

Integration of TPACK Model in Professional Development of English Teachers in India and Nepal

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Abstract

The aim of this article is to reflect upon the TPACK model and its dimensions for the professional development of teachers teaching English at the secondary schools in India and Nepal. The focus is made to study the developmental framework of the teachers with the help of knowledge diversity for teaching learning processes. The survey was conducted on secondary school of India and Nepal and a detail comparison has been done to study the integration of TPACK model in professional development of English teachers. The sample comprised of 100 secondary school teachers from both the countries. The study discusses the etymological as well as the paradigm shift of the teacher education from global to local perspectives. More specifically, the study revealed the technological, pedagogical and content knowledge and their integration for professional development of teachers as the essentiality of the 21st century skills. The implication of the study is to suggest the need of technological integration for the advancement of the professional enhancement of the teachers and for better learning outcomes to introduce the current trends in the classroom.

Keywords: Technological knowledge, pedagogical knowledge, content knowledge, paradigm shift, current trends

Introduction

The pedagogical shift is associated to the adaptation of the immediate or recent field of knowledge with innovative and reformative concept. The knowledge has been considered the transformative phenomena by which, the societal, cultural, and psychological predictions can be made at the ground level in teaching learning process. The technological integration has occurred in the field of teaching and learning discourses as it is the sharing of knowledge and practice acquisition Rodríguez Moreno et al., (2019). Herring et al. (2016) argued that the technological integration foster development of content specific aspects and classroom environment from which the classroom properties has been benefitted. On the other hand, the pedagogical movement in teacher education comprises the major transformative perspectives in bringing changes in the attitude and behaviors in the classroom and community setting.

TPACK: An Innovative Model around the globe

With growing use of integrating skills, the TPACK model seems practical and innovative to understand the need of the community in the 21st century. Mishra and Koehler (2009) in his study proposed the concept of TPACK model to mediate the need of the contemporary society and learners. The study included the technological, pedagogical, and content knowledge focusing to the teacher actions with the usefulness of the foundational knowledge to integrate professional learning opportunity. Figg and Jaipal (2012) in their study stated that the TPACK model has been a contextual model of pedagogical practices since it encourages technology-enhanced activities followed by technical skills in practice. Mishra and Koehler (2006) identified three key areas i.e. technological, pedagogical and content knowledge and presented in the TPACK framework. Furthermore, Koehler & Mishra, (2009) and Koehler et al., (2013) explained the framework in four different aspects such as technological content knowledge, pedagogical content knowledge, technological pedagogical knowledge and technological pedagogical content knowledge. Following is the diagram of TPACK model:

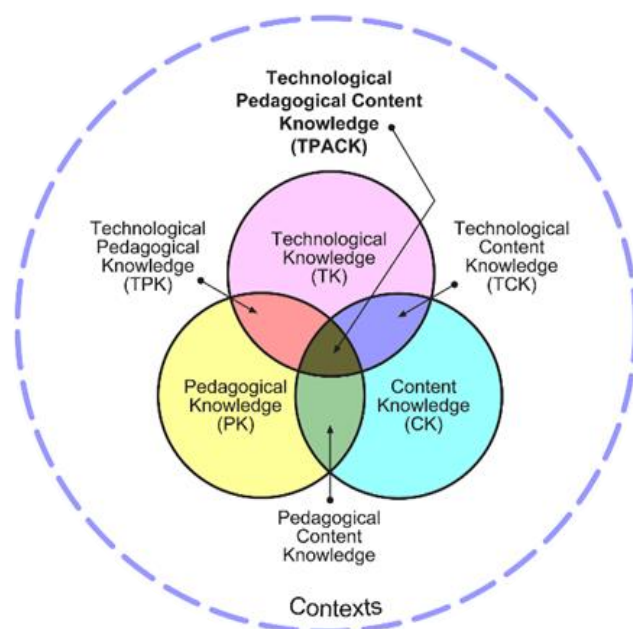


Figure 1. Source: <https://educationaltechnology.net/wp-content/uploads/2018/05/tpack-model.jpg>

Rationale of the Study:

The study can be the suggestive landmark to the policy makers as it will explore and suggest the situation of teacher development and use of the various kinds of knowledge in the context of India and Nepal. The study also understand the situation of integrating and the support of TPACK model which will be explored in order to identify various dimensions such as effects of TPACK model in professional growth, challenges associated to implement in the classroom and Teachers attitudes in the use of the TPACK model while teaching English in the secondary level. **Objectives of the study:**

Following are the objectives of the research paper:

- a) To identify and compare the present situation of TPACK model.
- b) To study how TPACK model is supporting to the professional development of English Teachers in the secondary level in India and Nepal.

Review of related Literature

With the reference to professional development and practices for teachers, there are several perspectives to integrate various dimensions such as content, pedagogical and technological knowledge in teacher education. Teachers' technological, content and pedagogical knowledge is one of the required baselines for effective teaching in 21st century. Similarly, in the 21st century teachers are expected to maintain diversified skills and domains for effective learning and learner engagement. It is reviewed that the teachers are responsible for modifying and bringing changes in their classroom teaching. The main concern for the study is to raise the issue of integrating TPACK model in English language teaching (ELT) classrooms in the context of India and Nepal.

Shulman (1987) introduces the dimensions of knowledge focusing to the sources, process and reasoning of content and pedagogical perspective of knowledge to the implication of educational reformation. Archambault & Barnett, (2010) examined that the use of technological pedagogical content knowledge (TPACK) has transformed the way of integrating educational technology in teacher-education programmes focusing their educational technology courses to develop preservice teachers' TPACK.

Rienties et al., (2013) and Koh et al. (2014) suggested that teacher with the basic level of technological pedagogical content knowledge were found more confident for technology integration in their classes. Lehiste (2015) stated that students' learning

depends on how effectively teachers integrate their technological and content knowledge for classroom teaching. Furthermore, this study found that TPACK training to the in-service teachers significantly develop their technological knowledge improving ICT integration in their classrooms. Owusu et al. (2015) revealed that the essentials of the teacher's technological pedagogical content knowledge (TPACK) for the operative use of technology in the classroom.

Chai & Koh (2017) viewed that the TPACK framework has become one of the fundamental requirements for teacher education and teacher training. Valtonen et al. (2017) focused that all the teachers need to develop various pedagogical and ICT skills to support students for developing twenty-first century skills. The incorporation of TPACK framework as one of the flexible models in teacher education develops the teachers' willingness toward the twenty-first century skills and pre-service teachers' TPACK skills.

Rădulescu¹ & Stan (2018) in their research, predicted that learning skills for second language through virtual platforms are more effective and have long lasting impact on children. Blended learning should be used as an effective approach to teach foreign language. They also discussed different technologies used for language acquisition and assessment of second language. Technology can be implemented to make classes more interactive and fulfil the needs and interest of students, which can further leads to improve academic results.

In addition, Elas et al. (2019) stated that there was the need of technological integration in the English language instruction to facilitate proper teaching in digital learning environment for which the concept of technological, pedagogical and content (TPACK) helps to associate technology, pedagogy and content knowledge of the English teachers and teacher educators.

Castéra et al., (2020) in their study reported the need of continuous professional training and skill development programmes to the teacher educators by the universities to reduce their professional skill differences. The teacher training promoting technological, content and pedagogical knowledge was not straightforward process although the most of the teachers were interested to upgrade their TPACK skills. Setiawan and Phillipson (2020) reported correlation of teachers' technological pedagogical content knowledge (TPACK) with the usage of social media connecting with the pedagogy and the content suggested in the curriculum.

Tom & Kumar (2021) in their study reviewed that advanced, scientific and online techniques make teaching – learning more effective, uninterrupted, affordable, user friendly and efficient. It is the need of an hour for the contemporary era, which is a new normal.

Methodology

This study aims to find out the situation of TPACK model in India and Nepal. The study followed the survey design of quantitative approach. The survey was done with randomly selected 100 teachers from both countries India and Nepal. The participants were secondary level teachers and are teaching English in their respective schools. They responded the questionnaire in google forms using internet. The collected responses were tabulated, analyzed and interpreted using simple statistical tools such as percentage and average. The result is discussed with the help of the data obtained from the teachers who have been teaching English for years and made some recommendations for policy and practice-based transformations.

Analysis of TPACK Model:

The main purpose of the study was to explore understanding to the TPACK model for professional development of English teachers from India and Nepal. While analyzing the situation of India and Nepal, teachers' understanding and perception towards technological, pedagogical and content knowledge was calculated statistically. The result is discussed based on the data and the comparison was done for the understanding of TPACK model by the English teachers. The result also includes the general understanding of the technological integration in language teaching perspectives across the countries. The following section discusses the result obtained from the survey data.

Technological Knowledge (TK)

Technological Knowledge refers to the teachers' knowledge and efficiency to use technology and its tools in the classroom while teaching. It also makes teaching –learning process smooth by preparing the students ready to learn and show

collaborative and active participation of the learners. To analyze, the survey was done through Google form from the teachers of India and Nepal. Based on the parameters developed in the survey the situation of technological knowledge of the teachers in India and Nepal has been presented here below in the table.

Table 1. *Technological Knowledge*

Parameters Sr. No.	Pedagogical knowledge	India (Percentage)	Nepal (Percentage)
1	I feel comfortable using computers.	58	56
2	I use online platforms for maintaining records of the students.	47	28
3	I use smart boards / multimedia projector in the classroom.	58	38
4	Technology is a boon for special children.	65	52
5	I use Zoom, Google meet, Microsoft teams, Blackboard for teaching.	82	26
6	I create a whatsapp/messenger group to provide / collect feedback.	61	32
7	I use different search engines to explore the resources to learners	62	36
8	I use different digital tools to make classroom teaching interactive.	66	44
9	I read ebooks, talk with experts on the internet and social media.	67	12
10	I have knowledge about different technologies.	72	32

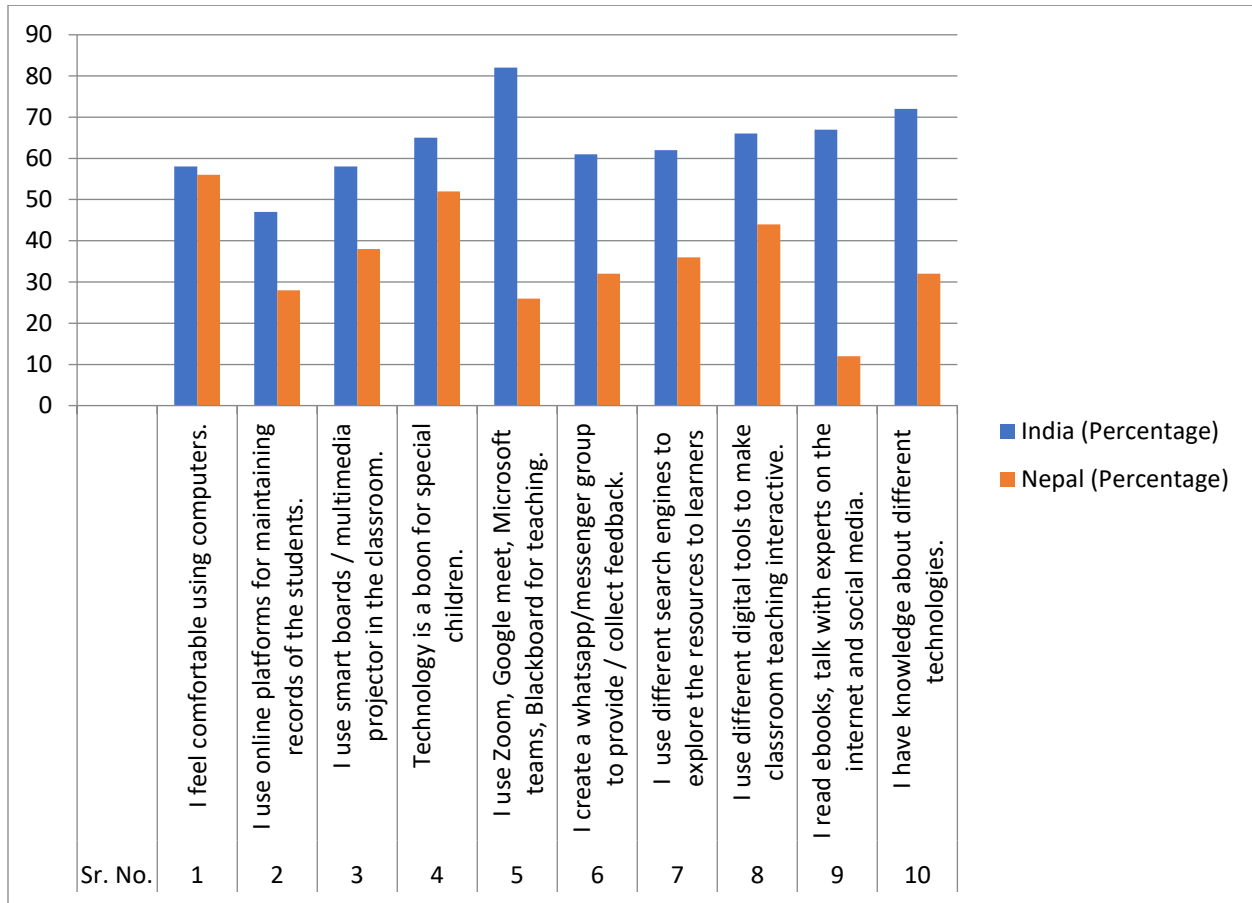


Figure 2. Comparison Graph of Technological Knowledge of India And Nepal

Statistical Analysis of Technological Knowledge

As per the Table 1, it has been found that in India, the average number of teachers have the technological consciousness. The data presented that 58% of Indian teachers feel comfortable to the use of computers, 47% of teachers use online platforms to maintain records, 58% of teachers use smartboard or multimedia projectors. In the same line 65% of the teachers believe technology as a boon for special children. The interesting fact the study revealed that 66% of the the teachers use different digital tools in the classroom, however only 62% of the teachers use search engines to explore the classroom resources and materials. Furthermore, 72% of the teachers have knowledge about different technologies which can assist teaching learning process in the classroom and the similar number of teachers talk with the experts , consult social media and read e-books.

The data shows that Indian teachers have good awareness in the use of technologies for the professional development, however, they have not been seen more habitual in the use of the technologies as the inconsistent representation of the indicators reveal the situation.

Based on the indicators developed in the survey the situation of technological knowledge of the teachers in Nepal has been discussed. Table 1 shows that the average number of Nepal teachers have the technological consciousness, as the data presented that 56% of the teachers feel comfortable to the use of computers, 28% of teachers use online platforms to maintain records. The use of smartboard and projector was found lesser as only 38% teachers use smartboard or multimedia projectors. In the same line 52% of the teachers believe technology as a boon for special children. The interesting fact the study revealed that the less number of teachers (12%) read ebooks, talk with experts on internet and social media, 44% of the the teachers use different digital tools in the classroom, however only 26% of the teachers use zoom, Microsoft teams in the classroom . Furthermore, 32% of the teachers have knowledge about different technologies which can assist teaching

learning process in the classroom and the similar number of teacher’s talks with the experts, consult social media and read e-books.

The data shows that the teachers have little or low level of awareness in the use of technologies for the professional development. They have not been seen more habitual in the use of the technologies as the inconsistent representation of the indicators reveals the situation and the lack of internet resources might be responsible for the situation. On the other hand, as per the response of the teacher the curriculum framework and course structure might be the factors to the less use of the technology as they need to complete the course for the examination.

Pedagogical Knowledge (PK)

Pedagogical knowledge refers to the teachers’ knowledge of the practices, processes, and methods to make teaching- learning process more effective. It also includes aims, values, instructional objectives, classroom management, lesson plan, and assessments. To analyze this a survey was made including different parameters. Table 2 describes the analysis of both the countries.

Table 2. Pedagogical Knowledge

Parameters Sr. No.	Pedagogical knowledge	India (Percentage)	Nepal (Percentage)
1	I use the TPACK model while teaching.	68	65
2	I motivate students towards the rational use of technology.	86	85
3	I know online classroom management very well.	58	70
4	I practice English Grammar to the learners through online quizzes / worksheets.	65	75
5	I play YouTube videos for teaching English Literature.	82	90
6	I promote collaborative learning through digital platforms.	61	78
7	I provide online feedback to the learners regularly.	62	58
8	I use technological tools for slow and advanced learners.	66	66
9	I use various online assessment patterns for the learners.	67	66
10	I encourage students to participate in various online Co Curricular activities.	82	79

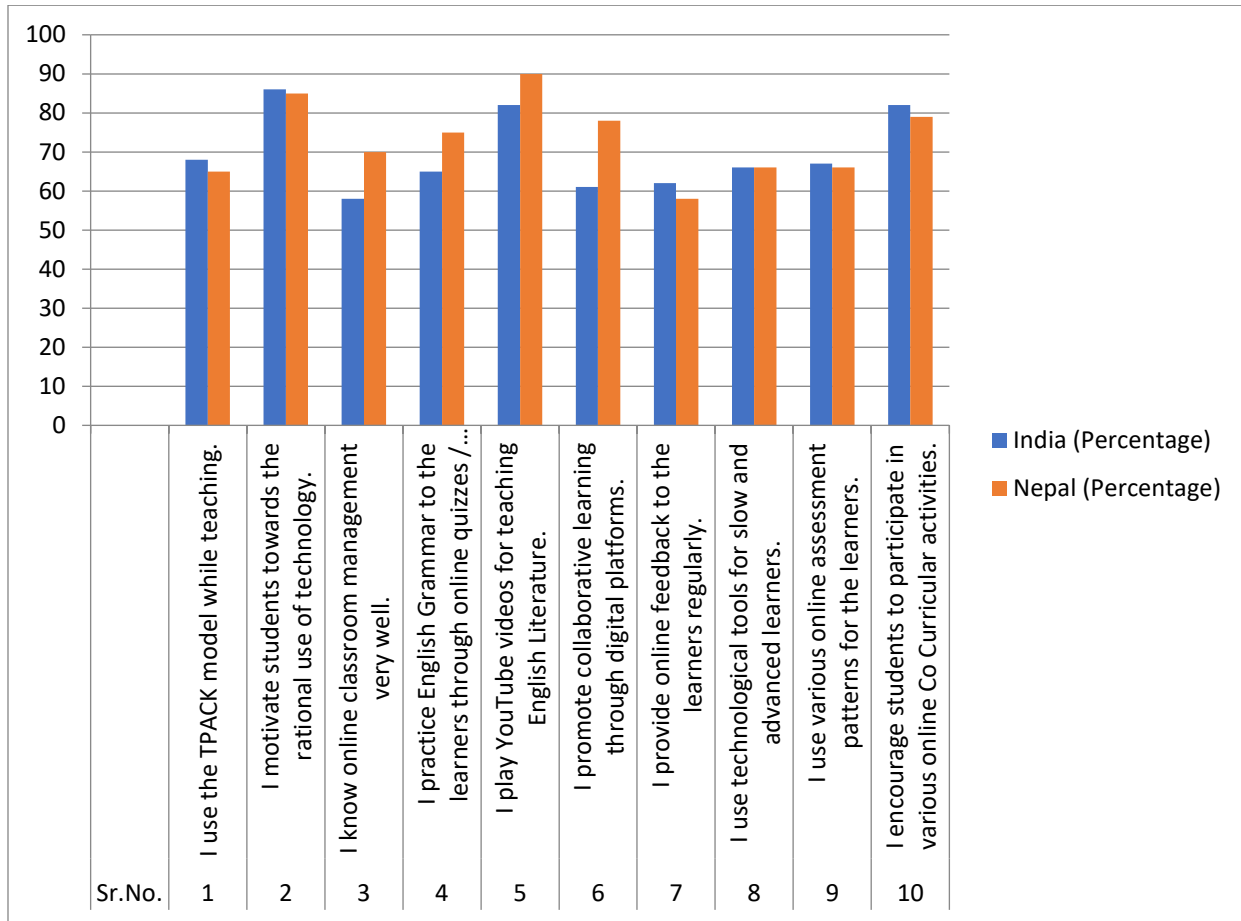


Figure 3. Comparison Graph of Pedagogical Knowledge of India And Nepal

Statistical Analysis of Pedagogical Knowledge

While analyzing the situation of India, the table 2 shows that the average number of teachers using TPACK model as the data presented is 65% and 86% of Indian teachers motivate their students towards the rationale use of technology. 58% of teachers know how to manage their class during online teaching and 65% of teachers get their students practice English grammar through online quizzes and worksheets. 82% teachers are using You tubes videos while teaching English literature and 61% are promoting collaborative learning through digital platforms. 62% teachers provide online feedback to their students and 66% are using technological tools for teaching slow and advanced learners. 67% of educators implement various online techniques for assessing their students and 82% teachers encourage their students to participate in various online Co Curricular activities.

While analyzing the situation of Nepal, the table 2 shows that the average number of teachers using TPACK model as the data presented is 68% and 85% of Nepal teachers motivate their students towards the rationale use of technology. 70% of teachers know how to manage their class during online teaching and 75% of teachers get their students practice English grammar through online quizzes and worksheets. 90% teachers are using you tubes videos while teaching English literature and 78% are promoting collaborative learning through digital platforms. 58% teachers provide online feedback to their students and 66% are using technological tools for teaching slow and advanced learners. 66% of educators implement various online techniques for assessing their students and 79% teachers encourage their students to participate in various online Co Curricular activities.

Content Knowledge (CK)

Content Knowledge refers to the teachers’ knowledge of the subject matter. It includes basic concepts of different topics, theories and organized content of the subject. In the present study, for analyzing the content knowledge of Indian and Nepali teachers in English subject, a survey through Google form was made covering linguistic and literature knowledge.

Table 3. *Content Knowledge*

Parameters Sr. No.	Pedagogical knowledge	India (Percentage)	Nepal (Percentage)
1	Linguistic	80.2	74
2	Literature	62	57.6

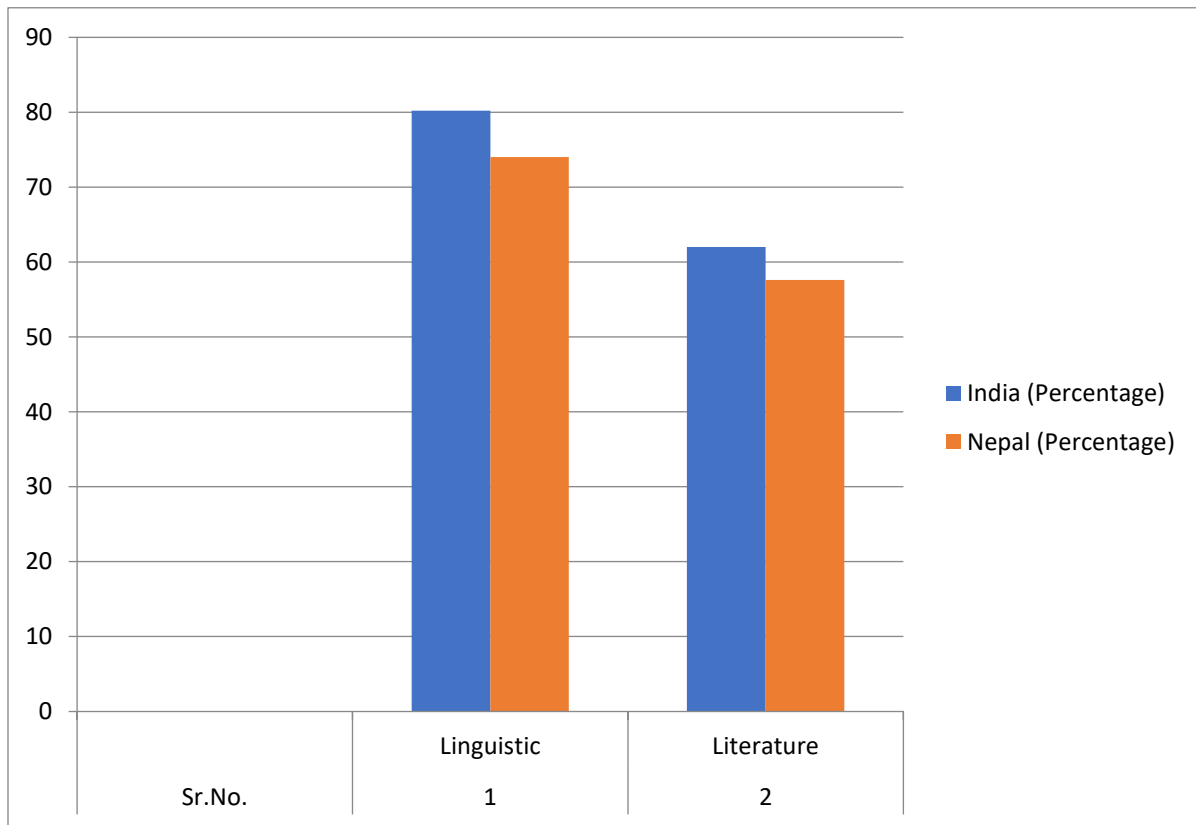


Figure 4. *Comparison Graph of Content Knowledge of India and Nepal*

The content knowledge of the teachers of India and Nepal was surveyed with the criteria of Linguistic and literature knowledge as the curriculum focuses on the grammar, reading, writing, language functions and literary genre.

Statistical Analysis of Content Knowledge

Table 3 presents the knowledge of the teachers in the secondary level. The linguistic knowledge in India was found better than the knowledge of literary genre as per the data 80.2% of the teachers had the accuracy of the information in the linguistic category and 62% of the teachers had the accuracy in the content related to literature.

The result shows that teachers need to update to the current basis of knowledge formation and that could be the basis for professional development as the teacher needs to provide accurate and appropriate information to the students.

Table 3 also presents the knowledge of Nepal teachers in the secondary level. The linguistic knowledge was found better than to the knowledge of literary genre as per the data 74% of the teachers had the accuracy of the information in the linguistic category and 57.6 % of the teachers had the accuracy in the content related to literature.

The result shows that Nepal teacher's needs to update to the current basis of knowledge formation and that could be the basis for professional development as the teacher needs to provide accurate and appropriate information to the students

Conclusion and Discussion

The present study focuses on the situation of TPACK model in the knowledge practices in the context of India and Nepal. The study was carried out with the survey questionnaire and the statistically presented data were organized through the percentage of the achievement. With reference to the purpose and methodology, the result depicts that the teachers who participated in the study process were found conscious of the use of technological, pedagogical and content knowledge. As far to the concern the teacher has more consideration to the knowledge transmission through content knowledge and they found a little reluctant to the use of technological knowledge as if the technology has been considering as a key component in teaching learning process. The study outlines the current situation and way out the possibilities of exploring several dimensions and interventions of TPACK model for teachers' professional development. The major contribution of the study is to locate the reality of the teachers in the practices of knowledge variety in the classroom. Based on the data, the context of India and Nepal found similar, we can observe some differences in the numbers of the data in figure but the trends of TPACK model and knowledge diversity in the same line.

The study suggested that the teachers need to expand their level of knowledge as the Importance of teaching and learning English language has been growing in non-native world. Developing English language proficiency of all the students through the formal education system is not as easy cake due to the diversities of language learners and teaching-learning contexts. The realization of incorporating second language teacher education in schools and in teacher preparation programs is the foundation of teacher education. The systematic provision of English Language Teacher education programs can support the FLT situation in schools with the implementation of the TPACK model. The present situation demands practical knowledge, skills, training and insights in order to explore the good ELT practices and enhance cooperation and collaboration through the technological integration in pedagogy and content development.

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TPACK Questionnaire

Technological Knowledge

Sr. No.	Technological Knowledge
1	I feel comfortable using computers.
2	I use online platforms for maintaining records of the students
3	I use smart boards / multimedia projector in the classroom.
4	Technology is a boon for special children.
5	I read ebooks, talk with experts on the internet and social media.
6	I have knowledge about different technologies.
7	I use different search engines to explore the resources to learners.
8	I create a whatsapp/messenger group to provide / collect feedback.
9	I use Zoom, Google meet, Microsoft teams, Blackboard for teaching.
10	I use different digital tools to make classroom teaching interactive.

Pedagogical knowledge

Sr. No.	Pedagogical knowledge
1	I use the TPACK model while teaching.
2	I motivate students towards the rational use of technology.
3	I know online classroom management very well.
4	I practice English Grammar to the learners through online quizzes / worksheets.
5	I play Youtube videos for teaching English Literature.
6	I promote collaborative learning through digital platforms.
7	I provide online feedback to the learners regularly.
8	I use technological tools for slow and advanced learners.
9	I use various online assessment patterns for the learners.
10	I encourage students to participate in various online cocurricular activities.

Content Knowledge

Sr. No.	Content Knowledge
1	This is ... girl who won the last match.
2	They say... knowledge is the dangerous thing.
3	How would you address the recipient in an informal letter?
4	Which of the following is an example of a metaphor?
5	We don't have to call the plumber; we can fix the tap...
6	She would pass, if she ... hard.
7	Word to Autumn is written by ...
8	Who is the poet of " On his Blindness"?
9	William Wordsworth is known as... poet.
10	Which one of the following is the tragic play of Shakespeare?