इ	+	+	+

ए	.	.	.
अ	.	.	.
आ	.	.	.
ओ	.	.	.
उ	.	.	.

डडेल्धुरेली व्यञ्जन वर्णका व्यतिरेकी युग्म

डडेल्धुरेली भाषामा व्यञ्जन वर्णको व्यतिरेक उच्चारण स्थान, प्रयत्न, घोषत्व र प्राणत्व गरी उच्चारण प्रक्रियाका चारवटै आधारमा देखिन्छ ।

(क) उच्चरण स्थानका आधारमा व्यतिरेक

डडेल्धुरेली भाषाका व्यञ्जन वर्ण उच्चारण स्थानका आधारमा आदी मध्य र अन्त तीनवटै तहमा व्यतिरेकी वितरण देखिन्छन् । जुन यस प्रकार छन् :

कोमल तालव्य वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
क्	काम् काम	पाको परिपक्व	लेक् लेक
ख	खाम् खाम	पाखो छानो	लेख् लेख
ग्	गोल गोलो	मागि मागेर	माग् माग
घ्	घोल् गुँड	माघि माघी	माघ् माघ

वर्त्स्य (जिह्वाग्र) वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
च्	चाल् चाल चलन	पचा पचाउने कार्य	काँच् प्लाष्टिक
छ्	चाल् समुन्द्री छाल	पछा पछि	काँछ् कहाँ छ
ज्	जाल् जाल	माजि माझ्नु	राज् राजकाज
झ्	झाल् झ्याङ्	माझि माझी	--- --- -- -- ---

माथी दिइएका वर्त्स्य वर्णका पदादि र पदमध्यमा व्यतिरेक देखिए पनि पदान्तमा व्यतिरेक भएको पाईंदैन ।

वर्त्स्य (जिह्वाफलक) वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
ट्	टेक् टेक्नु	पाटि काठको सिलेट	काट् काट
ठ	ठेक फेद	पाठि बाख्राको पाठो	काठ काठ
ड	डाक् काराउनु	आडो ढोका पछाडि लागउने काठ	पड् भिर
ढ	ढाक् ढाक्नु	-- --- --- --- ----	-- --- --- --

वर्त्स्य वर्णका पदादिमा व्यतिरेक देखिए पनि पदमध्य र पदान्तमा भने व्यतिरेक भएको पाइँदैन ।

दन्त्य वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
त	तान् तान	पाति तितेपाति	पात् पात
थ	थान् थान	पाथि पाथी	-- -- -- -
द	दान् दान	गदा हतियार विशेष	पद् पद तह
ध	धान् धान	गधा गधा	- - - - - - -

दन्त्य वर्णका पदादि र पदमध्यमा व्यतिरेक देखिएको छ भने पदान्तमा व्यतिरेक भएको पाइँदैन ।

ओष्ठ्य वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
प्	पाल् त्रिपाल	कापि कपी	काप् हाँङ्गो पालएलो ठाउँ
फ्	फाल् हाम फाल्नु	काफि धेरै	- -- -- -- --
ब्	बोल् बोल	सबा एक चौथाइ	कब् कहिले
भ	भोल् भल	सभा सभा	- - - -- --

ओष्ठ्य वर्णका पदादि र पदमध्यमा व्यतिरेक देखिन्छ भने पदान्तमा व्यतिरेक भएको पाइँदैन ।

नासिक्य वर्णमा व्यतिरेक

पदादि	**पदमध्य**	**पदान्त**

ङ्	-- -- -- --	काङो कंगाल	माङ् मेलो
ण	-- -- -- -	काणो काँडो	माण् भातको माड
न	नान् थोरै	कानो अन्धो	मान् मान सम्मान
म्	मान् सम्मान	कामो कामको	माम् माम

कोमल तालव्य र मूर्धन्य (नासिक्य) वर्णमा पदादिमा व्यतिरेक भएको पाईँदैन । तर पदमध्य र पदान्तमा व्यतिरेक देखिन्छ ।

प्रकम्पित र पार्श्विक वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
र्	राज् राजकाज	पारो ठेकी	राप् आगोको ताप
ल्	लाज लाज	पालो पालो	राल् ऱ्याल

स्वरयन्त्रमुखी र वर्त्स्य वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
स्	साल् बर्ष	सासु सासु	सास् श्वास
ह्	हाल् हालखवर	साहु थर विशेष	साह् थर विशेष

(ख) उच्चारण प्रयत्नका आधारमा व्यतिरेक

डडेल्धुरेली भाषामा व्यञ्जन वर्ण उच्चारण प्रयत्नका आधारमा निम्न लिखित व्यतिरेकी युग्मका आधारमा स्पष्ट्याउन सकिन्छ :

स्पर्श र हनुमूलीय वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
क्	कोल् काख	बाको बुबाको	राक् जलेको खरानी
ग्	गोल् गोलो	बागो धामिलाई दिइने लुगा	राज नाइटो मुनिको भाग
ख्	खोल् खोल	माखो झिंगा	राख् राख
घ्	घोल् घोल	माघो माघ महिनाको	- -- -- -- --

स्पर्श हनुमूलीय वर्णका पदादि र पदमध्यमा व्यतिरेक देखिए पनि पदान्तमा व्यतिरेक भएको पाइएन ।

स्पर्श सङ्घर्षी र जिह्वाफलक वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
च्	चार् चार	साँचो साँचो	माच् परालको ढाप
ज्	जार् चोर जार	साँजो साँझको	माज् आगोमा
छ्	छाल् पानिको छाल	माछो माछा	पुछ् मेटाउनु
झ्	झाल झ्याङ	- -- -- -- -	- -- -- -- -

स्पर्श सङ्घर्षी र जिह्वाफलक वर्णमा पदादिमा व्यतिरेक देखिए पनि पदमध्य र पदान्तमा व्यतिरेक भएको पाइएन ।

स्पर्श र जिह्वाग्र वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
ट्	टालो टालो	माटि माटो	आट् जाँतोको आटा खस्ने भाग
ड्	डालो डालो	माडि माड्ने कार्य	आड् भरोसा
ठ्	ठालु ठालु	मुठो मुठो	आठ् आठ
ढ्	ढालु ढलाउने कार्य	-- -- -- -- --	-- -- -- -- ---

स्पर्श र जिह्वाग्र वर्णका पदादिमा व्यतिरेक देखिए पनि पदमध्य र पदान्तमा व्यतिरेक भएको पाइएन ।

स्पर्श र दन्त्य वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
त्	तान् तान्नु	सौता सौता	पात् पात
द्	दान् दान	सौदा किन बेच	पाद् पाद्नु
थ्	थान् मन्दिर	रिथि मालिक स्वामी	कथ् कता
ध	धान् धान	-- -- -- --	-- -- -- --

स्पर्श र दन्त्य वर्णका पदादिमा व्यतिरेक देखिए पनि पदमध्य र पदान्तमा व्यतिरेक पाइएन ।

स्पर्श र ओष्ठ्य वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
प्	पात् पात	टिपु टिपौं	दाप् खुकुरीको खोल

ब्	बात् कथा	टिबु खेल विशेष	दाब् दबाउ
फ्	फाग् फाग	सफा सफा	कफ् कफ
भ्	भाग् भग	सभा सभा समारोह	-- -- -- -- --

स्पर्श र ओष्ठ्य वर्णका पदादि र पदमध्यमा व्यतिरेक देखिए पनि पदान्तमा व्यतिरेक भएको पाइँदैन ।

नासिक्य व्यञ्जनमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
ङ्	-- -- -- -- --	काङो कंगाल	माङ् मेलो
ण्	-- -- -- -- --	काणो काँडो	माण् भातको माड
न्	नान् थोरै	कानो अन्धो	मान् मान सम्मान
म्	मान् सम्मान	कामो कामको	माम् माम

नासिक्य व्यञ्जन वर्णको पदमध्य र पदान्तमा व्यतिरेक देखिए पनि पदादिमा व्यतिरेक भएको पाइँदैन ।

सङ्घर्षी व्यञ्जनमा स्थानगत व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
स् (वर्त्स्य)	साउ साहू	काँसो खोकी	सास् श्वास
ह् (स्वरयन्त्रमुखी)	हाउ बाघ	काँहो कता हो	शाह् शाह

(ग) घोषत्वका आधारमा व्यतिरेक

डडेल्धुरेली भाषामा स्थान र प्रयत्न एउटै भए पनि घोषत्वका आधारमा स्पष्ट हुने व्यतिरेकी युग्म यस प्रकार छन् :

कोमल तालु, स्पर्शी र अल्पप्राण वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
क्	कानो कानो	बाको बुवाको	राक् जलेको खरानी
ग्	गानो गानो गोला	बागो धामिलाई दिने लुगा	राग नाइटो मुनिको भाग

कोमल तालु, स्पर्शी र महाप्राण वर्णमा व्यतिरेक

पदादि	**पदमध्य**	**पदान्त**

ख्	खाम् खाम	माखो झिँगा	राख् राख
घ्	घाम् घाम	माघो माघको महिना	-- -- -- -- -

कोमल तालु, स्पर्शी र महाप्राण वर्णका पदादि र पदमध्यमा व्यतिरेक देखिए पनि पदान्तमा व्यतिरेक भएको पाईँदैन ।

वर्त्स्य, स्पर्शसङ्घर्षी र अल्पप्राण वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
च्	चार् चार	साँचो साँचो	माच् परालको ढाप
ज्	जार् चोर जार	सँजो साँझको	माज् आगोमा

वर्त्स्य, स्पर्शसङ्घर्षी र महाप्राण वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
छ्	छाल् पानीको छाल	माछो माछा	पुछ् मेटाउनु
झ्	झाल् झ्याङ	-- -- -- -- --	-- -- -- -- --

वर्त्स्य, स्पर्शसङ्घर्षी र महाप्राण वर्णका पदादिमा व्यतिरेक देखिए पनि पदमध्य र पदान्तमा व्यतिरेक भएको पाईँदैन ।

वर्त्स्य, स्पर्शी र अल्पप्राण वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
ट्	टालो टालो	माटि माटो	आट् जाँतोको आटा खस्ने भाग
ड्	डालो डालो	माडि माडने कार्य	आड् भरोसा

वर्त्स्य, स्पर्शी र माहप्राण वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
ठ्	ठालु ठालु	मुठो मुठो	आठ् आठ
ढ्	ढालु ढलाउने कार्य	-- -- -- -- --	-- -- -- -- -

वर्त्स्य, स्पर्शी र महाप्राण वर्णका पदादिमा व्यतिरेक देखिए पनि पदमध्य र पदान्तमा व्यतिरेक भएको पाईँदैन ।

दन्त्य, स्पर्शी र अल्पप्राण वर्णमा व्यतिरेक

पदादि	**पदमध्य**	**पदान्त**

त्	तान् तान्नु	सौता सौता	पात् पात
द्	दान् दान	सौदा किन बेच	पाद् पाद्नु

दन्त्य, स्पर्शी र महाप्राण वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
थ्	थान मन्दिर	रिथि मालिक स्वामी	कथ् कता
ध्	धान् धान	-- -- -- -- --	-- -- -- -- --

दन्त्य, स्पर्शी र महाप्राण वर्णका पदादिमा व्यतिरेक देखिए पनि पदमध्य र पदन्तमा व्यतिरेक पाइँदैन ।

ओष्ठ्य, स्पर्शी र अल्पप्राण वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
प्	पात् पात	टिपु टिपौं	दाप खुकुरीको खोल
ब्	बात् कथा	टिबु खेल विशेष	दाब् दबाउ

ओष्ठ्य, स्पर्शी र महाप्राण वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
फ्	फाग् फाग	सफा सफा	कफ् कफ
भ्	भाग् भाग	सभा सभा समारोह	-- -- -- -- --

ओष्ठ्य, स्पर्शी र महाप्राण वर्णका पदादि र पदमध्यमा व्यतिरेक देखिए पनि पदान्तमा व्यतिरेक भएको पाइँदैन ।

(घ) प्राणत्वका आधारमा व्यतिरेक

डडेल्धुरेली भाषाका व्यञ्जन वर्णहरूमा प्राणत्वका आधारमा पाइने व्यतिरेकलाई निम्न लिखित युग्मका आधारमा स्पष्ट्याउन सकिन्छ :

कोमल तालु, स्पर्शी र अघोष वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
क्	कोल् कोल	पाको जान्ने बुझ्ने	लेक लेक
ख्	खोल् खोल	पाखो घरको छाना	लेख् लेख

कोमल तालु, स्पर्शी र सघोष वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
ग्	गोल् गोलो	मागि मागेर	माग् माग
घ्	घोल् गुँड	माघि माघी	माघ माघ

वत्स्र्य, स्पर्शसङ्घर्षी र अघोष वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
च्	चार् चार	काचो काँचौ	काँच प्लास्टिक
छ्	छार खरानी		काँछ कता छ

वत्स्र्य, स्पर्शसङ्घर्षी र सघोष वर्णमा न्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
ज्	जाल् जाली	गाजो खर	माज् आगो माथि
झ्	झाल् झ्याङ	-- -- -- -- --	-- -- -- -- --

वत्स्र्य, स्पर्शसङ्घर्षी र सघोष वर्णका पदादिमा व्यतिरेक देखिए पनि पदमध्य र पदान्तमा व्यतिरेक पाइँदैन ।

वत्स्र्य, स्पर्शी र अघोष वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
ट्	टेक् केक्नु	बाटो बाटो	काट् काट्नु
ठ्	ठेक फेद	बाठो बाठो	काठ् काठ

वत्स्र्य, स्पर्शी र सघोष वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
ड्	डाम दाग	मुडो काठको मुडो	पड् भिर
ढ्	ढाम् चाँङ	-- -- -- -- --	-- -- -- -- --

वत्स्र्य, स्पर्शी र सघोष वर्णका पदादिमा व्यतिरेक देखिए पनि पदमध्य र पदान्तमा व्यतिरेक भएको पाईँदैन ।

दन्त्य, स्पर्शी र अघोष वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
त्	तान् तान्नु	पाति तितेपाति	पात् पात

थ्	थान मन्दिर	पाथि पाथि	-- -- -- -- -

दन्त्य, स्पर्शी र अघोष वर्णका पदादि र पदमध्यमा व्यतिरेक देखिए पनि पदान्तमा व्यतिरेक भएको पाईँदैन ।

दन्त्य, स्पर्शी र सघोष वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
द्	दान् दान	गदा हतियार विशेष	पद् पद तह
ध्	धान धान	गधा जनावर	-- -- -- -- --

दन्त्य, स्पर्शी र सघोष वर्णका पदादि र पदमध्यमा व्यतिरेक देखिए पनि पदान्तमा व्यतिरेक भएको पाईँदैन् ।

ओष्ठ्य, स्पर्शी र अघोष वर्णमा व्यतिरेक

	पदादि	**पदमध्य**	**पदान्त**
प्	पल् समय	कापि कपी	काप् हाँङ्गो पलाएको ठाउँ
फ्	फल् फल	काफि धैरै	-- -- -- -- --

ओष्ठ्य, स्पर्शी र अघोष वर्णका पदादि र पदमध्यमा व्यतिरेक देखिए पनि पदान्तमा व्यतिरेक भएको पाईँदैन ।

ओष्ठ्य, स्पर्शी र सघोष वर्णमा व्यतिरेक

	पदादी	**पदमध्य**	**पदान्त**
ब्	बोल् बोल	सवा एक चौथाइ	कब् कहिले
भ्	भोल् भल	-- -- -- -- --	-- -- -- -- -

ओष्ठ्य, स्पर्शी र सघोष वर्णका पदादिमा व्यतिरेक देखिए पनि पदमध्य र पदान्तमा व्यतिरेक भएको पाईँदैन ।

डडेल्धुरेली भाषामा भएका व्यञ्जन वर्णहरूको वितरणलाई तलको तालिका २ मा थप प्रष्ट्यइएको छ ।

तालिका २

व्यञ्जन वर्णको वितरण

व्यञ्जन	#-	स्व-स्व	-#	व्यञ्जन	#-	स्व-स्व	-#

क्	.	.	.	थ्	.	.	.
ख्	.	.	.	द्	.	-	.
ग्	.	.	.	ध्	.	-	-
घ्	.	-	-	न्	.	-	.
ङ्	(	.	.	प्	.	.	.
च्	.	.	.	फ्	.	(	(
छ्	.	.	.	ब्	.	.	.
ज्	.	.	-	भ्	.	-	-
झ्	.	(	(	म्	.	.	.
ट्	.	.	.	य्	.	.	.
ठ्	.	.	.	र्	.	.	.
ड्	.	.	.	ल्	.	.	.
ढ्	.	-	-	व्	.	.	.
ण्	(	.	.	स्	.	.	.
त्	.	.	-	ह्	.	.	.

टिप्पणी माथिलो तालिकामा (#-) सङ्केतले पदादिको वितरणलाई जनाएको छ भने (स्व-स्व) सङ्केतले पदमध्यमा भएको वितरणलाई र (-#) सङ्केतले पदान्तमा भएको वितरणलाई जनाएको छ ।

निष्कर्ष

यस अध्ययनमा डडेल्धुरेली भाषामा रहेका स्वर वर्ण र व्यञ्जनवर्णहरूको सूची दिइएको छ । साथै ती सबै वर्णको विभिन्न व्यतिरेकी युग्मको माध्यमले स्वर र व्यञ्जनहरूको विश्लेषण गरी परिवेशगत वितरण गरी देखाइएको छ । डडेल्धुरेली भाषामा अ, आ, इ, उ, ए, ओ गरी छ ओटा स्वरवर्ण छन् । यी स्वरवर्ण जिब्राको सक्रियता, जिब्राको उचाइ र ओठको अवस्थाका आधारमा व्यतिरेकी छन् । यस्तो व्यतिरेक पदादि, पदमध्य र पदान्तमा पनि पाइएको छ ।

डडेल्धुरेली भाषामा क्, ख्, ग्, घ्, ङ्, च्, छ्, ज्, झ्, ट्, ठ्, ड्, ढ्, ण्, त्, थ्, द्, ध्, न्, प्, फ्, ब्, भ्, म्, य्, र्, ल्, व्, स्, ह्, गरी ३० ओटा व्यञ्जन वर्ण रहेका पाइन्छन् । यी वर्णहरू सामान्यतः उच्चारण स्थान, उच्चारण प्रयत्न, प्राणत्व र घोषत्वका आधारमा व्यतिरेकी पाइएका छन् । डडेल्धुरेली भाषामा सघोष, महाप्राण, स्पर्शी र स्पर्शसङ्घर्षी व्यञ्जन पदमध्य र पदान्तमा व्यतिरेकी पाइएका छैनन् भने नासिक्य वर्ण पदादिमा व्यतिरेक पइएका छैनन् । डडेल्धुरेली भाषामा 'ण्" विशिष्ट वर्णको रूपमा पाइएको छ । यो वर्णको व्यतिरेक ङ्, र न्, दुबै वर्णसँग रहेको छ (माङ् - मेलो , माण - माड , मान् - मानसम्मान , पाण - घरको माथिल्लो तला, पान् - पान) ।

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लेखसार

यो अनुसन्धानमूलक लेख नेपालमा भाषिक जीवन्तताको स्थिति कस्तो छ ? भन्ने प्राज्ञिक जिज्ञासाको खोजीमा केन्द्रित रहेको छ । यस अध्ययनका लागि गुणात्मक अनुसन्धान विधि र पुस्तकालयीय कार्यका आधारमा व्याख्या विश्लेषण गरी निष्कर्ष निकालिएको छ । राष्ट्रिय जनगणना २०७८ अनुसार नेपालमा १२४ मातृभाषाहरूको उल्लेख गरेको पाइन्छ । त्यसै गरी १३ ओटा भाषाका बक्ताले नेपालको जनसंख्याको ९०.९४ प्रतिशत समेटेको देखिन्छ । त्यसमध्ये एक लाख र सोभन्दा बढी बक्तासँख्या भएका भाषाहरूको सङ्ख्या २१ रहेको छ । यी २१ भाषाका बक्ताहरूको जनसङ्ख्या नेपालको कुल जनसङ्ख्याको ९४.९५ प्रतिशत हो । यस बाहेकको १०३ ओटा भाषा बोल्ने जनसङ्ख्याको प्रतिशत ५.०५ मात्र रहेको छ । नेपालका भाषाहरुलाई युनेस्कोका मापदण्डका साथै भाषाको स्तरगत वर्गीकरणका आधारमा विकसित, विकासशील, सङ्कटापन्न, लोपोन्मुख र मृतभाषा गरी पाँच श्रेणीमा वर्गीकरण गरेको छ । नेपालमा दश हजार र सो भन्दा माथि एक लाखभन्दा कम जनसङ्ख्या भएका भाषाहरू ३६ ओटा र दस हजारभन्दा कम एक हजारसम्म जनसङ्ख्या भएका भाषाहरू ४४ ओटा छन् । साथै एक हजारभन्दा कम जनसङ्ख्या भएका भाषाहरू २३ ओटा रहेको पाइन्छ । राष्ट्रिय जनगणना २०७८ को प्रतिवेदन, राष्ट्रिय तथ्याङ्क कार्यलय, २०८० अनुसार मातृभाषाअनुसारको जनसंख्याको विवरण अनुसार नेपालका १०३ ओटा भाषाहरुको संरक्षण, विकास र पुनरुत्थानका लागि बहुआयामिक र दिगो प्रयास आवश्यक रहेको सार प्राप्त भएको छ । प्रस्तुत लेखले सम्बन्धित क्षेत्रमा अध्ययन, अनुसन्धान गर्न चाहने तथा यस विषय क्षेत्रप्रति रुचि राख्ने सरोकारवाला सम्पूर्णमा अपेक्षित सहयोग पुर्‍याउने विश्वास गरिएको छ ।

शब्दकुञ्जी : *विकसित भाषा, विकासशील भाषा, लोपोन्मुख भाषा, मृत भाषा*

विषय प्रवेश

भाषिक जीवन्तता भन्नाले कुनै भाषा प्रयोगकर्ताको संख्यामा आधारित मात्र नभई त्यस भाषाको सामाजिक, सांस्कृतिक, शैक्षिक तथा प्रशासनिक प्रयोगको अवस्था, अन्तरपुस्तीय हस्तान्तरण, संस्थागत समर्थन र समुदायको आत्मपहिचानमा त्यस भाषाको योगदानजस्ता विविध पक्षमा आधारित मूल्याङ्कन हो । यो अवधारणा युनेस्कोले प्रस्ताव गरेको ढाँचामा आधारित छ । यसले भाषालाई सुरक्षितदेखि मृतसम्मका विभिन्नस्तरहरुमा वर्गीकृत गरेको छ (युनेस्को, २००३,पृ.८) । भाषाको

सामाजिक, सांस्कृतिक र भौगोलिक परिवेशमा प्रयोगमा आउने, जीवित रहने र विकास हुने क्षमतालाई भाषिक जीवन्तता भनिन्छ । यो कुनै पनि भाषाको मापन गर्ने एक महत्त्वपूर्ण अवधारणा हो । बन्धु (२०७३) का अनुसार नेपालमा भारोपेली, भोटबर्मेली, आग्नेसियाली र द्रविड भाषा परिवारका भाषाहरू र एकल भाषा परिवारको रूपमा कुसुन्डा भाषा रहेका छन् । गौतम र चौलागाई (२०६७) का अनुसार भाषा सङ्ख्याका दृष्टिले सबभन्दा बढी भोटबर्मेली परिवारका भाषा र त्यसपछि भारोपेली परिवारका भाषाहरू देखिन्छन् (पृ. ३५९) । यसरी नेपालमा स्रोत नखुलेका केही भाषाबाहेक पाँच भाषा परिवारका भाषाका वक्ता रहेका छन् । नेपाल बहुभाषिक, बहुजातीय, बहुधार्मिक तथा बहुसांस्कृतिक विशेषताले युक्त राष्ट्र हो । राष्ट्रिय जनगणना वि.सं. २०७८ अनुसार नेपालमा १२४ भाषा बोलिन्छन् । यहाँ १२५ जातजाति र १० धार्मिक सम्प्रदायका मानिसहरूको बसोबास रहेको छ । भाषा आयोग २०७८ को प्रतिवेदनमा नेपालमा बोलिने भाषाको सङ्ख्या १३१ रहेको कुरा उल्लेख गरेको छ । नेपाल भाषिक विविधता भएको मुलुक भएर पनि अहिलेसम्म केही भाषा बाहेक आधिकारिक रूपमा भाषावैज्ञानिक र समाजभाषिक अध्ययन भएको पाइँदैन । त्यसकारण राष्ट्रिय जनगणनाबाट प्राप्त भाषासम्बन्धी तथ्याङ्कलाई नै भाषिक गणनाको आधार मान्नुपर्ने अवस्था विद्यमान छ ।

नेपालको संविधान २०७२ का अनुसार यस मुलुकमा बोलचालमा प्रयोग भइआएका सबै भाषाहरुलाई राष्ट्रभाषाको सममान्यता प्राप्त छ । यति हुँदाहुँदै पनि भाषिक विविधता सँगसँगै नेपालमा भाषिक जीवन्तता पनि गम्भीर चुनौतीको विषय बन्दै गएको छ । विश्वव्यापीरुपमा भाषाहरु लोप हुने खतरामा रहेका बेलामा नेपालमा पनि धेरै भाषाहरू सङ्कटापन्न अवस्थामा रहेको पाइन्छ । यिनको संरक्षण,संबर्धन र प्रबर्धनका लागि पनि भाषाको वैज्ञानिक अध्ययन अपरिहार्य बनिरहेको छ । भाषा आयोगको वार्षिक प्रतिवेदन (सातौं) अनुसार नेपालमा मातृभाषाका रुपमा १२४ वटा भाषाहरु बोलिन्छन् (२०७९ पृ.३२) । यी सबै भाषा समानरूपमा जीवन्त अवस्थामा छैनन् । केही भाषाहरू समुदायको दैनिक जीवनमा सक्रिय रूपमा प्रयोग भइरहेका छन् भने केही भाषाहरू गम्भीर सङ्कटको अवस्थामा पुगेका छन् । प्रस्तुत अध्ययनमा भाषिक जीवन्तताको आधारमा नेपालका भाषाहरुलाई विकसित, विकासशील, सङ्कटापन्न, लोपोन्मुख र मृत गरी पाँच स्तरमा विभाजन गरेर तथ्य विश्लेषण गरिएको छ । त्यसै गरी वर्गीकरण र विश्लेषणले सम्बन्धित भाषाको वर्तमान अवस्था बुझ्न र त्यसका संरक्षणका लागि उपयुक्त रणनीति तय गर्न मद्दत पुर्याउँछ । युनेस्को (२००३) का अनुसार भाषाको जीवन्तता अध्ययन गर्न विभिन्न आधारहरु आवश्यक हुन्छन् । यस अध्ययनमा वक्तासंख्या, प्रयोगको दायरा, अन्तर्पुस्तीय प्रयोग, लेख्य परम्परा, शिक्षा तथा सञ्चार माध्यममा प्रयोग र भाषासम्बन्धीनीति तथा समुदायको सक्रियताजस्ता सूचकहरुलाई आधार बनाइएको छ ।

साथै युनस्कोद्वारा विकसित भाषिक जीवन्तता मूल्याङ्कनको ढाँचालाई पनि सन्दर्भको रूपमा लिइएको छ । यो अनुसन्धानले भाषाको सामाजिक उपयोगिता, सांस्कृतिक निरन्तरता र सामुदायिक पहिचानको जगेर्नासँग जोडिएको महत्वपूर्ण पक्षका साथै भाषिक संरचना संरक्षण गर्न तत्त्कालीन र दीर्घकालीन पहलहरु आवश्यक भएकाले अध्ययन समयसापेक्ष र आवश्यक मानिन्छ । यस अध्ययनको जीवन्तताका विभिन्न स्तरहरुमा परेका भाषाहरुको विस्तृत विश्लेषण गर्ने उद्देश्य रहेको छ । यसले नीति निर्माणकर्ता, शिक्षाविद्, अनुसन्धानकर्ता र स्थानीयसमुदायहरुका लागि मार्गदर्शकको काम गर्नसक्ने अपेक्षा गरिएको छ । पौडेल र भट्टराई (२०७७) का अनुसार भाषिक जीवन्तताका आधारमा नेपालका भाषाहरुलाई विकसित, विकासशील, सङ्कटापन्न, लोपोन्मुख र मृत गरी पाँच उपवर्गमा विभक्त गरी विवेचना गरिन्छ (पृ.२६०) । त्यसै आसार भाषिक जीवन्तताका आधारमा नेपालका भाषाहरुको विश्लेषण, निर्धारण र मूल्याङ्कन गर्नु, भाषिक जीवन्तताका खतरामा परेका भाषाहरुको पुनरुत्थानका लागि सम्भावित रणनीति पहिचान गर्नु यस लेखका उद्देश्यहरू हुन् भने नेपालमा हाल

केकति भाषाहरु जीवित छन्,ती भाषाहरुको जीवन्तताको अवस्था केकस्तो छ, भाषिकजीवन्तता निर्धारण गर्ने प्रमुख सूचकहरु केके हुन्, ती सूचकहरु नेपालका भाषाहरुमा केकसरी लागू हुन्छन्, कुनकुन भाषाहरु विकसित, विकासशील, सङ्कटापन्न, लोपोन्मुख र मृतका श्रेणीमा पर्छन्, त्यसको आधार के हो, जनगणना, वक्तासंख्या र लेख्य परम्पराको तथ्याङ्कले भाषिक जीवन्तताको केकस्तो चित्र प्रस्तुत गर्छ, जस्ता प्रश्नहरु यस अध्ययनमा समस्याका रुपमा निर्धारित गरिएका छन् ।

पूर्वकार्यको समीक्षा

भाषिक जीवन्तता वा स्तरगत आधार

भाषाको सामाजिक, सांस्कृतिक, शैक्षिक तथा प्रशासनिक प्रयोगको अवस्था, अन्तरपुस्तीय हस्तान्तरण, संस्थागत समर्थन र समुदायको आत्मपहिचानमा त्यस भाषाको योगदानजस्ता विविध पक्षमा आधारित मूल्याङ्कन भाषिक जीवन्तता हो । यसले भाषालाई सुरक्षितदेखि मृतसम्मका विभिन्नस्तरहरुमा वर्गीकृत गरेको छ (युनेस्को, २००३,पृ.८) । यो कुनै पनि भाषाको मापन गर्ने एक महत्त्वपूर्ण अवधारणा हो । नेपाल बहुभाषिक,बहुसांस्कृतिक र बहुजातीय देश हो । यस देशमा १२४ ओटा भाषा बोलिन्छन् (पौडेल र भट्टराई २०७७, पृ.२४०) । तर ती सबै भाषाको जीवन्तता समान छैन । स्तरगत आधारमा काउसले सुरक्षित, सुरक्षितप्रायः र लोपोन्मुख गरी तीन प्रकार मानेको पाइन्छ (न्यौपाने : २०७०,पृ.९४) । त्यसै गरी यादव, योगेन्द्रले सुरक्षित,सुरक्षित सरहका,सम्भाव्य सङ्कटापन्न, सङ्कटापन्न, चिन्ताजनक अवस्थाका मरणासन्न र मृत गरी विभाजन गरी अध्ययन गरेको पाइन्छ (गिरी,सन्.२०१० ,पृ १९७) । यसै गरी युनेस्कोले सन् २००३ मा प्रकाशित प्रतिवेदनमा भाषाको जीवन्तता मापनका ६ ओटा मापदण्ड सुरक्षित,सम्भाव्य सङ्कटापन्न, सङ्कटापन्न, चिन्ताजनक अवस्थाका मरणासन्न र मृत गरी विभाजन गरी भाषिक स्तर रहन्छ युनेस्को, २००३, पृ.८) । त्यसै गरी पौडेल र भट्टराई (२०७७) भाषाहरुको भाषिक जीवन्तताको स्तरण विकसित, विकासशील, सङ्कटापन्न, लोपोन्मुख र मृत भाषा गरेर जम्मा ५वटा मापदण्ड उल्लेखित छन् (पृ.२६०) । यस लेखमा उक्त सबै अध्ययनलाई आधार बनाइएको छ ।

लेख्य परम्पराका आधारमा

लेखनमार्फत ज्ञान, संस्कृति, इतिहास, धर्म, साहित्य आदि अभिव्यक्त गर्ने र संरक्षण गर्ने परम्परालाई लेख्य परम्परा भनिन्छ । मौखिक परम्पराको विपरीत, लेख्य परम्पराले विचार र जानकारीलाई स्थायी रूपमा दस्तावेजमा राख्ने माध्यम प्रदान गर्छ । नेपाल बहुभाषिक राष्ट्र हो, जहाँ विभिन्न जातीय, सांस्कृतिक र भौगोलिक पृष्ठभूमिका भाषाहरूको अस्तित्व छ । यिनको संरक्षण र प्रवर्द्धनका लागि भाषाको लेख्य परम्परा एक महत्वपूर्ण सूचक मानिन्छ । बैरागी काइँलाले भाषाको लेखन परम्परा, साहित्यिक सृजनाको अवस्था, औपचारिक लेखन प्रणालीको प्रयोग तथा शैक्षिक सामग्रीको उपलब्धता आधारमा भाषाहरूलाई मरणोन्मुख, असुरक्षित, संकटग्रस्त र सुरक्षित गरी वर्गीकृत गरेका छन् (न्यौपाने, २०७० पृ.९५) । मरणोन्मुख भाषाहरू मौखिक परम्परामा सीमित रहन्छन् जसले तिनको दीर्घकालीन अस्तित्वलाई चुनौती दिन्छ । असुरक्षित भाषाहरूमा लेख्य स्रोत सीमित हुँदा तिनको प्रयोग दैनन्दिन जीवनमा घट्दो क्रममा हुन्छ । संकटग्रस्त भाषाहरूमा केही साहित्यिक तथा शैक्षिक सामग्री भए पनि तिनको प्रयोग संस्थागत रूपमा सबल हुदैन । सुरक्षित भाषाहरू भने शिक्षा, सञ्चार, प्रशासन र साहित्यमा व्यापक रूपमा प्रयोगमा छन् ।

यस वर्गीकरणले भाषाको सामाजिक, सांस्कृतिक र शैक्षिक प्रभावलाई मापन गर्न सहयोग पुर्याउँछ । साथै भाषासम्बन्धी नीति निर्माण, पाठ्यक्रम विकास, र भाषिक अधिकारको संरक्षणमा मार्गदर्शकको भूमिका निर्वाह गर्न सक्छ । प्रस्तुत लेखमा बैरागी काइँलाको वर्गीकरणलाई आधार बनाई

नेपालका भाषाहरूको लेख्य परम्पराको वर्तमान अवस्था, चुनौती र सम्भावनाहरूको विश्लेषण गरिएको छ जसले भाषिक विविधताको संरक्षणमा योगदान पुऱ्याउन सक्छ ।

वक्तासंख्याका आधारमा

भाषिक जीवन्तता मूल्याङ्कन गर्ने एक प्रमुख सूचक वक्तासंख्या हो । नेपालमा बोलिने भाषाहरुको वर्गीकरण गर्दा प्रत्येक भाषाका वक्ताहरुको संख्या महत्वपूर्ण आधार बन्न जान्छ । धेरै वक्ता भएका भाषाहरु तुलनात्मक रुपमा जीवन्त र सुरक्षित मानिन्छन् । त्यसै गरी कम वक्तासङ्ख्या भएका भाषाहरू विलुप्तिको जोखिममा पर्न सक्छन् । न्यौपाने (२०७०) का अनुसार काउसका अनुसार दस लाख र सोभन्दा बढी वक्तासंख्या भएका भाषा सुरक्षित, दसलाखभन्दा कम वक्तासंख्या भएका भाषाहरु असुरक्षित र सङ्कटग्रस्त हुन्छन् (पृ.९४) । त्यसै गरी योन्जन (२०८०) ले १० लाख भन्दा धेरै वक्ता संख्या भएका सुरक्षित भाषा ,१ देखि १० लाखसम्म वक्तासंख्या भएका सुरक्षितप्रायः भाषा, १०हजारदेखि १ लाखसम्म वक्ता भएका लोपोन्मुख भाषा, एकहजार देखि ४०हजारसम्म वक्ता भएका मरणोन्मुख भाषा ,एक हजारभन्दा कम वक्त भएका मृतप्रायः भाषा मानेको पाइन्छ (पृ.२७) । नेपालमा प्रयोग भइआएका भाषामध्ये दसहजारसम्म वक्तासंख्या भएका भाषाहरुलाई सङ्कटापन्न भाषाको कोटिमा राख्नु उपयुक्त हुन्छ । "कम्तीमा १००० भन्दा कम वक्तासंख्या भएका भाषाहरुलाई लोपोन्मुखको कोटिमा राख्न सकिन्छ । जनगणनाबाट प्राप्त तथ्याङ्कले भाषाको उपयोग र पुस्तान्तरणको अवस्थालाई प्रतिबिम्बित गर्छ (पौडेल र भट्टराई (२०७७,पृपृ.७०,२६६ र २७७) ।" त्यसैले भाषिक प्रबर्धन र संबर्धनका नीतिहरु निर्माण गर्न वक्ता संख्याको सूक्ष्म अध्ययन अपरिहार्य हुन्छ । यसप्रकार कुनै पनि भाषाको स्तरगत वर्गीकरण गर्दा वक्तासङ्ख्यालाई आधार बनाइन्छ ।

जनगणनाका आधारमा

नेपालका भाषाहरुको भाषिक जीवन्तताको अध्ययन गर्न जनगणना उल्लेख्य आधार हो । जनगणनाबाट विभिन्न भाषाहरु बोल्ने जनसंख्या, तिनको भौगोलिक वितरण,उमेर समूह, लिङ्ग र अन्य सामाजिक पक्षहरुको विवरण पाइन्छ । जनगणनाले भाषाको प्रयोगको दायरा र प्रवृत्तिको मूल्याङ्कन गर्न मद्दत पुर्याउँछ । नेपालमा प्रत्येक १०/१० वर्षको अन्तरालमा गरिने राष्ट्रिय जनगणनाले राष्ट्रको भाषिक विविधता, भाषाभाषीको संङ्ख्या र ती भाषाहरुको प्रचलन कति घट्तो वा बढ्दो छ भन्ने देखाउँछ । वि.सं २०६८ र २०७८ को नेपालको जनगणनाको तुलना गर्दा केही भाषा बोल्नेहरुको संख्या घटेको देखाउँछ भने केही भाषा बोल्नेहरुको संख्या बढेको देखाउँछ । वक्तासंख्या बढ्नाले भाषा विकासशील र घटनाले सङ्कटापन्नतातिर गएको चाल पाइन्छ । यसले भाषाको संरक्षण र पुनर्जीवनका प्रयासहरू आवश्यक छन् भन्ने निर्देशन गरिरहेको हुन्छ । यसका साथै कुनकुन भाषा मातृभाषाका रूपमा प्रयोग भइरहेका छन् भन्ने तथ्याङ्कको जानकारी पनि दिने भएकाले भाषिक पहिचान र जीवन्तताको अध्ययनका लागि जनगणना प्रतिवेदन उपयोगी हुन्छ । वास्तवमा जनगणनाले भाषिक वर्गीकरणको पूर्वाधारको रुपमा काम गर्छ । भाषा आयोगले २०७८ मा प्रकाशित गरेको आठौं वार्षिक प्रतिवेदनमा नेपालको पछिल्लो जनगणनाको तथ्याङ्क छ । उक्त प्रतिवेदनमा नेपालको पछिल्लो जनसंख्यालाई अनेक आधारमा वर्गीकरण गर्दै प्रस्तुत गरिएको छ । प्रस्तुत लेखको नतिजा र छलफल खण्डमा उक्त प्रतिवेदनको उपयोग गरिएको छ । तसर्थ प्रस्तुत लेखको विश्लेषणमा उक्तपूर्वकार्यलाई आधार बनाइएको छ ।

अध्ययन विधि

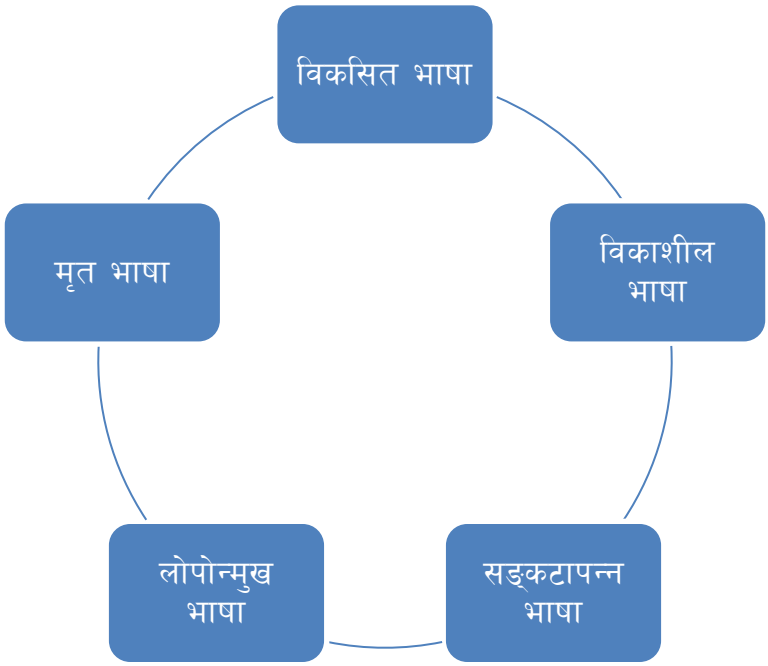
प्रस्तुत अनुसन्धान गुणात्मक अध्ययन विधिमा आधारित भएर गरिएको छ । यस अध्ययनमानमा सामग्री सङ्कलनका लागि द्वितीयक स्रोतका सामग्रीको उपयोग गर्नका साथै पुस्तकालयीय कार्यबाट आवश्यक सामग्री सङ्कलन गरिएको छ । जसमा विभिन्न सन्दर्भ पुस्तक, जर्नल,

शोधपत्र, अनुसन्धानमूलक लेख, पत्रपत्रिका आदिको उपयोग गरी विश्लेष्णात्मक रूपमा विश्लेष्य विषयको निष्कर्षमा पुगिएको छ ।

छलफल तथा परिणाम

प्रस्तुत अध्ययनका लागि भाषाको स्तरगत वर्गीकरणका आधारमा विकसित भाषा, विकासशील भाषा, सङ्कटापन्न भाषा, लोपोन्मुख भाषा र मृत भाषाका आधारहरु हेरिएको छ । यसमा २००९-२०११ देखि २०७८ सम्मका भाषा सङ्ख्या र २०७८ को जनगणनाको तथ्याङ्क र वक्तासङ्ख्याको परिणामलाई निम्नलिखित उपशीर्षकमा आधारित भई व्याख्या विश्लेषण गरिएको छ :

भाषाको स्तरगत वर्गीकरण



विकसित भाषा

कुनै राष्ट्रले राष्ट्र या राजभाषा मानेको, सबै पुस्ताले बोल्ने, प्रचूरमात्रामा साहित्य र साहित्येतर ग्रन्थ लेखिएको, शिक्षा,सञ्चारमा अत्यधिक मात्रामा प्रयोग हुने भाषालाई विकसित भाषा भनिन्छ । "काउसले राज्यको संरक्षण पाएको भाषालाई यस किसिमको भाषा मानेको पाइन्छ भने ग्राइमले सबै उमेरका वक्ताले बोल्ने, संकटरहित भाषालाई यस किसिमको भाषा मानेको पाइन्छ (न्यौपाने, २०७०, पृ.९५)।" बहुप्रयोगका दृष्टिले सबै विषयक्षेत्रमा प्रचलित नै विकसित भाषा हुन्छ । "सबै क्षेत्रको प्रयोगमा व्यापकता पाएका भाषाहरु विकासशील वा विकसित हुँदै अगाडि बढेका पनि छन् (पौडेल र भट्टराई ,२०७७,पृ.२१०) ।" त्यसैले सबै विषयक्षेत्रमा बहुप्रचलित नेपालको एकमात्र नेपाली भाषा अतिसुरक्षित वा विकसित भाषा भाषा हो । "देवनागरी लिपिमा लेखिने नेपाली भाषा साहित्य सिर्जना, शब्दकोश, पुस्तक, पाठ्यपुस्तक लेखन, व्याकरण लेखन, विद्युतीय प्रकाशन एवम् छापा, श्रव्यदृश्य सामग्री निर्माण लगायत सबै विषयक्षेत्रमा विकसित छ (पौडेल र भट्टराई ,२०७७, पृ.२१२) ।" लामो इतिहास बोकेको नेपाली भाषा आजका दिनसम्म आइपुग्दा सम्पूर्ण विषयलाई उजागर गर्नसक्ने, आवश्यकता अनुकूल शब्दनिर्माण गर्नसक्ने , मुलुकका सबै जनताले बुझ्न सक्ने, मातृभाषा सरह बोल्न सक्ने, परिआउँदा राष्ट्रभाषा, सम्पर्कभाषा र माध्यमभाषाका रुपमा राम्रोसँग उपयोग गर्न सकिने सक्षम भाषाको रुपमा

विकसित भएको छ । राष्ट्रिय जनगणना २०७८अनुसार नेपालको विकसित नेपाली भाषाका वक्ता १३०८४४५७ रहेका छन् । यो संख्या कूल जनसंख्याको ४४.८६ प्रतिशत हो । त्यसै गरी प्रदेशगत रुपमा मधेशप्रदेशदेखि बाहेक अरु सबै प्रदेशमा नेपाली भाषा नै सबभन्दा बढी प्रतिशत जनसंख्याले बोल्ने भाषा रहेको पाइन्छ। यसलाई निम्न तालिकाले अझ प्रस्ट पार्छ :

तालिका नं. १

प्रदेशगत रुपमा विकसित नेपाली भाषका प्रयोक्ता संख्या र प्रतिशत

क. सं.	प्रदेश	जनसंख्या	प्रतिशत
१	कोशी	२२४६०२७	१८.६९
२	मधेश	३५२१०९	२.६९
३	बागमती	३४२७९८१	२६.१९
४	गण्डकी	१८१०००३	१३.८३
५	लुम्बिनी	२६०४६१४	१९.९०
६	कर्णाली	१५००१६१	११.४६
७	सुदूरपश्चिम	११४३५६२	८.७३
	जम्मा	१३०८४४५७	

स्रोत : राष्ट्रिय जनगणना (२०७८ पृ.पृ.१९३–२७६)

यसप्रकार प्रदेशगत आधारमा हेर्दा सबैभन्दा बढी बागमती प्रदेशमा २६.१९ नेपाली भाषा प्रयोग व्यवहार गरेको पाइन्छ । त्यसै गरी लुम्बिनी प्रदेश दोस्रो १९.९० प्रतिशत, क्रमशः कोशी प्रदेशमा १८.६९ प्रतिशत, गण्डकी प्रदेशमा १३.८३ प्रतिशत, कर्णाली प्रदेशमा ११.४६ प्रतिशत, सुदूरपश्चिम प्रदेशमा ८.७३ प्रतिशत र मधेशप्रदेशमा २.६९ प्रतिशत वक्ताले नेपाली भाषा प्रयोग व्यवहार गरिरहेको पाइन्छ । अतः प्रदेशगत आधारमा हेर्दा बागमती प्रदेशमा सबभन्दा बढी र मधेशप्रदेशमा सबभन्दा कम वक्ताले नेपाली भाषा प्रयोग गरिरहेको तथ्याङ्क पाइन्छ ।

विकासशील भाषा

विकसित भाषाहरुले प्राविधिक, शैक्षिक, प्रशासनिक र वैज्ञानिक क्षेत्रहरुमा व्यापकरुपले प्रयोग हुने अनि सम्पन्न संरचना र शब्दसामर्थ्य विकास गरिसकेका हुन्छन् । जस्तै : अंग्रेजी, चिनियाँ,नेपाली आदि भाषाहरु यस प्रकारका भाषाका उदाहरण हुन् । यसका विपरीत विकासशील भाषाहरु अझै पूर्णरुमा मानकीकरण, प्रविधिमा प्रयोग वा अन्तर्राष्ट्रियस्तरमा स्थापित भइसकेका हुँदैनन् । त्यसैले प्रगतिको बाटोमा गतिशील भाषालाई विकासशील भाषा भनिन्छ । पौडेल र भट्टराई (२०७७) का अनुसार

> अविच्छिन्न रुपमा विकासको गतिमा बढेका भाषाहरु क्रमशः विकसित भई श्रेणी वृद्धि हुनु भाषाको विकासशील गुण हो । यसलाई भाषाको स्तरोन्नतिको अवस्था मानिन्छ । विकासशील भाषाहरुमा एकातिर वक्तासंख्या वृद्धि हुनका साथै साहित्य, कला, कानुन, शिक्षा, सञ्चार, स्वास्थ्य, प्रविधि तथा ज्ञान विज्ञान एवम् पर्यटन र उद्योग जस्ता व्यवसायका क्षेत्रमा शब्दभण्डारको विकास, प्रयोग र विस्तार जस्ता कुराहरु पनि सँगसँगै भएको पाइन्छ । विकासशील अवस्थाका भाषाहरुमा विषयगत क्षेत्रको अभिव्यक्तिका

लागि विकसित भाषामा जस्तो शब्दभण्डार विकसित भइ नसकेको अवस्था पनि हुनसक्छ (पृ.२६३) ।

ती भाषाहरुमा साँस्कृतिक सम्पदा मौलिक ज्ञान र समुदायको पहिचान भरिपूर्ण हुन्छ । क्राउसका अनुसार दसलाखभन्दा कम वक्तासंख्या नभएका,मातृभाषाका रुपमा बोलिदै र सिकिदै पनि गरेका, राज्यको खासै संरक्षण नपाएका भाषालाई यस किसिमको भाषा मानेको पाइन्छ (न्यौपाने : २०७०,९५) । त्यसै गरी बैरागी काइँलाले नेपालका लेख्य परम्परा भएका, नेपाली,मैथिली,भोजपुरी,अवधी, लिम्बू र नेवारी गरी जम्मा ६ भाषाहरुलाई यस किसिमका भाषा अन्तर्गत राखेको पाइन्छ (न्यौपाने : २०७०, पृ.९५) । तथापि यस लेखमा चाहिं दसलाखभन्दा कम जनसंख्या भएका अवधी, लिम्बू र नेवारीलाई भने यस उपवर्ग अन्तर्गत राखिएको छैन । त्यसैले नेपालका मैथिली, भोजपुरी, थारु, तामाङ, बज्जिका भाषाहरु यस अन्तर्गत पर्छन् । मुलुकमा प्रयोग व्यवहार भैरहेका मध्ये कुनकुन भाषालाई संरक्षण, सम्बर्धन गर्ने र कुनकुन भाषालाई अन्यका अपेक्षा बढी बढावा दिने भन्ने कुरा राज्यको भाषानीतिले पनि दिशानिर्देश गरेको हुन्छ । अब प्रदेशअनुसार वक्तासंख्याका आधारमा नेपालका विकासशील भाषाहरुको अवस्था निम्नानुसार देखाइन्छ :

तालिका नं. २

विकासशील नेपाली भाषाका प्रयोक्ता संख्या र प्रतिशत

क.सं.	विकासशील भाषा	वक्तासंख्या	प्रतिशत
१	मैथिली	३२२२३८९	३४.५९
२	भोजपुरी	१८२०७९५	१९.५४
३	थारु	१७१४०९१	१८.४०
४	तामाङ	१४२३०७५	१५.२७
५	बज्जिका	११३३७६४	१२.१७
	जम्मा	९३१४११४	

स्रोत: भाषा आयोग वार्षिक प्रतिवेदन (२०८१, पृ.२७)

नेपालका विकासशील भाषामध्ये मैथिलीभाषाका वक्तासंख्याको प्रतिशत ३४.५९ छ भने भोजपुरी भाषाका वक्तासंख्याको प्रतिशत १९.५४ रहेको छ । त्यसै गरी थारुभाषाका वक्तासंख्याको प्रतिशत १८.४० छ अनि तामाङ भाषाका वक्तासंख्याको प्रतिशत १५.२७ रहेको छ र विकासशीलमध्ये सबभन्दा कम बज्जिका भाषाका वक्तासंख्याको प्रतिशत १२.१७ रहेको छ । यस प्रकार विकसशील भाषा मध्ये सबैभन्दा बढी जनसंख्याले बोल्ने मैथिली र सबैभन्दा कम जनसंख्याले बोल्ने बज्जिका भाषा हो । यसै गरी एकलाखभन्दा माथि दसलाखसम्म वक्तासंख्या भएका भाषालाई सुरक्षितप्राय: भाषा अन्तर्गत राख्न सकिन्छ । नेपालका अवधी, नेवारी, मगर, ढुट, डोट्याली, ऊर्दू, लिम्बू, मगही, बैतडेली, राई, अछामी, बान्तबा, राजवंशी, शेर्पा, खस लगायतका भाषाहरुलाई यस उपवर्गअन्तर्गत राख्न सकिन्छ । यहाँ सुरक्षितप्राय: भाषा मध्ये एकलाखभन्दा बढी दसलाखसम्म वक्तासंख्या भएका माथि उल्लिखित भाषाहरुलाई वक्तासंख्याका आधारमा निम्न तालिकामा प्रस्तुत गरिएको छ :

तालिका नं. ३

सुरक्षितप्राय: नेपाली भाषाका वक्तासंख्या र प्रतिशत

क्र.सं.	भाषा	वक्तासंख्या	प्रतिशत
१	अवधी	८६४२७६	१३.७२
२	नेवारी	८६३३८०	१३.७१
३	मगर ढुट	८१०३१५	१२.८६
४	डोट्याली	४९४८६४	७.८५
५	ऊर्दू	४१३७८५	६.५७
६	लिम्बू	३५०४३६	५.५६
७	गुरुङ्	३२८०७४	५.२०
८	ऋ	२३०११७	३.६५
९	बैतडेली	१५२६६६	२.४२
१०	राई	१४४५१२	२.२९
११	अछामी	१४१४४४	२.२४
१२	बान्तवा	१३८००३	२.१९
१३	राजवंशी	१३०१६३	२.०६
१४	शेर्पा	११७८९६	१.८७
१५	खस	११७५११	१.८६
	जम्मा	६२९७४४२	

स्रोतः भाषा आयोगको वार्षिक प्रतिवेदन (२०८१, पृ.२७)

भाषा आयोगको वार्षिक प्रतिवेदन, २०८१ का आधारमा नेपालमा १५ ओटा भाषा सुरक्षितप्रायः रहेको पाइन्छ । यस अन्तर्गत रहेका भाषाका बक्ता सङ्ख्या जम्मा ६२९७४४२ देखिन्छ । अवधी, नेवारी, मगर ढुट, डोट्याली, ऊर्दू, लिम्बू, गुरुङ् भाषाका बक्ताहरुका तुलनामा अन्य भाषाका बक्ताको सङ्ख्या आधा फरक रहेको पाइन्छ ।

सङ्कटापन्न भाषा

भाषा छ त व्यवाहरमा आउदैन, भाषिक बक्ता छन्, भाषालाई बोलीचालीमा ल्याउँदैनन् अर्थात कम प्रयोग गर्छन् भने यसरी भाषिक व्यवहारमा कमी हुँदै जाँदा भाषा सङ्कटमा पर्दै जान्छ । भाषिक वक्तालेहरूले आफ्नो मातृभाषाको महत्त्व थाहा नपाउनु, जानेर पनि महत्त्व नदिनु अथवा आफ्नो भाषाको औचित्य र महत्त्व नदेख्नु, आफ्नो मौलिक पहिचानको भाषा हो भनी नबुझ्नु जस्ता कारणले भाषा गरिब हुँदै गयो भने सङ्कट बढ्दै जान्छ । वक्ता,समुदाय र राज्यबाट ओझेल पर्दै गएको भाषालाई सङ्कटापन्न भाषा भनिन्छ । अंग्रेजी शब्द इन्डेन्जर्मेन्टको नेपाली रुपान्तर सङ्कटापन्न हो । (युनेस्को (२००३) को लेङ्गुइज भाइटलिटी एन्ड इन्डेन्जर्मेन्टमा उल्लेख भएअनुसार सङ्कटापन्नताका तीन उपप्रकार छन्, ती डेफिनेट्ली इन्डेन्जर्मेन्ट/ लोपोन्मुख, सेभरल्ली इन्डेन्जर्मेन्ट/ मरणोन्मुख र क्रिटिकल्ली इन्डेन्जर्मेन्ट/ नजिकै लोप हुन् (पृ.८) । यसरी उल्लेख भए पनि सङ्कटापन्न भाषा स्थानीय,जातीय र साना समुदायमा सीमित हुन्छन् । त्यस्ता भाषाहरु सामाजिक,आर्थिक वा शैक्षिक कारणले गर्दा नयाँ पुस्ताले सिक्न र प्रयोग गर्न छोडेका हुन्छन् ।

समाजको द्विभाषिक वा बहुभाषिक अवस्तामा कुनै प्रभावशाली भाषाको प्रभावले कमजोर पर्नु, आफूले बोल्ने मातृभाषालाई औपचारिक ठाउँमा प्रयोग नगर्नु, अभिभावक वा बाबुआमाले आफ्नो मातृभाषालाई प्राथमिकता दिएर बालबालिकालाई नसिकाउनु वा वेवास्था गर्नु अन्तर्जातीय विवाह गर्नु,

भाषा, साहित्य, संञ्चार, विज्ञान र प्रविधि, कानुन, शिक्षा एवम् लेखन र प्रकाशनीय कार्य विस्तारै सुस्त हुदैजानु भषामा सङ्कट आउनु हो । अतः भाषा, वक्ता, समुदाय र राज्यबाट ओझेल पर्दै जान्छ भने त्यस्ता भाषा सङ्कटापन्न हुन् । भाषाशास्त्री क्राउसले वक्ता सङ्ख्याका आधारमा भाषालाई सुरक्षित, असुरक्षित वा दुर्घटनाग्रस्त र मरणोन्मुख वा लोपोन्मुख गरी तीन वर्गमा छुट्याएका छन् । क्राउसका अनुसा १०००००० (दस लाख) वक्ता रहेको र राज्यको संरक्षण पाएको भाषा सुरक्षित भाषा हो । त्यसै गरी १००००० (एक लाख) एक लाख भन्दा कम जनसंख्या रहेको र मातृभाषाका रूपमा सिकिँदै गरेको सङ्कटग्रस्त भाषा हो ।

तलिका ४

दस हजार र सोभन्दा माथि एक लाखभन्दा कम जनसंङ्ख्या भएका मातृभाषाहरू

क्र.स.	मातृभाषा	जनसङ्ख्या	प्रतिशत	सञ्चित प्रतिशत
१	बझाङ्गी	९९६३१	०.३४	०.३४
२	हिन्दी	९८३९९	०.३४	०.६८
३	मगर खाम	९१७५३	०.३१	०.९९
४	चाम्लिङ	८९०३७	०.३१	१.३
५	राना थारू	७७७६६	०.२७	१.५७
६	चेपाङ	५८३९२	०.२	१.७७
७	बाजुरेली	५६४८६	०.१९	१.९६
८	सन्थाली	५३६७७	०.१८	२.१४
९	दनुवार	४९९९२	०. १७	२.३१
१०	दार्चुलेली	४५६४९	०.१६	२.४७
११	उराउँ	३८८७३	०.१३	२.६
१२	कुलुङ	३७९१२	०.१३	२.७३
१३	अङ्किका	३५९५२	०.१२	२.८५
१४	माझी	३२९१७	०.११	२.९६
१५	सुनुवार	३२७०८	०.११	३.०७
१६	थामी	२६८०५	०.०९	३.१६
१७	गनगाई	२६२८१	०.०९	४.०६
१८	थुलुङ	२४४०५	०.०८	४.१४
१९	बङगला	२३७७४	०.०८	४.२२
२०	घले	२३०४९	०.०८	४.३
२१	साम्पाङ	२१५९७	०.०७	४.३७
२२	माडवारी	२१३३३	०.०७	४.४४
२३	डडेलधुरी	२१३००	०.०७	४.५१
२४	धीमाल	२०५८३	०.०७	४.५८
२५	तजपुरिया	२०३४९	०.०७	४.६५
२६	कुमाल	१८४३५	०.०६	४.७१
२७	खालिङ	१६५१४	०.०६	४.७७

२८	मुसलमान	१६२५२	०.०६	४.८३
२९	वाम्बुले	१५२८५	०.०५	४.८८
३०	बाहिम/बायुम	१४४४९	०.०५	४.९३
३१	याख्खा	१४२४१	०.०५	४.९८
३१	संस्कृत	१३९०६	०.०५	५.०३
३३	भुजेल	१३०८६	०.०४	५.०७
३४	भोटे	१२८९५	०.०४	५.११
३५	दरई	१२१५६	०.०४	५.१५
३६	याम्फु/याम्फे	१०७४४	०.०४	५.१९

तालिका ४ मा रहेका बझाङ्गी ९९६३१ , हिन्दी ९८३९९,मगर खाम ९१७५३,चाम्लिङ ८९०३७ , राना थारू ७७७६६ भाषाका जनसंङ्ख्या रहेकाले अन्य भाषाका तुलनामा सुरक्षित भाषाका नजिक छन् । तथापि दस हजार र सोभन्दा माथि एक लाखभन्दा कम जनसंङ्ख्या भएका ३६ ओटै मातृभाषाहरू सङ्कटापन्न भाषाका रुपमा रहेका छन् । यी मातृभाषाका बक्ताहरुको कुल संङ्ख्या नेपालको जनसंङ्ख्याको ५.१९ प्रतिशत मात्र रहेको पाइन्छ ।

तलिका ५

एक हजार र सोभन्दा माथि दस हजारभन्दा कम जनसंङ्ख्या भएका मातृभाषाहरू

क्र.स.	मातृभाषा	जनसंङ्ख्या	प्रतिशत	सञ्चित प्रतिशत
१	नाछिरिङ	९९०६	०.०३	
२	ह्याल्मो /योल्मो	९६५८	०.०३	
३	दुमी	८६३८	०.०३	
४	जुम्ली	८३३८	०.०३	
५	बोटे	७६८७	०.०३	
६	मेवाहाङ	७४२८	०.०३	
७	पुमा	६७६३	०.०२	
८	पहरी	५९७६	०.०२	
९	आठपहिया	५५८०	०.०२	
१०	दुङमाली	५४०३	०.०२	
११	जिरेल	५१६७	०.०२	
१२	तिब्बती	५०५३	०.०२	
१३	दैलेखी	४९८९	०.०२	
१४	चुम/नुब्री	४२८४	०.०१	
१५	छन्त्याल	४२८२	०.०१	
१६	राजी	४२४७	०.०१	
१७	थकाली	४२२०	०.०१	
१८	मेचे	४२०३	०.०१	
१९	कोयी	४१५२	०.०१	

२०	लोहोरूङ	३८८४	०.०१	
२१	केवरत	३४६९	०.०१	
२२	डोल्पाली	३२४४	०.०१	
२३	डोने	३१००	०.०१	
२४	मुगाली	२८३४	०.०१	
२५	जेरो/जेरूङ	२८१७	०.०१	
२६	कर्मारोङ	२६१९	०.०१	
२७	छिन्ताङ	२५६४	०.०१	
२८	ल्होपा	२३४८	०.०१	
२९	लाप्चा	२२४०	०.०१	
३०	मुण्डा/मुडियारी	२१०७	०.०१	
३१	मनाङे	२०२२	०.०१	
३२	छिलिङ	२०११	०.०१	
३३	दुरा	१९९१	०.०१	
३४	तिलुङ	१९६९	०.०१	
३५	साङ्केतिक भाषा	१७८४	०.०१	
३६	व्याँसी	१७०६	०.०१	
३७	बराम	१५३९	०.०१	
३८	बरागुङवा	१५३६	०.०१	
३९	साद्री	१३४७	०.००	
४०	अङ्ग्रेजी	१३२३	०.००	
४१	मगर काइके	१२२५	०.००	
४२	सोहन	११८२	०.००	
४३	ह्ययु	११३३	०.००	
४४	किसान	१००४	०.००	

तालिका ५अनुसार एक हजार र सोभन्दा माथि दस हजारभन्दा कम जनसंङ्ख्या भएका मातृभाषाहरू ४४ओटा भाषा विभिन्न सैद्धान्तिक आधारमा हेर्दा सङ्कटापन्न भाषाका भाषाका रूपमा रहेको पाइन्छ ।

लोपोन्मुख भाषा

बोलचालमा रहेका भाषाका वक्ताहरू घट्दो क्रममा देखिएको अवस्था लोपोन्मुख अवस्था हो । वक्ताको अभाव बछ्दै गई पुस्तान्तरणमा हुने स्थितिमा रहेका भाषाहरू लोपोन्मुख श्रेणीमा पर्दछन् । "कम्तीमा १००० भन्दा कम वक्तासंख्या भएका भाषाहरुलाई लोपोन्मुखको कोटिमा राख्न सकिन्छ (पौडेल र भट्टराई , २०७७,पृ.पृ.२७०) ।" यस आधारमा वक्ताले बोली व्यवहारमा कम गर्दै लैजानु अर्थात भाषा बोल्दा बोल्दै सकिँदै जानु लोपोन्मुखका अभिलक्षण हुन् । यस्ता भाषाका बक्ताहरू न्यून रहनु र बोली व्यवहारमा अति कम प्रयोग हुँदै जानेको अवस्था लोपोन्मुख हो । खासगरी लेख्यभन्दा पनि कथ्य परम्परामा सीमित लिपि, वर्णव्यवस्था नभएका मातृभाषिक वक्ताहरूका भाषाहरू चाँडै लोपोन्मुख बाटोतिर लागेको पाइन्छ । "प्रयोगका दृष्टिले भाषा क्रमशः हराउँदै गरेको अवस्थामा अस्तित्व

देखाउनुको साटो लोप हुनेतिर लागेको तर लोप नभइसकेको स्तिति लोपोन्मुख प्रवृति हो । माचर र वण्डलले प्रत्येक दुई हप्तामा विश्वबाट एउटा भाषा लोप हन्छ भन्ने तर्क अघि सारका छन् (रिमाल २०७१ पृः १) ।" भाषा लोप हुनु भनको अलिखित साहित्य भित्रका जातीय गौरव, परम्परा, अस्तित्व र सास्कृतिक गरिमा पनि लोप हनु हेा । यसरी राज्यका भाषिक अवस्थिति अनुरूप भाषा सम्बन्धी राज्यले लिने भाषा नीति तथा येाजनाले भाषका सरक्षण र सवद्धनमा प्रमुख भूमिका खेल्दछ । खासगरी लिपि, व्याकरण, साहित्य आदि नभएका भाषाहरू चाँडै लोपोन्मुख भाषाका रेखामा पर्दछन् । भाषाशास्त्री ग्राइमले बक्ताको उमेरलाई आधार बनाएर भाषाको बर्गीकरण गरेका छन् । ग्राइमका अनुसार ह्रासोन्मुख सबै उमेरका बक्ता रहे तापनि बालकले नसिक्ने स्थितिका भाषालाई मानेका छन् । साथै अति संङ्कटग्रस्त ४० वर्षभन्दा माथि उमेरका वक्ता भएका भाषा लोपोन्मुख भाषा**को** रूपमा राखेकोले नेपालको जनगणना २०७८ का अनुसार नेपालका रहेका कम्तीमा एक हजारभन्दा कम जनसंख्या भएका भाषालाई लोपोन्मुखको स्थान राख्न सकिन्छ । जस अनुसार भाषाशास्त्री क्राउसका अनुसार मातृभाषाका रूपमा बालकले सिक्न छाडिसकेको भाषा लोपोन्मुख भाषा हो । नुनन (२००५) ले १२ चिन्ताजनक अवस्थाका सङ्टापन्न भाषा : मेवाहाङ, काइके, राउटे, किसान, चुरेटी, बराम, तिलुङ, जेरुङ, दुङमाली, बारगाँउले, नार्फू र मनाङवा भाषालाई मानेका छन् । त्यसै गरी काइँलाले लेख्य परम्परालाई आधार मानी नेपालका भाषालाई मरणोन्मुख, असुरक्षित र सङ्कटग्रस्त, असुरक्षितर सुरक्षित चार वर्गमा बाडेका छन् । जस अनुसार लेख्य परम्परा नभएका सबै भाषाहरू लोपोन्मुख भाषा अन्तर्गत पर्दछन् ।

तलिका ६

एक हजारभन्दा कम जनसंङ्ख्या भएका मातृभाषाहरू

क्र.स.	मातृभाषा	जनसंङ्ख्या	प्रतिशत	सञ्चित प्रतिशत
१	पन्जाबी	८७१	०.००	
२	धुलेली	७८६	०.००	
३	खाम्ची(राउटे)	७४१	०.००	
४	लुङखिम	७०२	०.००	
५	लोवा	६२४	०.००	
६	कागते	६११	०.००	
७	वालिङ/वालुङ	५४५	०.००	
८	नार-फु	४२८	०.००	
९	ल्होमी	४१३	०.००	
१०	तिछुरोङ पोइके	४१०	०.००	
११	कुर्माली	३९७	०.००	
१२	कोचे	३३२	०.००	
१३	सिन्धी	२९१	०.००	
१४	फाङदुवाली	२४७	०.००	
१५	बेलहारे	१७७	०.००	
१६	सुरेल	१७४	०.००	
१७	मालपाँडे	१६१	०.००	
१८	खरिया	१३२	०.००	
१९	सधनी	१२२	०.००	

२०	हरियान्वी	११४	०.००	
२१	साम	१०६	०.००	
२२	बनकरिया	८६	०.००	
२३	कुसुण्डा	२३	०.००	
२४	अन्य	४२०१	०.०१	
२५	उल्लेख नभएका	३४६	०.००	०.६७ प्रतिशत

तालिका ६ अनुसार रहेका पन्जाबी, कुसुण्डा , बनकरिया, साम, हरियान्वी, सधनी, मालपाँडे, खरिया, सुरेल, बेलहारे,, फाङदुवाली, सिन्धी, धुलेली, खाम्ची(राउटे), लुङखिम, लोवा, कागते, वालिङ/वालुङ, नार-फु, ल्होमी, तिछुरोङ पोइके, कुर्माली, कोचे, उल्लेख नभएका, अन्य भाषाहरू गरी २५ ओटा भाषाका बक्तासंङ्ख्या कुल जनसंख्याको ०.६७ प्रतिशत मात्र रहेको पाइनु र एक हजारभन्दा कम जनसंङ्ख्या भएका मातृभाषाहरू हुनु लोपोन्मुख भाषाको स्थानमा पुग्नु हो ।

मृतभाषा

जीवन्त भाषा प्रयोमा आउन छोडेपछि क्रमशः शून्य अवस्थामा पुग्छ र अन्त्यमा अस्तित्व नै समाप्त हुन्छ । अतः भाषिक शून्यता र अस्तित्वको समाप्ति भाषिक मृत्यु *language deth* हो । क्रिस्टल डी सट (सन् २०००) ले 'ल्याङ्ग्वेज डेथ' नामक पुस्तकमा भाषिक मृत्युलाई मानिसको मृत्युसँग तुलना गरेका छन् ।साथै मानिसबिना भाषाको कुनै अस्तित्व हुदैन र भाषा प्रयोगमा नआउने स्थितिमा पुग्नु अर्थात् भाषालाई मानिसले प्रयोगमा नल्याउनु भाषाको मृत्यु अर्थात भाषिक मृत्यु हो । भाषा जति प्रयोगमा आउँछ त्यति नै जीवन्त हुन्छ । कुनै भाषा अभिलेखमा मात्र सीमित भै व्यवहारमा प्रयोगमा आउन छोड्नु जीवन्ततातबाट शून्यमा पुग्नु हो ।

टोवा (२००१) का अनुसार भाषिक मृत्यु भनेको भाषाको प्रयोग वा अस्तित्व समाप्त भएको अवस्था हो । कुनै समयमा प्रयोगमा आएको भाषा अभिलेखमा कैद भई व्यावहारिक प्रयोजनका दृष्टिले शून्य मूल्यको स्थितिमा पुग्यो भने त्यो भाषिक मृत्युवरणको अवस्था हो। त्यसैगरी बैरागी काइलाले लेख्य परम्परालाई आधारमानी नेपालका भाषालाई चार वर्गमा बाँडेका छन् । उनका अनुसार मरणोन्मुख : लेख्य परम्परा नभएका र सबै लोपवान भाषाहरू यस समूहमा पर्दछन् ।

२०७८ को जनगणना अनुसार नेपालका पन्जाबी, धुलेली, खाम्ची(राउटे), लुङखिम, लोवा, कागते, वालिङ/वालुङ, नार-फु, ल्होमी, तिछुरोङ पोइके, कुर्माली, कोचे, सिन्धी, फाङदुवाली, बेलहारे, सुरेल, मालपाँडे, खरिया, सधनी, हरियान्वी, खाम, बनकरिया, कुसुण्डा, अन्य र उल्लेख नभए का भाषाहरू बक्ता सङ्ख्या पनि एकदमै कम एक हजारभन्दा कम जनसंङ्ख्या भएका कारण २५ ओटा भाषा मरणोन्मुख अवस्था र मृत्युन्मुख कोटिमा पर्दै गएका छन् । नुनन (२००५) ले मरणासन्न भाषा : लिङखिम, कुसुन्डा, कोचे, साम, कागते, छिन्ताङ र ल्होमी । मृत भाषा : बाइबन्सी, चोन्खा, लोङ्गावा, मुगाली, समव्या, पोङयोङ, बुङला, चुक्वा, हेदाङपा, बालिङ, खामदुङ आदि मानेका छन् । त्यसै गरी विभिन्न सैद्धान्तिक आधार र जनगणनाको परिणामलाई हेर्दा नेपालका भाषाहरूलाई मृत्यु हुनबाट जोगाउन, तिनलाई लेखन परम्परामा उतार्न, तिनको वाङ्मयको विकास गर्न, तिनका प्रकार्य बढाउन र तिनलाई समाज र राष्ट्रमा यथोचित स्थान दिलाउन राज्यले भाषानीति निर्माण गर्न आवश्यक छ । त्यसका निम्ति विभिन्न भाषाहरूको संरचनागत र स्तरगत विकासको योजना तर्जुमा गरी भाषाको संरक्षण गरिनु पर्दछ ।

वि.स. २००९-२०११ देखि २०७८ सम्मका भाषा

नेपाल बहुभाषिक देश हो । नेपामा बोलिने धेरै भाषाहरू अझै बोलीचालीमा सीमित छन् । धेरै भाषाहरू लेखन प्रणालीमा स्थापित भै सकेका छैनन् । नेपालको भाषिक तथ्याङ्क मूलतः जनगणनामा आधारित छ । जसअनुसार जनगणनामा भाषा सूचीकृत हुन थालेपछि.संवत् २००९-२०११ देखि २०७८ सम्म कायम भएका भाषाहरू क्रमशः यस प्रकार रहको पाइन्छ ।

जनगणनाको संवत्	२००९-२०११	२०१८	२०२८	२०३८	२०४८	२०५८	२०६८	२०७८
भाषा सङ्ख्या	४४	३६	१७	१८	३१	९२	१२३	१२४

प्रस्तुत तालिका अनुसार वि.स.२००९-२०११ को जनगणनामा ४४ ओटा भाषा सङ्ख्या रहेकोमा वि.स. २०१८ मा ३६ ओटा क्रमश : २०२८ मा १७ ओटामा सीमित हुन पुगेको पाइन्छ । यसै गरी २०३८ मा १८ ओटा मात्र रहेपनि २०४८ मा ३१ ओटा भाषा सङ्ख्या रहेको पाइन्छ । यसै क्रममा तीन गुणाले बृद्दि भएर २०५८ मा ९२ ओटा भाषा सङ्ख्या पुगेको पाइन्छ । २०६८ मा १२३ र २०७८ को जनगणनामा १२४ भाषा सङ्ख्या पाइन्छ । वि.सं. २००९ देखि २०७८ सम्मको पटक पटकको जनगणनाको विवरणमा फरक देखिए तापनि २०६८ र २०७८ को विवरण खासै भिन्न देखिदैन ।

राष्ट्रिय जनगणना २०७८ अनुसार नेपालमा १२४ मातृभाषाहरूको उल्लेख गरेको पाइन्छ । त्यसै गरी १३ ओटा भाषाका बक्ताले नेपालको जनसंख्याको ९०.९४ प्रतिशत समेटेको देखिन्छ । त्यसमध्ये एक लाख र सोभन्दा बढी बक्तासँख्या भएका भाषाहरूको सङ्ख्या २१ रहेको छ । यी २१ भाषाका बक्ताहरूको जनसङ्ख्या नेपालको कुल जनसङ्ख्याको ९४.९५ प्रतिशत हो । यस बाहेकको १०३ ओटा भाषा बोल्ने जनसङ्ख्याको प्रतिशत ५.०५ मात्र रहेको छ । त्यस्तै दश हजार र सो भन्दा माथि एक लाखभन्दा कम जनसङ्ख्या भएका भाषाहरू ३६ ओटा र दस हजारभन्दा कम एक हजारसम्म जनसङ्ख्या भएका भाषाहरू ४४ ओटा छन् । त्यस्तै एक हजारभन्दा कम जनसङ्ख्या भएका भाषाहरू २३ ओटा रहेको पाइन्छ । जसलाई राष्ट्रिय जनगणना २०७८ को प्रतिवेदन, राष्ट्रिय तथ्याङ्क कार्यलय, २०८० को प्रकाशित अनुसार मातृभाषा अनुसारको जनसंख्याको विवरण यस्तो पाइएको छ ।

नेपालको संविधान २०७२ अनुसार भाषा नीति

नेपालको संविधान २०७२ को भाग ३, धारा ३२ (१) मा प्रत्येक नेपाली नागरिक र समुदायलाई आफ्नो भाषा प्रयोग गर्न पाउने मौलिक हकको प्रत्याभूति गरिएको छ । यसको बाहेक भाग ४, धारा ५१ ग (७) मा नेपालको सामाजिक र सांस्कृतिक रूपान्तरणको लागि सङ्घ, प्रदेश र स्थानीय तहमा बहुभाषिक नीति अवलम्बन गर्न सकिने व्यवस्था रहेको छ । नेपालको संविधानको धारा २७८ मा भाषा आयोगको व्यवस्था तथा भाषा आयोगले सिफारिस गरेको आधारमा नेपालमा स्पष्ट भाषा नीति निर्धारण हुने व्यवस्था छ । भाषा आयोगले निर्धारण गरेका आधारहरूको आधारमा कुन भाषा कुन प्रदेशअर्न्तगत सरकारी कामकाजमा प्रयोग हुन सक्ने भन्ने नीति सरकारले स्पष्ट पार्नुपर्ने देखिन्छ । त्यसै गरी भाषा आयोगको काम कर्तव्यअन्तर्गत नेपालमा बोलिने मातृभाषाको विकासको स्तर र त्यसको आधारमा उक्त भाषाहरुलाई नेपालका विद्यालयमा शिक्षाका माध्यम वा विषयको रूपमा प्रयोग गर्ने सम्बन्धमा सुझाव दिने व्यवस्था पनि उल्लेख छ । तसर्थ संविधानमा व्यवस्था भएबमोजिम नेपाल बहुभाषिक देश भएको यथार्थ सामाजिक रूपमा स्वीकार्य छँदै थियो हाल आएर राज्यले आफ्नो मूल कानुन संविधानमा समेत स्वीकार गरिसकेको छ ।

नेपालको संविधान २०७२ को प्रस्तावनामा बहुजातीय, बहुभाषिक, बहुधार्मिक बहुसांस्कृतिक तथा भौगोलिक विविधतायुक्त विशेषतालाई आत्मसात गरी विविधता बीचको एकता, सामाजिक सांस्कृतिक ऐक्यवद्धता, सहिष्णुता र सद्भावलाई संरक्षण एवम् प्रवर्द्धन गर्दै, वर्गीय, जातीय, क्षेत्रीय, भाषिक, धार्मिक लैङ्गिगक विभेद र सबै प्रकारका जातीय छुवाछुतको अन्त्य गरी आर्थिक समानता समृद्धि र सामाजिक न्याय सुनिश्चित गर्न समानुपातिक, समावेशी र सहभागितामूलक सिद्धान्तका आधारमा समतामूलक समाजको निर्माण गर्ने संकल्प गरिएको छ (पृ.१) । यसैगरी भाग ३ मौलिक हक अन्तर्गत धारा १८ मा समानताको हक उल्लेख गरिएको छ : यसको उपधारा ३ मा राज्यले नागरिकका वीच उत्पत्ति, धर्म, वर्ण, जातजाति, लिङ्ग शारीरिक अवस्था, भाषा वा क्षेत्र, आदिका आधारमा भेदभाव गरिने छैन भनी स्पष्ट उल्लेख गरेको छ । माथिका संवैधानिक व्यवस्थाले र भाषिक यथार्थको चर्चाले स्पष्टहुन्छ नेपालमा भाषिक विविधता छ र सबै भाषाको समान महत्त्व छ । विद्यमान संविधानले भाषिक रूपमा अपूर्व न्याय सुनिश्चित गरेको छ ।

निष्कर्ष

नेपामा बोलिने धेरै भाषाहरू अझै बोलीचालीमा सीमित छन् । धेरै भाषाहरू लेखन प्रणालीमा स्थापित भै सकेका छैनन् । त्यसै गरी भाषाको स्तरगत वर्गीकरण आधारमा भाषिक जीवन्तताको अवस्था हेर्दा विकसित, विकासशील, सङ्कटापन्न, लोपोन्मुख र मृत गरी पाइयो । साथै नेपाली एकमात्र विकसित भाषा हो भने मैथिली, भोजपुरी, अवधी, तामाङ् र बज्जिका विकासशील भाषा हुन् । त्यसै गरी नेपाली भाषाका वक्तासंख्याभन्दा निकै कमवक्तासंख्या भएका नयाँ पुस्तामा हस्तान्तरण हुने क्रम कमजोर बन्दै गएका, वक्तासंख्या घट्तै गएका भाषालाई सङ्कटापन्न भाषा भनिन्छ । नेपालका जिरेलथकाली, छन्त्याल,चेपाङ, कुमाल लगायतका भाषाहरु सङ्कटापन्न भाषाहरु हुन ् । नेपालका लोपोन्मुखभाषाको अवस्था झन्गम्भीर छ । नेपालमा लोपोन्मुख भाषाका वक्ता एक हजारभन्दा कम रहेका छन् । यस्ता भाषाहरुको संरक्षणमा राज्यको संरक्षण नहुँदा भाषासँगै सम्बद्ध संस्कृति र परम्पराहरू पनि हराउने खतरा बढेको छ । यसै गरी मृतभाषा भन्नाले अब दैनिक बोलचाल वा सामाजिक सन्दर्भमा प्रयोगमा नरहेका भाषाहरु बुझिन्छ । नेपालका कतिपय भाषाहरु पनि मृत भैसकेका छन् । मृत भाषाहरु केवल अभिलेख, साहित्य र धार्मिक क्रियाकर्ममा मात्र सीमित रहेको पाइन्छ यस अध्ययनबाट के प्रष्ट भएको छ भने नेपालमा भाषिक विविधता संरक्षणको चुनौतीसहित अवसर पनि उत्तिकै छ । शिक्षाको माध्यमबाट मातृभाषाको प्रयोग बढाउनउँदै भाषाहरुको नेपालका भाषाहरूलाई मृत्यु हुनबाट जोगाउन, तिनलाई लेखन परम्परामा उतार्न, तिनको वाङ्मयको विकास गर्न, तिनका प्रकार्य बढाउन र तिनलाई समाज र राष्ट्रमा यथोचित स्थान दिलाउन राज्यले भाषानीति निर्माण गर्न आवश्यक छ । त्यसका निम्ति विभिन्न भाषाहरूको संरचनागत र स्तरगत विकासको योजना तर्जुमा गरी भाषाको संरक्षण गरिनु पर्दछ ।

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