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Using digital learning platforms to develop secondary school teachers' professional skills

Jolly Chakrabortty[1], Dulumoni Goswami[2]
[1] Research Scholar in Department of Education, Gauhati University, Kamrup Metro, Assam, India
[2] Department of Education, Gauhati University, Kamrup Metro, Assam, India

Abstract
The information revolution and associated technological developments in education have made the 21st century more significant. To incorporate new and ever-evolving technologies, the in-service teacher must keep up with the latest developments in their field. Therefore, teaching secondary teachers to use digital technology to develop professional skills is a top priority. The purpose of the study is to share with the readers the extent of using different digital learning platforms and study the professional skills of secondary school teachers developed due to the digital learning platforms used by secondary school teachers. This study also investigates challenges secondary school teachers face in utilizing and acquiring new professional skills through DLP, using the descriptive survey method and expert-approved questionnaires. For this study, the researcher used simple random sampling to select a representative sample from the population. The finding demonstrated that most teachers use DLP to further their professional development, and DLP has helped them acquire a variety of professional skills. It also shows that teachers face a range of challenges, both pedagogical and technical. To improve digital learning platforms, several teachers recommend that schools provide stable technology, combine platforms, provide in-depth training, and encourage peer support networks.

Keywords: Technical advancements, secondary school teacher, professional skills, digital learning platform

Introduction

Students are at the center of the learning domain, which is the main focus of the field of education. Due to the nature and applicability of abstract thinking, students have difficulty understanding abstract concepts and ideas. For this reason, educational institutions all over the world have begun implementing state-of-the-art technological tools that are intended to meet the various needs of student populations (Musawi *et al.*, 2025) [23]. Educational institutions are embracing digitalization; teachers must be adept at managing and utilizing technology. Maintaining current knowledge and abilities is essential for implementing new technology, so professional growth should come first (Al-Abdullatif, 2019) [2]. Digital platforms help improve teachers' technological proficiency, class planning, and professional development by providing online tools that improve learning outcomes and student engagement. Digital technology plays a revolutionary role in enabling personalized learning experiences and promoting teamwork (Damayanti *et al.*, 2024) [9]. The increasing prevalence of online education has led to CALL teachers enrolling in online teacher professional development courses; therefore, a deeper comprehension of online delivery in professional development courses is required (Mohammadi, 2023) [20]. In the context of professional skills acquisition, it is necessary to gain a range that includes soft skills that are transferable across occupations as well as job-specific technical skills. Within the domain of technical literacy, one can place digital literacy, project management, competence related to a certain industry, or exposure to computer applications. Speaking of soft competencies, they include communication, group work, creative and deductive problem solving, time orientation, adaptability, conflict management, and creative skills. There are other skills that come under leadership and management, such as decision-making and people management, strategic awareness and emotional management, and delegation. It includes data analysis, cybersecurity, artificial intelligence, automation technologies, and digital marketing. Financial and business skills encompass finance literacy, business development and sales, negotiating, and managing customer relations. Professionals have to embrace self-management and ongoing education to develop their careers, increase their chances of employment, or even overcome difficult working situations. This study highlights a curated selection of professional skills, like communication skills, time management skills, problem-solving skills, organization skills, technical skills, and others (group work, decision-making skills, leadership skills). This study provides insight into the awareness of secondary teachers regarding digital learning environments and their participation in continuous professional development initiatives. The findings will be useful in modifying professional development initiatives delivered through digital platforms.

Literature Review

Preservice teachers can acquire and develop their cognitive and practical competencies in instructional design with the use of Google Classroom (Gameil & Abdullatif, 2023) [12]. Gogo *et al.* (2023), according to the report, more educators find digital learning platforms user-friendly when teaching; yet, some expressed worries about utilizing social media and Telegram navigation exclusively. Gender variations in perception were statistically significant, with male teachers perceiving digital platforms more readily than female teachers. The usage of digital data by teachers was predicted by variables like availability to data technologies, teachers' positive beliefs, self-assessed data, literacy, and variations in schools (Michos, 2023) [21]. Poultsakis (2021) [27] shows that teachers' attitudes about digital learning objects and

digital experiment simulation tools are negatively impacted by a number of factors, including the availability of technological equipment, insufficient training, especially teaching experience, Pan-Hellenic exams, class sizes, and student numbers. Yenen's (2021) [35] findings indicated that in teacher education programs, special education, instructional technology, and assessment evaluation should be given priority by instructors in order to help them become better special educators. Khanra *et al*. (2020) [17] find that usage, value, tradition, and image barriers are the four key obstacles 'preventing students from adopting MOOCs. Technology integration requires ongoing professional development courses on smartboards and associated equipment. It is also crucial to invest in technological resources, user support, technical support, and a reliable connectivity infrastructure (Musasa *et al*., 2025) [22]. Yu *et al*. (2024) [36] highlight the need for subject-specific approaches and professional development programs to improve teaching effectiveness and student outcomes in foreign language education, and they recommend that teacher training should concentrate on developing teachers' business communication skills (BCs) and facilitating robotics for representation (RU), especially for experienced teachers. Teachers' acceptance of educational robotics (ER) in language education is significantly influenced by service length and target language.

Objectives

1. To study the extent of secondary school teachers' use of different digital learning platforms in developing professional skills.
2. To study the professional skills of secondary school teachers that are developed due to digital learning platform uses.
3. To study the challenges faced by secondary school teachers in using digital learning platforms for professional skill development.
4. To explore suggestions by secondary school teachers to overcome the challenges in using digital learning platforms for professional skill development.

Methodology

This study investigated using digital learning platforms in developing the professional skills of secondary school teachers. The present study has utilized a descriptive survey method to explore using digital learning platforms in developing the professional skills of secondary teachers.

Population of the study

The study's population comprises all secondary school teachers in Paschim Medinipur, West Bengal. The researcher selected only government secondary school teachers for this study. The investigator visits only 15 government secondary schools in Paschim Medinipur, West Bengal.

Sample of the study

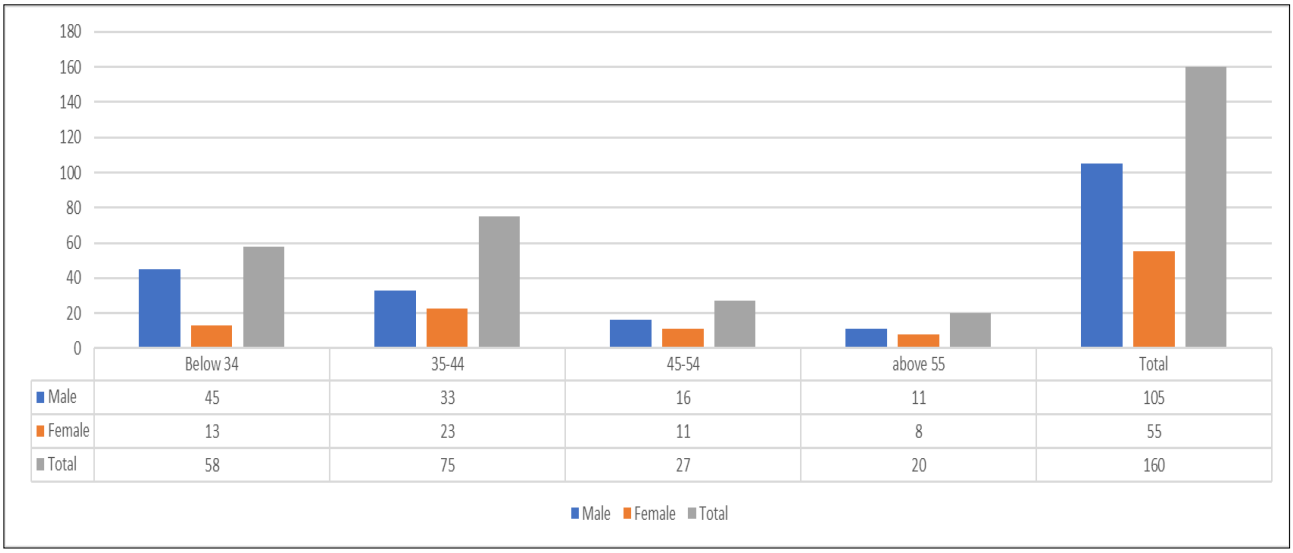
The sample consisted of 160 teachers out of 300 teachers from 15 government secondary schools in Paschim Medinipur, West Bengal. Simple random sampling was employed for this inquiry. Of the 160 respondents, 105 were men and 55 were women. This study included secondary school teachers of different age groups (below 34, 34-44, 45-54, and above 55).

Tool used

A self-made questionnaire was the tool used. There were both open-ended and close-ended questions on the questionnaire. Out of 40 questions, 34 are close-ended questions and 6 are open-ended. The investigator made in-person visits to schools and gave teachers questionnaires. The teachers were given about 25 days to consider the query.

Analysis

In order to analyze the data, a simple percentage distribution was used for the closed-ended questions, and a detailed description of the most important transcriptions acquired for the open-ended questions.



	Below 34	35-44	45-54	above 55	Total
Male	45	33	16	11	105
Female	13	23	11	8	55
Total	58	75	27	20	160

Quantitative Phase

Objective 1: To study the extent of secondary school teachers' use of different digital learning platforms in developing professional skills.

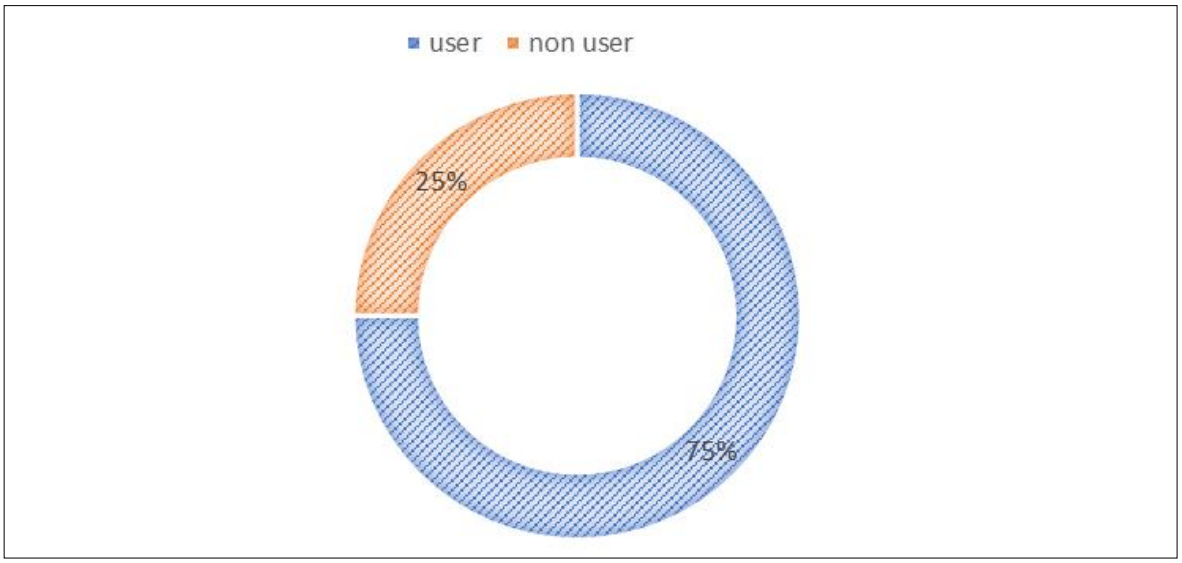


Fig 2: Percentage of secondary teachers who are using DLP for their professional development

The results showed that 160 government secondary school teachers participated in the study. Out of 160, further, on the basis of different age groups, they were categorized into below 34, 35-44, 45-54, and above 55. More than half of the teachers, 75%, use DLP. Out of 120 secondary teachers, 37.89% use it daily, spending over 4 hours, while 33.20% use it weekly, dedicating more than 3 hours, with most of them being under the age of 34 and 35-44. Another 28.91% engage monthly, spending over 5 hours, with most of this group belonging to the 45-55 age range. Out of 55 female teachers, 40% use it daily for more than 2 hours, 22% use it weekly for more than 3 hours, and 10.8% use it monthly for more than 1 hour. Another 27.29% of secondary female teachers do not use DLP for their professional development. Out of the 25% of 160 secondary teachers lacking interest in digital learning platforms, the majority fall within the 45-54 and 55 age groups. They often struggle with motivation or engagement in utilizing these platforms, partly due to lower technological proficiency.

Objective 2: To study the professional skills of secondary school teachers that are developed due to digital learning platforms.

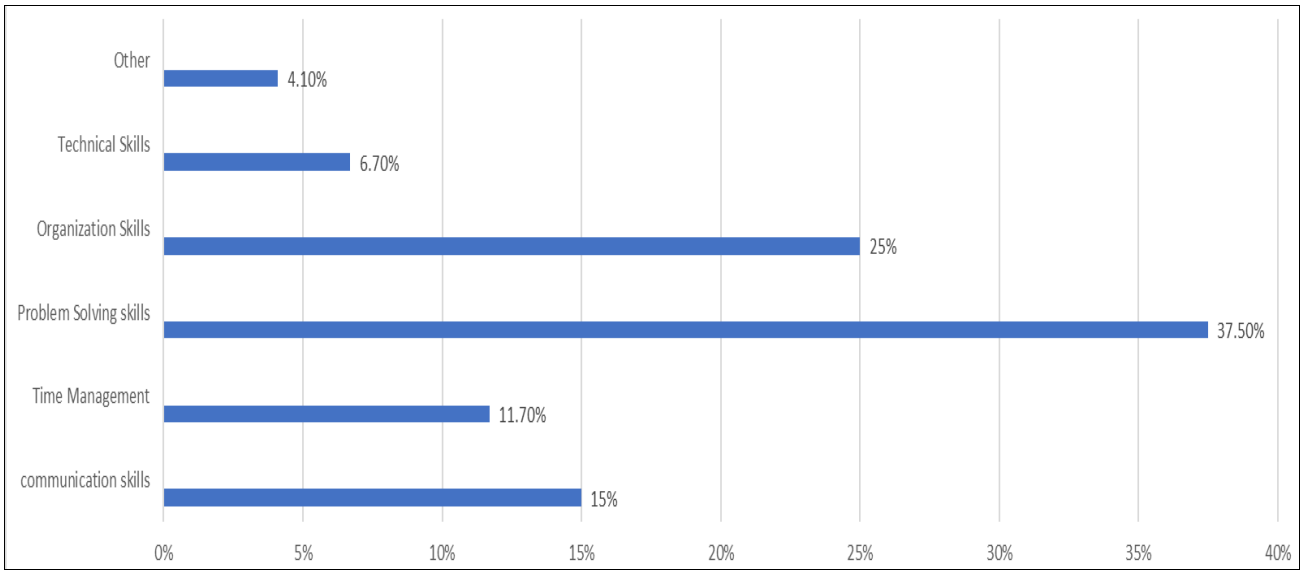


Fig 3: Percentage of Different Professional Skills Developed Through DLP

The results showed that out of 75% of users on digital learning platforms, 15% of secondary teachers reported that an enhancement in communication skills has occurred. 11.70% of secondary teachers felt more organized and effective regarding time management skills. 37.50% of respondents developed better management of processes and enhancement of performance. 25% specialized in skills allowing them to organize tasks. 6.70% of survey participants reported further skill development in technical skills. 4.17% response in other improvement (leadership, decision-making, group work).

Qualitative phase

Objective 3: To study the challenges faced by secondary school teachers in using digital learning platforms for professional skill development

According to the survey, 75% of users of digital learning platforms participated, and 30% of those users had negative platform experiences. Actually, 45% of users say they are not bothered at all (Fig 3).

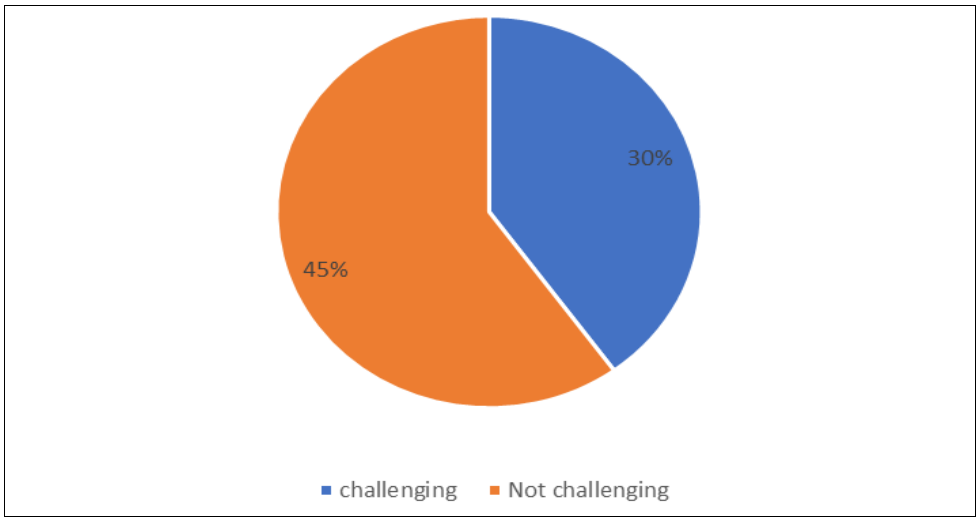


Fig 4: Percentage of secondary teachers who face challenges during their professional development

The challenges faced by teachers, as revealed through open-ended questionnaires collected by researchers, are discussed below.

Using different software that is super complicated for teachers. Teachers encounter difficulties like a challenging learning curve, laborious navigation, and technical problems. These platforms may not be appropriate for large institutions and may require substantial technical expertise, making them difficult to use. Teachers are often required to participate in various non-teaching activities in addition to their teaching responsibilities. As a result, they face challenges in utilizing digital learning tools effectively due to a lack of adequate time for preparation. Furthermore, insufficient training adds to their stress when there are updates or changes to digital platforms. Teachers also require timely support for helping them find their way around the complicated system. For teachers, digital learning has its downsides, which extend to distractions from the intended work, such as juggling phones, dealing with technical difficulties, looking for materials, performing administrative duties, and even just being tired of sitting behind a computer screen—all these are amalgams of teaching and non-teaching duties. Technical issues can include refusals to participate, academic cheating, problems with supervision, use of proctoring, limitations of the test designs, feedback, as well as test stress, time zone differences, performance standards, test formats, absence of an infrastructure supporting collaborative testing, and limited engagement among the participants.

Objective 4: To explore suggestions by secondary school teachers to overcome the challenges of using digital learning platforms for professional skill development.

Major suggestions for improving the digital learning platform challenges that the teachers stated are mentioned below.

- For educators, the adoption of complicated systems can be facilitated by putting training into place, streamlining user interfaces, and gathering feedback from teachers.
- Teachers should receive ongoing, practical training from their schools, along with on-demand tools like video tutorials and one-on-one assistance. Teachers who are comfortable with technology can be assigned as digital mentors, and school administrators should provide funding to assist with instruction.
- Centralized systems that simplify communication, grading, and resource management are Microsoft Teams and Google Classroom.
- By employing time management strategies, educators can control notifications, keep away from other apps, and maintain focus.
- Teacher performance can be improved and weariness can be decreased by promoting breaks and digital well-being activities.
- To make digital exams more equitable, schools should provide equal access to resources, train teachers and students, employ formative assessments, give clear directions, and provide flexible deadlines.
- Teachers can also create evaluations that highlight original responses or critical thinking, which deters cheating and lessens the stress experienced by students.
- Platforms should help by making sure there is reliable technology available. Data will be secure.
- Using one platform can also create confusion by developing different skills in one place. So, different courses should be organized properly.
- The duration of the course and video should be short.
- Teachers demand more interactive tools. Things like quizzes and group chat
- An effective assessment system is needed to analyze teacher engagement and participation.

- Giving access to lessons offline or downloadable content

Discussion

A study surveying 160 secondary school teachers found that 75% use digital learning platforms daily, with 40% daily usage. 15% improved communication skills, 11.70% felt more organized, 37.50% improved process management, 6.70% developed technical skills, and 4.17% improved leadership. Challenges faced include time constraints, lack of preparation, and technical issues. With features like a centralized hub, multimedia integration, and learning statistics, Canvas is a potent digital education platform. However it has drawbacks such as privacy issues and the digital divide. By adopting best practices, offering training, encouraging continual development, and addressing educational equity, institutions can realize their full potential (Oudat & Othman, 2024) [26]. The use of digital technologies greatly raises student motivation, engagement, and academic achievement. But obstacles including resource scarcity, inadequate training, and technical issues make it difficult to use effectively. It is essential to enhance institutional support, professional growth, and technical support (Rafiq *et al*., 2024) [29]. Lack of training in schools, unstable networks, low proficiency, and economic constraints are some of the challenges teachers encounter when implementing information technology. But as COVID-19 progresses, they gradually adjust and comprehend the features of the students in digital learning (Jamilah *et al*. 2021) [14]. Putri *et al*. (2024) [28] explain how adopting an independent teaching platform can help teachers become more competent, creative, and professionally trained. The platform improves education quality and encourages collaboration in spite of obstacles including a lack of competent teachers, poor infrastructure, and remote location. Low usability and integration issues were among the issues identified in the teachers' study on the intelligent science lab platform. They attacked the platform for offering few realistic experiences and failing to incorporate inquiry-based activities (Byeon, 2024) [5]. (Chen *et al*., 2024) [8] In 2022, instructors' digital teaching competencies were enhanced through a MOOC-based professional development program. In order to maintain long-term professional progress, the program promoted peer mentoring and creativity, emphasizing the necessity of flexibility and community-driven learning. Sarzhanova *et al*. (2024) [32] show that teachers' technology proficiency, teaching abilities, and language proficiency may all be enhanced by digital learning settings. However, there are still certain things that could be done better, such as removing obstacles to access and better incorporating technology into the curriculum. Mesuwini & Mokoena (2024) [19] draw attention to technical challenges in online education, such as poor connectivity, malfunctioning software, and little student involvement. It also draws attention to issues of equity and access. The study suggests ongoing professional development for lecturers and competence enhancement for students in order to improve online learning. (Sklyarova *et al*., 2023) [33] Teachers' mistrust of modern learning resources and ingrained thought habits makes adult education difficult. One major problem is inadequate digital communication. The authors suggest gamification strategies for professional development programs and personalized training pathways to address shortcomings. Teachers must continue to grow in order to provide high-quality education since they confront problems such as changing responsibilities, a loss of in-person interaction, an increase in workload, more time spent on computers, and a shortage of high-quality digital learning resources (Babushko *et al*., 2022) [3]. (Faza *et al*., 2024) [11] Online learning offers flexibility, personal growth, and creative teaching approaches, but it also has obstacles with engagement, practical session delivery, monitoring, evaluation, identity verification, institutional support, digital skills, health concerns, and technological issues. (Tang & Fan, 2024) [34] The emergence of online learning platforms raises issues including the digital divide, information security, and adaptation. Nevertheless, digitization presents chances for resource optimization and customized learning. To address these, better legislation, infrastructure, and teacher training are needed. Mesuwini & Mokoena (2024b) showed that the teaching and learning process was interrupted by technical issues such as software bugs and network problems. Getting useful internet assistance was difficult for lecturers. Maintaining engagement and meeting each student's unique learning demands was made more difficult by the restricted interaction and collaboration among students in virtual environments. Additionally, due to insufficient technology, internet connectivity, and power outages, students were unable to fully participate due to access and equity difficulties. The study suggested that instructors pursue ongoing professional development in online learning technologies and methodologies in order to overcome these obstacles. By guaranteeing high-quality instruction and improving students' abilities, overcoming the obstacles helps the TVET sector successfully adopt online learning. Teachers encounter difficulties that include passive engagement in online education, reluctance to use digital technologies because of ingrained thought habits, and a lack of proficiency in digital communication. These problems make it more difficult for them to participate in and use digital learning environments for professional growth (Sklyarova *et al*., 2023) [33].

Educational implication

- Based on the research findings, the current study recommends that governments take into account implementing digital learning platforms in all secondary schools and offering short-term courses or training to the teachers about the purposes and efficacy of digital learning platforms.
- A digital learning platform can help teachers overcome their weaknesses and turn them into strengths.
- Staying updated with the latest tools and technology can enhance teachers' competencies and skills.

Conclusions

The study suggests that while most teachers use digital learning platforms for their professional development, they encounter significant challenges in enhancing their skills through these platforms due to time constraints, lack of preparation, and technical issues. To overcome these, they recommend training, streamlining user interfaces, and providing ongoing support. Centralized systems, time management strategies, breaks, and digital well-being activities can improve teacher performance. Schools should provide equal access to resources, training, formative assessments, clear directions, and flexible deadlines.

However, their positive perception of digital learning indicates that these platforms should offer a well-structured curriculum tailored to societal needs for more effective professional growth.

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