# Secondary School Teachers' Experience of Using Search Engines in Teaching and Learning

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## Abstract

This research was designed to explore the secondary level teacher's experiences of using search engines in teaching-learning activities. Twelve secondary level teachers from six different schools were selected purposively as respondents, and semi-structured interview was applied as a tool to elicit data. The research was based on a descriptive qualitative design where the collected data were transcribed, translated, coded, and analyzed following the thematic approach. The study found an increasingly ICT-friendly environment in schools as the teachers themselves managed basic ICT devices at home and schools prioritised ICT-related programs in school. The teachers used search engines to find various materials, though they were not perfect about the systematic process of searching, authenticity of materials, and ethical considerations. The majority of teachers teaching at the secondary level commonly searched and utilized instructional materials by downloading, copying, editing, and saving the source materials. As the teachers were fully positive regarding the benefits of search engines, they collaborated with colleagues and consulted different sites like YouTube to solve the problems. Basic training regarding the use of search engines seems to be mandatory, though the teachers solved various problems related to search engines by consulting with the co-workers and internet sources.

*Keywords*: *ICT, search engines, google, search strategies, basic skills*

## Introduction

Information and Communication Technology (ICT) seems to be a major source of receiving and sending information in several sectors. In academia, many teachers, students, and professionals could be observed using ICT to acquire the information necessary for

personal, professional, and social lives. As the use of ICT is increasing globally, the government of Nepal has made some policies to assist ICT programmes in school education. For example, the "School Sector Reform Plan 2009 – 2015" and the "ICT in Education Master Plan 2013 – 2017" (MoE, 2009, 2013) introduced ICT as a tool to improve the quality of education. Similarly, the Information and Communication Technology policy (2015) has set some goals to improve the ICT implementation environment. For instance, by the end of 2020, every person in Nepal will have access to the internet, and at least 75% of them will be proficient in digital literacy. In contrast, 80% of all citizen-facing government services will be provided online, and 90% of the population will be able to use broadband services.

Further, the National ICT Policy (2015) emphasises the integration and arrangement of ICT in education systems, e-learning systems, ICT-based teacher training, and the integration of computer skills into teaching and learning in order to compete with globalised education (MoE, 2015). In a similar vein, the School Sector Development Plan (SSDP, 2016–2023) emphasises the proper use of ICT to enhance teaching methods. All these attempts have helped to create an ICT favourable environment in school education.

Along with the increasing ICT supportive situation, search engines became an integral part of our lives which assisted in finding essential information. In this regard, Rieger (2009) claims that the utilization of search engines is replacing even the role of libraries in finding access to information. Similarly, Sudhier and Anitha (2014) mention that search engines can fulfil the needs of users for collecting information, as they are useful for efficient retrieval and use of information. It means that with internet access, we have easier availability of various search engines and resource materials. Furthermore, Colaric et al. (2004) say that various informative materials available on the Internet have proved to be highly useful in teaching and learning practices. As they claimed, many secondary level teachers could be seen using various devices like laptops, desktops, tablets, and mobiles to search and collect relevant teaching materials.

Although different search engines can be used to collect information, Google seems to be widely used in this locality. According to Bhat and Ganaie (2016), Google is a broadly

used major search engine used by the majority of teachers and students to search for information in their respective fields, though they may use a variety of other platforms. The majority of users are not familiar with the different search engines except Google and Yahoo (Sudhier & Anitha 2014). By focusing on the significance of search engines for collecting information, Chen et al. (1998) mention that many people turn to the World Wide Web as a source of information, as it is easy to use, as it is open for 24 hours a day and there is no need to venture out in the cold, hot or rain, and there is privacy as people search for the information they need. However, various responses collected from the users show that consuming search engines for selecting required information may create some confusion and the operators may feel some difficulties to utilize them properly, as they need some basic skills and training.

The users required to understand the various searching techniques to retrive information effectivly. In the context of Nepal, after the outbreak of COVID-19 when the lockdown period extended, many secondary teachers in government were complelled to share materials with their students by using various ICT tools, such as Zoom, Teams, Messenger, Google Meet, and Skype despite limited ICT infrastructure. There is a wealth of information available on the World Wide Web that can assist students, teachers, and others in their respective courses. Generally, secondary level teachers are supposed to be prepared to utilize and share the intended information implementing search engines in the context of increasing access of internet facilities.

Tomei (2005) states that today's teachers and educational institutions are trying to reform their education as the new technology supports minimizing the teaching and learning gaps, creating a meaningful learning environment. Despite the increasing reliance on digital resources in education, there is limited understanding of how teachers utilize search engines in their preparation and the impact this has on student learning outcomes. In this context, it is necessary to investigate the challenges, benefits, and overall experiences of teachers in Nepal regarding the utilization of search engines as educational tools in the teaching and learning process. Moreover, it is essential to explore the perspectives of teachers which may assist to identify the barriers faced, the effectiveness of search engines in enhancing educational

outcomes, and the potential areas for improvement in integrating these technologies into the classroom setting. Understanding the teachers' experiences is crucial to enhance the overall effectiveness of search engines as educational resources. Furthermore, there is limited study regarding the application of search engines in practical life.

The study aims to explore how the secondary teachers' experience of using search engines in their teaching learning is and what the existing secondary school climate of using search engines is at present.

**Literature Review**

There is a substantial amount of literature on the usage of the Internet, e-sources, and search engines. Numerous studies on the usage of search engines for information searching have been carried out by various scholars.

Lazonder and Biemans (2000) conducted a study on 25 Dutch pre-university students from two schools and discovered that specialists need less time and fewer steps to finish the task than novice users. It shows the value of experience and guidance to teachers in using ICT engines. Relating to search engines, Atar and Bagci(2020) carried out a study utilizing 131 pre-service teachers who studied English language teaching at a state university in Sakarya, using mixed method design where the findings suggested that pre-service English teachers had a medium level of competence in "technical properties. Furthermore, the findings demonstrated that daily internet use does not have a significant effect on participants. It may indicate that any person can learn searching skills, though they are a novice in this field.

We can observe that the use, users, and access to the internet have been rapidly increasing every day in various fields for a few years. According to a study conducted by Biradar et al. (2005) on the usage of search engines by physics faculty members and research scholars at Karnataka state institutions, the majority of respondents (84.33%) used search engines to find information online. Seventy-two percent of them regularly used Google, with Yahoo coming in second. Kumar and Kumar (2013) carried out a similar study to determine whether or not scholars used search engines to discover scholarly information on the internet. Just 5% of the 300 respondents have not utilised search engines, while 285 (95%) have done

so in order to obtain academic material. Search engine usage by discipline revealed that 90% of respondents in medical science, 98% of engineering, and 97% of management studies used search engines.

This indicates that there is an association between the use of search engines and the profession of the respondents. In the case of frequency of using search engines, the majority of respondents most frequently used Google.

By studying search engine use behaviour of students and faculty, user perceptions, and implications for future research, Rieger (2009) confirmed that both faculty and students prefer search engines to support their academic work for three different purposes: navigational searches involve searching for information by a given data point, whereas informational searches locate a publisher's home page, and transactional searches support accomplishing tasks such as connecting to a database or software for statistical analysis. Furthermore, a study by Rana et al (2022) found that the majority of teachers got a chance to receive one week of ICT training provided by an NGO, but some trainees expressed their disappointment because the training was insufficient and directed at theoretical knowledge.

To sum up, there are only a few studies carried out on this topic using qualitative design and this area can be nearly virgin in our local context of Nepal. Moreover, the review shows that all of the previous studies are quantitative. The current study may contribute to the literature by utilizing a qualitative method approach, though it is limited to the semi-structured interview as the tool for data collection and the experience of 12 secondary teachers teaching different subjects in a single municipality of Nepal.

## Method

This research was based on an interpretive paradigm (Cohen et al., 2017), which aims to understand the subjective world of human experience. I followed an existential-phenomenological study design under the qualitative research methodology. As suggested by Dreyfus and Wrathall (2009), this type of research design is useful to explore the personal experiences, perspectives, and lived experiences of the participants.

The secondary level teachers from all schools teaching different subjects in Patharishanishchare Municipality of Morang district were the population of this study. In this municipality, just six secondary community schools are running the 10+2 level. I purposively selected twelve teachers, including two from each school, intending to comprise each cluster considering their teaching experience, gender, and qualification as far as possible. I contacted them individually and shared my purpose. After building rapport and getting their verbal consent, I managed time to visit and conduct interview with them. To manage ethical concerns, I got their approval and maintained confidentiality, replacing their names and schools with pseudonyms, which are presented in the table below.

**Table 1**

*Participant Schools and Teachers*

| S.N | Schools (pseudonym) | Participants (pseudonym) | Gender | Subjects | Experience | Qualification |
|---|---|---|---|---|---|---|
| 1 | Yamuna S. S. | Yam | Male | Maths/Account | 2 Years | Master degree |
| 2 | Yamuna S. S. | Yog | Male | Science/Maths | 20 Years | Master degree |
| 3 | SinghadeviS. S. | Shiva | Male | English | 16 Years | Bachelor |
| 4 | Singhadevi S. S. | Sita | Female | Nepali | 12 Years | Master degree |
| 5 | PathivaraS. S. | Paban | Male | Edu/Social | 35Years | Master degree |
| 6 | PathivaraS. S. | Pratima | Female | Pop/Health | 7/8 Years | Master degree |
| 7 | BhagirathaS. S. | Bhuwan | Male | English | 20 Years | Master degree |
| 8 | BhagirathaS. S. | Bhagat | Male | Nepali | 30 Years | Master degree |

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|---|---|---|---|---|---|---|
| 9 | BhagawatiS. S. | Bikram | Male | Economics/ | 11 Years | Master degree |
| 10 | BhagawatiS. S. | Bikash | Male | Computer | 2 Years | Bachelor |
| 11 | Jalapa S. S. | Jivan | Male | Science | 2 Years | Bachelor |
| 12 | Jalapa S. S. | Janak | Male | Eco/Finance | 13 Years | Master degree |

As this study adopted a descriptive qualitative design, the semi-structured interview was employed to elicit the data from secondary teachers to explore their experiences of using search engines in teaching-learning. I contacted them individually, shared my purpose of visiting them, and requested them to be my respondents informing the process of the interview with some guideline questions. After building rapport and getting their verbal consent, I managed time and visited them at their convenience places and times. I recorded the interview using a cell phone audio recorder. I used open-ended questions mainly based on the interview guideline questions. Many questions were automatically constructed as per the situation demanded to collect more information. I interviewed for 15-30 minutes with every respondent, recording their responses. Later on, I contacted some of them on the phone when clarification was needed.

For the analysis of data, I used an inductive coding scheme as mentioned by (Braun & Clarke, 2006) to level, organize, and analyze the data into the themes. After collecting raw data, firstly they were transcribed and translated into the target language. Then, different codes were made depending on the responses presented by the participants in the process of interview. After analyzing the codes, three themes were constructed on the basis of the common nature shared by the codes. Theme construction in research is commonly understood as the process of identifying, developing, and articulating themes that emerge from data analysis, particularly in qualitative research.

## Results

The three themes, i.e. the present context of ICT devices and Internet management, teachers' experiences of using search engines, and applied search strategies were constructed while analyzing the data.

### Present Context of ICT Devices and Internet Management

In terms of the personal management of ICT devices and Internet facilities, all of the respondents reported that they had personally managed laptops and Android phones for their personal and professional use. For instance, a teacher Shiva from Singhadevi School stated his experience: "I have managed computer, laptop, and android phone." Other participants also gave similar responses. Similarly, they had managed an internet facility in their residence. They used a data pack while staying outside if it was necessary for them. Regarding Internet connection at home, Bhagwat, a teacher from Bhagawati School responded: "Internet is available at my home, but data pack also has to be used at other places of work."In a similar vein, Yog from Yamuna School stated: "I have connected Wi-Fi at home…I have a better internet connection at home than at school." Their statements show that they can use the internet in their private as well as occupational life.

With regard to the management of ICT devices and Internet facilities at school, participants stated that there are some desktops, laptops, projectors, and at least one interactive panel board in their schools. In this regard, Jivan, a teacher from Jalapa School said: "… in school, there is a computer lab, a smart TV, projectors and interactive panel boards." It can be observed that all the schools have purchased and added ICT devices like computers, projectors, and interactive panel boards every year, managing internal and external financial funds, which has led to ICT-friendly environment in schools.

Most of the respondents revealed that they have internet facilities in their school but not properly accessible in all classrooms. For instance, Pratima, a teacher from Pathibhara School said: "...Internet facilities are not available in all the classrooms. We especially work in the office room to search for materials and bring them to the students by using pen drives." One of the respondents Shiva added: "There is a good arrangement of internet in the office. It

is also available in some classrooms but it is not given to the students." Their statements clearly show schools are managing the internet facility as per their financial condition which is not very satisfactory.

Concerning training in using search engines, the respondents had mixed experiences. One of the respondents, Bhuwan, stated: "I have also taken special training. I also learn special technical things by watching YouTube and working hard on computers." Another respondent, Paban, added a similar view: "I also took a short training of this. Most often, I have learnt from my efforts and occasionally from my friends." However, another respondent, Jiwan, stated: "I don't think I have received training. I learned how to do things by going to YouTube. No training has been taken to get a special certificate." Their responses reflect that all of the teachers would benefit if they got training concerning the use of search engines. Moreover, the respondents informed that though some of them have used search engines for a decade, most of them revealed that the coronavirus pandemic brought a kind of opportunity to use ICT and search engines, as they were under pressure to run especially grade 10 and 12 classes, as they were national level examinations, but physical touch was not possible. For example, Jiwan from Jamuna School said: "Perhaps I started to use it after the coronavirus period. I feel that Corona has made a forceful pressure to teach using new technology in the field of ICT, it has brought pain as well as opportunity."

The respondents presented mixed reactions about the implications of search engines. All the participants spent some hours surfing the internet every day, but they used it as their easiness in the classroom. Pratima from Pathivara school said, "To be honest, it is not used regularly, there is another problem of time pressure." Likewise, Yog from Yamuna school said, "…I have been using ICT as much as possible.... "

**Teachers' Experiences of Using Search Engines**

Regarding the knowledge of search engines, all participating secondary teachers claimed that they have a basic understanding of it. All of the interviewees responded that they can use Google and Google products, such as Google Chrome and Google Docs for searching information, but do not have much idea about other search engines like Bing, Yahoo!,

Yandex, DuckDuckGo, Baidu, Ask.com, and Internet Archive. In their opinion, Google is the most frequently used search engine. For example, Pratima said, "I don't have much knowledge related to search engines. I usually use Google. For example, when I have to make different pictures of health topics, I go to Google to download the pictures and use them in class." Shiva from Singhadevi School also said, "When we talk about search engines, Google is enough. There are many products in one Google. You can get a lot of things even if you just go through the Google link… ." It shows that they mostly use Google as a search engine.

By sharing the positive experiences of using search engines, the teachers as respondents claimed that it updated them and increased their confidence in teaching-learning activities. Similarly, it minimized their burden in the classroom, as it motivated the students to participate actively in learning. Furthermore, they felt an improvement in students' learning achievement as they learned from different modes, such as visual, audio, and audio-visual. For example, a teacher, Pratima, from Pathibhara Secondary School stated:

> When listening to the student's words, the students responded that they enjoyed seeing the pictures downloaded on Google rather than the pictures drawn on the board. Drawing takes a long time and good pictures are not made due to lack of drawing skills. If there is an internet facility, good pictures, videos and themes can be downloaded immediately. By doing this, I have realized that the students' confidence label and the teacher's confidence label have also increased.…

Sharing their bitter experiences, the respondents revealed different internal and external problems related to the use of search engines as well. As they mentioned, it was difficult to manage and operate ICT devices properly. They had to face several problems concerning electric power, the speed of the network, and the physical condition of devices. By focusing on the problems related to the devices, a teacher, Pratima, from Pathibhara Secondary School said:

> While using the search engine, there are various problems such as the problem of power cutting, the problem of slow net, and sometimes our devices get damaged and it takes time to repair and there are problems like hanging on while running devices.

The participants disclosed that they found various links and fell into a dilemma to choose the right one. The biggest problem faced by respondents is the retrieval of too much information. Regarding the problem caused by search engines, a teacher, Sita, from Singhadevi School recounted her experience: "Different contents are available on different sites. The user sometimes gets confused about which one is authentic and how to treat them. Some materials cannot be downloaded and some of them are very long content." Their statements indicated that they have both external and internal problems regarding the use of search engines.

**Applied Strategies**

Participants in this study reported that they implemented various strategies to tackle various problems while using search engines. To solve the problems that occurred at the time of using search engines, sometimes they used their ideas and self-effort, whereas other times they consulted YouTube and studied related guide book. Most of the time, they collaborated with other colleagues and learnt from experts around them. For instance, Paban from Pathibhara School said: "I have learned many things by practising myself. During times of trouble, I learned with friends and relatives, with school friends and by participating in programs organized by the school." Paban's reflection indicated that they solved the problem by implementing different ways, like consulting with exports.

As the respondents claim, they used Google, YouTube, web browsers, and websites for surfing the information and prepared different doc., ppt., xls., and pdf files as they needed. They downloaded, selected, copied, cut, or edited, and saved the information for their easiness. They presented the prepared material in the classroom and shared the materials through email, the internet, Messenger, and other apps. In the case of pictures and other original text, they cited the sources as well. For example, Sibha from Singhadevi School said: "When using the search engine, you can search for content, copy, download, save, and modify them. If some things cannot be copied, it can also be used by taking a screenshot." It shows their attempt to use search engines.

## Discussion

The finding of this study indicate that the secondary level teachers have managed ICT devices and use search engines to find required ideas and materials, which promotes personal and professional development. As the responses provided by the participants show, most of the secondary level teacher started to use them after the coronavirus pandemic since they had to facilitate their students staying in their own rooms. In some cases, schools encourage teachers by distributing laptops as a partnership programme and almost all of the schools established computer labs, which are positive signs for fostering an ICT environment. Furthermore, they managed some projectors, smart TVs, CC cameras, and interactive panel boards. The government's policy and programme to support community schools for ICT has created IT-friendly environment in schools. Regarding Internet service, every school has connected in school premises but it is not accessible in all classrooms. It revealed that all the students in the schools were not equally benefited from this facility.

Although this study finding indicated most of the teachers used search engines in their instructional activity, it seemed to be questionable concerning its regular use. A case was known that a teacher's laptop was not functioning for two months, but he neither repaired it nor purchased another. Even in schools, the damaged devices were not properly maintained on time. In informal conversations, one of the Principals clarified that it is a matter related to financial condition and technology. Though they heard about other search engines, they mostly relied on Google. As they retrieved needed information with their contents, it built their self-confidence.

The finding of the study presented that the teachers experienced several problems while handling search engines. The uncertain electric power cutting problem and low speed of the network were irritating in instructional activity. Their replies revealed that they were in a dilemma when they faced problems justifying their claims and maintaining references and citations. Similarly, they were not sure about the authenticity of the materials while retrieving the information from open sources. Furthermore, it consumed much time for choosing the materials and manipulating them.

To solve the common problems related to search engines, teachers collaborated and consulted with experts, friends, books, and journals related to it. Likewise, they used Google and YouTube as their teacher to solve their problems. The study showed that by surfing limited search engines, the teachers tried to search for general information. They are downloaded, copied, edited, and saved in a special location to use and re-use according to the materials.

## Conclusion

The findings of the study suggest that the majority of secondary teachers and schools have managed ICT devices and Internet services needed for them, which have created ICT-friendly environments on the school premises. Search engines are useful for collecting, storing, and presenting materials from deeper sources, and one who has a little basic knowledge of searching sources can explore the expected information. As search engines are used to search various factual and attractive materials, they assist learning more effectively. The teachers commonly prepare instructional materials by downloading, copying, editing, and saving materials for use and reusing them, though they have various problems regarding the use of search engines and the authenticity of the source materials. The teachers solve various problems related to search engines depending on co-workers and internet sources. As the use of search engines makes teaching learning more meaningful, special support regarding its identification and implementation seems to be necessary to utilize it properly.

This study represents merely a small attempt to investigate the use of search engines and the experience of secondary level teachers in the course of their professional practice. Future researchers might concentrate on various important areas within the domain of search engines. They can examine how search engines make scholarly articles, textbooks, and open educational materials more accessible. Additionally, personalized learning can be examined by analyzing the search engines. Future research can also investigate the development of information literacy skills, helping students evaluate the credibility and relevance of sources. Furthermore, studies could investigate how search engines support curriculum development and collaborative learning among educators and learners.

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