RESEARCH JOURNAL

on

Multi-disciplinary Issues

(A Peer Reviewed Journal)

Research Management Cell
J.S. Murarka Multiple Campus
Lahan, Siraha (Nepal)
(Accredited by UGC)

Research Journal
A Peer Reviewed Multi-disciplinary Journal

Editorial ...✎

It is a matter of immense pleasure for us to bring the third volume of our **Research Journal on Multi-disciplinary Issues** with a view to giving some new ideas, thoughts and facts in various disciplines. J.S. Murarka Multiple Campus, Lahan has an autonomous unit viz. Research Management Cell (RMC) which manages all the research related activities of the campus and publishes research journal annually. The primary aim of the RMC is to promote and expand the research activities by providing a number of grants. These include thesis support grants to students, mini-research grants to faculty members and students, support for trainings and seminars, and travel grants for faculty members, and also recommend the Campus Management Committee for supporting the faculties for their further study, such as M.Phil. and Ph.D. The overall goal of the RMC is to help improve the quality of higher education teaching and learning practices by inculcating research culture in institution in order to make higher education more relevant to the local, national and global needs. The primary purpose of this cell is enhancing academic excellence through research and innovation by conducting various programs like; trainings, workshops, seminars, conferences etc.

It is a well known fact that education and research have deep rooted relationship, and both are equally important for transformation, innovation and devolvement of the society. Colleges and universities are the main centre for education and research. Most of the new thoughts and ideologies are produced from the colleges and universities. So, it becomes the prime responsibility of college/university graduates and faculties to involve in research oriented works to keep them updated and professional.

Realizing this fact, J.S. Murarka Multiple Campus Lahan encourages its faculties and students to involve in study and research simultaneously. However, conducting research is certainly not an easy job in this locality due to limited resources and unfavorable environment for research

activities. Moreover, research is a rigorous and tedious job. So, we have lots of challenges to continue our journey of journal publication. The reviewers for our journal are experts from various universities, and from home and abroad. We have been following double blind peer review process to maintain the standard of the journal. After achieving **Accreditation** by **UGC** and **Best Community Campus Award** by **Nepal government** in **2076**, roles and responsibilities of the campus and its faculties have increased since the expectations of students, parents and society have also increased in the changing perspectives.

This volume has the collection of research articles on various issues which are multi-disciplinary in nature. The articles deal with various issues of different disciplines like; language, ELT, ICT, health, science, politics, philosophy etc. The articles have raised current issues of various fields and given birth to new ideas as well. The recommendations made by some researchers seem to be quite useful that can be implemented in concerned fields for the betterment of existing situation. We have tried our best to minimize the shortcomings in this volume. However, our efforts in this regard may not have been successful. So, we expect creative and constructive comments and suggestions from our valuable readers, well-wishers and scholars to make our forthcoming issue even better.

Finally, we would like to extend our sincere gratitude to all the authors and reviewers of this volume who have been very supportive throughout this rigorous process of publication. They responded to us promptly even in the extremely tight deadline, despite their own hectic schedule. We are equally grateful to the CMC, Campus Chief, Assistant Campus Chiefs, RMC Coordinator, faculties, non-teaching staff and UGC Nepal for their continuous encouragement and support for the publication of this journal. We would also like to thank our designer, Mr. Dev Nandan Chaudhary, for kind cooperation as well as designing and presenting the journal elegantly. **The Editorial Board** and **RMC** would also like to earnestly appreciate **UGC Nepal's** financial support in overall research activities of our campus.

We hope you will enjoy reading the journal!

The Editorial Board
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Problems of Interpreting Maithili Complex Predicates in English

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Abstract

Every language has its own uniqueness and lets its users develop any other language in the way their first/mother one has been structured and conceptualized. The present paper attempts to make the English teachers teaching English in Maithili ecology be aware of expressing multi word concepts (complex predicates) of Maithili in English, which has been a common problem for school and campus level students as well. Both types of data sources (primary and secondary) were used, viz. the secondary for identifying the complex predicates and the primary for finding out the difficulties faced by the learners for expressing the Maithili CP concepts in English. The result shows that Maithili is very rich by its complex predicates with different types and all levels (school and campus) students having Maithili as their mother language are found to be expressing the CPs in the same way even in English which happens to be pragmatically unacceptable. The concept of Maithili CPs cannot be expressed in the multi word way but in a single word way. Finally some pedagogical implications are also suggested for handling such problems and carrying out the further researches in the respective field.

Keywords: *Multi-word, complex predicate, teaching ecology, bleached concept*

1. Introduction

Teaching English in Nepalese ecology also needs to be shifted towards localised views. Learners, practitioners, and other English sharers have started perceiving English through their mother languages, as also fully supported by the current cultural approaches for empowering EFL. Every language has its own uniqueness and the users have framed it in a fixed architect at constituent structure. Researchers have claimed that whatever language(s) a person is acquiring after his/her first language, s/he is found to apply similar conceptualizing ways for expressing the

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ideas in the performance. It means the first language idea to word association pattern happens to be followed that causes difficulty for non-English learners to learn English in English pragmatic styles. So, the concerned practitioners involved in sharing English in Maithili ecology should be aware of expressing multi word concepts (complex predicates) of Maithili in English, which has been a common problem for school and campus level students as well.

Semantics is expressed in different ways in different languages of the world. However, this could be covered within the three sense making paradigms: one lexical unit one semantic concept, two lexical units one semantic unit and one lexical unit two semantic units. The second paradigm is also known as the inflation of semantic unit, i.e., one semantic conceptual unit into more than one lexical unit which is the domain of complex word formation in different languages. The South Indian languages are massively characterized with the fact that two (more than two) lexical units together form a single semantic unit, hence has been an interest of research for many linguists.

Maithili is a New Indo-Aryan (NIA) language spoken by about 30 million people mainly residing in the south-eastern part of Nepal, Terai region and in the northern part of Indian State of Bihar.

This language has also been alternatively called *Mithilaa Bhaakhaa*, *Tirhutiyaa, Dehaati, Thethi, Avahata* or *Apabhramsa* (Yadava, 2001). Maithili is the mother tongue of 11.67% of the total population of Nepal and has been the second widely spoken language used by 3,092,530 (CBS, 2011: the Government of Nepal). Today Maithili is a highly sophisticated language with an impressive literature (Yadav, 2011, p. 3).

The predicate in the complex predicates consists of more than one semantic heads but one being bleached in its meaning. The combination of two semantic heads which constitute of a verbal or non-verbal element (noun, adjective and adverb) as a host and the other as a verbal element which is delexicalized/grammaticalized being semantically bleached and so called a light verb is complex predicate. So, complex predicates are in the forms of N/ADJ/ADV/V + V where the second V acts as a light verb which determines the semantic and some syntactic features of the sentences. In the construction of complex verbs, two or more semantic features or co-occurrence of two or more lexical items combine together in which one of the lexical items acts as 'polar' (Hook, 1975) and other items are combined as a single unit. The second item, then, acts as *'explicator'* (Masica, 1976) or *'vector'* (Hook, 1975) or *'light verb'* (Jespersen, 1965; Mohanan, 1994 & Butt, 1995 in Butt, 2010) in case of

compound verb, on the other hand, one of the lexical items acts as 'nominal host' or 'adjectival host' and other items are combined as one then act as *'light verb'* (Mohanan, 1994 & Butt, 1994), in the case of conjunct verb. A compound verb is a complex verbal unit which consists of a sequence of two verb stems (i.e., V_1 +V_2) but functions as a single simple verb (Yadav, 1996, p. 191).

In the course of learning and teaching English, it has been realized that the learners are developing their concepts in the target language through their mother tongue or the language acquired earlier well. This requires English teachers to be multilingual, who can better understand sense expression system of students' native language as well. Regarding this fact, Kirkpatrick suggested that All English language teachers should be multilingual and multicultural and ideally know the language of their students and understand the educational, social and cultural contexts in which they are working (2007, p. 32). At present, different theories are advocating that first language should not be over looked since the learners see or comprehend a second language through the concept of their first language. So, while teaching a foreign language, a good teacher should be aware of the fact about the way in which the semantic units are structured in both languages. Many research works have focused on teaching English

realizing the semantic paradigm of the first language. However, the semantic concept construction of English is different from the first language, as in the case of complex predicates of Maithili. In Maithili CPs, two lexical units are combined together to form a single sense and this type of concept is found to be expressed in the same way even in English which happens to be pragmatically erroneous cases. Vernacular practices and local knowledge are under-represented in both ELT theories and language teacher education (Tan, 2014, p. 397). So the present paper aims to find out how the Maithili background learners learning English in secondary level while expressing their complex predicate concepts in English and also provide some pedagogical implications for the related teachers who are supposed to make their students be aware of the way of sense making by the CPs of Maithili in English.

There are some valuable studies in the field of Maithili verb complexity giving more focus on compound verbs, converbs, sequential verbs and verbs with other non-verbal elements; Jha (1979), Singh (1979), Yadav (1996), Yadav (2004), Yadava (2006), Yadav (2011), and Yadav (2019). But they are not talking about the problems such constructions are causing while interpreting them in English.

2. Methodology

The researcher collected the data from the twenty students of class eleven and twelve from Major English group (randomly selected) of J S Murarka Secondary School Lahan. They were asked (in the written form) to convert/ interpret the multi words (also called complex predicates) used in sentences of Maithili into English. He made a list of twenty sentences in Maithili which consisted of the complex predicates collected from the written texts and from his own as well. Thus, he applied the both types of data sources (primary and secondary).

3. Results

The researcher asked the following sentences of Maithili to the 20 selected students individually using the Debnagri script and managed 30 minutes. All the sentences were orally read for them twice in the group without explaining their semantic/pragmatic values. They were asked for their interpretation on their own way and to note what they meant in English in the Roman script. These Maithili sentences are here partially interlinearized using the IPA symbols based on Yadav (1996) and Yadava (1999).

Table no. 1: Data showing the Maithili CP sentences

1.	*john sima-kə cithi **likh de**-l-əith*
	John wrote a letter for Sima.
2.	*o həm-ra kitab **pəirh de**-l-əith*
	He read a book for me.
3.	*didi kəpḍa **dhoi le**-l-khinh*
	The sister washed the cloth.'
4.	*həm bã suri **bəja ləi**-it ch-əi*
	I play flute (probably not so well).
5.	*khet-mə **bairh ge-l***
	It flooded in the field.
6.	*əha-kə mən-me **səñka uṭhəl** ho-et*
	You might have doubt in your mind.
7.	*ram-kə **banta a**-el*
	Ram vomited.
8.	*ram-kə katha **yad a**-el*
	Ram remembered the story.
9.	*bidyarthi iskul-sə **ṭap kəs-**l-ək*
	The student ran away from school.
10.	*bəca mai-kə **bat kaṭ**-l-ək*
	The child disobeyed his mother.
11.	*hunka **ris uṭh**-l-ah*
	He got angry.
12.	*binod master-sə **piṭai kh**e-l-ək*
	Binod got beating from a teacher.
13.	*o səmpəti-ke **pol khol**-l-əith*
	He disclosed the property.
14.	*neta-səb **bhau khoj**-l-ah*
	The leaders gave more priority on themselves.
15.	*həm **cup ləg**-l-əūh*
	I became silent.
16.	*kəpra-me **dag pər**-əl*
	There was spot on cloth.
17.	*ləḍəki **nəkəl par**-t-ai*
	This girl will behave artificially.
18.	*ram sathi-kə **sakchi bəis**-l-əith*
	Ram fasted.
19.	*o **gəp mar**-l-əith*
	S/he embraced me.
20.	*həm binod-kə **dhyan rakh**-l-əun*
	'I took care of Biod.

The collected data show that there are only twelve different types of verbs or predicates (light verbs) which are combined with other twenty verbs (polar verbs) in the twenty sentences. Now each verb is being treated separately showing how the learners interpreted such verb forms. The first verb found with the complex construction is '*de*' which means 'give' in English, and others are presented in the table below in the similar way: meaning in English, what they have interpreted and how many of the total students' interpretation is unaccepted for every complex predicate while they were being asked to express such constructions of Maithili in English.

Table no. 2: Details of interpreted Maithili CPs by students

SN	Maithili CPs	Meaning in English	Interpreted by students	Total students
1.	*likh de*	write (for sb)	write and give	16
2.	*pəirh de*	read (for sb)	read and give	18
3.	*dhoi le*	wash (for ownself)	wash took	16
4.	*bəja ləi*	play (for ownself)	play took	15
5.	*bairh ge-l*	Flooded	flood went	19
6.	*sənka uthəl*	Doubted	doubt sarose/stood	15
7.	*banta a-el*	Vomited	vomit came	19
8.	*yad a-el*	Remembered	memory came	16
9.	*ṭap kəs*	run away	walk tied	20
10.	*bat kaṭ*	Interrupted	talk cross	15
11.	*ris uṭh*	got angry	angry arose	10
12.	*pitai khe*	got bitten	beating ate	19
13.	*pol khol*	disclosed secrecy	secrecy opened	16
14.	*bhau khoj*	Boasted	value searched	20
15.	*cup ləg*	become silent	slient stand	16
16.	*dag pər*	Spotted	spot fall	15
17.	*nəkəl par*	Imitated	copy make	19
18.	*sakchi bəis*	Witnessed	witness sit	20
19.	*gəp mar*	talked unnecessary	talk kill	16
20.	*dhyan rakh*	paid attention	attention keep	19

From the table tabled above, it is clear that the complex predicates listed in no. 1, 3, 8, 13, 15 and 19 respectively were interpreted by the sixteen students which are unacceptable pragmatically in English. Similarly, 5 different CPs numbering with 5, 6, 12, 17, and 20 were converted into English in unaccepted

way by the nineteen students, the CPs of no. 4, 6, 10 and 16 were expressed in the wrong pragmatic value by the fifteen students, twenty in twenty students got wrong English interpretation of the 9th, 14th & 18th CPs, only the second CP by the eighteen students and the 11th CP

by the ten students respectively. Thus, the data about the total CPs, viz. twenty can be analysed from the six groups based on the number of the students committed wrong interpretation of such CPs respectively.

Discussion and interpretation

The study simply outlines a teaching-learning model that builds on a dynamic, situated, multimodal and semiotic understanding of language, which shows the possible roles that LL can play in TL education. While learning and teaching a new language, i.e., English, two of the different aspects of language are very core ones to be considered well. They are lexical and semantic. The result analysed above about the interpretation made by the twenty students of +2 level for the multi word constructions, especially Maithili complex predicates, obviously indicates that the pragmatic values are intertwined with the individual word of the mother language in learning L2. That is, they happened to be unable to interpret their concept in English and came to express such multi word constructions

in the similar way even in English which becomes unacceptable pragmatically. As in the case of the twenty students who made their wrong interpretation of Maithili CPs in English, it is found that the maximum of them have applied the multi word system of English as well to convert their interpretation of such Maithili CPs. In the case of CPs listed in no. 9, 14 and 18 respectively, even all students misinterpreted. There is only one case, i.e., the case of no. 11, the ten students did not interpret wrongly. The situation shows that the system of the L1 plays pivotal place in handling a new language and the pragmatic/semantic co-relation with the word string has been already shaped through their L1 system which happens to be applied even for other language dealing. This is what the Maithili speakers learning English are facing the problem in their daily life.

Conclusion

Complex predicates are defined as the combination of two semantic heads consisting of a verbal or non-verbal element (noun, adjective and adverb) as a host (first part) and the other as a verbal element (second part) which is delexicalized/grammaticalized being semantically bleached and so called a light verb. Regarding the problem being faced by the Maithili speakers expressing/ interpreting complex predicate constructions of their L1 (Maithili) in

English, the researcher came to conclude from the 20 selected students of +2 level that they happened to be unable to interpret their concept in English pragmatically and came to express such multi word constructions in the similar way even in English which becomes unacceptable. It indicates that the system of the L1 plays pivotal place for conceptualizing a multi word having a single semantic unit as they come to apply even in English which is one to one word conceptualizing language in this regard, not like Maithili which is many to single conceptualizing language regarding CP constructions. Such constructions of Maithili are treated carefully for expressing in English.

Pedagogical implication

Since the speakers of every language are already schematized with the fixed way of expressing their ideas through their language word system, the English teachers involved in teaching English in Maithili setting are often facing problems, especially when (learners) need to express their thoughts which they have framed through the multi word system (such as complex predicate constructions) in English. So, the concerned teachers are supposed to be careful about the word system of Maithili and English. Such teachers must be aware of the ways of expressing single ideas through multi word system in Maithili which is not generally similar in English. Finally,

this study also contributes to the book writers for the pedagogical purpose and encourages further research that extends our understanding of Maithili language (and language learning/teaching) in ways that enable and empower researchers and teachers to make a difference in their communities and in their students' lives

Abbreviations

ADJ   Adjective

ADV Adverb

CP   Complex predicate

EFL   English as foreign language

L1   First language

IPA   International phonetic alphabets

ML   Maithili learner

MW   Multi word

N   Noun

NIL   New Indo-Languages

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Degrading Meaning of the Commonly Used Words of Minority Language in Multilingual Context

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Abstract

This small piece of writing is an observation-based text highlighting the fact that minority language speakers are indirectly compelled to switch on to the dominant language. This study exclusively highlights how a dialect of Maithili called THETH is losing its ground, and the meaning of some common words is degrading, hence replaced by borrowed terms from the dominant dialect or language of the society. It has attempted to illuminate the fact that upward mobility is reflected in the use of language in everyday life. When the marginalized mass step onto a ladder of success or on the way of upward mobility, they fabricate their personality with different components, of which one is language I.e. dominant language in a general case. This piece of the text aims at exploring the reasons behind opting for the dominant/ influencing language to maintain personality. This is often the case that dominated language betrays the personality of the speakers. So this paper has made a case study at a micro-level along with indirect observation of the related phenomenon. And further, some cases of language use-related events have been analyzed minutely.

Keywords: *Globalization in Language, Minority speakers, code-switching, and Language death*

1. Introduction

This article begins with slight information about the dominant/ influential languages at the global level in the present context followed by a tiny portion of the literature review. Then my observation along with some striking events in terms of code-switching is presented. At last, the conclusion has been brought out based on case study and observation.

1.1 Status of Languages on the Planet

Numerically there is no uniformity in the counting of the numbers of languages existing on this planet; however, it is generally agreed for 3000 to 10000 languages. Crystal (2003) mentions that most reference books published since the1980s give a figure of between 6,000 and 7,000, but estimates have varied

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in recent decades between 3,000 and 10,000. Wang & Minnet (2005) also support the claim made by Crystal by mentioning that there are 6000 languages now spoken in the world. Schmidt (2008) as stated in Freeland and Parrick (2004) mentions that 70% of the world population speak only 11languages.

Anna Klappebach in his blog under *Most Spoken Languages in the World 2020* presents twelve most spoken languages as:

With over 1,130 million native speakers, English is the most spoken language in the world. In terms of native speakers alone, Mandarin Chinese is by far the second most spoken language in the world. It is an official language of mainland China, Taiwan, and Singapore and one of the six official languages of the United Nations. So it's not surprising that there are approximately 1.09 million native speakers worldwide.

Further, there are about 615 million native Hindi speakers, which makes it the third most spoken language in the world. It's the official language of India and is also spoken in countries such as Nepal, Fiji, Mauritius, and Guyana. Hindi is highly influenced by Sanskrit and named after the Persian word *hind*, which means– quite literally – "Land of the Indus River".

Twenty-two countries over four continents have Spanish as534 million speakers or one of the official languages, and it's already the second most studied language in the world. French has 280 million speakers that make it the fourth largest language on the planet. In the same way, With 295 million native speakers, Arabic is the sixth most spoken language in the world and the only one in our top twelve that is written from right to left.

Bengali with 265 million speakers known to many English speakers around the world as Bangla, is mostly spoken in Bangladesh and India and is considered by some to be the second most beautiful language after French. One of the most spread out languages (with around 155 million native speakers living across the world), the eighth most spoken language in the world is Russian. Portuguese is rooted in the region of Medieval Galicia (which was partly in the north of Portugal and partly in the northwest of Spain), but only five percent of the 215 million native Portuguese speakers live in Portugal.

A standardized variation of Malay, an Austronesian language that's the official language of Malaysia, Indonesian is a great example of a widely spoken language that encompasses several distinct dialects across Indonesia. Urdu (170 million speakers), the *lingua franca* of Pakistan, and which is very close to Hindi, is often referred to as the language of writers

and thinkers, Germany has just over 100 million native – and just under 32 non-native – speakers worldwide, and is the most spoken language in the European Union.

Beginning with the largest totals: it is evident that a very small number of languages account for a vast proportion of the world's population. The eight languages over 100 million (Mandarin, Spanish, English, Bengali, Hindi, Portuguese, Russian, Japanese) have nearly 2.4 billion speakers between them; and if we extend this count to include just the top 20 languages, we find a total of 3.2 billion – over half the world's population. If we continue the analysis downwards, we will eventually find that just 4% of the world's languages is spoken by 96% of the population.

The paper has not made any concern about the influence of the world's major languages on remaining speakers; rather it has tried to focus the influence of a dominant language at the local level.

1.2 Concern about Minority Language: Now and Then

Before the establishment of the UNO, neither minority communities nor their languages had ever been in the concern, rather national policy and language policies talked otherwise. In Nepal,

before the restoration of democracy in 1990, there was a single slogan i.e. one language; one dress. The slogan was mandatorily learned by the school graduates. After the political change in 1990 A.D., all the minority languages were duly acknowledged by the state mentioning all languages spoken within the boundary as national languages in the constitution itself; however, no action was taken for the protection and promotion of them. The language policy was designed in such a way that all minor languages turned out to be the prey of Nepali, the killer language which has been the language of the state. The Nepali language was unduly given full-scale privileges creating numerous opportunities. Nepali is the language of hill elite people who have controlled all mechanisms of the nation. With the eruption of the 2007 A.D. Madhesh movement, the movement of a mass of brown-skinned marginalized people living in the southern plain of the nation compelled the state to promulgate the new constitution restructuring the whole nation into a federal state. With the spirit of federalism, all provincial and local governments were supposed to make plans and policies for the promotion and protection of minority languages which still seem to be a Pandora's box.

2. Literature review

2.1 Minority language speakers and their recognition

For minority speakers, language is not only related to their identity but also a lifeline. It is a variable that gives recognition in the society. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) identifies more than 6,000 languages spoken globally, most of which can be considered minority languages. For minorities, language is a central element and expression of their identity and key importance in the preservation of group identity. Language is often particularly important to non-dominant communities seeking to maintain their distinct group and cultural identity, sometimes under conditions of marginalization, exclusion, and discrimination.

Romaine (2007), for instance, assumes that around half of the world languages have expired in the past five hundred years and also cites "as many as 60% to 90% of the world's approximately 6,900 languages may be at the risk of extinction within next 100 years" (p. 115)

2.3 State's perception towards minority language

Countries with one civilization and one language can be counted on fingers, such as Korea, Taiwan, Japan, and a few others. The rest of the world, on the other hand, is multilingual. Positively talking, multilingualism itself is the beauty of the society/ state; however, this has been the bone of contention. The speakers of the dominant language are often found to be hostile towards minority speakers. They do not seem to accept the existence of minority speakers. And what's more, they are in power in the state. They circulate their power through various national policies, one of which is a language policy. Members of the dominant culture shape the ideological environment, propagating a value system in which their language is seen as a positive asset, and believed to be a unifying symbol for the region or state. When several larger linguistic communities compete for the same political or social space, they may each have their conflicting linguistic attitudes. This leads to the general perception that multiple languages cause divisiveness and are a threat to national unity. The fostering of a single dominant language is one attempt to deal with this *real* or *merely perceived* threat. In doing so, the governing body may legalize the use of the elite class language as a nation's language. Accordingly, the policies may discourage or even prohibit the use of other languages.

3. The study

Upon the encounter with some striking incidents related to the use/unuse of

mother tongue, I started working on some of the cases which were why minority language speakers give due emphasis (which is 'undue' for me). I myself am one of the cases. While addressing my father, I try to switch my mother tongue (which we assume to be a dialect of Maithili language) to the standard Maithili, the variety spoken by elite and so-called upper caste people, especially Brahmin.

The first case is a milk boy of 16 or 17 studying in the upper secondary level. He sells me buffalo milk every day with a delivery facility at home. In the social hierarchy, he doesn't belong to upper-class people, which is why I expected him to speak a non-standard variety of Maithili. He always tried to sound different from what he was in reality. Once at the time of payment, I asked him to give all his money to his parents using the typical **THETH** Maithili word -**MAAI BAAP**. He was dismayed and reacted instantly. He requested me to use the term MOMMY PAPA which is what **MAAI BAA**P means exactly.

My eight-year-old son once looked at me with a complete wonder on his face. I didn't understand why. I asked him the reason for his unwanted gesture. He told me in his mocking tone ' You really sound like an illiterate guy from a peasant community'. The reason was - I had used the term KATTU for underwear pants. **KATTU** is a typical *theth* word

widely used in a rural area where the majority of speakers are from non-standard Maithili. I was expected to use underpants which I didn't. In this regard, Dorian (1982) claims that the massive lexical borrowing is a precondition for language decay, but it is in itself not sufficient to initiate language decay or to indicate it to the beholder.

I have observed a high school head teacher treating the students unfairly based on the variety of Maithili language spoken to him. Even teaching and non-teaching staff whose tongue was different from their head teacher often experienced unfair treatment It was highly expected that they use a standard variety of Maithili.

My mother once corrected me for the term of 'marriage' for which I had used the word *'biyaah'.* In standard Maithili, the meaning of marriage is conveyed via '*bibaah*' or '*saadi*' which is what '*biyaah*' means exactly. To her, an educated person like me must use a standard variety of Maithili. The opposite is okay for uneducated people. The use of a non-standard form of language betrays the personality of the speakers.

I asked my never-school-goer uncle to say *'aanga'* and *'aangi'* which means 'shirt' and 'blouse' respectively in English. He frowned his face uncomfortable to utter. Upon my question for his uncomfort,

he claimed that these words are not the standard ones, rather much below the acceptable level. These terms were commonly used till two decades back; however, they are used in a limited area. Their meaning is degraded now. Though they are not taken as taboo, people have

different perceptions about those terms. Simply they are taken as low-class words.

Several words have not been in use any longer; what's more, they are taken as the low class of words. Some of them are as follow:

S.N.	Word	English counterpart	Replaced by standard Maithili
1.	anga	shirt	kamij
2.	aangi	blouse	blouse
3	gor	leg	pair
4.	jalkhai	breakfast	naasta
5.	bhor	dawn	subah
6.	chaah	tea	chai
7.	gharbalaa	husband	dulhaa
8.	gharbaali	wife	kaniya/ dulhin
9.	bauh	wife	kaniya
10	baau	father	babu
11.	maai	mother	mommy
12.	bhansiya	wife	kaniya
	karchhul	spatula	karachh
	chhipa	plate	thariya/ thaaree
	paira	road	rasta

4. Interpretation

To my understanding, language expresses identity, Language plays a leading role in defining people's identity, and the loss of

language may impact people in negative ways. If the language dies, as some predict, what do we have left to us? Then, I ask our people who are we?" (Nettle & Romaine 2000, p. 23). Supporting the

very issue, Hoffmann (2009, p.21) writes:

Languages play a vital role in defining people's cultures; in other words, language ties closely with culture, and when communities lose their language; they lose a number of aspects of its culture. As an illustration, there are a considerable number of practices that depend on language. For instance, losing language is likely to lead to the loss of many verbal art forms such as poetry, and traditional songs. Even if the language was written, it may lose some aspects such as its tales unless they are translated into other languages.

Generally, the minority speakers have a deep-rooted assumption that their tongue is much inferior to other languages/ varieties of language. Several studies have highlighted that minority speakers are unaware of the significance of their tongue. Kunnas (2003, p.11) writes:

If a significant proportion of the speakers of a minority language underestimate the significance of their language, the language may become extinct quite soon and the consequences may be dramatic. Loss of a language will result in a loss of continuity between generations, national identity, and human creative potential. The death of a language will cause alienation, physical and psychic ill health, social dispersion, and increased criminal tendencies. In other words, it

will engender a general deterioration of the quality of life. Ultimately, this will result in the loss of a unique and valuable cultural heritage, such as songs, stories, myths, and artifacts.

In a certain course of time, some words lose their meaning culminating in a complete disappearance from the language a long way. This even leads to the death of the language. Campbell & Muntzel (1989) say that the typical accompanying properties are that borrowing does not simply enrich the lexicon of the minority language but replaces indigenous words and has structural effects, i.e. there is lexical replacement or relexification.

In the case of the Maithili language, the elite class variety is assumed to be far more superior to others. That variety is used in education, paper, and different media. The young generation who are a school or college goer always tries to maintain personalities while speaking their language. The urban society seems to acknowledge the standard variety of their language. The use of the standard variety for them remains the surest weapon to save their personality. Hence, they jump to the standard variety of Maithili to maintain its tone, diction, and others. Fishman (1991) believes that the language shift paradigm is presented as a voluntary choice by the speech community as a response to the changing

conditions in the entire environment.

The problem is with the speakers themselves too. There are a marked number of speakers who haven't realized what will happen with the disappearance of the minority language. For the sake of their survivality, it seems worth being considerate about the protection and preservation of the minority language. If mirrored the scenario. It appears that language disappears before their own death. Hence, different studies on language loss and language death seem to indicate that the speakers themselves be more serious and sensitive towards their language.

5. Conclusion

Change and progression are inevitable. They are natural phenomena. Knowingly and unknowingly, they are there. They are everywhere. It is not only the use of language that has been in a state of flux; rather all most all walks of life. Minority languages are in the danger zone. Many languages are failing out of use and being replaced by others that are more widely used in the region or nation, such as English in the U.S. or Spanish in Mexico. (Gnanwali, 2019) They are under threat because of the language policy of the state on the one hand, and the interest and attitude of its speakers on the other hand. There are layers of complexities

in maintaining the language policy. The nation's mainstream language is rapidly devouring other languages, whereas the dialectical level of conflicts within minority languages is also inviting a bigger challenge. One variety of dialects showing supremacy over others is slowly weakening its position in society. Thus, I recommend for the further research of minority language and so called non-standard dialect.

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Impact of Technological Changes on Job Performance of Teachers in Higher Education Institutions

A study with reference to quality accredited colleges in Province 2, Nepal

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Abstract

This article assessed the impact of technological changes on job performance of teachers with evidence from quality accredited higher education institutions in province 2, Nepal. The study has been conducted using a descriptive survey research design. The population consists of 105 academic staffs of two quality accredited higher education institutions of province 2. Convenience sampling techniques were employed to select the sample size of 57academic staffs from the population. Regression analysis was used to analyze the data that was collected using a five-point Likert's scale structured questionnaire. The results showed that technology has influenced job performance of teachers since it simplifies the work to be done. Technology greatly escalates the productivity of employees along with time saving. Use of ICT and the internet can assist teachers to instruct efficiently and students learn more effectively. Thus, to enhance and strengthen the quality of our education, it is the need of the hour to digitize the teaching and learning methodologies. But technological changes adoption in quality accredited higher educational institutions in province 2 is low.

Keywords: *Employee's Performance, Technological Changes, Higher Education Institution*

Introduction

Almost every business in the contemporary environment relies on technology at every level of its activities.

Bauer & Bender's study (as cited in Methode, Osunsan, Florence, Augustine, Abiria & Innocent, 2019), technological change is an increase in the efficiency of a product or process that results in an increase in output, without an increase in input.

Heeks & Stanforth argue (as cited in Methode, Osunsan, Florence,

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Augustine, Abiria & Innocent, 2019) that beyond the standard office information communication technology (i.e. laptop and smart phone), organizations employ information systems, custom software or specialized technology equipment to enhance efficiency in operations. Innovations in technology have the capabilities to decrease the time needed to finish a task, or in some cases phase out the need for a business process or function.

According to Caliskan (as cited in Methode, Osunsan, Florence, Augustine, Abiria & Innocent, 2019), the decision to purchase or upgrade technology can be costly for both large and small operations. This calls for weighing the cost of the upgrade or adoption against the perceived added value to the company. Cost implications can often lead small businesses to delay adoption or upgrades. However, technology that significantly improves with operations can offset cost with an increase in profit in the long run.

Tamilselvi (2017) suggested that faculties should increase their qualifications and update their knowledge innovatively to deliver their academic products to their students. The faculties are suggested to have modern technological approaches like smart board and PPT presentations for the effective teaching.

Deceased are the days when pupils need to pile into the large auditorium just to hear a speech. Pre-recorded videos can be heard by students anytime, anywhere and as many times as they require. This stands for that classroom time can instead be utilized to augment the speech content, whether through discussion, group exercise, and quiz.

Technology in teaching offers various benefits like smart class rooms and power point teachings that increased the skills of teachers; technologies in teaching motivate the students; the technological perspectives in setting the syllabus are useful for the students; the network between Faculty, Head of the Departments and Principals pave the way for the smooth relationships; Internet and e-mail facilities to faculty are useful to update their knowledge; the faculty are able to store, retrieve and process information about the students through technology. The communication among the stakeholders, students, instructors and management become conducive through technology. The technological augmentation makes the teaching successful at all time. Elderly people are generally immune in changing and implementation of new technologies as they may face bigger challenges in functional conditions. Training and practical experience is likely to call for longer than with younger employees. They should be motivated and convinced properly **(Fu, 2009).**

Purpose of the Study

To assess the impact of technological change on the job performance of teachers in HEIs

Research Hypothesis

The following null hypothesis was formulated for the study:

H_0: There is no statistically significant impact of technological changes on job performance of teachers in HEIs.

Literature Review

Concept of Employee's Performance

Employee Performance is the successful completion of tasks by a selected individual or individuals, as set and measured by a supervisor or organization, to pre-defined acceptable standards while efficiently and effectively utilizing available resource within a changing environment (Armstrong & Murlis, 2004).

Performance is associated with quantity of output, quality of output, timeliness of output, presence/ attendance on the job, efficiency of the work completed and effectiveness of work completed" (Mathis & Jackson 2009).

The basic functionalities of University employees are teaching, research, public service and other related roles and responsibilities. The teaching roles of universities employees involves preparation, planning and delivering

of lectures, marking and grading scripts, supervision of students on industry training and teaching practice, development of innovative teaching methods, students' consultation and production of teaching materials for students among others. Research roles of university employees, according to Agbionu, Anyalor and Nnwali (2018), are carrying out investigations on identified problem(s), presentation of findings of such investigations in

conferences / seminars and publishing the findings in journals and/or text books. The third role of university employees is community or public service rendering to the school and community at large.

Empirical Review (Technological Changes and Employee's Performance)

An empirical study by Abbas et. al. (2014) examined the effects of information technology on performance of Allied Bank employees in Pakistan. It was figured out that technology greatly escalates the productivity of employees along with time saving. It greatly affects the workload on employees and ensures control over mistakes and frauds. Quick access to information and ease of use enables the bank employees to deliver quality service.

Kute and Upadhyay (as cited in Wanza & Nkuraru, 2016), examined the relationship between technological changes and its

impact on employee performance in commercial printing industry. The study found that technological changes affect employee's performance in various ways like redundancy, employee turnover and the level of motivation at work. It was noted that technological changes affected skills and performance of the employees in the commercial printing industry.

Imran et. al. (2014) conducted a study on the impact of technological advancement on employee performance in banking sector. Findings showed that technological advancement has significant impact on motivation and training of employees. Moreover as the concerned for technological advancement and employee performance, there is significant relationship among them.

Wanza & Nkuraru (2016) revealed that technological changes have a great impact on employees' performance due to the rapid technological changes that the world is rapidly adjusting that eases employee's work load and to increase efficiency and effectiveness at work place.

Dauda & Akingbade (2011) found that technology change in the recent years have improved the performance and productivity of Nigerian Manufacturing Industry. Employee's performances have also improved because of a change from an old technology to a new technology, even though workers have not improved

sufficiently to cope with emerging technology. Management have also not substantially benefited from investment in technology as technological change has also not significantly improved the performance and working condition of some workers.

Archibong & Ibrahim (2021) recommended that there is a positive relationship between technology change and employee performance since it simplifies the work to be done and makes work more efficient, it also reduces effort, time, and working methods which speeds up delivery. Technology enhances quality service delivery to university students and the public.

Osunsan et. al. (2015) recommended that the management of commercial banks should embrace technological advancement in enhancing their business operations. This will enable them to meet customer needs by providing fast and quality services. Technological change in the institution should be implemented by making use of customized software, and security sensitive applications that ensure safety of customer personal information. Furthermore, employees must be rightfully trained and facilitated in order to effectively use the new technology. This should be done by training employees to install the software, troubleshoot it in case of a malfunction, upgrade or effectively maintain it.

Pohekar (2018) posits that technology is a collaborative tool that supports traditional subjects and makes it convenient for the users to exchange information with others. In the last two decades, there has been rapid high-technology implementation changes that will continue to determine future of the world in terms of policies, programmes, activities, operations and strategies. All the universities in Nigeria have invested heavily on technological tools since its advent. Changes and advancement in technological tools in the university seems to determine the improvement of employee's performance, reduce human effort and task completion time.

Technology is essential to every organization and its usage has grown at a phenomenal rate within organization. Technological changes seem to be important to job performance of university employees.

Research methods

The study has been conducted using a descriptive survey research design. The study depends on primary data.

Area of Study

The study has been conducted in Province No. 2 of Nepal. The study is undertaken in quality accredited HEIs in Province No. 2. There are only two quality accredited HEIs in Province No.2 till date. They are JSMM Campus Lahan and Hari Khetan

Campus Birgunj.

Period of Study

The primary data is obtained from 1st July, 2021 to 31st September, 2021.

Sample Design

The primary data is collected through survey method. Survey is conducted using well formulated Likert`s 5 point scale questionnaire. All the faculties of both the colleges involved in higher education are taken as study population. Total population of the study is 105 teachers working in both HEIs (37 teachers in JSMMC Lahan plus 68 teachers in HKMC Birgunj) Convenience sampling method is applied for generating data. Questionnaires were distributed to 57 respondents (34 teachers in JSMMC Lahan plus 23 teachers in HKMC Birgunj). The questionnaire were distributed and collected through Google Forms via messenger in JSMMC Lahan and whatsapp in HKMC Birgunj. Altogether 44 respondents responded in the survey (27 teachers from JSMMC Lahan and 17 teachers from HKMC Birgunj) yielding response rate of 77%. According to Amin (2004), if the response rate is more than 70%, this is enough to carry on and continue with data analysis. The questionnaires were directly circulated to the college teachers and they are asked to go through the research instrument for a considerable time.

Reliability of Questionnaire as Instrument

Cronbach's alpha was used to determine the reliability of the instruments. Cronbach's alpha measures the internal consistency that is, how closely related a set of items are as a group. The higher the α-value, the more reliable the instruments will be considered. According to Amin (2005), if a α ≥ 0.70, then the items will be considered as reliable. In other words, the respondents were knowledgeable of the questions, understood them very well and answered them to the best of their knowledge.

Data Analysis

Descriptive statistics, such as mean and standard deviations were used to establish the central tendency and measure of dispersion of technological change and employee performance respectively. Correlation analysis was used to measure the relationship of technological change with performance of teachers. Simple regression analysis was used to determine the effect of technological changes on job performance of teachers.

$$PoT_i = \alpha_0 + \beta (TC_i) + \varepsilon_i \ldots \ldots \ldots \ldots \ldots \ldots (1)$$

Where, TC = Technological changes: ε = Error Term, PoT = Performance of teachers; α_0 = intercept line; β = Regression line.

The hypothesis was tested at 0.05level of significance. Decision rule was that p = 0.05, therefore if p ≤ 0.05 then the null hypothesis was rejected, otherwise it was accepted.

Analysis and Results

Descriptive Results of Variables

Table 1
Descriptive Result of Technological Changes

	Items	SDA	DA	N	A	SA	Total	Missing	Total
TC_1	Laptop and internet facilities are provided to the faculties to update their knowledge.	4(9.1%)	5(11.4%)	7(15.9%)	19(43.2%)	9(20.5%)	44(100%)	Nil	44
TC_2	Smart class rooms and Power Point are facilitated for effective teaching.	2(4.5%)	2(4.5%)	6(13.6%)	24(54.5%)	10(22.7%)	44(100%)	Nil	44
TC_3	HOD uses electronic media to disseminate examination timetables to employees and students.	1(2.3%)	4(9.1%)	6(13.6%)	26(59.1%)	7(15.9%)	44(100%)	Nil	44
TC_4	HOD uses electronic media to conduct departmental meetings.	2(4.5%)	9(20.5%)	6(13.6%)	25(56.8%)	2(4.5%)	44(100%)	Nil	44
TC_5	The communication among the stakeholders, students, teachers and management become conducive through technology.	1(2.3%)	4(9.1%)	8(18.2%)	25(56.8%)	6(13.6%)	44(100%)	Nil	44

Table 2
Descriptive Result of Performance of Teachers

	Items	SDA	DA	N	A	SA	Total	Missing	Total
PoT_1	The teachers have acquired additional degree after the appointment.	Nil(0%)	3(6.8%)	7(15.9%)	29(65.9%)	5(11.4%)	44(100%)	Nil	44
PoT_2	The teachers are providing reading materials to their students.	Nil(0%)	1(2.3%)	8(18.2%)	29(65.9%)	6(13.6%)	44(100%)	Nil	44
PoT_3	The teachers have adopted innovative teaching learning methods.	Nil(0%)	2(4.5%)	8(18.2%)	26(59.1%)	8(18.2%)	44(100%)	Nil	44
PoT_4	The teachers have published books or college /national /international level papers.	Nil(0%)	6(13.6%)	6(13.6%)	27(61.4%)	5(11.4%)	44(100%)	Nil	44
PoT_5	The teachers guide project work/ thesis of Bachelor/ Masters level students independently.	Nil(0%)	Nil(0%)	9(20.5%)	25(56.8%)	10(22.7%)	44(100%)	Nil	44
PoT_6	The teachers finish the assigned course timely.	Nil(0%)	3(6.8%)	5(11.4%)	25(56.8%)	11(25%)	44(100%)	Nil	44
PoT_7	The teachers set question papers/ evaluate the exam papers systematically.	Nil(0%)	1(2.3%)	4(9.1%)	32(72.7%)	7(15.9%)	44(100%)	Nil	44
PoT_8	The teachers check the exam papers timely.	Nil(0%)	3(6.8%)	6(13.6%)	22(50%)	13(29.5%)	44(100%)	Nil	44
PoT_9	The teachers have worked for the welfare/ discipline of the students.	Nil(0%)	Nil(0%)	4(9.1%)	26(59.1%)	14(31.8%)	44(100%)	Nil	44
PoT_10	The teachers are invited as guest lecturers or subject experts.	1(2.3%)	8(18.6%)	5(11.6%)	21(48.8%)	8(18.6%)	43(100%)	1	44

Reliability Analysis

Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability. It is not a statistical test. It is a coefficient of reliability. Reliability coefficient of 0.70 or higher is considered "acceptable" in social science research.

Table 3
Reliability Statistics of Constructs

Name of Constructs	Cronbach's Alpha	N of Items
Technological Changes	.810	5
Performance of Teachers	.867	10

In above Table 3, Cronbach's alpha for both independent variable (technological changes) and dependent variable (performance of teachers) have found to be greater than 0.70. It satisfied general requirement of reliability for research instruments.

Descriptive Analysis of Variables

Table 4
Descriptive Statistics of Variables

	N	Min	Max	Mean	Std. Deviation
Technological Changes	44	1.60	5.00	3.6500	.76081
Performance of Teachers	44	2.60	5.00	3.9273	.51641
Valid N (listwise)	44				

The mean values of both independent variable (technological changes) and dependent variable (performance of teachers) seem to be greater than 3 which show a positive perception towards the variables amongst the respondents. On the other hand, the value of standard deviation of both independent variable (technological changes) and dependent variable (performance of teachers) are less than 1 which reveals that data is consistent with minimum value 1 to maximum value 5.

Correlation between Technological Changes with Performance

The Pearson correlation coefficient was computed to assess the relationship of technological changes with the performance of teachers.

Table 5
Correlation between Technological Changes with Performance of Teachers

		Technologi-cal Change	Technologi-cal Change
Technological Change	Pearson Correlation	1	.338
	Sig. (2-tailed)		.026
	N	44	43
Performance of Teachers	Pearson Correlation	.338*	1
	Sig. (2-tailed)	.026	
	N	43	43

*. Correlation is significant at the 0.05 level (2-tailed).

Table 5 revealed that there was a positive correlation between job performance of teachers and technological change, r (41) = 0.338, p = 0.026.

Regression Analysis

H2₀: There is no statistically significant impact of technological change on performance of teachers.

Table 6
Impact of Technological changes on Job Performance

Variable	Unstandardized Co-efficients		Standardized Coefficients		
	β	Std. Error	Beta	t	Sig.
(Constant)	30.108	4.045		7.444	.000
Technological Change	.495	.215	.338	2.302	.026
R	0.338				
R²	0.114				
Adjusted R²	0.093				
F-Value	5.303	(p=0.026)			

Table 6 revealed that technological changes significantly predicted job performance of teachers, b= 0.495, t (41) = 2.302, p<0.05. Technological change also explained a significant proportion of variance in job performance of teachers, $R^2 = 0.114$, F (1,41) = 5.303, p< 0.05.

Discussion

This part discusses the research findings in the previous section based on the objectives and hypothesis of the study.

The above table no. 5 sought to find out the strength of the relationship between independent variables (technological changes) and dependent variable (job performance of teachers). The observed Pearson correlation coefficient between technological changes and job performance of teachers is 0.338 at 0.05 level of significance which expresses that there is positive relationship between them. The result is in line with the findings of the other studies although the bounding between technological changes and job performance is weak in comparison to other studies such as Al-Jaradat et. al., 2013 (r = 0.648); Archibong & Ibrahim, 2021 (r = 0.428); Osunsan et. al., 2019 (r =0.717).

In the above table no. 6, the R^2 value indicates how much of the total variation in the dependent variable (job performance) can be explained by the independent variable (technological

changes). In this case, 11.4 % can be explained. The result is in line with the findings of the other studies although the impact of technological changes on job performance is weak in comparison to other studies such as Archibong & Ibrahim, 2021 ($R^2 = 0.35.4\%$), Osunsan et. al., 2019 (R^2=51.4%). The β value indicates the change in dependent variable (job performance) by units when independent variable (technological changes) changes by one unit. In this case, job performance increases by 0.495 units when technological changes increases by one unit. The result is in line with the findings of other studies although b value is weak in comparison to other studies such as Archibong & Ibrahim, 2021 (β=2.151), Methode et. al., 2019 (β = 0.7). The result is against with the finding of Ekechi & Umar, 2020 (β = -0.205)

Conclusion

Technology has influenced employee's performance since it simplifies the work to be done. Technology greatly escalates the productivity of employees along with time saving. Use of ICT and the internet can assist teachers to instruct efficiently and students learn more effectively. Thus, to enhance and strengthen the quality of our education, it is the need of the hour to digitize the teaching and learning methodologies. But technological changes adoption in quality accredited higher educational

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Traditional Fishing Gears and Fishing Methods Used in Koshi River Basin

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Abstract

The paper describes wide range of traditional fishing gears used by professional fishers in the Koshi River. It attempts to document the occurrence of 5 different kinds of commonly used gears, i.e. cast net, gill net, fish barrier, ghorleng, hook lines to catch fishes in different seasons in the lower middle stretch of the Koshi River. Among 5 different kinds of gears, hook line comes in recreational method while remaining ones viz. cast net, gill net, fish barrier, ghorleng are included under conventional method of fishing. The objective of study is to present the recent data of fishing methods, fishing gears and their distribution in different water bodies in the Koshi River. The primary data was collected through direct observation and secondary data through journals, books and interviews to local people. It was found that most of the fishing gears are made by locally available bio-degradable materials. It is supposed that this paper will support to the further researcher in their detail study on traditional fishing gears and for the conservation of local gears as well.

***Keywords:** Koshi, Fishing gears, Gill nets, Cast nets, Tackle*

Introduction

The fishing water of Nepal's hydrographically unique. Many different kinds of gear used in different season. Although there are diverse fishing gears in Nepal, only some of them make a good catch. For the effective fishing gear, the study of the design construction and fishing success of a particular fishing gear is of paramount importance (Shrestha, 1995). Fishing gears are refers to those devices having different shapes and sizes and used in the aquatic bodies to capture different sizes of fish species. Fishing gear is any form of equipment used to catch, collect or harvest fish on the fishing grounds. Various types of materials are used to make these fishing gears

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include netting, plastic, polyethylene, nylon, cotton, mixed fibers, floats and sinkers, bamboo, wood etc. (Sebastian *et al.,* 2016).Traditional fishing gears is a device which could be defined as the fishing gear passed down from precursors to present generation. These gears have their significance because they inherit the traditional knowledge of the community (Bhattacharjee, 2017).Almost any instrument or gear that is used for fishing can be called fishing tackle. Fishing tackle is a general term that refers to the equipment used by fishermen while fishing (Karki and Subedi, 2018).

Nepal has three main river systems; The Gandaki system in the central Nepal, the Koshi system in the eastern Nepal and the Karnali system in the western Nepal. From the point of view of drainage area, the Koshi is the greatest river system in Nepal. It is said that it is as big as the Indus and the Brahamputra river of India. It flows particularly in the Eastern Nepal in the east of Gosainthan and west of Kanchenjunga area (Shrestha, 1981). Traditional arise from collective experience. Fishing is such a situation. Fishermen of Nepal in general have neither land nor asset of their own. They often receive their food and daily goods from fish wholesalers, and they pay for this with their catch (Shrestha, 1995). In

Nepal fishery has its own history. Fish is considered as ''Sagun'' (good luck). The fishing based livelihood is one of the oldest systems in Nepal (Gurung and Sah, 2016). There are many tribes which have been traditionally parcticing fish farming since ancient time which are Tharu, Majhis, Kumal, Kewat,Mushar, Bote etc (Budhathoki and Sapkota, 2018). However, study ontraditional fishing gears has not received adequate attention in Nepal and only few literatures are available regarding the traditional fishing gears of Koshi River. So, an attempt has been made to investigate the major fishing methods and gear used by fishermen during the survey of Koshi River of Nepal. The present study has also tried to furnish the details about the traditional fishing knowledge in study area.

Materials & Methods

Study area:

The study was conducted in Koshi Barrage, Ward No. 1 of Saptakoshi Municipality of Saptari District. Koshi River drains most of the eastern part of Nepal. Altogether, Koshi River drains 71,500 km^2 in Tibet, Nepal, and north Bihar. It extends 160 km north to south (Shrestha, 2015).

Sampling sites:

For this survey, three sampling stations (figure 1) were selected i.e. I-station at the Koshi Bridge at a distance of 500 m from 1st gate of river, II-station at Hanuman Mandir at a distance of 450 m towards south from bridge, and III-station Mukhiya village at a distance of 500 m far from II-station in the Koshi Barrage in Saptari.
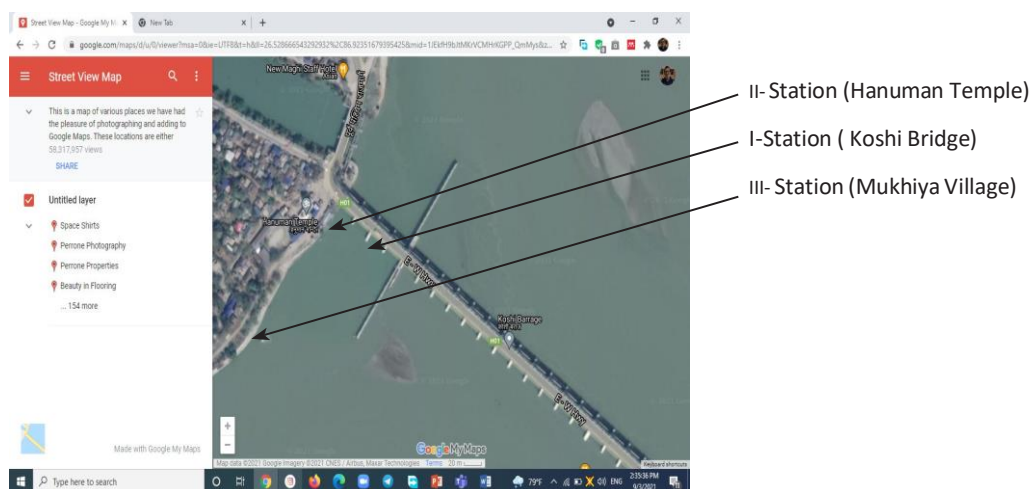
(Source: Google map)

Figure 1. Map showing sampling stations in the Koshi River System, Nepal.

Data collection

The work is primarily based on the direct field observation and photography while secondary data is based on journals, books and interviews to local people. Monthly visits were done from February 2017 to December 2019 to study the types of fishing gears used by the local fishermen in the Koshi River. Simple random sampling method was adopted for the study. Monthly field survey at Koshi River basin was conducted to study the types of fishing gears used by the fishers in this river.

Results

A total of five different traditional fishing gears i.e. Jaal (cast net), Mahajal (gill net), Ghorleng (dip net), along with fish barrier and hook lines (Balchi) were documented in different seasons in the Koshi Barrage (Table 1 and Photo. 1-6).

Table1. A detailed list of conventional and recreational methods of fishing gears usedin the Koshi River.

S.N.	Common Name	English Name	Size of gears	Area of operation	Fishing seasons	Major catch
Conventional Methods						
1.	Jal	Cast net	Mesh size 1.0 to 2.5 cm. Usually 5-8m dimention	rapids and run water, shoreline	Summer, Winter, Autumn Monsoon	*Labeo dero, Tor-tor, Labeo angra, Labeo dero, Labeo calbasu, Labeo rohita*
2.	Tiyari or Mahajal	Gill net	Mesh size 2.5 cm.15-18m length and 3-4 m deep.	lowlands	Winter, Autumn Monsoon	*Barillus, Schizothorax Catla catla, Notopterus chitala, Wallago attu, Clupisoma gaura*
3.	Fish barrier with net	-	Fence is with variable length	medium water phase	Winter (September-December)	*Clarius batrachus, Anguillabengalensis,* Minor carps
4.	Ghorleng	dip net	It is about 2 m long and about 1m breadth handled	bankful of flood	Monsoon flood (June - July)	*Clupisoma gaura, Notopterus notopterus, Eutropichthys vacha,*
Recreational Method						
5.	Bansi	Hook lines	Nylon thread, iron hooks, 3-6 m long bamboo stick	Shallow water, mid channel	Summer, Winter, Autumn	*Schizothorax, Pseudochenesis, Anguilla bengalensis Mystus tengra*

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5   Photo 6

Photo of different types of fishing gears used during study area

Photo: 1. Local net, 2. Sticks put across to stop migratory fish, 3. Cast net, 4. Sticks and Jal, 5. Tiyari 6.A cast net is thrown from boat.

Fishing is carried out in fresh water bodies where the methods employed for catching fish can be broadly classified into two groups based on the operation and catch of fish. They are as follows:

Conventional methods: Conventional methods are also called traditional methods because of being used since ancient time. It includes nets in the Koshi River.

Nets:

Fishing net is a net that is used for catching fishes. Fishing nets are meshes generally made of knitting a relatively thin but strong thread. Modern threads are generally made up of polyamides like nylon, although nets of organic polyamides such as wool or silk are also common and are still in use. Nets are generally prepared by the local fishermen from the fibres extracted from fiber plants such as sisnu (*Utria dioca*), Nigalo (*Arundinaria intermedia*). The prepared gears are kept directly over a smoke oven in order to expose them to smoke fumes. It is said that the fumes make the gears waterproof and durable and avoid rotting. Nowadays, the nylon thread is also used for preparing nets. A net is a piece of webbing where cotton, silk, nylon are used to make the meshes of definite sizes. There are different types of nets in Nepal i.e. Gill net, Cast net, Ghorleng.

Cast net:

This type of net is commonly used for catching fishes all over Nepal. Locally, it is called 'Jaal'. It is handled by one man when the net is small. Large cast

net is operated by a number of persons. Fishermen must drive in order to set the net. The net is also set from the moving boat. It is used for catching fishes like *Labeo dero, Tor-tor, Labeo angra, Labeo calbasu, Labeo rohita*. A cast net is a different type of net which is conical in structure and has weighted perimeter. It is thrown by hands and immediately pulled back up again. It can be easily operated by single fisherman. When it is thrown in water, the net settles down/sinks into the water due to its weighted perimeter, hence fishes are trapped immediately. The fishes are trapped on the bottom of the net. There is a thread attached to the top of the net, so that the fisherman can pull back the net. The cast net is nowadays generally made up of nylon thread or similar plastic thread. Generally, cast nets are about 5 to 8 meter long and mesh size 1.0 to 2.5 cm.

Gill net:

This is a fabricated net. It is a type of fishing gear which is used to catch fish in the Koshi River. Gill net is locally known as "Mahajal" and is especially used for catching fishes like *Barillus, Schizothorax Catla catla, Notopterus chitala, Wallago attu* etc. This net is rectangular in shape. In the lower border of the net, sinkers are tied so as to make the net sinkable. In two ends of the upper boarder of the net two coloured rubber floating are also seen attached which indicates the place and position of the net. The net is tied across the water and is fixed horizontally for overnight. Next morning the fishes are collected. More than two fishermen operate this type of net. The net is about 15-18 m. long and 3-4 m. deep and mesh size 2.5 cm. This net is also known as Teyari. Generally, this net is used in February, March, April and May when there is less water current velocity in Koshi River.

Fish barrier with net:

It is a structure, either natural or man-made, that prevents the upstream movement of fishes. It is set across the river and parallel to it, depending upon the fish runs. It has variable length and breadth. It is generally about 6 to 8 feet in length and 2-4 bamboo sticks are fixed by an anchor. In this method the current is influenced in such a way that the fish is allured in a desired direction. It is kept in position by attaching with fence so that its mouth is facing against the current. It is wider at the mouth but tapering at the code end and has no return value set at the mouth of gear. This net is generally used for catching *Clarius batrachus, Anguilla bengalensis* and minor carps *(Puntius sophero, Puntius ticto, Puntius sarana)* etc.

Ghorleng:

Ghorleng is a dip net. It consists of long wooden handle of about 2 m. in length. The handle is joined to a wooden circular frame made of two pieces. The first forked piece joined with the handle is known as 'Thale' and the other is semicircular known as "kudlo".It is used for catching fishes like *Pseudeutropius, Golhi, Bachwa, Buduna, Kosiya* etc. It is about 2m long and about 1 m breadth. It is handled by a single man.This net is mostly seen being used in the months of June, July and August when there is bankful of flood in the Koshi River.

Recreational methods:

Hook line:

It is the simplest form of gear used by Nepalese fishermen since the pre-historic period**.** This gear is popular right from rural folks to utilize this method as a hobby during leisure time. Local hook and line is known as "Bansi". It is used for catching fishes like *Schizothorax, Pseudochenesis, Anguila bengalensis, Mystus tengra* etc. The simplest form of gear consists of baited hooks attached at the end of the line (locally called dori) held in hand. Bansi is referred to the hook and is prepared generally by the fishermen from the rims of the umbrella. Nylon thread, iron hook and 3-6 m long bamboo stick

are used to prepare this type of hook. It is suspended hook baited with earthworms, rotten fish etc. for the attraction of fish. Fishermen engage it mostly to catch fish for domestic consumption. This net is mostly seen being used in the months of June, July, August and September in the Koshi River when there is medium water phase in Koshi River.

Discussion

The traditional fishing methods and gears study revealed that Jaal (cast net), Mahajal (gill net), Ghorlang (dip net), along with fish barrier and hook lines (Balchi) are used in different seasons in Koshi Barrage, Ward No. 1 of Saptakoshi Municipality of Saptari district. Similar to this study, Dhital and Jha (2001) have stataed traditional fishing methods of the Narayani River system uses cast net, gill net, loop-line and hook and basket. They have also stated that explosives, electricity, and poison that have adverse impact on aquatic life are used in Narayani River system. Professional fishermen had suggested that the cast net become more effective in clear water during winter in Rupa Lake (Gautam *et al.,* 2016). Limbu *et al.,* (2018) stated that the fishermen collect fish by using cast net, bamboo fish traps and mosquito nets in Bakraha River of Morang district. Tharu and Magars were mostly engaged

in fishing but not Brahmin and Chhettri. A majority of them use traditional fishing nets like tiyari, balchi (hooks), Chhatijaal, Khepnijaal, Haatejaal, Khokrijaal for fishing in Nepal. Devkota *et al.* (2015) discussed that livelihood of thousands of people of Nepal and India is dependent on the water availability in the Koshi River. According to Shrestha (1995), the fishermen in Nepal continue to be active at the onset of monsoon flood and fish become more available from October onwards as the water clears up and current velocity lessens, and fishing conditions become optimum. He also discussed that the fishing conditions are not suitable during the entire period of flood (July-September) due to high turbidity and strong current of water. In the Koshi River, gill net is operated maximum in summer and minimum during onset of monsoon while moderately operated during winter. Similarly, other fishing gears like cast net were used throughout the year. Ghorleng was used during bankful of water in the river as well and fish barrier and Bansi were used maximum during summer. Fishing activities continued throughout the year except the monsoon period during which people were engaged in agriculture. The fishing pressure increased during summer season because people were free from agricultural loads (K.C., 2015).

Hence, conservation of local gears and their details study on traditional fishing gears might be another possibility for future. According to Gupta (2016), among traditional gears, the nets must be thoroughly washed with running water and dried in shade by hanging or spreading them on the banks. They may also be dipped into brine or sufficient amount of salt to be sprinkled over them in order to avoid loss to the gears. However, the study on traditional fishing gears has not yet received adequate attention in Nepal. So, the fundamentals of many of traditional gears are to be studied in long term which will provide the essential background knowledge for understanding, improvement and exploitation in any fishery.

Conclusion

This study found that about 5 different types of fishing gears with their size, varied length, diameter along with area of operation, fishing seasons and major catch were investigated in the Koshi River. Most of the fishing gears were used in all seasons and a few of them were used especially when water level was found to be suitable for their use. It was also found that most of the indigenous fish catching devices made up of locally available bio-degradable materials have less construction cost which is affordable

for small scale fishermen. Therefore, local fishermen must be encouraged to preserve old cultural heritage of fishing in the Koshi River, which is now rapidly vanishing due the development of technology.

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An Analysis of Eminent Persons' Group (EPG) Meetings and its Significance

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Abstract

This paper explores the feedback and long-term solution by wiping out the disputes and long misunderstandings regarding bilateral relations between Nepal and India. Two years' tenure has completed of this Eminent Persons' Group (EPG) in July, 2018, where nine meetings are held on both sides Nepal and India in a rotation basis. There were four members from each Eminent Persons' Group, and in total eight members from the various intellectual fields were involved. This paper highlights on the overall EPG meetings; trade and transportation, information technology, development, water resources, border security and mostly Treaty of Peace and Friendship along with other various issues. This paper claims that this report is not the mandatory for the both governments; it is just a suggestion. The experts' views and more profound study and analysis of both groups may give guidelines for the both governments to carry on the sound bilateral relationship. The joint report will develop the cultural, social, political relation positively between the two countries erasing the misunderstanding and correcting the unequal bilateral treaties/ relations. For the implementation of this report on the ground, the goodwill of both governments is necessary.

Keywords: *EPG, Border Security, Mutual Benefit, Bilateral, and Misunderstanding*

Background

India is Nepal's immediate and one of the most essential neighbors for a historical, economic, and geopolitical reason. Geography of Nepal is very important to India. The Himalayan range of northern side of Nepal has become the barrier against the penetrator. It has made safe to Nepal and also considered equally safe to India. Because of the geopolitical fact, former Prime Minister of India, Jawaharlal Nehru stated in 1959, "Nepal's frontier are India's frontiers" (Mankekar, 1974, p. 14). The high range Himalayas has become a defense for

Nepal in the north and also India has seen the Himalayas as a barrier to Chinese influences as well as their protection too. Because of its geography, Nepal remained independent and sovereign even during British colonialism in South Asia. In the changed geopolitical and strategic situation, geography exerts the most complicated and, complex influences on the conception and formulation of Nepal's national security system or policy.

After the Second World War, on the one hand, India became independent and, on the other hand, communists came on power in China. "With the aim of preventing communist influence from spilling over into the neighboring Himalayan kingdoms, India sought to strengthen the 'Himalayan frontier policy' under which the Himalayas were regarded as a second frontier" (Subedi, 1994, p. 274). Therefore, India signed three treaties of peace and friendship with three small neighboring kingdoms, Nepal, Bhutan, and Sikkim, to bring them under its influence.

When the British left India, there were many disputes on the border and other problems with India but the issues, needed to be discussed, left without discussion. Nepal did not dare to talk

openly because of the fear of losing the remaining territory. Even at that time, the agreement of the Peace and Friendship Treaty between Nepal and India that has undermined Nepal's sovereignty. Having been long historical bilateral relation many ups and downs are seen in between the two countries. The EPG is the product of that long misunderstanding. Thus, this research paper tries to examine the role of EPG in Nepal- India relations, and also to analyze the significance of EPG.

Methodology

Qualitative research methodology has been applied. Descriptive research design is followed in this research. All the data of the study is taken from secondary sources like; newspapers, research journals and reliable websites.

Role of EPG in Nepal-India Relations

Nepal and India has a long history. Economically, socially, culturally, and geographically both countries are bind together from the ancient period. Comparatively, Nepal is more dependent on India in various relations, especially in the area of economic concern. In the words of G. P. Koirala, "Because of geography, social and cultural affinities,

as well as industry and commerce, it is clear that our relations with India must be more practical. We are not tilting towards India. Rather, we have only underlined the reality of our interdependent relation with India" (Naidu, 2017, p. 47). A powerful country always wants to bring under its security umbrella to the smaller neighboring countries. Consequently Nepal and India have many unparalleled agreements and treaties; Treaty of Peace and Friendship, Sugauly Treaty, etc. in the past. In the changing international politics, no country endeavors to be bound by a treaty. Therefore both countries felt to move forward reviewing the bilateral treaties and agreements for the peace, progress and prosperity according to the national, international and global scenario. In this way, the concept of EPG was originated.

Nepal and India came in the final stage in 2014, to install Eminent Persons' Group from different backgrounds to recommend necessary measures to replace, update or, the setup of all bilateral treaties, including The Peace and Friendship Treaty of 1950.The formation of Nepal-India EPG is based on the assumption that the bilateral agreements linked between the two countries since the 1950s need to be replaced, updated, or scraped and on

their relevance and irrelevance in a new context. "An agreement on establishing the EPG in 2011, and the two countries agreed to prepare its terms of reference in 2014, when Indian External Affairs Minister Sushma Swaraj was in Kathmandu to attend a Nepal-India Joint Commission meeting" (My Republica, 5 April, 2017).

Nepal and India already had released US 100,000 each to develop the EPG secretariat comprising a parliamentarian, a lawyer, an economist and a civil society leader from the both sides (Giri, 4 August, 2014). The agreement reached on 20 – 23 October 2011 to establish EPG during the official visit of former Prime Minister Dr. Baburam Bhattrai to India (mea.gov.in, 23 October, 2011)."The two countries agreed to prepare the Terms of Reference (ToR) for EPG in 2014 during the third meeting of Nepal- India joint commission in Kathmandu. It was also agreed in the meeting that the matter would be discussed at the foreign secretary level within six months after Nepal has submitted a specific proposal"(Giri,4August, 2015, 3).To come to a mutual understanding by erasing distrust and make further steps for the peace, development and, prosperity between the two countries, the EPG has essential role. The

EPG can play an important role in strengthening the cultural, trade and, transit, social, economic, religious and, geographical relationship between the two countries. The EPG has studied the bilateral treaties and agreements and various sectors, including trade and transportation, information technology and, development, and submitted recommendations for further improvements. It has consisted four of members from each country, which have been briefly mentioned below.

Formation of Eminent Persons' Group

From Nepal Side

a. The former foreign minister Bhekh Bahadur Thapa (coordinator)

b. Former Chief Commissioner of Commission for the Investigation of Abuse of Authority Surya Nath Upadhyaya

c. Former Law Minister Nilamber Acharya

d. CPN-UML Law Maker - Rajan Bhatttara

From India Side

a. Former chief minister of Uttarakhand Bhagat Singh Koshyari (coordinator)

b. Former Indian Envoy to Nepal- Jayanta Prasad

c. Former vice- chancellor of Sikkim University Mahendra P. Lama

d. Senior Fellow, Vivekananda International Foundation B. C. Upreti

The EPG meeting had two years tenure to be held every three months on a rotational basis. During India's Prime Minister Narendra Modi's visit on 2 July, 2014, Nepal and India agreed on forming an EPG comprising four members, each with tenure of two years (english. onlinekhabar.com/**.** 4 July, 2016)**.**

EPG Meetings

First EPG Meeting, 4- 5 July, 2016, Kathmandu

The first EPG meeting inaugurated by former Deputy Prime minister and Foreign minister Kamal Thapa, discussed various issues of Nepal- India relations. At the press meet, the co-coordinator of the Eminent Persons' Group from the India side, Bhagat Singh Koshyari, stated that Nepal-India relation was reviewed in the meeting. "The meeting of our group will find out discontents between the two countries and will recommend both governments to resolve it" (Giri, 5 July,

2016, 1).

Second EPG Meeting, 4-5October, 2016, New Delhi

The Peace and Friendship Treaty of 1950, was taken as a priority agenda by the meeting. "The first meeting that was held in Kathmandu in July, 2016, was a preparatory session. It identified five areas- political issues, government to government relations, cultural issues, business and connectivity for discussion and preparing recommendations" (Timilsina, 2019, p. 732). The top plan was reviewing the 1950 treaties related to trade and transit. It was not only the matter of reviewing the treaties rather developing a new framework of relationship between both countries.

Third EPG meeting, 5-6 April, 2017, Kathmandu

Nepal- India third EPG meeting, which was initially scheduled to be held in Pokhara from December 22, was canceled due an election in India. "The meeting was rescheduled from 18 March in Kathmandu but again cancelled as the Indian side said their representatives were unable to attend" (Bhattarai, 4 November, 2016, 2).The meeting was finally held in Kathmandu, where both

groups agreed to undergo further study on the Treaty. The Nepali side demanded revision of articles 2,5,6 and, 7 of the Peace and Friendship Treaty. During the meeting, the Nepali side presented that it wants to replace some of the themes of the treaty in the changed global and regional context (The Kathmandu Post, 6 April, 2017).The two days meeting discussed on three issues, the peace treaty, the treaty on water resources and, the trade and transit treaty between these two countries. Nilamber Acharya, an EPG member from Nepal, made a presentation on the 1950 Treaty and its provisions. Similarly, another member of EPG, Rajan Bhattarai made presentation on trade and transit and Suryanath Upadhyay made presentation on water resources. "From the India side, Jayanta Prasad talked about the 1950 treaty and Mahendra P. Lama presented 11 pages presentation on present arrangements and bottlenecks and suggested future co-operation on the issue" (Giri, 5 April, 2017, 3).

Fourth EPG Meeting, 29- 31May, 2017, Dehradun, India

The fourth meeting of the Nepal –India Eminent Persons' Groupthat concluded in Dehradun of India, discussed a wide range of bilateral issues."The meeting couldn't

reach any conclusion" (Bhattarai, 31 May, 2017, 2). It was mandated to recommend for changes though they were deliberately on the same problems that they began in the first meeting according to Bhagat Sing Koshyari, member of the India team. Other issues regarding trade and transit, which were concerned to Nepal, also featured during the discussion. The EPG didn't enter into the debate on the border matters in this meeting. During the meeting, both neighboring countries planned to visit border areas after the fifth round of meeting to the stack the situation there.

The Fifth EPG Meeting, 7 to 8 October, 2017, Kathmandu

The fifth meeting of the EPG held discussions on issues related to the 1950 Nepal –India Treaty of Peace and Friendship and water resources and also the subject of management of open border between the two countries.EPG member Rajan Bhattarai, from the Nepal side, stated that they held additional consultations on complications on the treaty and on the Nepal-India relations and have narrowed down differences to some extent and also initiated discussions on the management of the open border. The meeting mainly focused on how

to manage and regulate the border without causing any inconvenience to people based on interactional norms and the depth of Nepal- India relations. "Presently there's a double standard, where people travelling via air are asked to show identity card, but those traveling overland need not show any proof or card" (Bhattarai, 31 May, 2017, p. 2).

"The fifth meeting of bilateral Eminent persons Group agreed to recommend on regulating the Nepal- India border for controlling illegal activities on both sides without causing inconvenience to general public and travellers" (Bhattarai, 9 October, 2017,2). The group also focused on the requirement of valid identity cards like passports and citizenship to the Nepalese travelers to India and Indian travelers to Nepal. The two-day meeting also discussed the border dispute between the two countries, about security issues, the 1950 treaty, co-operation in the field of water resources, bilateral mechanism, and trade and transit.

The Sixth EPG Meeting, 11- 12 January, 2018, New Delhi, India

The meeting agreed on the format of the report format submitted to both government, and Nepali side has been given the responsibility of preparing

the report. "Both side discussed regular bilateral issues such as those related to the 1950 treaty, trade and transit, water resources, floods and border issues, among other things. The panel discussed about the report format of the joint report that EPG has to submit to the two governments after the talks concluded in July of 2018" (Bhattarai,9 October,2017,2). The meeting made significant progress but did not reach any conclusion and no decision was made. Before leaving Delhi the EPG members had met Prime Minister of India Narendra Modi and other top political leaders to update them about the developments so far and for their inputs. Before the seventh meeting, the members of Nepali EPG planned to recommend for a new peace and friendship treaty with India and replace the existing one signed in 1950."The member of Nepali side suggested not to avoid the positive aspects of Nepal-India Peace, and Friendship Treaty 1950, the status of 1950 Treaty of Peace and Friendship between the governments of India and the government of Nepal will be a significant core stone of the report" (Giri, 23 February, 2018,1).

According to the Nepal side, the two sides planned to prepare their respective reports. After the completion,

a joint statement would be designed as mandated to the EPG that was tasked with suggesting a new blueprint for bilateral ties in the changed domestic, regional, and global context. Regarding the 1950 Peace and Friendship treaty, the provision of security and providing reciprocal treatment to the citizens by both countries is a significant concern for Nepal, and it wants to replace them.

Seventh EPG Meeting, 23-24, February, 2018, Kathmandu

The first draft on 23 February, 2018, in Kathmandu presented with the anticipation of a new Peace and Friendship Treaty that would reset their bilateral ties based on the 1950 accord. On the issue of security, particularly on purchasing arms from a third country, the Nepali side proposed that Nepal will only in front the Indian side about the deal but will not take consent as required by the 1950 treaty and the subsequent letter of exchange.

Eighth EPG meeting 12 - 13, April 2018, New Delhi

The meeting, which was focused on finalizing the report to be presented to both the governments, made further progress on bilateral issues. "The EPG, whose

two-year tenure was going to be ended in July 2018, was mandated to come up with a comprehensive report on anything that needs to be updated, adjusted, or amended in all exiting bilateral treaties, agreements, understandings, including the Peace and Friendship Treaty of 1950"(The Himalayan Times 14 April, 2018).

Ninth, EPG meeting, 29-30, June 2018, Kathmandu

The ninth meeting of the Eminent Persons Group (EPG) was held in Kathmandu, Nepal. "To remove the confusion regarding the1950 treaty, this meeting seems to have an important role," (My Republica, 29 June, 2018). According to the 1950 Peace and Friendship Treaty, Article 2,mentions informing each other of any serious friction or misunderstanding with any neighboring state that is likely to cause any breach in the friendly relations subsisting between the two governments. Article no. 5, states that the government of Nepal shall be free to import from or through the India's territory, arms, ammunition, or warlike materials and equipment necessary for Nepal's security. The procedure for giving effect to the arrangement could be worked out by two governments through

mutual consultation. Articles no. 6 and 7 mention providing equal treatment to the citizens of both countries concerning to participation in the industrial and economic development of such territory and the grant of concessions and contracts, relating to such effect, the matter of residence, ownership of property, participation in trade and commerce, movement and other privileges of a similar nature.

The letter exchanged with the 1950 treaty has often been cited in one paragraph show that "Neither government shall tolerate any threat to the security of the other by a foreign aggressor. To deal with any such threat, the two governments shall consult with each other and devise effective counter measures". Arguably, the letter's paragraph is not applied practically that India did not ask Nepal when it went to war with Pakistan and China.

Significance

The EPG was equipped to suggest both governments on fixing the numbers of entry and exit points at the border so that citizens from both sides would not be affected. Along with that, EPG is also set to suggest that both governments check and maintain records of people traveling

to both sides and make valid identity cards mandatory. Nepal-India Eminent Persons' Group (EPG) proposed a citizen ID card for border management.

There are other governing laws and legal provisions on trade and commerce issues. "Another strong recommendation is made on transit facilities that India should provide to landlocked Nepal" (Giri, 23 February, 2018, 2). The EPG is, mandated to suggest a new blueprint in Nepal- India ties on various dimensions of the bilateral relations in the changed global and regional context. Mahendra P. Lama, EPG member, stated that "both countries have historically deep cultural and social relationships. However, with the changing geopolitical dynamics, as per the term of engagement and owing to the need to change, ensures mutual trust, respect, and confidence in each other" (Giri, 25 February, 2018, 1). The two countries need to move forward with an integrated co-operation that creates a win-win situation for both sides.

After the seventh EPG meeting, according to Indian EPG coordinator Bhagat Sing Koshyari, the eighth EPG meeting would be the final to come to the conclusion, and they would flash the result formally in the press conference. They further would include suggestions with reframing the 1950 treaty considering bilateral benefits. They had reached to a consensus on social, economic, cultural and other issues already except the treaty.

After the blockade the Nepalese people are dissatisfied with India, so to diminish the gap or to make the relation warm, India was a little bit flexible. India seemed not to have stood against the 1950 treaty instead positively receiving the proposal. At least the 1950 treaty issues are discussed on the table in the clause-wise direction. It is reflected that unless India does not go in a new way to improve the relation with Nepal, it might generate significant influence of China. The leftist government in Nepal has aroused the doubt and suspicion between the two governments, but the EPG has built up trust among the people. Bhekh Bahadur Thapa assured that the recommendation of EPG would not be materialized if won't be implemented.

Citizens of both countries can work anywhere, reside anywhere, and they can do business anywhere. When India strengthens or tightens border security showing security sensitivity, Nepal expects India to be liberal on trade and transit. So, it seems that both countries

have their problems and own national strategies, but both countries need to be liberal in the unparalleled treaties and show their goodwill. As per realist theory of international relations and geopolitical realities, we do not have choice to change our neighbor so foster relations better what so far we have built. The treaties between the two countries should be reviewed and revised with the spirit of co-operation and co-ordination instead than with control. Sweeping the problems under the carpet is not the long-lasting way to resolve the issue.

Conclusion

Members of both sides have done the hard work, depth study on the related issues, and regular discussion on EPG meetings that certainly give the good feedback for the both governments. Regarding the Peace and Friendship Treaty of 1950, it is suggested for having new content for articles no 2, 5, 6, and 7. It has been concluded that good report of EPG is not only the solution of the issues, instead implication part is most important to settle the disputes and to address the unequal bilateral relationship between both countries. Both groups have revealed that their role is just to give suggestions, but the implementation part belongs to their

respective governments. The joint report, which is going to be submitted by the two groups to their respective governments will be applied or not, that determines the value/meaning of the EPG. The time and situation when the treaty was signed is not the same now. Considering the global scenario, international laws, treaties, and agreements, the Peace and Friendship Treaty 1950 should be reanalyzed and reviewed in the present context, or else misunderstanding between two countries might resurface time and again.

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Teachers' Perception on Effects of ICT Tools in Teaching Science at Secondary Level

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Abstract

In this digital era, the use of ICT tools in teaching learning has been increasing day by day. This study, therefore, focuses on teachers' perception on effects of ICT tools in science teaching classes. The objectives of the study were to identify the existing situation of the use of ICT tools in science teaching and to find perceptions of teachers towards effects of ICT tools in effective classroom teaching in both public and private schools. 12 science teachers one from each school and 12 secondary schools: six public and six private of Siraha district were selected randomly as population of the study. This study followed quantitative survey research design. The data were collected through questionnaire, observation and group discussion. The data showed that the teachers used various ICT tools but they have to face various challenges due to poor infrastructure, limited accessibility, poor network connection, insufficient technical support and lack of effective training. It was found that private school teachers had higher perspectives than public school teachers due to age factor and competency of ICT knowledge and practice. This project is hopeful to provide proper information and suggestions to those who are responsible for integrating new technologies in science teaching.

Keywords: Teachers' perception, information and communication technology, challenges, focus group discussion.

Introduction

Nepal is a hilly country of south Asian region. It is small but diverse in the fields of geographical distribution, social, cultural, languages, socio-economic, living status, educational practice point of views. After federal system in Nepal, traditional pattern of teaching–learning practices are still in practices, which are dominating recent pedagogy in teaching and learning in the field of science teaching.

In common view, science is the systematic study of knowledge. Teachers always focus on changes in the behavior of students through practical activities.

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Science learning is one of the best medium for positive motivation using different Information & communication technology (ICT) tools. The 20th century was accepted as the world of scientific age and the 21st century is the age of Science & Technology, which is upgrading through advanced ICT & their uses in all the areas of knowledge.

Nowadays, learning paradigms are undergoing with the progress of ICT day to day. Since 1980, regarding the development of ICT & the people's awareness of the value of integrating ICT in education, a number of countries have carried out many initiatives to introduce ICT in their educational systems (Goktas, 2013; Liu & Pang, 2014). ICT integration is the topical needs of everyday life & plays an important role in global society.

According to Fensham (2008), the curricula that set this very high level science learning as expected for all students must be a factor in learning the serious decline of interest in science. In the view of Gbamanja (1999), traditionally, science teaching was dull, unimagined & lacking in vigor. The teacher dispensed knowledge, while the learners learnt mostly by use memorization. Students were passive learners. This scenario will certainly not encourage & motivate interest in science learning that is a major key to use of ICT tools in classroom teaching.

According to ICT in Science Teaching Technical Report (2003), following fields of applications are used in impact of science teaching:

➢ Practicing problem solving through ICT access,

➢ Providing tutorial instruction both for science teacher & students,

➢ Making use of integrated learning system,

➢ Making use of simulation virtual classroom learning in specific science lessons,

➢ Use as modeling, data bases & spread sheet & data-logging, Graphing, controlling & monitoring of experiments,

➢ Presenting, sharing & communication of related information with peers, teacher-students, expertise, related persons etc.

According to improving scientific literacy among Secondary School Students through the Integration of Information & Communication Technology, Journal of Science &Technology (2012), report of the Federal Republic of Nigeria, included the ICT into the school system in the 4th edition of the national policy on education. The policy stated that ''Government shall provide necessary infrastructure & training for the integration of ICT in the school system in recognition of the role of ICT in advancing knowledge & skill

in the modern world.

Objectives of the study:

➢ to find out the teachers perceptions towards the use of ICT tools in effective classroom teaching.

➢ to identify the challenges of using ICT tools in science teaching.

Review of related literature

Any philosophy must be supported by any theory for its pedagogical implementations. Likewise, the use of ICT is supported by many theories. Here, I will be discussing in brief about these theories.

The Constructivist theory of learning believes that the knowledge can be developed within the classroom, different teaching learning activities, using different learning tools (ICT tools) through different process. The guideline principle of constructivist learning theories is the learners own active initiative and control in learning, and personal knowledge construction that is self-regulation of learning (Chan, 2002, p. 3).

The constructivist classroom student try to find the solution of the problems by learning in a group where students are motivated to do their work themselves and find the solution and teacher work is just to facilitate the student. By using ICT tools in classroom, students develop

their knowledge by visualizing and here teachers role is just a fascinator for sharing their ideas, expanding their knowledge through use of ICT tools (Tyler, 2002).

According to Mortimer and Scott (2003), that learning requires active intellectual involvement of students, and that the students' prior knowledge influences subsequent learning of scientific concepts.

Vygotsky (1978) introduced the term zone of proximal development (ZPD), which may be understood as the distance between what an individual can manage on its own, and what the individual can manage with support from other and more competent persons.

In this 21st century, collaborative approaches in science as well as in other subjects are also very essential and it helps to promote learning and creating easy environment with learner and teachers because it is more closely with group work activities and adult learning (Tobin, 1993 p.108.)

Piaget also advocates that learning is the active participation of learner not the passive receiving of facts. Collaboration is more in collaborative classroom where students are encouraged and motivated to learn and involve in many activities. BECTA (2003) states that by using ICT in pairs or groups, teachers are able to gain deeper insights into students

understanding and progress. Thus, ICT resource helps to understand and learn from such collaboration.

In this case, there are not enough related research works in our Nepalese context. Only very few researches have been carried out on the effective use of ICT tools in science teaching at secondary level. Taylor (2001) expresses his opinion "Information & Communication Technologies have been instrumental in social transformations – from the industrial society of the 20th century to the "Network Society" of the digital age.

Ibrahim (2010), talks about the impact of ICT as:

The ICTs put forward influential base for efficient education. Now, we need the modern technologies for better-blended method of delivery to create apt teaching techniques to enhance to process of learning. ICTs are very motivating, because it helps the learners to learn carefully to meet the prescribed goals.

Swank, (2011), stressing the effectiveness of visual materials in learning estimated that about 40% of our concepts are based upon visual experience, 25% upon auditory, 17% on tactile, 15% upon miscellaneous organic sensation and 3% upon test smell. The above data also declared that audio-visual materials are important in teaching learning process, which is being fulfilled by use of ICT

tools.

According to Acharya, C.P.(2013), in his research " Use of ICT & WEB tools in English language teaching" address 90% teachers working in higher secondary school preferred ICT tools in Kathmandu valley but only 35% of the teachers teaching with Networked Computer & 20% Digital video recording uses in specific topics. In his study finding, the integration of ICT/WEB tools in ELT made classroom teaching more practical & sustainable.

It helps to change the traditional way of teaching, collaborate with students & teachers & create student-centered teaching. These tools are carrying out effective pedagogical implications in the classroom. It helps to promote easy motivation of learners. Their study is necessary to create ICT culture in Nepalese context for professional & qualitative teaching learning practices.

Methodology

In this study, quantitative survey research design is used. Science teachers of selected schools were taken as primary sources of data. School records, district education office records were taken as secondary sources. Data was collected from teachers & administrators by using tools like questionnaire, focus group discussion, and observation form.

District was selected purposefully and schools were selected by using sample random method. Among selected schools: six were community schools and six were private schools. Number of science teacher in each school was one, so 12 science teachers were the participants.

Major Findings and Discussions

Existing situation of Common ICT Tools

In the research, study tools like questionnaire, survey and focused group discussion findings describes that the existing use of common ICT tools and related situation in public and private schools are as follows:

Chart 1 Available Common ICT Facilities in School
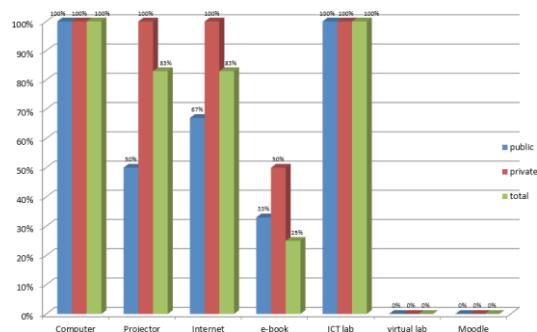
The chart 1 shows that, almost all schools had mobiles, computer and laptop facilities. Total 50 percent public and all private schools had projectors facilities. Similarly, only four schools among 6 public schools had connected Wi-Fi / Internet facilities, but such facilities were available in all private schools.

Available of Common ICT Tools

Study focused six common ICT tools and they were used in teaching purpose at home and classroom time because timing factors are also vital for teaching-learning practice, shows under the following chart:

Chart 2 Practice of Common ICT Facilities and their Use in Teaching at School/Home
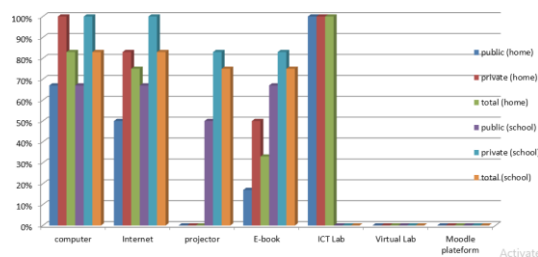
The chart 2 shows that about 83% teachers had been using of Computers/ Laptops at schools and home. Only 33% public teachers had not used these tools in school and home. The data interpreted that, they had lack of sufficient skills and practice about handling these ICT tools. However, these tools were available in all schools.

Teacher's Perceptions towards Knowledge of ICT Tools in Teaching

In this table, study focused on measurements of perceptions through existing knowledge of school science teachers as follows:

Table 1: Teachers' perceptions towards knowledge of ICT tools in teaching learning

SN	Fields of ICT Tools / Facilities	Good			Moderate			Poor			Very Poor		
		Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)
1.	Knowledge about fundamental ICT tools (computer, internet, projector)	3(50)	5(83)	8(67)	1(17)	1(17)	2(17)	1(17)	0	1(8)	1(17)	0	1(8)
2.	Knowledge for handling the ICT Tools	3(50)	4(67)	7(58)	1(17)	2(33)	3(50)	1(17)	0	1(8)	1(17)	0	1(8)
3.	Knowledge about the Ms office application package												
	i. Ms. Word	4(67)	6(100)	10(83)	1(17)	0	1(8)	1(17)	0	1(8)	1(17)	0	1(8)
	ii. Ms. Excel	2(33)	4(67)	6(50)	2(33)	1(17)	3(50)	1(17)	0	1(8)	1(17)	0	1(8)
	iii. Ms. PowerPoint	3(50)	4(67)	7(58)	1(17)	1(17)	2(17)	1(17)	1(17)	2(17)	2(33)	0	2(17)
	iv. Web browser	4(67)	6(100)	10(83)	1(17)	0	1(8)	1(17)	0	1(8)	1(17)	0	1(8)
4.	Knowledge about social sites												
	i. Facebook	6(100)	6(100)	12(100)	0	0	0	0	0	0	0	0	0
	ii. Messenger/vibers	4(67)	6(100)	10(83)	1(17)	0	1(8)	1(17)	0	1(8)	1(17)	0	1(8)
	iii. E-mail	4(67)	6(100)	10(83)	1(17)	0	1(8)	1(17)	0	1(8)	1(17)	0	1(8)
	iv. Whatsapp	2(33)	4(67)	6(50)	2(33)	2(33)	4(33)	0	0	0	0	0	0
5.	Knowledge about wifi / internet for integrated in teaching learning	4(67)	6(100)	10(83)	1(17)	0	1(8)	1(17)	0	1(8)	1(17)	0	1(8)
6.	Knowledge about websites as learning resources	3(50)	5(83)	8(67)	1(17)	0	1(8)	1(17)	0	1(8)	0	0	0
7.	Knowledge about learning management facilities												
	i. E-books	4(67)	6(100)	10(83)	1(17)	0	1(8)	1(17)	0	1(8)	0	0	0
	ii. E-Library	2(33)	4(67)	6(50)	0	1(17)	1(8)	2(33)	1(17)	3(50)	2(33)	0	2(17)
	iii. Virtual Lab	1(17)	3(50)	4(33)	0	1(17)	1(8)	2(33)	1(17)	3(50)	3(50)	1(17)	4(33)
	iv. Moodle site	1(17)	2(33)	3(25)	1(17)	1(17)	2(17)	0	2(33)	2(17)	4(67)	1(17)	5(42)
8.	Knowledge about how to edit, design, attached, animation of slides for teaching	2(33)	4(67)	6(50)	1(17)	(17)	2(17)	1(17)	1(17)	2(17)	2(33)	0	2(17)
9.	update of knowledge to teach with modern teaching technique	2(33)	4(67)	6(50)	1(17)	2(33)	3(50)	1(17)	0	1(8)	2(33)	0	2(17)

Table 1 shows that 67% science teachers had expressed that they had good knowledge about fundamental ICT tools like computer, internet, projectors, etc. However, this knowledge had been higher in private teachers than public teachers. Similarly, rest teachers had moderate knowledge. They used MS-word, Excel, Power point and Web browsers, but only 50% teachers were able to express their knowledge. Remaining teachers had no adequate knowledge about these skills. However, almost all teachers expressed higher knowledge about facebook, messengers and E-mails although 33% public teachers were out of reach from

these facilities. According to focused group discussion, the majority of teachers (83%) had good knowledge about Wi-Fi/ Internet facility. These private teachers were clear about the use of website for learning in ICT. At last, only 50% teachers had good knowledge about how to make, edit, design, attach and animate the slides and update the knowledge for teaching with modern ICT based teaching techniques.

The study result of the above table cleared that half of the total teachers did not have sufficient knowledge about use of ICT teaching tools. Due to lack of friendly environment and traditional style of teaching, they were not updated. These results were better in private teachers than public teachers.

ICT Facilities and their Use in Teaching

Table2: ICTs and their use

| SN | Items | Uses Of ICT Facilities in Teaching | | | | | | | | | | | | | | |
| | | Always | | | Often | | | Sometimes | | | Rarely | | | Never | | |
		Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)
1.	Mobile	6(100)	6(100)	12(100)	0	0	0	0	0	0	0	0	0	0	0	0
2.	Computer	4(67)	6(100)	10(83)	1(17)	0	1(8)	1(17)	0	1(8)	0	0	0	0	0	0
3.	Laptop	2(33)	4(67)	6(50)	1(17)	1(17)	2(17)	1(17)	1(17)	2(17)	0	0	0	2(33)	0	2(17)
4.	Projector	0	0	0	2(33)	2(33)	4(33)	1(17)	3(50)	4(33)	0	0	0	3(50)	1(17)	4(33)
5.	Digital Board	0	0	0	0	0	0	0	0	0	0	0	0	6(100)	6(100)	12(100)
6.	Digital Camera	0	0	0	1(17)	2(33)	3(25)	2(33)	3(50)	5(42)	1(17)	0	1(8)	2(33)	1(17)	3(25)
7.	Internet / Wi-fi	4(67)	5(83)	9(75)	0	1(17)	1(8)	0	0	0	0	0	0	2(33)	0	2(17)
8.	App. Software	2(33)	4(67)	6(50)	2(33)	2(33)	4(33)	0	0	0	0	0	0	2(33)	0	2(17)
9.	E-library / Book	0	0	0	0	2(33)	2(17)	2(33)	1(17)	3(25)	0	0	0	4(67)	3(50)	7(58)
10.	Virtual Lab	0	0	0	0	0	0	0	0	0	0	0	0	6(100)	6(100)	12(100)
11.	Power Supply	2(33)	5(83)	7(58)	0	0	0	0	0	0	0	0	0	4(67)	1(17)	5(42)
12.	Technical Manpower	4(67)	6(100)	10(83)	0	0	0	0	0	0	0	0	0	2(33)	0	2(17)
13.	ICT Lab	2(33)	4(67)	6(50)	2(33)	2(33)	4(33)	0	0	0	0	0	0	2(33)	0	2(17)
14.	Science ICT Lab	0	0	0	0	0	0	0	0	0	0	0	0	6(100)	6(100)	12(100)
15.	Moodle	0	0	0	0	0	0	0	0	0	0	0	0	6(100)	6(100)	12(100)

In this study, the researcher included 15 indicators were analyzed to their use in school teaching . The majority of teachers (83%), access to practice of Ms Office packages but they were used only in computer classes and administrative purposes rather than in Science teaching/ learning activities. Similarly, e-library, virtual lab and moodle learning software management facilities were not available in any schools. However, about 17% public school teachers could not handle these

tools in their classroom. The study also showed that about 17% schools did not have projector facilities; consequently, they entirely adopted the traditional ways of teaching. They seem to be less collaborative and somehow careless in daily classroom teaching.

Teachers Perceptions towards the effects of ICT tools in classroom teaching

The following table shows the descriptive statistics the teachers' perspectives in effecting ICT tools in classroom teaching among schoolteachers.

Table 3

Teacher's perspectives towards the effect in classroom

S N	Impact of ICT tools in classroom teaching	Strongly Agree			Agree			Least Agree			Not respondents		
		Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)
1.	Motivate in teaching biology	4(67)	6(100)	10(83)	1(17)	0	1(8)	1(17)	0	1(8)	0	0	0
2.	Increase interest in the classroom	4(67)	6(100)	10(83)	1(17)	0	1(8)	1(17)	0	1(8)	0	0	0
3.	Control & concentrate in learning	2(37)	4(67)	6(50)	2(37)	2(37)	4(33)	0	0	0	2(37)	0	2(17)
4.	Understand more easily when the learn	4(67)	4(67)	8(67)	1(17)	2(37)	3(25)	1(17)	0	1(8)	0	0	0
5.	More engaged & less disturbing in classroom	2(37)	4(67)	6(50)	2(37)	2(37)	4(33)	0	0	0	2(37)	0	2(17)
6.	Feel more autonomous in learning activities	2(37)	4(67)	6(50)	2(37)	2(37)	4(33)	0	0	0	2(37)	0	2(17)
7.	Feel passive learners change to active learning	4(67)	6(100)	10(83)	1(17)	0	1(8)	1(17)	0	1(8)	0	0	0
8.	Increase cooperation and collaboration work in learning	2(37)	4(67)	6(50)	2(37)	2(37)	3(25)	1(17)	0	1(8)	2(37)	0	2(17)
9.	Increase problem solving base learning	2(37)	4(67)	6(50)	2(37)	2(37)	4(33)	1(17)	0	1(8)	1(17)	0	1(8)
10.	Improve self learning environment	2(37)	6(100)	8(67)	2(37)	0	2(17)	1(17)	0	1(8)	1(17)	0	1(8)

According to table 3, the entire result showed moderate level. Among them only 67% public teachers expressed strongly yes while all others private teachers expressed first choice. The study also focused on pedagogical effects from the use of ICT tools in classroom teaching learning "passive learner change to active learner". All private teachers expressed strongly yes, but for the same statement, only 67% public teachers expressed the same effects. They could not understand about the terms cooperative & collaborative methods of teaching due to anagogical science background.

The above data interpreted that majority of school teachers felt the use ICT tools showed positive effects. It helps in both teaching learning and establishing self-learning environment. Although some senior teachers had no time to update, so they were not using ICT tools in classroom as well as lab works. Therefore, they could not find their positive effects however, they also realized it.

Teachers Facing the Challenges of Implementing ICT Tools in Teaching-Learning

Table 4: Teacher facing the challenges of implementing ICT tools in teaching

S. N.	Statements	Strongly Agree			Agree			Least Agree			Not respondents		
		Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)	Public (n%)	Private (n%)	Total (n%)
1.	Insufficient numbers of computer	4(67)	2(33)	6(50)	2(33)	3(50)	5(42)	0	1(17)	1(8)	0	0	0
2.	Inadequate & slow speeds of Internet	6(100)	6(100)	12(100)	0	0	0	0	0	0	0	0	0
3.	Poor ICT infrastructure	6(100)	2(33)	8(67)	0	2(33)	2(17)	0	2(33)	2(17)	0	0	0
4.	Poor ICT lab management	4(67)	0	7(58)	2(33)	3(50)	5(42)	0	0	0	0	0	0
5.	Poor power supply management	6(100)	4(67)	10(83)	0	0	0	2(33)	2(33)	0	0	0	0
6.	Unable to time management to use of ICT tools in teaching	6(100)	4(67)	10(83)	0	2(33)	2(17)	0	0	0	0	0	0
7.	Lack of technical support to use of ICT tools in teaching	4(67)	2(33)	6(50)	2(33)	2(33)	4(33)	0	2(33)	2(17)	0	0	0
8.	Lack of update of knowledge to use of ICT tools in teaching	6(100)	4(67)	10(83)	0	0	0	0	2(33)	2(17)	0	0	0
9.	Inadequate administrative support	6(100)	4(67)	10(83)	0	0	0	0	2(33)	2(17)	0	0	0
10.	Traditional style of teaching	5(83)	3(50)	8(67)	1(17)	2(33)	3(25)	0	1(17)	1(8)	0	0	0
11.	Inadequate ICT friendly environment	6(100)	6(100)	12(100)	0	0	0	0	0	0	0	0	0

Every schools was connected with Wi-Fi/ Internet facility but they faced slow speed problem due to poor infrastructures. Insufficient capacity and poor lab management was major problems. All teachers expressed they could not update ICT capacity building due to lack of time management. All public schools teachers needed support from administration or others but they were not getting these kinds of support. Similarly, more public teachers expressed they were suffering from traditional style of teaching and had no friendly environment.

The analysis interpreted that all schools teachers were facing different types of ICT related problems. However, majority of private teachers were managing the problem by self. Same were the condition of public teachers due to lack of awareness.

Major findings

i.   The result concluded that age factors also influenced modern ICT technology based teaching learning activities.

ii.   The computers, projectors, internet, etc were used by 83% teachers. Among them one third of public teachers were found not using it due to insufficient skills & only half of the teachers had sufficient knowledge of handling and using ICT tools.

iii. More than 80% both public and private teachers "strongly agreed" towards student motivation, increase interests, passive learners change into active learners etc were impact of

ICT Tools & they understood about terms cooperative and collaborative methods of teaching and pedagogical related effects.

iv. Majority of teachers felt use of ICT tools result as positive effects but could not found these effects due to inadequate ICT based teaching-learning environment.

v. Majority of both types of teachers expressed that they suffer from traditional style of teaching, due to lack of knowledge and skills & they could not create self-learning managing environment. They had an adequate administrative support for conducting awareness program.

Conclusion

The study emphasizes on teachers knowledge towards handling the common ICT tools and their uses in classroom as well as in science lab. This study also recognizes the effectiveness of the extent of ICT tools in supporting classroom teaching and learning. Based on study it was found that identifying the average level of the perceptions in implementing ICT tools on teaching and high level of challenges of using these tools in teaching and learning in classroom among both public and private schools teachers.

The result of the study showed that high-level perceptions occurred in private teachers than public teachers

due to friendly age factors towards ICT integrated activities. The study finds that most science teachers are concerned on ICT interrelated teaching-learning activities but they lack ICT friendly environment. The teachers are gaining positive perception day by day. This study also identifies that young generation teachers are rapidly replacing traditional pattern of teaching by ICT based teaching. However, all teachers are feeling that e-resources are necessary to meet new generation students.

Recommendations

- The policy makers should make policies based on modernized ICT base teaching rather than traditional one.

- Every public and private school administrators should manage rich ICT infrastructure.

- The government and Educational Institutes should provide One-teacher One-Laptop and conduct ICT skills based trainings.

- Every teacher should obey the ICT-friendly environment in classroom teaching.

- Every school teachers should learn skills about the use of e-library, virtual lab, moodle site as learning management application system.

- All teachers, administrators and donor agencies should manage appropriate environment for minimizing the ICT related issues.

- The proper stakeholders should think about the further research with respect to the digitalized age of ICT around the world.

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Developing Writing Skill of B.Ed. Students through Class Test: An Action Research

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Abstract

Writing is an art and integral part of language teaching and learning. The present research study explores the development of writing skills especially ''writing essay'' through teacher correction technique and self analysis. As action research in nature aims to test the progress of English language learners while writing an essay, this study relates to the action research. It was seen development in students writing in post test than in pre-test after analysis of the data. The students (Ss1-Ss10) were found using the words in an increased order, proper use of mechanics, and grammatically correct sentences in their writing in each test made and committed less grammatical errors in post test than in pre-test. Regarding mechanics of writing, their writing was found systematic in case of punctuation, coherence, cohesion and organization as well. The teacher correction technique and self analysis were found productive in teaching writing through action research as a whole.

Keywords: Writing, Class Test, Mechanics, Action Research, Student's Development

1. Introduction

Writing is one of the four skills of language. It is a permanent record form of expression and as a means of communication. It is nothing more than the correct association of conventional graphic form of graphic symbols with sounds which have no significant importance for the writers. The symbols have to be arranged to form sentences so that it is highly developed form. It is an act of creation of thinking process. It is output of mental effort. It refers to the expression of ideas in a consecutive way according to the message. We share our ideas and arouse our feelings to persuade and convince the audiences. For Rivers(1968,p.243),'' Writing refers to the expression of ideas in a consecutive way, according to the graphic convention of the language ; the ultimate aim of the writer at this stage is to be able to

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express him a literary which requires the utilization of a special vocabulary and certain refinements structures''.

Similarly, in the context of complexity Nunan says,'' Writing is extremely complex cognitive activity in which the writer is required to demonstrate a control of a number of a variables simultaneously'' (1992, p.36). A, Harmer (2006: 79-80) opines,'' Writing is a basic language skill, as important as speaking, listening and reading.'' civilization once flourished. There is incomplete agreement about the meaning of the symbols that were discovered. Writing skill includes all the knowledge and abilities which are related to express the ideas through the written words. It is needed for students as it improves communication skills such as grammar, punctuation, gestures, paralinguistic, and so on , which are major parts of communication. Communication skill develops through writing as means of expressing our ideas and messages clearly and directly to our listeners. Teachers teach content knowledge, or semantic knowledge which is most important part of writing act because it controls the process of writing.

Class Test

Class Test is a teacher designed test which is used to examine the extent to which the students have learnt from the instructions presented in the classroom. It is used to see how students are progressing towards achieving the objectives of the course which take a form of unit test or can be broken into well defined short objectives. It is also an examination of the fitting of the objectives and the contents to be presented in the classroom. Its result enables the teachers to understand the pace of learning of the students, effectiveness of his/her teaching, the progress that the students are making towards achieving the set objectives

Action research is a major source of teacher learning or teacher professional development. It refers to teacher conducted classroom research that seeks to clarify and resolve practical teaching issues. Halliday (2010),''Action Research is the basic problem solving tool.''

Research Questions

Among all four skills of language teaching, writing skill covers the more weight age in compulsory English of B.Ed. First Year. The researcher found several problems in writing of the learners. In preliminary investigation, it was understood that they were very poor in writing skill. In that situation, the researcher thought to find out their problems on the basis of class test. This action research was done for finding the problems regarding '' essay writing''.

The research was conducted to find out the answers of the following questions:

1. Are the learners really weak in their writing ability?

2. Are there any alternative ways of teaching to improve their writing skills?

3. Will really they improve after taking class test?

4. What could be their final result of writing in word, and sentence level and the errors found in their writing?

5. Will they learn cohesive writing?

These above questions were raised to investigate the issues regarding essay writing as writing skill. These questions are addressed in analysis and finding section as well.

Statement of the Problem in the Context of Nepal

The learners take the English language as an academic subject rather than a language, they will be concerned only with passing the exam for getting an academic writing. Among different language skills, the students feel writing skill to be the most difficult in real practice and in the examination. It is mostly assigned as homework in teaching learning activities and the answer made by the teacher is supposed to be final and correct. The students depend mostly on teacher's notes , guess papers, general books where

very few consulted reference resources. In this context, the only solution lies in the continuous pursuit of knowledge and skills. If the learners have the skills and habit of learning independently, they will be able to face the challenges. Lack of independent learning habit in the students is a major problem for total education system in Nepal. Therefore, the English language teaching needs to be rethought from the eyes of teachers and students as well.

Objectives

The main objectives of the study were to find out whether the students develop their writing skill through the strategies of class test, and to forward some pedagogical suggestions as well as techniques regarding class test based on the findings of the research.

Methodology/Methods

''Action Research'' helps to develop the performance of students. It is an appropriate tool that is used for educational sectors in 21st century to find out ability of the learners. Its main objective is to solve classroom problems and do better in future. Richard and Farrell (2000, p.171) say,''Action research refers to a systematic approach to carrying out investigations and collecting information that is designed to illuminate an issue or problem and to expand and improve classroom practice.'' The process allows

them to experience problem solving and to model it for their students. The carefully collect data to diagnose problems, search for solutions, take action on promising possibilities, and monitor whether and how well the action worked.

Basic Steps of Action Research

Step 1- selecting a focus

Step 2- clarifying theories

Step 3- identifying research questions

Step 4- collecting data

Step 5- analyzing data

Step 6 - reporting results

Step7- taking informed action www.ascd.org>publications>books>chapters
　　　　Five Phases of Action Research

Phase 1- Problem Identification

Phase 2 - Plan of Action

Phase 3- Data Collection

Phase 4- Analysis of Data

Phase 5- Plan for Future Action pd.madison.k12.wi.us>node Test A

Test is regarded as an attempt to see whether the things taught have been learnt. It is directly concerned with teaching learning activities. Its main function is to evaluate the performance of learners. Harrison, A. (1991),'' A test is seen as a natural extension of classroom work, providing teacher and student with useful information that can serve each as a basis for improvement.'' Similarly,

Nunan (1989) asserts a Test is as much a part of language teaching as are the materials, syllabus and approach. Thus, Test is a measuring instrument which is used to compare an individual with other individuals of the same group. It can have some formal procedures for measuring ability, knowledge or measuring ability, knowledge, or performance of testees. It is used as a means to:

1.　give the teacher information about whether the learners are at the moment , to decide what to teach ;

2.　give the learners information about what they know so that they also have an awareness of what they need to learn or review;

3.　motivate learners to learn or review specific material

4.　get learners to make an effort in doing the test itself, which themselves may actually provide useful review or practice

5.　Provide learners with a sense of achievement and progress in their learning.

Essay as Writing Skill

''An essay should be written in a flowing manner with each sentence following on a logically from the previous one and with appropriate signposts to guide the readers. It is written composition giving expression to one's own personal ideas or opinions on same topics''.

www.slideshare,net>befriends>essay writing-32971816

A short piece of writing that tells a person's thoughts or opinions about a subject. It is a form of prose writing that aims to say something. ''The essay is often the most important part of your application. It gives the scholarship committee a sense of who you are and your dedication to your goals. You'll want to make sure that your scholarship essay is the best it can possible be.

Tips to keep in mind while writing essay:

1. Read the instructions thoroughly and make sure you completely understand them before you start writing.

2. Think about what you are going to write and organize your thoughts into an outline.

3. Write your essay by elaborating on each point you includes in your outline.

4. Use clear, concise, and simple language throughout your essay.

5. When you have finished, read the question again and then read your essay to make sure that the essay addresses your point. Reading is one of the best ways to start working out those writing muscles. It becomes a skill when we have read a lot of different things that give us new

perspectives or challenge our thoughts. An essay is not a tweet or a text, and your word choices matter.

Result and Discussion

Writing Process

A Process in process writing, graphic symbols are re-arranged in the large units as words and sentences are arranged in sequential order. Byrne (1988) says, ''Produce a sequence of sentences arranged in a particular order and linked together in certain ways.'' A good writer always keeps the audience in mind who he/she is writing for and why he is writing are two important components. Audience and purpose keep the writer in right track. The process of writing is highly individualistic. The teacher re-invents any teaching procedures in which teacher and students are appropriate for development of writing skill. The teacher should be linguistic judge in process writing when the students develop their writing proficiency. She/he will provide proper linguistic forms, experiences, ideas, attitudes and feelings. The process writing demands conscious intellectual effort. The process writing gives an insight into what it is involved in the writing which displays language proficiency.

The writer always follows the essential of writing which are spellings and mechanics of writing or graphological

resources. Addition or omission of one letter to another can change the entire meaning. It requires the ability to spell in English. Punctuation helps to clarify the meaning and understand the text. We cannot understand the text without punctuation. The writer should write grammatically correct sentences for comprehensible writing, suitable words and proper use of grammar. Harris (1993) asserts, "Writing is the process, which occurs over a period of time, particularly if we take into account." If we write any essays, we need the process of writing. The writer provides a shape by using raw materials onto coherent message. Writing is a process of matching of matter with manner. White and Arndt (1993) state,'' The processes of writing are: Generating Ideas, Focusing, Structuring, Drafting, Evaluating and Re-Viewing''.

Context of the Study

The study is related to the measures of frequency and analysis of errors frequency at word and sentence level in relation to the mechanics of writing for those students who are studying in B.Ed. First Year at J.S. Murarka Multiple Campus, Lahan, Siraha as an action research. As a branch of applied linguistics, error analysis sets out to demonstrate that errors of many learners were not due to their mother tongue but are reflected as universal learning strategies. However, error is something specific that results

from incomplete knowledge and lack of main task in this research was to look the progressive change of witting skill of English.

Data Collection, Tools and Procedures

The population for the study consists of ten students from B. Ed. First year of J.S. Murarka Multiple Campus Lahan, Siraha. Test items were the main tools used for data collection as primary sources. The tool was used to elicit the data involved in pre- test and post.

The students were selected purposively as well as by using simple random sampling procedure. The study was limited to a bachelor level of community campus, J.S. Murarka Multiple Campus Lahan, Siraha. The study was limited in the word level, sentence level, and grammatical level, number of paragraphs, punctuation marks, cohesion and coherence. Only two techniques: peer and tester correction techniques were empoyed.

Table No.1: Analysis of the Students' Development on Writing Skills (Writing Essay) through Class Test

Ss	Total No. of essay topic		Use of punctuation Coherence in writing		Mechanics of writing					
					Sentential Arrangements					
					Cohesion in writing		Organization in writing			
	Pre-Test	Post test	Pre-test	Post test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
Ss1	1	1	unsystematttic	unsystematic	unsystematic	systematic	unsystematic	unsystematic	unsystemmatic	Systematic
Ss2	1	1	systematic	systematic	systematic	systematic	systematic	systematic	systematic	systematic
Ss3	1	1	systematic	systematic	systematic	systematic	systematic	systematic	systematic	systematic
Ss4	1	1	Haphazard	unsystematic	unsystematic	unsystematic	unsystematic	unsystematic	unsystematic	unsystematic
Ss5	1	1	systematic	unsystematic	Haphazard	unsystematic	Haphazard	unsystematic	Haphazard	unsystematic
Ss6	1	1	Haphazard	unsystematic	systematic	unsystematic	systematic	systematic	unsystematic	systematic
Ss7	1	1	unsystematic	systematic	unsystematic	systematic	unsystematic	systematic	unsystematic	systematic
Ss8	1	1	unsystematic	systematic	unsystematic	systematic	unsystematic	systematic	unsystematic	systematic
Ss9	1	1	unsystematic	systematic	unsystematic	systematic	unsystematic	systematic	unsystematic	systematic
Ss10	1	1	unsystematic	systematic	unsystematic	systematic	unsystematic	systematic	unsystematic	systematic

This section deals with the data analysis which was collected from pre-test and post-test from the selected sample. In this section, data are analyzed using descriptive approach and statistical tool like measures of frequency count is used to show it more vividly. So, this section includes the analysis and interpretation of data to fulfill the objectives. In Table 1, there were 10 students (Ss1-Ss10) involved in this action research . They were asked only one essay to be written in pre- test and post-test as well. The writing proficiency was tested on the basis of ''mechanics of writing'' such as use of punctuation marks, coherence in writing, cohesion in writing, organization in writing, total number of words , total number of ungrammatical words, total number of sentences and total number of ungrammatical sentences.

Table No.2

Analysis of the Students Development on Writing Skills on Grammatical Units through Teacher Correction Strategies

S.N.	No. of Essay Top-ics	Use of Grammatical Items							
		Total No. of Words		Total No. of Ungram-matical Words		Total No. of Sentences		Total No. of Ungram-matical Sentences	
		PRT	POT	PRT	POT	PRT	POT	PRT	POT
Ss1	1/1	250	275	4	3	65	75	25	15
Ss2	1/1	255	280	5	3	85	90	30	27
Ss3	1/1	240	250	6	5	57	60	15	12
Ss4	1/1	135	140	7	4	45	40	13	11
Ss5	1/1	225	230	9	6	77	79	14	10
Ss6	1/1	235	240	10	7	7o	73	12	11
Ss7	1/1	260	263	12	9	70	73	15	13
Ss8	1/1	305	297	5	3	70	79	9	8
Ss9	1/1	299	300	9	6	75	70	9	7
Ss10	1/1	300	299	5	3	65	64	7	5

QS = Questions, PRT = Pre-Test, POT = Post Test

After completion of the analysis and interpretation of the data, Following are the major findings of the study:

1. The overall performance of the learners acquiring and developing writing skill was found satisfactory in almost all the tests in an increasing order.

2. All the learners (Ss 1- Ss 10) who earlier level on using the words in their writing in each test and made less grammatical errors in post test comparison to pre test.

3. Regarding coherence and mechanics, they increased the level of progress in their writing in case of punctuation as well as cohesion.

4. Most of the students were found using grammatically appropriate vocabulary in their writing in the final post test analysis than they used in pre-test.

5. The students were found meaningful.

6. Regarding the use of paragraph. A class test is defined as any credit-bearing examination that is organized within a school or department. It is expected that as far as is practicable, class test will be conducted under the same rigorous conditions as for university examinations. ''

- A test or examination is an educational assessment intended to measure a test taker's knowledge, skill, aptitude, physical fitness, or classification in many other topics. A test may be administered verbally, on paper, on computer, or in a student taking a scholarship examination in a classroom''.

(www.prepscholar.com>gre>blog> graduateschool…),''

The Table No. 2 provides a holistic picture of frequency count of total number of words , total number of ungrammatical words, total number of sentences and total number of ungrammatical sentences in writing skills made by the students in each test. It has been found that the students increased in the use of number of words in their writing in post- test than in pre-test as shown in Table No. 2. Similarly, students made less error in the post-test than in pre-test. Likewise, using total number of sentences too, all the students wrote more sentences in post-test to explain the given question than in pre-test. Regarding the case of committing ungrammatical sentences, less error were found in each pre-test and in post test as well.

Analysis

Teacher plays a vital role in colleges/ campuses. He or she takes class test while he or she is teaching in the classroom. According to the data mentioned in this research, the students develop their proficiency level through class test. As the objective of this research is to find out whether the students improve their teaching -learning activities through class test, it has been proved that class test is very fruitful in B.Ed. Level to develop their ability.

Conclusion

Many learners feel that they are weak in speaking skill but really, they are weaker in writing skill than they think as they should follow different kinds of features of writing such as coherence, cohesion and mechanics as well. Teacher assigns writing as homework giving it less preference and mostly focusing on the transformations which are performed in the class but the examination is highly based on testing proficiency. Thus, writing is an art which is developed in the classroom through class test It is very complex process which requires many composite skills like mental, psychological, rhetorical and critical as well. A test or written examination is a technique to asses students' knowledge, skills, or abilities ….It is generally recognized that these commonly used tests focus on deficits and can provide a teacher with only a limited view of students' achieved knowledge during a semester course or class(Slater, 1997) (www.science education. Com>topics> social-sciences>written…) No doubt, writing skill especially composition/ essay writing needs to be developed several literary terms as well as figure of speech. In Richards (1986, p .36) words writing refers to the, '' Expression of ideas in a consecutive way , according to the graphic convention of the language; ultimate goal of the writer at this stage is to be able to express him in a polished literary form which requires the utilization of special vocabulary and certain refinement structures.''

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APPENDICES

Appendix - i

Test-Items

This test item has been prepared for the authentic data to achieve the objectives of the study titled'' Developing Writing Skill through Class Test: An Action Research''. I hope your co-operation will be a great contribution in the accomplishment of my research.

Researcher Personal Information

Name: ……………………………………………………………………………… .

Gender: Male ☐   Female ☐

1. Compare two novelists and their works. Explore the authors' characters and their styles. What makes each novelist memorable?

OR   What are the health effects of exercising? How does exercise benefit people? Are there people who exercise too much? Explain.

Appendix - ii

Sample Lesson Plan

Campus   :   J.S.Murarka Multiple Campus Lahan, Siraha

Level   :   B.Ed. FirstYear

Date   :   …/…/……....

Subject   :   English

Time   :   1 hour

Specific Objectives

On the completion of this topic, students will be able to -define an essay and tell characteristics of an essay

-     use of Mechanics

Materials

- Daily used materials

- sentence cards including the definition of an essay

Activities

- The teacher gives a topic of an essay to write.

- Then he will give the idea that it is an essay and introduce the the present topic i.e. introduction of an essay.

- He will show the definition of an essay in the sentence cards and writes on the white board.

- He will discuss about the topic with the students.

- Then he will ask the students about the characteristics and body paragraphs. He will interact about writing body paragraphs in detail.

Evaluation

The teacher will ask the students to write an essay about in 350 words.

Appendix - iii

1. **Systematic:** The students can produce clear, well- structured sentences as well as proper use of organization, coherence and cohesion. They use proper use of vocabulary. They have their own voice in writing.

2. **Unsystematic:** Their writing does not contain variety of sentence structures. Range of vocabulary is rather low. There are grammatical errors.

3. **Haphazard:** Students may write single word combination. The level of language is too low. It is very difficult to understand intended meaning of the essay. Answer is irrelevant so, it is very difficult to understand actual meaning to the audiences.

Determination of Iodine Content in Different Brands of Common Salts

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Abstract

Iodine deficiency disorders (IDD) are recognized as a major global public health problem; it is possible to root out this problem by universal salt iodization. This study was designed to determine iodine concentration in different brand of salt collected from different area of Nepal and India. All samples were collected both in Lahan and India near to Lahan city. Concentration of iodine in salt was determined by iodometric titration method. Reagent was $K_2Cr_2O_7$, standardized $Na_2S_2O_3$, KI, $NaHCO_3$, starch, concentrated HCl, H_2SO_4. Most of the salts collected show iodine level to be in the acceptable range. Result shows that out of nine brands, only seven shown to has a poor content of iodine. It can be decided from the result that most of the people of our country are now using iodized salt aayonune containing high amount of iodine. Evidence is now available from both controlled trials and successful iodization programs that these disorders can be successfully prevented by correction of iodine deficiency.

Keywords: *Iodine deficiency disrders, symptoms, treatment, iodine determination*

1. Introduction

Iodine is an element that is needed for the production of thyroid hormone. The body does not make iodine, so it is an essential part of your diet. If we do not have enough iodine in our body, we cannot make enough thyroid hormone. Thus, iodine deficiency can lead to enlargement of the thyroid hypothyroidism and to

mental retardation in infants and children whose mothers were iodine deficient during pregnancy (American Thyroid Association, 2007). Iodine deficiency affects humans at every stage of life and leads to several severe disorders. Iodine deficiency is the leading cause of brain damage and mental retardation in the world. In addition to mental retardation, iodine deficiency causes endemic goiter,

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cretinism, dwarfism, mental retardation, muscular disorders, spontaneous abortions, sterilization, and stillbirths.

Role of iodine in Normal Metabolism

Iodine is needed for the normal metabolism of cells. Metabolism is the process of converting food into energy. Insufficient iodine can slow down the body's metabolism, which can result in weight gain.

Role of inorganic and organic forms of iodine as an antioxidant

Iodine is one of the most abundant electron-rich essential elements in the diet of marine and terrestrial organisms. It is transported from the diet to the cells via iodide transporters. Iodide, which acts as a primitive electron-donor through peroxides enzymes, seems to have an ancestral antioxidant function in all iodide-concentrating cells from primitive marine algae to more recent terrestrial vertebrates (Hetzel, et.al., (1993).

Role of iodine in oral mucosa and in salivary glands physiology

It is hypothesized that dietary deficiency or excess of iodine (I) has an important role in oral mucosa and in salivary glands physiology. Salivary glands derived from primitive I concentrating oral cells, which during embryogenesis, migrate and specialize in secretion of saliva and iodine.

Role of iodine in Healthy Pregnancy

Iodine plays a crucial role in promoting a healthy pregnancy. Iodine deficiency during pregnancy can cause high blood pressure in the mother and mental retardation in the baby.

Iodine and delayed immunity

Iodine was and is sometimes used therapeutically in various pathologies where the immune mechanism is known to play a dominant role. It has in fact been administered to patients with tubercular glaucomatous, lepromatous,syphilitic and mycotic lesions where it facilitates cure. This effect does not depend on iodine's action on the microorganism responsible.

Iodine Deficiency and Pregnancy

Iodine is required for thyroid hormone synthesis. Greater the production of thyroid hormone caused to increase. So fetal iodine requirements, dietary iodine requirements are higher in pregnancy than they are for non-pregnant women. The renal iodine excretion Children of mothers with severe iodine deficiency during pregnancy can have mental retardation and problems with growth, hearing, and speech.

Iodine Deficiency in the Fetus

Fetal iodine syndrome refers to symptoms and signs that may be observed in a fetus

or newborn when the mother was exposed during pregnancy to inappropriate. Iodine deficiency is associated with goiter and hypothyroidism. When severe iodine deficiency occurs during pregnancy, it is associated with congenital hypothyroidism that is manifested by increased neonatal morbi-mortality and severe mental dysfunction, hyperactivity, attention disorders and a substantial decrease of IQ of an irreversible nature.

Iodine Deficiency in the Children and Adolescents

Iodine deficiency in this period is characteristically associated with endemic goiter. Prevalence increases with age, reaching a maximum after the first decade of life. The condition can be effectively prevented by iodization. There is increasing evidence of impaired mental function in apparently normal children living in iodine-deficient areas.

Iodine Deficiency in the Adults

An iodine deficiency in the adult can cause uncomfortable and even severe symptoms. They include swelling in the neck, pregnancy-related issues, weight gain and learning difficulties. Its symptoms are very similar to those of hypothyroidism, or low thyroid hormones. Low levels of iodine are not the only cause of low thyroid function. But a lack of iodine can cause an abnormal enlargement of the thyroid gland, known

as a goiter, and other thyroid problems. In adult, it can cause mental disabilities.

Hyperthyroidism

The term hyperthyroidismrefers to any condition in which there is too much thyroid hormone in the body. In other words, the thyroid gland is overactive. Hyperthyroidism is a disorder that occurs when the thyroid gland makes more thyroid hormone than the body needs.

Causes of Iodine Deficiency

Worldwide, we are experiencing epidemic proportions of iodine deficiency, in part due to deforestation, soil erosion, and poor farming practices that deplete minerals from the soil and yield iodine-deficient crops. There are other contributing factors that exacerbate this disturbing global problem. Exposure to toxic chemicals hinders the uptake of iodine in the body as the toxins compete for iodine receptor sites and inhibit the body's ability to absorb this valuable mineral. These toxins include a group of elements known as halides (and their derivatives), all of which have similar chemical structures. The halides consist of bromide, fluoride, chloride and iodide, the latter being the only one with therapeutic effects in the body. In the 1980s, bromine (a bromide derivative) replaced iodine as a bread dough ingredient. Bromine is a known breast carcinogen. This singular change by the food industry resulted

in an epidemic of bromide toxicity and increases in thyroid disorders, thyroid cancer and other illnesses resulting from iodine deficiency(Buja L. M. & Krueger F. R. G, 2011).

Iodine Stability in iodized salt

In salts iodine stability is affected by storage conditions. Heating, heating with oxidizing agent, incubation by time were the parameters which have been determined. Iodine loss was 41.16% by heating at 200 degrees C up to 24 hours. When the iodized salt heated with oxidized agent iodine loss rose up to 58.46% in 24 hours. Iodine loss mechanism seems similar in both cases. However, iodine loss is greater in the presence of H_2O_2. After the salt was stored at room temperature with a relative humidity of 30%-45% and in sealed paper bags for three years, 58.5% of iodine content lost in approximately 3.5 years.

Factor influencing in loss of iodine from iodized salt

Iodized salts stored in atmospheres of relative humidity's of 50 percent lose smaller quantities of their iodine than salts

stored under similar conditions at other humidity's. Iodized salts rendered alkaline by the addition of $NaHCO_3$ lose practically none of their iodine during storage, while neutral salts or salts

rendered acid lose appreciable quantities. Salts iodized with KIO_3 lose none of their iodine when stored for extended periods. Exposure of iodized salts to sunlight effects a loss of iodine from neutral or acid salts, only a slight Toss from salt rendered alkaline and practically no loss from salts iodized with KIO_3.

Diagnosis of Iodine Deficiency Disorder

Iodine deficiency is diagnosed across populations and not specifically in individuals. Since iodine is released deficiency across a large population is to measure the amounts of iodine in from the body through the urine, the best way to determine iodineconcentration less than Starch was used as an indicator in this reaction as unreacted I_2 will form a deep blue complex with the starch

$$I_2 + 2S_2O_3^{-2} ---> 2I + S_4O_6^{-2}$$
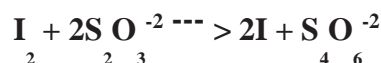
Preparation of a100 ml solution of 0.1N $K_2Cr_2O_7$

Molecular weight of $K_2Cr_2O_7$ = 294mg
Equivalent weight of $K_2Cr_2O_7$ = 49mg

Calculation: For 1000ml of 1N equivalent weight = 49mg

For 1ml of 1N equivalent weight = 49/1000 gm

Therefore, for 100ml of 0.1N equivalent weight = $(49\times100\times0.1)/1000$ gm = 0.49gm

Preparation of 100ml of 0.1N $Na_2S_2O_3$ [7]

Molecular weight of $Na_2S_2O_3$= 248mg
Equivalent weight of $Na_2S_2O_3$ = 248mg

Calculation: For 1000ml of 1N equivalent weight = 248mg For 1ml of 1N equivalent weight = 248/1000 gm Therefore, for 100 ml of 0.1N equivalent weigh = (248×100×0.1)/ 1000 gm = 2.48gm

Standardization of Sodium Thiosulphate ($Na_2S_2O_3$)

Table 1. Standardization of $Na_2S_2O_3$

Obs.No.	Burret Reading			Average
	Initial	Final	Diffrence	
1	0.00	9.2	9.2	
2	9.2	18.5	9.3	9.2
3	18.5	27.5	9.3	

The strength of the $Na_2S_2O_3$ is calculated using the following formula:

Volume of $Na_2S_2O_3$, V_1 = 9.2 ml

Strength of $K_2Cr_2O_7$, S_2 = 0.1 N

Volume of $K_2Cr_2O_7$, V_2 = 10ml

$$S_1 \times V_1 = S_2 \times V_2$$
$$S1 = (0.1 \times 10)/9.2$$
$$= 0.1086N$$

Preparation of 0.005N Sodium Thiosulphate

From the calculated strength of the standardized Sodium thiosulfate, the volume required to react with each mole of iodate was determined as follows:

Volume of $Na_2S_2O_3$ required to titrate iodate, V_1=?
Strength of $Na_2S_2O_3$, S_1 = 0.1086N
Volume of Diluted $Na_2S_2O_3$, V_2 = 250ml
Strength of Diluted $Na_2S_2O_3$, S_2 =0.005N

$$\mathbf{S_1V_1 = S_2V_2}$$
$$\mathbf{V_1 = (0.005 \times 250)/0.1086}$$
$$\mathbf{= 11.51ml}$$

Amount of water required to dilute $Na_2S_2O_3$ = 100 – 11.51 = 88.49ml

Titration

10g of salt was weighed using electronic balance and placed into a conical flask. To the flask, 50ml of water, 5ml of 10% KI and 1ml of H_2SO_4 were all added, one by one. The solution turned a yellow/brown color, as iodine was produced. The solution was then titrated against the Standardized and Diluted $Na_2S_2O_3$ until the yellow/brown color became very pale. Then, 2-3 drops of Starch indicator solution were added, which produced a dark blue-black colored complex with iodine. The titration was continued until the color completely disappears. The process was repeated two more times and an average value for the volume of $Na_2S_2O_3$ was determined.

Result

Calculation

From the average volume of $Na_2S_2O_3$ determined, the number of ppm of iodine in the salt samples was calculated with the following formula:

Iodine ppm = (RX100X1000X0.12XN)/6

Were,

R = Average volume of $Na_2S_2O_3$

0.127 is the weight of iodine equivalent to 1ml of normal thiosulphate solution.

N is normality of thiosulphate solution (which is 0.005N) (Srivastava,et.al., 2006)

Following the standard procedure, as mentioned before, the following results were obtained for each sample collected.

Table 2. Iodine content for Ankursalt (001)

Sample No	O.N	Burret Reading(ml)			Aver Average(ml)	Iodine (ppm)
		I	F	D		
001	1	0	2	2	2	21.17
001	2	2	4	2		

From this result it is seen that **Ankur salt** contains iodine **aboveminimum** level.

Table 3. Iodine content for Paris Salt (002)

Sampe code	O.N	Burret Reading(ml)			Average (ml)	Iodine (ppm)
		I	F	D		
002	1	4.0	7.3	3.3	3.4	35.98
	2	7.3	10.8	3.5		

From this result it is seen that **Paris salt** contains iodine below **maximum** level

Table 4. Iodine content for NokiaSalt (003)

Sampal code	O.N	Burret Reading(ml)			Average (ml)	Iodine (ppm)
		I	F	D		
003	1	14.7	15.9	1.2	1.1	11.65
	2	15.9	16.9	1.0		

From this result it is seen that **Nokia salt** contains iodine below **minimum** level.

Table 5. Iodine content for Anuradha Salt (004)

Sampal code	O.N	Burret Reading(ml)			Average (ml)	Iodine (ppm)
		I	F	D		
004	1	10.8	13.4	2.6	2.4	25.4
	2	13.4	15.6	2.2		

From this result it is seen that **Anuradha salt** contains iodine above minimum level.

Table 6. Iodine content forAayonunSalt (005)

Sampal code	O.N	Burret Reading(ml)			Average (ml)	Iodine (ppm)
		I	F	D		
005	1	15.6	23.3	7.7	7.5	79.375
	2	23.3	30.6	7.3		

From this result it is seen that Aayonun salt contains iodine above **maximum** level.

Table 7. Iodine content forAnna Shakti Salt (006)

Sampal code	O.N	Burret Reading(ml)			Average (ml)	Iodine (ppm)
		I	F	D		
006	1	30.6	31.3	0.7	0.7	7.40
	2	31.3	32	0.7		

From this result it is seen that Anna Shakti salt contains iodine **below minimum** level.

Table 8. Iodine content for Radiance Salt (007)

Sampal code	O.N	Burret Reading(ml)			Average (ml)	Iodine (ppm)
		I	F	D		
007	1	32	33.7	1.7	1.95	20.637
	2	33.7	35.9	2.2		

From this result it is seen that Radiance salt contains iodine above minimum level.

Table 9. Iodine content for AapkapurnSalt (008)

Sampal code	O.N	Burret Reading(ml)			Average (ml)	Iodine (ppm)
		I	F	D		
008	1	35.9	36.9	1	0.9	9.525
	2	36.9	37.7	0.8		

From this result it is seen that **Aapkapurn Salt** contains iodine **below minimum**level.

Table 13. Iodine content for True life salt (009)

S.code	O.N	Burret Reading(ml)			Average (ml)	Iodine (ppm)
		I	F	D		
009	1	37.7	40.0	2.3	2.3	24.34
	2	40.0	42.3	2.3		

From this result it is seen that **True life** salt contains iodine **above minimum** level

Comparison of different branded table salt on iodine content

Discussion

Nepal mainly depends upon India for the import of household salts. Under the act of universal salt iodization (USI), the Nepal government had launched various strategies to increase the rate of consumption of adequately iodized salt throughout the nation. About one third of world population is exposed to the risk of iodine deficiency disorders.

About 187 million of world population (2.7% of the world population) was end up with goiter in 2010.It can be assumed that producers' salt containing more than 30 ppm iodine contributes to the elimination of iodine deficiency. However, a substantial proportion of the salt examined in this study was clearly not iodized in accordance with the legal requirement. In the present study, most of the salt with less iodine content (<30 ppm) followed by nil (15ppm).About 80% of the producer's salt was clearly under iodized. Figure shows a bimodal distribution reflecting salt sufficiently iodized to contribute to the elimination of iodine deficiency, i.e., containing more than 30 ppm iodine, and under iodized salt contributing little or nothing in this matter, i.e., containing less than 30 ppm iodine.

Comparison of different branded table salt on iodine content
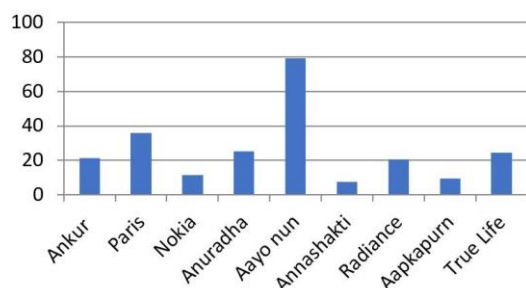
Conclusion

The results of analysis of the nine samples of salt collected from the shop, in Lahan city and India border near to Lahan show that only two brands of the salt samples have iodine content that is agreeable with NAFDAC (30 ppm 80 ppm) to approved range for human consumption. Hence the two brands of salt namely, Aayo nun and Paris sal can be consume by human population in Lahan without any fear of unhealthiness. However, the results obtained are within the acceptance range for human consumption, since NAFDAC approved range is 50 ppm – 30 ppm. Below 30 ppm iodine concentration NAFDAC disapproved, and declared the salt unhealthy for human consumption because it causes goiter.

Acknowledgement

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Living Values Education: An Inter-generational Transition

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Abstract

This study was carried out to flourish the perception and experiences of living values in an intergenerational context. This article included the research question comprising intergenerational retina to retrieve the reality of relational transition in the community. For the research question, I have presented participants perceived living values in their practical life stories. Research participants were the people from six families including three different age groups, viz, 13- 19, 20- 59 and 60 plus. The study is qualitative and mainly guided by need, Social Integration, Hybridization, Construction and Deconstruction theory. Here I have attempted to show the linking influence of education on living values in this current Nepalese education system.

Keywords: Intergenerational, transition, living values, self-narrating, teenager, perception

1. Introduction

Knowledge can be perceived as a power when it is acted upon (Khera, 2002). When the knowledge remains intact then it may be just as taking something for granted and that have no remarkable things to do with. Hills (2000) idea also resembles to it who presents that knowledge and power are directly propositional to each other and only thing required is to maintain the balance. It shows that knowledge should be equipped in course of the time and concord with the values (Masand, 2009).

One has had more knowledge but if it is less equipped and substantial with a reduction of power to make judgment, it does Knowledge and Values Knowledge is enlightening subtle which is already in us. It is just as in the context in which tube light with electric current/power. Only thing to do is to switch its button on then there would be light. So everybody has knowledge but they are not aware of the fact that of its button on and get lighted. It can be taken as eyes through which we can see everything but unable to see our own eyes.

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General Conception to Living Values

By living values it is literary means that the values which are applied to conscience living and hence these are functional and operational values (Chander, 2000). In a good model or conscience living one may lead a life with the meaning in it while he/she is constantly coming cross to the affair of life. In this line, Rama (1988) states that person need to know the things to be done rightly not for the sake of self but for the sake of all. These are the values in an operation or functional are called Living values. Living values are said to be those values which are always evergreen, always operational and always functional. Concept of living values first initiated out of an international project forwarded by Brahma Kumaris in the year 1995 to celebrate the 50[th]anniversary of U.N. (Tillman, 2000).

Statement of the problems

The proper identification of the problem is like the strong pillars in making house which hold up it and accordingly the house can get the proper shape and size (Kumar, 1999). This is what the researcher requires to have the strong pillar (Ibid). Research problem can fix the place to be stated for the researcher (Khanal, 2011). In this connection, states that research problem can be taken as the demarcation or the border line of the research task to be done.

I have selected the research problem as I am interested in finding out the living values underlying. There are number of reasons that enabled me to undertake this study. One, my experience tells that people are concerned of the globally accepted values of caring to the others (Chander, 2000). Two, intellectuals like the Dean of certain university in Nepal put his mother in the old age house and she is now begging for survival. But the Dean behaves her as if he is from the entirely different planet. Three, the creamy layers of the society are not serving the interest of the poor and destitute rather they are keeping them silent. Therefore, I undertook this as a problem of the intellectuals, old age people, and the common folk to restore the glories past by changing our living values. Thus, the paper attempts to examine the common understanding and perception of the community people towards living values in an intergenerational transition.

Research Methodology

Research methodology is taken as the roadmap (Joshi, 2010) in which I have started the academic journey (Kumar, 1999) to elicit manifold truths (Koirala, 2012) from the study area.

Sample of the Population

I have used purposive sampling to find the informants. My purpose was to find out the household having extended families. I grouped the member of each family into 3 groups: teen age group of 13 to19years; adult of 20 to 59 years and old of 60 years upward. The first and third groups were taken as the dependent and passive population and the second one was taken as an independent and active population. Sample of the population is mentioned in the table 1

Table 1. Sample of the Population

Categories	Age	Male	Female	Total
Teen	13-19	4	2	6
Adult	20-59	3	3	6
Old	60 over	3	3	6

The information in the table 1 shows the glimpse of sample of the study population. In this study, different categories viz Teenager, Adult, and the Old are maintained to perceive the lived experience on living values from different course of action. Extended household are selected having at least three generations. The numbers of the participants are made inclusive from both of the male and female.

Research Tools

Research tools can be used as instruments to pacifying the research problem

rightly (Joshi, 2010). With this regard, I selected some research tools; interview guideline and self-narrating as the means to achieve the destiny (Kumar, 1999). Similarly, I used the in-depth interview as the research tools in order to obtain the information from the respondents. Similarly, observation, reflective writing, self-narrating

For in-depth interview, I prepared the open-ended questions in order to elicit information. The prime purpose of using the in-depth interview was to examine the perception and the experiences of living values and exploring the state of gap among the generation in term of the living values selected for the study; respect and cooperation.

The observation is a commonly used method to collect information from the primary data (Kumar, 1999). It is best suited in the situation where the behavioural pattern of the informant can be examined (Ibid). Next one the self-narrating is a tool to obtain information from the self. The everyday experiences and the insights of me enable to reflect the wider cultural and contextual meaning of the society in which I am living from a long.

In line with this focus group discussion can also be used in the study as the landmark

in making the public participants involved in the research process. Keeping this thing in my mind I have made use of 8 numbers as the focus group in the study which can be regarded typically advised group as the optimum size (Ibid). I have selected 8 students from grade 9, 10, 11, 12 including 2 members from each of the grade and making them diverse and inclusive. I have selected the number of the participant in the discussion which is determined by research questions (Ibid). As I have already planned in my mind what to ask and how to do it and I have made use of questions during the discussion from which I have displayed the hidden information.

Findings and Conclusion

Here I have drawn the findings in consideration with the purpose of study and research problems in mind. In line with the research question the perceptions of the informants towards the living values in the community can be presented herewith.

I took the informants on three different age groups. I analyzed, discussed and interpreted their perceptions towards living values to draw meanings which I have presented in the form of findings herewith: In case of the first research question, I found that children were more

concerned to present values. Youths were opting for the changed values. And the old were interested to continue the values that they had experienced in their past time. Categorically speaking (I) Elderly (60 plus age group) people perceived living values as safeguard to living, right coexist keep on changing and experiences makes values different. (II) Youths (20 to 59, age group) perceived living values as the determinant to earlier stage of life and the product of realization. (III) Teenagers (13 to 19, age group) perceived living values as a relative consideration, matter of adaptation, person and context specific.

Reflection and Implication

I understood living values differently before I was entering into the field. In fact, my earlier suppositions were changed. Before entering into the field, I thought that my informants were unknown to living a value, my thought was quite wrong since they have the vast knowledge in dormant form.

Regarding the perception of living values in an inter-generational gap including three different age groups viz. elderly people (60 plus age group), youth people (20 to 59 age group) and the teenager people (13 to 19 age group). Elderly people regard with the base of religion as it is the controlling mechanism from

the deviation. Chinmayananda (1980) and Rama (1988) believed that values help in conquering the evil tendencies of the people and thereby flourish the sound human trait.

It is seen that living values are guided by the values (Jitatmananda, 2002). The fear with the god compels people to construct their understanding. Here, I found that living values are connected with values can be taken as preserver of the human beings. This shows that values safeguards the conscience living and encourages people for social duties and responsibilities. It seems that people were afraid of doing wrong thing since the religion does not allow them to do wrong. Thus, values can be seen as the controlling force to have a good role model in society. When these experiences do not satisfy their spiritual needs, they look indifferent towards this. Since, in the old age, they are approaching death, they think that worldly practice can never be useful for their mental peace. Hence, they think religion as their ultimate source of their peaceful living. On this ground, whatever values for life they adopt get influenced by the values.

Values are the foundation of society or social structure; as the air livings being breathed. If the foundation (values) change there is a possibility of social collapse since all values exist in the society. Some values remain strong, some remain weak, some are very active and some are in dormant state. An individual has got various stages of life. Children have one kind of value, adults have other kind of value when children become adults, they adopt adult like values giving up their old values which they practiced in the childhood. The values which are old for adult become new for children and the values which are new for adult becomes old for elderly people in the society. It means stages of human being changes, not the values which serve the people in different stages of their life.

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Status of Malnutrition of Children Under Five Years in Institutional School

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Abstract

Simply, bad nutrition is malnutrition. The aim of this study was to assess the condition of malnutrition of students under five years. The study followed descriptive cross-sectional research design. For the study, school was selected purposefully and grade was selected randomly. However, 51 students of LKG were participated in the study and only the data of 43 students (24 boys and 19 girls) were analyzed. Age of the students was identified from the school record. Height measuring tape and weighing machine were used to measure height and weight of students. Data were analyzed manually with the reference to World Health Organization (WHO) growth chart 2006. Mean age, height, and weight of students were respectively 49.53 months, 104.88 cm, and 16.326 kg. No students were found stunted whereas only two girls (4.7%) were found wasted and underweight. The status of malnutrition among less than five years students of institutional school is very low. Parents should be suggested to take care of their daughter's nutritional status.

Keywords: Anthropometric measurement, malnutrition, stunting, under nutrition, underweight, wasting

1. Introduction

Etymologically malnutrition indicates 'bad nutrition' (Centers for Disease Control and Prevention [CDC] & World Food Programme [WFP], 2005) that constitutes both 'under nutrition' and 'over nutrition' (Blossner & Onis, 2005; CDC & WFP, 2005). Under nutrition (stunting, wasting, underweight and micronutrients deficiencies) and over

nutrition (obesity and diet related non-communicable diseases) that are result of deficiencies, excesses or imbalances of nutrients in body is malnutrition (World Health Organization [WHO], 2016). Stunting is chronic malnutrition, wasting is acute malnutrition and underweight is acute or chronic or both type of malnutrition (Food and Agriculture Organization [FAO], 2007). Stunting indicates low height below -2 SD with

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respect to age, wasting is low weight below -2 SD with respect to height and low weight below -2 SD for age indicates underweight (Blossner & Onis, 2005). Poor feeding practice, scarcity of food, illness and infection are responsible for wasting whereas having no proper food for a long time or recurrent infection is responsible for stunting (Aneja et al., 2013;World Vision International, 2017) and acute or chronic or both type of malnutrition produces underweight (Aneja et al., 2013).

Malnutrition in children impairs physical and cognitive growth and development (Global Panel, 2016) that contributes to the intergenerational cycle of malnutrition (Blossner & Onis, 2005; MSNP, 2074; Thapa, n.d.; United State Agency of International Development [USAID], 2018).It "increases the risk of mortality in the early stages of infancy and childhood, impair cognitive function of those who survive and hinders efforts to enhance national social and economic development goals and attainments of Millennium Development Goals (MDGs) 1-6" (Adhikari, 2013, para. 2). Undernutrition is attributed to 45% of child preventable death and severely undernourishment increases 9-fold death rate among children (Global Panel, 2016).

In the world, 52 million children under five years of age are wasted, 17 million are severely wasted, and 155 million are stunted, while 41 million are overweight or obese, 45% of deaths among under-five years of age are linked to under nutrition that occurs mostly in low and middle-income countries (WHO, 2018). One-third (33.33%) children of under five are stunted in South Asia and sub-Saharan Africa and 14.29% children of under five are wasted in South Asia (United Nations Children's Fund [UNICEF], 2019). According to National Demographic Health Survey 2016 among under 5 years old children, 36% are stunted, 12% are severely stunted, 10% are wasted, 2% are severely wasted, 27% are underweighted and 5% are severely underweighted and only 1% are overweight or obese in Nepal (Ministry of Health et al., 2017).

However, Food and Nutrition Security Plan of Action (FNSP) 2013-2022; Multi-Sectoral Nutritional Plan (MSNP) 2018-2022; Agriculture Development Strategy (ADS), Nepal Zero Hunger Challenge: National Action Plan 2016-2025; Sustainable Development Goals 2016-2030, have vision to ensure national food and nutrition security (as cited in Acharya et al., 2018) the prevalence of malnutrition is not satisfactory in our country. It further states that prevalence of stunting (37%), wasting (13%) and underweight (30%)respectively keep Nepal in the third, the fourth and the fourth position in stunting, wasting and underweight among SAARC countries.

In Nepal, stunting, wasting and underweight contribute to 52% of all child death (National Planning Commission [NPC], 2074). Further, it states that children could not achieve their physical growth, intellectual and emotional development due to under nutrition. It effects in their education and economical achievement decreases by 3%. In addition, it increases the risk of blood pressure and diabetes in their future life. There is lack of studies related to nutritional status of under five years children of institutional school. Therefore, this study aims to assess the prevalence of stunting, wasting and underweight of children under five years of institutional school.

2. Method

2.1 Study design and setting

The study followed descriptive survey research design. Study was conducted on 2076/02/28 (2019, June 11) in an institutional school of Panga, Kirtipur Municipality, Kathmandu, Nepal.

2.2 Participants and study size

Participants of the study were students below 5 years and their age ranged from 36 to 59 months. One institutional school was purposefully selected and LKG was randomly selected from Nursery, LKG and UKG. All students of selected grade were eligible for the study who were

present during data collection. Altogether, 51 students participated in the study but eight students of them were excluded because their age was below 36 or above 59 months and data of 43 students were analyzed.

2.3 Variables

To assess malnutrition anthropological measure, biochemical measure and clinical signs are used (Blossner & Onis, 2005) but in this study, only anthropological measure was used to assess malnutrition of students. Anthropometric measurement (height, weight and age) is important to determine the nutritional status and prevalence of malnutrition (WFP, 2004) and help to assess stunting, wasting and underweight. Therefore stunting, wasting and underweight were the outcome variables of the study.

2.4 Measurement

Height, weight and age of student were taken to assess stunting, wasting and underweight. Height was measured in cm with the help of scale fixed on the wall of a room of school. Height was taken in nearest 0.1 cm. Weight was measured in kg and nearest 0.1kg was recorded. Age of students was identified through school record that was recorded in months completed.

2.5 Data quality management

To assure height and weight of student

scale made on wall and weighing machine were checked properly. Researcher himself with coordination of class teacher took measure of height and weight of students. Height and weight of each students were taken twice to assure correct measure. Height and weight of students were taken without shoes. Age of students were assured through school record.

2.6 Data collection procedure

After preparing meter scale and weighing machine, measurements were taken in coordination of researcher and class teacher. Data related to age of student were taken from administrative section of school.

2.7 Statistical analysis

Data were entered to statistical package for social science (SPSS) version 20 to analyze it. Percentage, mean, range and standard deviation were used to present data. WHO growth table (WHO, 2006) was used as reference to analyze the data. In the study only age, height and weight of students were collected rather than their socio-economic background. To classify stunting, wasting and underweight based on Z-score 0.1 cm to 0.4 cm height of students was rounded down and 0.5 cm to 0.9 cm height of students was rounded up. Z-score equal to and below-2 SD indicates stunted, wasted and underweight and Z-score below-3

SD indicates severely stunted, severely wasted and severely underweight (WHO, 2008).

2.8 Ethical consideration

Approval of the principal of the school before data collection was assured and no any harm or difficulty was created to students during data collection.

3. Result

In this section, the data related to nutritional status of children according to stunting, wasting and underweight measurement is mentioned to draw result of nutritional status of children.

3.1 General information about students

Table 1 presents that 55.8% boys and 44.2% girls participated in the study. Mean age of students was 49.53 (± 4.97) months that ranged from 36 to 58 months. Mean height of students was 104.88 (± 5.48) cm that ranged between 93 and 114 cm. Similarly, mean weight of students was 16.326 (± 2.244) kg that varied between 11 and 24 kg.

Table 1

General Information of Students

	n (%)	Minimum	Maximum	Mean	Standard Deviation
Boys	24 (55.8)				
Girls	19 (44.2)				
Age		36	58	49.53	4.97
Height		93	114	104.88	5.48
Weight		11	24	16.326	2.244

3.2 Situation of malnutrition of students

Table 2 illustrates that no students were stunted. Percentage of wasted and underweight among all students was only two (4.7%) and among girl it was only two (10.52%).

Table 2

Situation of Malnutrition of Students

	Frequency			Percent		
	Boys	**Girls**	**Total**	**Boys**	**Girls**	**Total**
Stunting						
Stunted	-	-	-	-	-	-
Severely Stunted	-	-	-	-	-	-
No Stunted	24	19	43	55.8	44.2	100
Wasting						
Wasted	-	2	2	-	10.52	4.7
Severely Wasted	-	-	-	-	-	-
No Wasted	24	17	41	55.8	39.53	95.3
Underweight						
Underweight	-	2	2	-	10.52	4.7
Severely Underweight	-	-	-	-	-	-
No Underweight	24	17	41	55.8	39.53	95.3

Note. (-) Students do not fall under respective level of malnutrition

4. Discussion

This study has tried to assess the situation of malnutrition status of under five years children following the anthropometric indices and WHO's reference growth chart. Deviation of the anthropometric indices from the standard value is regarded as evidence of malnutrition. More than half of the students were boys. Age of students varied between 36 and 58 months having mean age 49.53 months. Mean height of students was 104.88 cm that ranged between 93 and 114 cm. Weight variation of students was 11 to 24 kg having mean weight 16.326 kg. Overall, no students were stunted. No boys were stunted, wasted, or underweight whereas a few girls were wasted and underweight.

This study found that no students were stunted that is not supported by other studies. Other studies have shown higher prevalence of stunting among children. NDHS 2016 reported that half (48%) of the children were stunted(Ministry of Health et al., 2017).Similarly, Sarki et al. (2016), Chataut & Khanal (2016), and Tiwari et al. (2014) have found respectively 26%, 39.9% and 56.5% stunted children among under five years and in Ethiopia, it was 41.2% (Endris et al., 2017). Review studies conducted by Abdulahi et al. (2017) and Akombi et al. (2019) show respectively14.6 to 67.8% and 5 to 56 % variation in prevalence of stunting in individual studies. Further, they show pooled prevalence was respectively 42% and 29%. Kanan (2020)has found that variation in stunting and severe stunting among under-five Sudanese children respectively was 20.3 to 51.0% and 12.9 to 25.2%.Dhoubhadel et al. (2020) has shown that stunting increased from 26.7 to 31.9%.

This study found that only two girls (4.7%

among all and 10.57% among girls) were wasted that differ from and not supported by other studies.The prevalence of wasting were 7% (Chataut&Khanal, 2016), 10% (Ministry of Health et al., 2017) and 9.7% (Endris et al., 2017) that is higher than findings of this study. Prevalence of wasting ranged from 4.5% to 42.0% (Abdulahi et al., 2017), 0.3% to 40.4% (Akombi et al., 2019) and 3.3 to 21.1% (Kanan, 2020) in individual studies and its pooled prevalence were 15.0 % (Abdulahi et al., 2017) and 7.5% (Akombi et al., 2019). Dhoubhadel et al. (2020) has shown that wasting has decreased from 4.2 to 2.5%.

This study evidences that one in twenty students was underweight while among girls one in ten girls was underweight. NDHS report 2016 shows that 5% children were severely underweight and 27% were moderately underweight (Ministry of Health et al., 2017) that highly deviates from the findings of this study. Chataut & Khanal (2016), and Endris et al. (2017) found respectively 18.9% and 27% prevalence of underweight that is higher than the findings of this study. Sarki et al. (2016) has also found higher prevalence (10%) of underweight than prevalence of underweight of this study. Dhoubhadel et al. (2020) has shown that prevalence of underweight of children who were residing in shelter during earthquake 2072 increased from 10.9% in 2015 to 14.0% in 2017. Prevalence of underweight

ranged from 12.0% to 47.2% (Abdulahi et al., 2017) and 0.4% to 24 % (Akombi et al., 2019) in individual studies that had pooled prevalence 33% (Abdulahi et al., 2017) and 15.5% (Akombi et al., 2019). A review study among the under-five Sudanese children shows that prevalence of underweight and severe underweight were respectively 24.4 to 35.0% and 6.6 to 48.0% (Kanan, 2020).

Findings of this study show low prevalence of malnutrition among students compared to findings of other studies. However, the same students having age, height and weight respectively 44 months, 93 cm and 11 kg was both wasted and underweight. Similarly, a student having age, height and weight respectively 52 months, 106 cm and 14 kg was wasted and a student having age, height and weight respectively 53 months, 104 cm and 14 kg was underweight. Actually, only three students were in state of malnutrition. This might be the iffin management conducted by school. Students from class one have option to bring mid-day meal prepared in their home but students below class one have compulsory to take mid-day meal available at canteen. For students below class one, there is schedule for every day mid-day meal. There is no written routine but they practice like jaulo, fry potato chips, microni, milk and bread, egg, and samosa and malpuwa respectively Sunday, Monday, Tuesday, Wednesday, Thursday and Friday. However, milk and

bread is replaced by fruits in summer season. The school has fixed 20 rupees for mid-day meal available at canteen and totally prohibited of taking mid-day meal from outside (Personal communication with the principal of school and personal observation during study) that help to reduce prevalence of malnutrition among students.

Other possibilities for low prevalence of malnutrition might be due to age group, sexand type of school of participants; high economic and educational status of parents of participants. In this study, economic and educational status of parents of participants should be assumed high because this study was conducted at Kathmandu district that has the highest human development index (Sharma et al., 2014). Many studies (Ahmed Hussain et al., 2020; Tiwari et al., 2014; Qsei et al., 2010; Budhathoki et al., 2020; Endris et al., 2017; Fariha Binte Hossain et al., 2020) show that malnutrition is lower among the children of family having better economic status than family having lower economic status. Similarly, FarihaBinte Hossain et al. (2020) and Endris et al., (2017) found that prevalence of malnutrition is lower among children of family with higher educational status compared to family with lower educational status. Ghimire et al., 2020; Bloss et al., 2004 and Endris et al., 2017 found that malnutrition was lower among upper age group of

children than lower age group of children within less than five years of children. In addition, Ahmed Hussain et al. (2020) found that malnutrition is lower among boys than girls are and Ashok et al. (2014) showed that malnutrition among children of institutional schools is lower than malnutrition among children of community schools.

This study was not free from selection bias of sample, and due to small sample size, it could not assure generalization. However, it provides new insights about the situation of malnutrition and encourages for comprehensive study about it at school level. It did not include students of community school and children who are outside of school. Other aspects like socio-economic background related data of students were not collected to see association with malnutrition. It did not include over nutritional part of malnutrition and unable to assess malnutrition of students as whole.

5. Conclusion

Itis concluded that the status of malnutrition among less than five years of students of institutional school isvery low. As nutritional status depends upon dietary practices parents are suggested to provide nutritional diet to their children and they should be counseled to take care of their daughters' nutritional status.

6. Acknowledgement

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Knowledge and Practice of Menstruation Period Among the Girls at J.S. Murarka Multiple Campus, Lahan (Siraha)

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Abstract

The article highlights knowledge and practice regarding the menstruation period of those girls who are studying at the bachelor level at J.S. Murarka Multiple Campus, Lahan (Siraha). This study is based on primary data. A questionnaire had been prepared to gather information from the students. Altogether 120 girls were purposively selected as the respondents. The result shows that half of the girls (50%) had heard about the menstruation from their mothers and only 4.1 % had received information from books or health-related materials. Likewise, majority- 41.6 % of the students faced lower abdominal pain and discomfort during their first menstruation due to lack of knowledge about menstruation. Among the respondents 12.5 % were only found to be using sanitary pads during their periods. And after use, pads/ materials disposal is challenging in our culture. In our tradition, they still do not burn used pads.

Keywords: *Knowledge and practice, waste bin, menstruation period, sanitary pad*

Introduction

In Nepal, only a few girls have adequate knowledge of menstruation and proper practice in their menstruation period. Lack of adequate and consistent knowledge of Sexual and Reproductive Health (SRH) and the biological process of menstruation such as this is a signal of maturation and ability to take part in sexual and reproduction. It is reported that only 28 percent of public schools in Nepal have separate facilities of the toilet for girls. Many girls experience fear, confusion, and concern at the time of menarche. In Nepal, 83% of the menstruating girls use cloth while only 15% use pads. Mothers are the immediate source for information, and they provide support during menstruation, followed by sisters and female friends. Furthermore, the importance of menstrual hygiene management has been in the context of Nepal, where the average age of

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menarche is 13.5 years old, menstruation is generally considered unclean and shameful (PSI/Nepal, 2017 p.1).

Sapkota D. et al. (2013, p. 122) found that 36.1% correctly reported about menstruation where the most common informant was the mother (39.3%). Dysmenorrheal was the commonest problem faced during menstruation (78.7%) followed by back pain and excessive blood loss. More than half of respondents (54.1%) used sanitary pads and the frequency of changing pads twice a day was the highest (50.8%). The initial reaction was of fear/apprehension at menarche by 36.1% of girls whereas 44.3% perceived it as an expectant process. Girls still faced different types of restrictions like not being allowed to visit holy places. Traditional beliefs regarding menstruation persist and menstrual hygiene among adolescents was found to be unsatisfactory. It highlights the need for targeted interventions to raise awareness and provision of a family health education package to all girls. Menstrual hygiene is an issue that needs to be addressed at all levels.

Menstruation is a natural phenomenon and is a sign of puberty; menarche and menopause are naturally gifted. It occurs naturally and challenges most girls because of their psychological and physiological changes. This state is a transitional phase in life from childhood to adulthood. During this time, girls' body has acute changes; physical changes such as increase body size ability to reproduce as well as psychological changes and sensitive to body image. Some girls miss school during the menstruation period and eventually drop out because of menstruation-related issues such as the unavailability of the sanitary pad, social taboos related to menstruation. Before the onset of menstruation, girls have experienced tension, depression, tiredness, and irritability pre-menstrual symptom which affects girls to other students and teachers too.

Today's girl student involves more time in different educational activities although they stay home due to menstrual cramping, bleeding as well as menstrual signs and symptoms, hormonal changes affect on health (irritation, depression, discomfort), insufficient hygiene and sanitation materials, inadequate water and sanitation facilities in the school, unsupportive environments, even they hesitate to participate school activities for fear menstruation accidents. They have afraid of seeing other bloodstains on her cloth.

Statement of the problem

This is an important part of Reproductive Health (R.H) that is left behind and without the proper management of their menstruation period eventually, they

have chances to suffer many STIs. During the period of menstruation, lack of proper knowledge of its management makes them uncomfortable and unhygienic ways, especially using dirty clothes. Most of them use re-useable cloths during menses. The use of sanitary pads among adolescent girls in urban areas is higher in comparison to adolescent girls in rural areas. Due to the high cost of readymade sanitary pads and the availability of low economic status rural villagers, adolescent girls can't use them. Adolescent girls, as well as women in rural villagers, dry their reusable pads outside the home, but private place because if seen by other boys/men, they may tease them. The majority of adolescent girls burry or throw the used pads with other waste, while very few of them burn the used pads. In both rural and urban schools, proper disposal of pads and cloths poses a significant challenge (PSI, 2017).

(USAID, 2016) reported on girls are not attending school because of periods. Some girls have experienced during the period physical pain; discomfort and fatigue; heavy bleeding; leaking through clothing; fear that everyone will know or find out that they are menstruating; shame and embarrassment; not feeling free to be with friends or classmates; not feeling comfortable around males; and washroom facilities not being available.

Women and adolescent girls use clean material to absorb or collect menstrual blood, and this material can be changed in privacy as often as necessary for the duration of menstruation. MHM also includes using soap and water for washing the body as required and having access to facilities to dispose of used menstrual management materials (WHO-UNICEF). According to (DHS 2016) during menstruation, a majority of girls (89%) also experienced some form of restrictions or exclusion. Only 28% of public schools in Nepal have separate facilities with toilets for girls. In Nepal, 83% of the menstruating girls use cloth while only 15% use pads.

In public schools there is no adequate water facility in the toilet, it is so difficult. Also, there is no arrangement of disposing of the cloth. Sometimes the used cloth has to be put in her bag and dispose of it after school/campus time. Without proper hygiene and sanitation facilities, separate rooms for bathing, cleaning, and washing in schools/campus, the girls with this period body becomes offensive or bad odor environment becomes an inconvenience.

Menstruation is a natural phenomenon and is a sign of puberty; menarche and menopause are naturally gifted. It occurs naturally and challenges most girls because of their psychological and physiological changes. This state is a

transitional phase in life from childhood to adulthood. During this time, girls' body has acute changes; physical changes such as increase body size ability to reproduce as well as psychological changes and sensitive to body image. Some girls miss school during the menstruation period and eventually drop out because of menstruation-related issues such as the unavailability of the sanitary pad, social taboos related to menstruation. Before the onset of menstruation, girls have experienced tension, depression, tiredness, and irritability pre-menstrual symptom which affects girls to other students and teachers too.

Today's girl student involves more time in different educational activities although they stay home due to menstrual cramping, bleeding as well as menstrual signs and symptoms, hormonal changes affect on health (irritation, depression, discomfort), insufficient hygiene and sanitation materials, inadequate water and sanitation facilities in the school, unsupportive environments, even they hesitate to participate school activities for fear menstruation accidents. They have afraid of seeing other bloodstains on her cloth.

Objectives

- To study the culture of practice of students' menstruation period
- To find out problems faced by students during the menstruation period
- To assess materials used during menstruation period and its disposal.

Significance of the study

- The study has explored that school where lack of proper management, washing, cleaning, water supply, separate toilet for girls, and changing room for privacy.
- It motivates the teacher to focus to teach reproductive health.
- This study guides to plan and policies of girls' friendly school.
- This study is useful to find out knowledge and exiting practice of menstruation.
- This study supports to find out problem faced during the period.
- The study uses part of the literature for further research in a similar study.
- The study result is helpful to lecturers and staffs to manage present situation.
- The study is useful for the NGOs, INGOs, MOHP, DHO/PHO, DEO, and DDC, to implement a program in this area.

Literature review

Pandey (2014) had studied entitled "Challenges Experienced by Adolescent

Girls while Menstruation in Kathmandu, Valley" showed that the menstrual period of a girl is more vulnerable to infection. They mostly use clothes during the period and practices in restrictions to go to any holy places. Most of them are not us sanitary pad because they cannot afford always. They usually use old cloth material when staying at home and use a sanitary pad only when they need to go out. Modern safety pads are frequently used in school times. They re-use a single cloth for two to three menstrual cycles; it is okay during winter, however summer it is very uncomfortable. It rubs against the skin and becomes smelly. They added that the number of times of use also depends on the nature of blood strain on the cloth-if the stain is strong they don't use it again. It was identified that in the time of menstruation girls are prone to diseases like hemorrhage, anemia, UTI, STI, overflow of blood, with symptoms like weakness, headache, back pain, backbone pain, leg pain, lethargy. In public schools, there is no adequate water facility in the toilet it is so difficult. Also, there is no arrangement of disposing of the cloth. Sometimes the used cloth has to be put in her bag and dispose of after school time.

Sapkota (2013) had conducted a study entitled' Knowledge and practices regarding menstruation among school-going adolescents of rural Nepal' highlighted menstruation is a sign of

a girl's childhood to adulthood and sexual maturation takes place. Menstrual hygiene and management is an issue that is insufficiently acknowledged and has not received adequate attention. This study was done to assess the knowledge and practices regarding menstruation among school-going adolescents. A descriptive study was done among sixty-one female adolescents of Shree Himali Secondary School, Panchkanya, Sunsari, where data were collected from the adolescents meeting the inclusion criteria. It was found that 36.1% correctly reported about menstruation where the most common informant was the mother (39.3%). Dysmenorrheal was the commonest problem faced during menstruation (78.7%) followed by back pain and excessive blood loss. More than half of respondents (54.1%) used sanitary pads and the frequency of changing pads twice a day was the highest (50.8%). The initial reaction was of fear/apprehension at menarche by 36.1% of girls whereas 44.3% perceived it as an expectant process. Girls still faced different types of restrictions like not being allowed to visit holy places, not being allowed to cook and touch male family members, etc. Traditional beliefs regarding menstruation persist and menstrual hygiene among adolescents was found to be unsatisfactory.

PSI/Nepal (2017) had carried out a study "Menstrual health and hygiene in Nepal"

and is elaborated that menstruation is signals of a girl's entry into womanhood, sexual activity, reproduction ability of adolescents, and in this period girls learn as well as takes experiences their body changes. Girls have not enough knowledge yet to knowledge for management of this period so that they do the unhealthy practice. In Nepal, only a few girls have adequate knowledge about menstruation and its good management. Also, girls have sexual and reproductive health problems. They are faced many challenges, gender disparity, and other discriminatory social norms in society. According to (DHS 2016) child marriage is legally prohibited but 17% of girls aged 15-19 become married. During menstruation, a majority of girls (89%) also experienced some form of restrictions or exclusion. There exists limited research on menstrual health and hygiene in Nepal, even though studies confirm that adolescent girls lack consistent access to education on sexual and reproductive health and menstrual health. With inadequate education, they lack even a basic understanding of the biological process of menstruation, such as knowing that the menstrual blood flows from the vagina. Poor sanitation facilities and unavailability of the water supply has exacerbated poor menstrual hygiene among adolescent girls. Only 28% of public schools in Nepal have separate facilities with toilets for girls.

In Nepal, 83% of the menstruating girls use cloth while only 15% use pads. Mothers are the immediate source for information, and they provide support during menstruation, followed by sisters and female friends.

Ravi (2018) had mentioned in this studied 'Social impact of menstrual problems among adolescent school girls in rural Tamil Nadu' reveals that menstruation is a period of physiological social transition between childhood and adulthood and characterized by the onset of menstruation in girls. This study was carried out to assess the psychosocial impact of menstrual problems among school-going adolescent girls. Data regarding background characteristics and psychosocial impact of menstrual problems were collected. Data were analyzed using SPSS ver. 15 software; the mean age of the participants was 14.7 years. In this study, 87.7% of the girls had at least one menstrual problem. Among these, 78.5% could not attend school during menstruation. It was observed that dysmenorrheal and menorrhagia was at increased risk of absenting the girls from school.

Geeta (2016) had briefed in quality research entitled 'Menstrual Hygiene Management among Schoolgirls in Eastern Province of Zambia' that defines Menstrual Hygiene Management (MHM) girls use a clean material to

absorb or collect menstrual blood, and this material can be changed in privacy as often as necessary for the duration of menstruation. It includes using soap and water for washing the body as required and having access to facilities to dispose of used menstrual management materials (WHO-UNICEF). Some girls are not attending school during their periods because of physical pain because of discomfort and fatigue, heavy bleeding, blood leaking through clothing, and fear that anyone will know they are menstruating.

Study design and methodology

This is based on a descriptive and qualitative type of research design. The sampling population is all bachelor level girls who are studying at J.S. Murarka Multiple Campus, Lahan where 120 students were selected as respondents by the purposive method.

The question was in the Nepali language structured and questionnaires were mentioned both close and open so that information from the respondents could be taken correctly. Source of information regarding menstruation, problem faced by students during menstruation period, assess things to use during menstruation period, and disposal of used cloths/pad after a period were included.

Data collection procedure and interpretation

J.S. Murarka Multiple Campus was chosen for the study. The girls of bachelor level having age above 19 years who had already experienced menarche were included in this study. The data was collected from the respondents by the help of interview. Data was collected only from those who were interested and available at the time of data collection. After completing the data collection, the data was interpreted using a simple percentage.

Figure No. 1
Source of Information
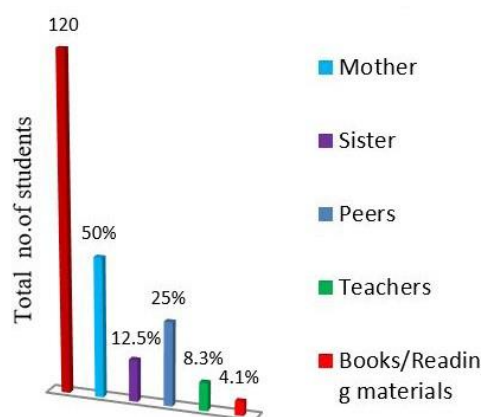
Data source: Primary JSMMC Survey 2018

Among the respondents of the study, from Figure 1 it has found that almost half of girls 50% heard about the menstruation period from their mothers. Therefore, mothers were the first source of information. Likewise, 12.5% respondents heard from sisters. The majority of respondents 25% were shared their menarche with their peers while only

8.3% respondents had got information from their teachers or elderly people. It is noted that only 4.1 % respondents claimed that they received information from books or health-related materials.

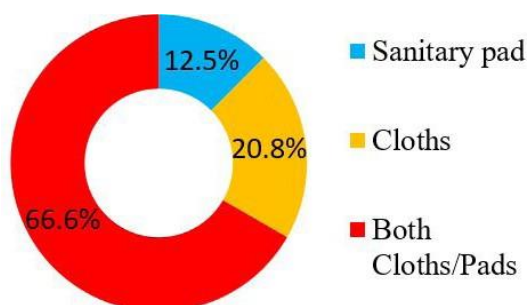**Figure   No.   2**

Problem during menstustion
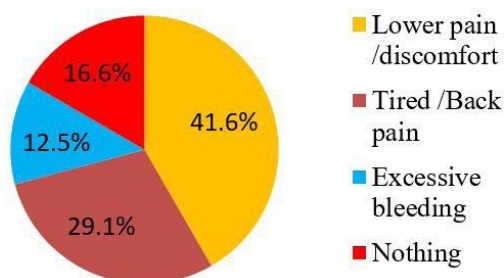
Source: Primary data, survey, JSMMC, 2018

The above data shows that majority of the girls during the period 41.6% have faced lower pain and discomfort. Likewise 29.1 % respondents have experienced tired and back pain. Among them12.5% respondents have excessive bleeding, and the rest of the respondents 16.6% have not any problem.

Figure No. 3

The thing to use during menstruation

Source: Primary data, survey, JSMMC, 2018

The above data shows that only some 12.5 students told that they usually used the sanitary pad whereas 20.8% used clothes and a majority 66.6% used both pad and cloths as far as possible.

Figure   No.   4

Dispose of used cloth/pad
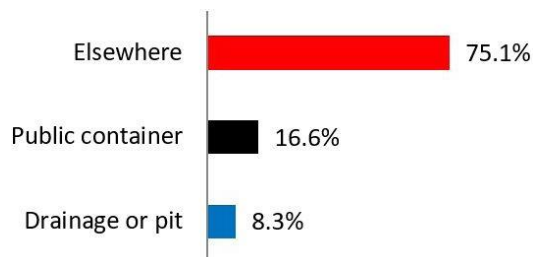
Source: Primary data, survey, JSMMC, 2018

After the use of pads/materials during the period proper disposal is a challenging in our culture so far. They told that they do not burn used pad in our culture and they 8.3 % kept in drainage or pit. Likewise, 16.6 % kept it in a public container whereas the majority 75.1% said that they throw it elsewhere.

Result and discussions

Categories	Student Responses	Total N=120	%
Source of information	Mother	60	50
	Sister	15	12.5
	Peers	30	25
	Teachers	10	8.3
	Books/Reading materials	5	4.1
Problem during menstruation	Lower pain /discomfort	50	41.6
	Tired /Back pain	35	29.1
	Excessive bleeding	15	12.5
	Nothing	20	16.6
The thing to use during menstruation	Sanitary pad	15	12.5
	Cloths	25	20.8
	Both Cloths/Pads	80	66.6
Dispose of used cloth	Drainage or pit	10	8.3
	Public container	20	16.6
	Elsewhere	90	75.1

As a result, many girls lack appropriate and sufficient information regarding menstruation hygiene only a few (4.1%) get information from the teacher and reading books. Therefore, they have faced many reproductive health problems. The majority (41.6%) of students have experienced lower abdominal and back pain (Dysmenorrheal) and excessive bleeding. Those girls are residing in a rural community and the poor cannot buy a sanitary pad. After using pad its proper disposal is a burning problem in our society due to cultural taboos.

Conclusion and recommendations

At the end of this research's findings the following recommendations are given below:

Half (50%) of the students are getting information about the menstrual period from the mother, sister, and female friends although reproductive health (RH) has been included in the curriculum. For this, lecturers should highlight this matter as well as more clear to the students in the class room.

As we all have already known that period is the sign of maturity of girls, generally menarche started from age of 16 and menopause at the age of 45 years in the female. During this period they have faced problems like lower abdominal pain, irritation, itching groin, infection of interior part and discomfort. Therefore, campus should be providing minimum requirement like a changing room with soap and water for cleaning and washing. Furthermore, emotional support as well as minimum requirement only possible if nursing staff can recruit.

The majority (66.6 %) students use to be cloth and sometimes use sanitary pad because it is not easily found anywhere and the cost of the sanitary is high as general people cannot easily afford to buy frequently. We all have known at JSMMC has more than six hundred girls and they are being faced with problems day by day. Therefore, it is challenging although, it is recommended to need separate budget to fulfill minimum requirement.

Regarding proper disposal of used pads are challenging in our culture. Majority (75.1%) of students throw used pads and clothes improperly due to the lack of container and proper place of disposal. For this, it is recommended to keep a waste disposal container in the toilet for their privacy.

Abbreviations

DHS   : Demography Health Survey

JKMC   : Journal of Kathmandu Medical College

PSI   : Population Services International

STI   : Sexually Transmitted Disease

SRH   : Sexual Reproductive Health

Acknowledgement

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