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Message from the Editor-in-Chief

Welcome to TOJDEL!

We extend our heartfelt gratitude to all the academicians, educators, and students who have shown great interest in our online journal over the past year. The significant engagement from around the world reflects TOJDEL's ongoing commitment to disseminating emerging trends and innovations in the field of distance education. This growing participation not only highlights the power of knowledge sharing but also showcases the global educational community's openness to exploring new advancements in this ever-evolving domain.

As we proudly present Volume 12, Issue 2, we are confident that this edition will continue to contribute meaningfully to the advancement of distance education. Our goal with each publication is to provide readers with a rich collection of perspectives, research, and insights that reflect the latest developments and innovative practices. We hope this issue will inspire, inform, and expand your understanding, while offering valuable solutions and new approaches to the challenges and opportunities within the field.

We would like to take this opportunity to emphasize that the views and opinions expressed in the articles published within TOJDEL are solely those of the respective authors. They do not necessarily represent the views of the Editor or the journal itself. In line with our commitment to academic freedom and diversity of thought, we aim to provide a platform that encourages the exchange of different viewpoints and fosters constructive dialogue.

Our deepest appreciation goes to the dedicated members of the editorial board and the reviewers who have generously contributed their time and expertise to evaluate and refine the submissions for this issue. Their meticulous efforts and invaluable feedback have played a crucial role in maintaining the academic integrity and quality of our journal. We recognize and celebrate their unwavering commitment to supporting the publication process.

At TOJDEL, we remain steadfast in our mission to share knowledge, facilitate meaningful discourse, and engage with the broader academic community in the realm of distance education. We eagerly anticipate continuing this journey with you in future editions, fostering collaboration, and building upon the foundation of shared knowledge and experience.

Once again, thank you for your continued support and contributions.

With warmest regards,

Call for Papers

The Turkish Online Journal of Distance Education (TOJDEL) invites you to submit your article contributions. We welcome submissions that explore all facets of distance education, including but not limited to innovative teaching methodologies, technological advancements, instructional design, policy development, and case studies reflecting best practices.

Submitted articles must be original, unpublished, and not under consideration for publication elsewhere at the time of submission. All manuscripts should be written in English and adhere to the journal's formatting guidelines.

TOJDEL operates under the guidance of a distinguished panel of editors, guest editors, and advisory board members dedicated to ensuring the quality and relevance of the journal's content. If you are interested in contributing to TOJDEL as an author, guest editor, or reviewer, we encourage you to send your CV and a brief statement of interest to **tojdel.editor@gmail.com**.

We look forward to your valuable contributions and to advancing the field of distance education together.

Warm regards,

October 01, 2024

Prof. Dr. Aytekin ISMAN
Sakarya University

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ENHANCING STUDENT SUCCESS AND BLOOMING: EXPLORING THE RELATIONSHIP BETWEEN SCHOOL ADJUSTMENT AND OVERALL WELL-BEING

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ABSTRACT
Student well-being and school adjustment are vital to their personal and academic performance. This literature review examines these factors and their influences. Family, academic, school, and peer support promote well-being and school adjustment. Family support helps students in adjustment. Positive parent-child relationships, parental involvement in education, and family support improve well-being and school adjustment, according to research. Parents may guide, support, and assist students academically. Tutoring, mentorship, and other academic support improve school adjustment and well-being. Confidence, motivation, and school involvement increase when adolescents feel academically capable. Students need a healthy educational atmosphere to thrive. Safe, inclusive, and supportive schools improve student-teacher connections, social-emotional skills, and participation. Social-emotional learning, anti-bullying, and kindness programs improve school adjustment and well-being. Peer interactions also affect students' health and adaptability. Peer contacts, friendships, and a sense of belonging improve students' social and emotional well-being. Peer support programs, collaborative learning, and inclusive settings can help children form positive peer relationships in schools. This literature review concludes that family, academic, school, and peer support promote student well-being and school adjustment. Schools can foster students' personal growth, academic performance, and well-being by addressing these elements.
Keywords: School adjustment, overall well-being, academic success, social factors, emotional factors.

INTRODUCTION

School adaptability and well-being affect students' academic and personal lives. Students' social, emotional, and academic adjustment to school is called school adjustment. However, total well-being refers to a student's mental, physical, and emotional health and happiness throughout life. Both aspects affect academic achievement and development. Students' academic, social, and emotional well-being depends on school adjustment (Wentzel, 1998). School adjustment issues can affect academic performance, social relationships, and emotional regulation, resulting in poor well-being. However, a student who adjusts to school can improve academic, social, and emotional well-bei
Student well-being affects academic achievement, social interactions, and emotional management. Well-adjusted students perform well academically, have positive social interactions, and regulate their emotions well. A student with poor well-being may suffer intellectually, socially, and emotionally, resulting in poor school adjustment. School adjustment affects well-being in complicated ways. Anxiety, despair, and stress can affect school-adjustment-challenged students' well-being. Poorly adjusted students may have trouble concentrating, motivating, and engaging in schoolwork (Murray-Harvey, 2010).
Family, peer, intellectual, and physical health affect school adjustment and well-being. Parental involvement and emotional support improve school adjustment and well-being. Positive peer interactions can help students acclimate to school and feel more connected (Bradshaw et al., 2012) Academic success also predicts school adjustment and well-being. Poor physical health can hinder educational adjustment, social interactions, and emotional management. Finally, school adaptability and well-being affect academic and personal success. Both aspects affect academic achievement and development. Family, peer, intellectual, and physical health affect school adjustment and well-being. Thus, initiatives and programs to improve students' academic performance and well-being must incorporate both variables.

SIGNIFICANCE OF THE STUDY

Student well-being and adaptability affect academic and personal success. School adjustment is students' social, emotional, and academic adjustment to school. Total well-being refers to a student's lifelong mental, physical, and emotional health and happiness. Both affect academic success and development (Durlak et al., 2011). School adjustment affects intellectual, social, and emotional health. School adjustment challenges can influence academic

performance, social relationships, and emotional regulation, leading to poor well-being. Adjusting to school can boost academic, social, and emotional well-being.

Student well-being impacts academics, social connections, and emotional control. Well-adjusted students excel intellectually, socially, and emotionally (Huebner, 2004; Seligman, Ernst et al., 2009). Poor mental, social, and emotional health can lead to poor school adjustment. School adjustment complicates well-being. Anxiety, depression, and stress can harm school-adjustment and challenged adolescents. Poorly adjusted students' may struggle with concentration, motivation, and learning. Understanding school adjustment and well-being impacts students' academic progress and future well-being. Bullying, social isolation, and academic challenges have been demonstrated to harm students. Academic performance, self-esteem, mental health difficulties, and life pleasure may diminish (Suldo et al., 2008).

Positive school experiences, including supportive connections, stimulating learning settings, and a sense of belonging, have been related to better academic performance, self-esteem, mental health, and life satisfaction. Educators, parents, and governments may create supportive school settings that promote school adjustment and well-being by recognizing their relevance (Suldo, et al., 2008). This may include anti-bullying initiatives, social-emotional learning, enough resources and assistance for difficult students, and prioritizing student well-being over academic accomplishment. We can help students succeed in school and in life by addressing school adjustment and well-being.

REVIEW OF THE RELATED LITERATURE

Murray-Harvey, R. (2010). The significant associations revealed from correlation analysis between the Relationship, Psychological Health, and Social Adjustment variables and Academic Performance were further investigated using path analysis. This analysis confirmed the strength of the connection between the student's social/emotional and academic experience of school and highlighted that both academic and social/emotional outcomes are unambiguously influenced by the quality of the relationships between teachers and students which, when compared with that of family and peers, exert the strongest influence, on well-being and achievement outcomes for students.

Schonert-Reichl & Lawlor (2010). Mindfulness education (ME) program is favorable to increase a variety of characteristics of teacher-rated classroom social competent behaviors. The program also effects the participants' self-concept, although the ME program appeared to have greater beneficial effects on the pre-adolescents than it did on the early adolescents. The implementation fidelity and dose for the mindfulness activities were reported to be high by the instructors. The school going students who took part in a social and emotional learning program that was based on mindfulness are more interested in their academic work. They are also better able to manage stress moreover they are also capable to build relationships with peers and adults easily.

Durlak et al. (2011).The benefits of SEL programs on students' specific social-emotional competences as well as their attitudes regarding themselves, their peers, and their education were found to be considerable and favorable. In addition to this, they improved the students' academic performance on achievement tests and grades, as well as the students' behavioral adjustment, which manifested itself as an increase in prosocial behaviors and a decrease in conduct and internalizing difficulties. Implementing social and emotional programs in schools can have a significant impact on enhancing students' outcomes, including higher academic achievement and fever behavior problems.

Bradshaw, Waasdorp, & Leaf (2012). Following training in School-Wide Positive Behavioral Interventions and Supports (SWPBIS), there is a reduction in behavior problems as well as improvements in prosocial conduct and effective emotion regulation. Because SWPBIS is a universal prevention technique, this is one of the reasons why there is a reduction in behavior problems. It would indicate that the SWPBIS framework is a promising strategy for decreasing issues and boosting adjustment among elementary school pupils. A pleasant school environment, which is characterized by helpful teacher-student relationships, peer support, and a sense of safety, is associated with enhanced emotional adjustment and academic performance among children.

American Psychological Association (2017). Students who have established good relationships with teachers and are well connected to their school are good in mental health and have lower level of stress. It is expected that the student will have a higher degree of trust for her teacher, will demonstrate a greater level of participation in the learning process, will behave better in class, and will perform at higher levels academically. Students are more engaged in the learning process and have a stronger desire to learn when their teachers have positive relationships with them.

Pekrun et al., (2017). The presence of happy feelings, such as pride and enjoyment, was a strong indicator of future success. And that achievement positively predicted these feelings, which served as a controlling factor for the students. Achievement was adversely correlated with negative emotions (anger, anxiety, shame, boredom, and hopelessness), while negative emotions were negatively correlated with achievement. So the students who found their school environment supportive of their needs and interests are higher in academic achievement. Moreover they show greater life satisfaction and well-being.

RESEARCH METHODOLOGY

This research review explored how school adjustment affects children's well-being. Secondary data was employed in this investigation. Screening papers involved a thorough database search and inclusion/exclusion criteria. The researcher excluded irrelevant research papers from the review. Researcher searched literature using topic-related key words directly and indirectly. After data analysis, the researcher interpreted the results using narrative analysis.

OBJECTIVES OF THE STUDY

- To understand how students adjust to the academic and social demands of school.
- To examine the factors that impacts their overall emotional and physiological well-being.
- To identify strategies and interventions that can support students' school adjustment and overall well-being.

After reviewing and analyzing past studies, the researcher found some essential points that helped to grasp the topic. These points underpin additional research and exploration in this sector. They indicate key trends, knowledge gaps, and research opportunities. By synthesizing and building on earlier studies, the researcher has been able to provide a thorough review of existing knowledge and helpful ideas for future research.

FACTORS AFFECTING SCHOOL ADJUSTMENT

Student well-being and adaptability affect academic and personal success. School adjustment is students' social, emotional, and academic adjustment to school. Total well-being refers to a student's lifelong mental, physical, and emotional health and happiness. Both affect academic success and development. School adjustment affects intellectual, social, and emotional health. School adjustment challenges can influence academic performance, social relationships, and emotional regulation, leading to poor well-being. Adjusting to school can boost academic, social, and emotional well-being (Pajares & Schunk 2001).

Student well-being impacts academics, social connections, and emotional control. Well-adjusted Social, emotional, and academic aspects affect school adjustment. Social elements include school, peer, and family support. Supportive teachers, a sense of belonging, and a safe setting help youngsters acclimate to school. Positive peer relationships and class interactions help students acclimate. School acclimation depends on emotions. Higher self-esteem and resilience help students acclimate to school (Wentzel, 2016). Low-self-esteem students may have trouble making friends, handling stress, and adapting to new settings. High stress and anxiety levels may impair pupils' ability to concentrate, participate, and learn.

Academics also affect school adjustment. Students' adjustment depends on the curriculum's complexity, teaching methods, and quality. A tough, personalized curriculum inspires students. Effective teaching approaches that accommodate diverse learning styles and provide clear instructions can aid school adjustment (Wang et al., 1993). Students must master these aspects to acclimate to school. Students can overcome problems and adjust to school with strong coping mechanisms, problem-solving abilities, and emotional regulation. Parents and family help youngsters acclimate to school. Positive family relationships, open communication, and parental involvement in schooling help children acclimate to school (Hill & Tyson, 2009).

Recognizing and addressing these issues can assist educators, parents, and policymakers in fostering students' school adjustment. Positive interactions, social-emotional learning programs, academic support, and belonging can improve students' well-being and academic success. Social, emotional, and academic aspects affect adolescents' school adjustment. These factors must be addressed to provide a supportive school atmosphere. Educators and parents may help students succeed by encouraging healthy social relationships, addressing emotional needs, and offering academic support.

FACTORS AFFECTING OVERALL WELL-BEING

Psychological factors: Stress, anxiety, and sadness influence mental health. Academic pressure, high expectations, and personal concerns all frustrate kids. Anxiety and depression can harm mental health. Students require mental health skills and coping methods.

Social factors: Students' well-being depends on social interactions. Positive peer relationships, supportive friendships, and belonging boost mental health. Supportive family members offer emotional stability and advice. Financial problems and resource shortages burden pupils. High-quality life demands supporting school and family environments (Cohen & Wills, 1985).

Physical factors: Wellness depends on physical health. Diet, exercise, and sleep affect student health. To help students, physical health requires encouraging healthy habits, providing nutritious food, frequent physical activity, and appropriate rest. Healthy exercise reduces stress and improves mood, enhancing mental health (Warburton et al., 2006).

Factors influencing well-being: Students must manage well-being factors. Students overcome problems and stay healthy with resilience, coping skills, and stress management. Managing psychological, social, and physical issues requires open communication, support, and mental health resources. Teacher, parent, and politician encourage student well-being. Student well-being depends on mental health care, solid relationships, and quality of life programmes (Diener & Seligman, 2002).

Student health is affected by psychological, social, and physical changes. Students can cope with challenges and stay healthy with guidance during these transitions. Long-term student achievement depends on supportive home and school settings, best practices, and resources and supports.

Relationship between school adjustment and overall well-being

School adjustment affects well-being. Student well-being improves when students adjust academically, socially, and emotionally to school. Academically and socially successful students are well-rounded. Adolescents who struggle with school transition or well-being have lower academic achievement and behavioral issues. Academic stress, feeling disconnected from peers, and emotional hardship can affect students' academic performance and social connections.

Students with a sense of belonging, good relationships with peers and teachers, and overall well-being are more likely to achieve academically and socially (Suldo & Shaffer 2008). They're determined, curious, and optimistic. Thus, school adaptability and well-being must be prioritized. This includes social-emotional learning, effective teacher-student relationships, and help for challenging students. Educators can help students succeed by addressing school adjustment and well-being. After school, this can benefit them.

Interventions to improve school adjustment and overall well-being

Students can adjust and thrive at school with several methods. Mainly social, emotional, and academic therapies are included.

Research indicated that academic interventions aid school adjustment. Study groups and tutoring help children learn and gain confidence. The strategy, like customized curriculum, boosts student engagement and performance. Interventions like hands-on activities, personalized curriculum, and differentiated instruction can help. Career advising and counseling can help students find their passions and link their academic choices to their goals, giving them purpose and motivation (Weist et al., 2018).

Social therapy interventions aid in school adjustment and well-being. A warm, respectful, and tolerant school environment helps children feel at home (Thapa et al., 2013). Preventing bullying and interventions like mentorship and extracurricular activities can improve peer relationships and social cohesiveness. The activity of engaging parents and carers in school events and encouraging open communication can boost children's social support and well-being. Student emotional engagement is necessary. Addressing stress, anxiety, and depression improves school adjustment. Schools can teach mindfulness, stress management, and emotional regulation. With the aid of these interventions, students are able to communicate safely with school counselors or mental health specialists. Besides that, a culture of empathy and understanding where students feel safe seeking aid and communicating their concerns is also vital (Froh et al., 2008; Waters, 2011).

These above-mentioned therapies complement each other. Teachers, administrators, support personnel, and parents must collaborate on these strategies. The process of monitoring how these policies affect school integration and well-being can help identify areas for improvement and encourage changes. School integration of academic, social, and emotional skills helps children adapt and develop. Intellectual growth occurs when students feel valued, connected, and supported. This can boost their health and success.

MAJOR FINDINGS OF THE STUDY

The following points emerged after reviewing the previous studies:

- Positive school experiences, adjustment and climates increase school adaptability and well-being, according to various research studies. Positive school experiences boost mental health, academic engagement, and success.
- Negative school adjustment, experiences and unsupportive environments can cause mental health issues, low academic interest, and poor performance.
- Strong relationships, emotional intelligence, and social skills boost school adjustment and well-being. Students learn problem-solving, communication, and conflict resolution in social skills therapy.
- Interventions promote beneficial peer-student connections, partnerships, and personal ownership. Students learn empathy and healthy coping skills in emotional intelligence classes.
- Activities like anti-bullying and peer counseling foster social cohesiveness and relationships. School events and networking assist parents and carers. Students who are supported, appreciated, and engaged have better mental health, academic engagement, and achievement. These benefits improve their health and success.
- Positive school experiences and supportive surroundings aid transition and well-being. Addressing these traits improves schools academically, socially, and emotionally.

- ❖ Help schools improve transition and well-being. School improves mental health, academic engagement, and productivity. Unhelpful events can have the opposite impact.

EDUCATIONAL IMPLICATIONS OF THE STUDY

Understanding how school adjustment affects well-being helps teachers help children. Social emotional learning programmes increase student adjustment and well-being by teaching self-awareness, self-regulation, social skills, communication, and responsible decision-making. Also vital is a welcoming, inclusive educational environment that promotes communication. Extracurricular activities, peer mentoring and decision-making improve school transition and well-being. Improved school-family and community connections can boost student well-being. These methods can boost school adjustment and well-being by making children feel valued, supported, and driven.

- ➢ The school encourages student wellness through engagement, motivation, and socialization. Create a welcoming climate, offer extracurricular activities, and activate and engage pupils through teacher-student connections.
- ➢ Individualized instruction promoting lifelong learning is crucial for student success. Training might include targeted learning, customized education, critical thinking, problem solving, and self-regulation. These methods equip pupils for lifetime learning and academic success.
- ➢ The benefits of teacher-family ties and community involvement are significant for individuals in their 30s, regardless of gender. These therapies foster helpfulness, socialization, and growth. Good relationships and belonging help people overcome obstacles and improve well-being.
- ➢ Cognitive treatment for stress, anxiety, and depression can benefit individuals in their thirties. Mindfulness, relaxation, and psychosocial therapy improve emotional health and coping. These approaches boost self-control, reduce stress, and improve mood.
- ➢ Teachers can improve student well-being by teaching trauma and positive psychology. This course helps teachers foster positive learning environments, manage trauma, and increase student well-being.

CONCLUSION OF THE STUDY

Student well-being and school transition effect academic and personal performance. Engaged secondary students are happier, and vice versa, according to research. Thus, school reform and well-being must be understood and improved. Social and emotional climate affects school adjustment and well-being. A good school climate promotes student participation, belonging, and teacher-student connections. Kindness, social-emotional learning, student voice, and participation can help schools do this. Supportive parents, teachers, and peers assist. Parent-teacher-school cooperation is a key to school reform and well-being. Parent involvement in their child's education, teacher professional development to understand student well-being, and good peer support programmes can improve school adjustment and well-being and meet student requirements. This includes detecting and treating learning challenges, mental health difficulties, and trauma that might affect school adjustment and well-being. Education, counseling, and mental health strategies can help students overcome these issues and succeed in school. Parents, teachers, and principals must collaborate for school transformation and well-being. Schools can increase student well-being and academic success by providing healthy social and emotional settings, supporting relationships, and individual needs.

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EXAMINING THE ROLE OF E-SERVICE QUALITY IN ED-TECH PLATFORMS: A CRITICAL REVIEW

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ABSTRACT

With the increasing demand for personalized learning, edtech platforms are witnessing a continuous growth in the country. From 2012 to 2019, the number of hybrid and distance learners at traditional universities increased by merely 36 percent, but the pandemic rapidly expedited that growth by whooping 92 percent. This study aims to critically review the literature of e-service quality attributes of online learning platforms and identify the emerging attributes of e-service quality in ed-tech platforms. For the purpose of this study, an exploratory research was performed by reviewing published research articles from databases like EBSCO, JSTOR, WOS, SCOPUS etc. Findings from the study revealed the significance of system quality, the user interface design, ease of use, information quality, perceived usefulness in determining the usage intention and actual use of the e-learning platforms. Furthermore, emerging service attributes namely: e-educators' aptitude, e-learning material quality, operational excellence,visuals and aesthetics, learning autonomy, peer to peer communication, personalization and customization, and novelty in e-pedagogy are identified. The study will have relevant contribution in the literature of ed-tech platforms service quality.

Keywords: Ed-tech Platforms, E-Service Quality, Online Learning, Mobile Learning Applications.

INTRODUCTION

In a society where digital technology has become pervasive, online learning has gained an immense popularity. Online learning fulfills the modern learner's requirement of personalized learning and the need of continuous upskilling. During the pandemic, online learning became the only viable option, with students taking up online classes in large numbers. From making use of postal services to reach remote students with the use of artificial intelligence and the numerous technologies available for the dissemination of information, the advancements in distance and online learning over the years have been remarkable (Moore et al., 2011). Several ed-tech companies are providing online education in India like Byju's, Unacademy, Udemy, Coursera, etc. A total of 936 million app downloads were seen in the first quarter of 2020 (Statista, 2021). E-learning is described as deploying information and communication technology in the realms of education. It makes use of digital materials like recorded videos, presentations, e-journals, e-books, online quizzes, etc. Ed-tech platforms offer a wide variety of features - flexibility in learning; wide availability of courses; the possibility to interact with various learners, thus increasing interaction and collaboration; learning can take place in one's own pace and also useful for learners living in remote areas (Efiloglu Kurt,2019 and Isaac et al.,2019). From students of lower kindergarten using mobiles to learn through game plays, professionals taking up online courses for learning new skills and getting a pay raise, to adults watching videos on YouTube to learn different skills, the use of online learning is increasing everywhere.

As there is no physical interaction in the delivery of online services, delivering high-quality service becomes all the more important (Demir et al.,2020). E-Service Quality is "Consumer's overall evaluation and judgment of excellence and quality of e-service offerings in the virtual marketplace" (Santos, 2003). Different studies have found that designing and providing sound e-service quality increases the satisfaction level of consumers, which further helps in advancing their intention to use and loyalty (Gurau,2003). Various electronic service quality measuring scales have been used by researchers to check the influence of e- service quality on consumers of different service domains including hotel, transportation, e-commerce, and banking by focusing on the

reliability, efficiency, timely responsiveness, design, innovation, convenience, ease of using a service, quality of the website and security aspects.

Need and Significance of Study

The learning ecosystem is being continuously redefined. Edtech industry in the Indian economy is rapidly expanding and is expected to grow at a CAGR of approximately 30% to cover the market size of USD 10.4 billion by 2025 (Jhingan et al., 2021).The pandemic further proved to be a boon for the edtech industry as people had to stay indoors and engage in online learning. This study aims to crtically review the literature of e-service quality in context of ed-tech platforms and, tries to identify emerging attributes of service quality of ed-tech platforms.

REVIEW OF LITERATURE

Recently, many new models of technology adoption by customers are applied to gauge e-service quality in context of online learning. Lutfi et al. (2022) in their study covered the elements of performance expectancy (PE), effort expectancy (EE), facilitating conditions (FC), and social influence (SI) along with information, system and service quality. Iranmanesh et al. (2022) conducted a study by employing trust among members, social usefulness of the app, information and system quality. Menon (2022) identified following gratifications - educational assistance, entertainment, novelty, social impact, convenience, activity and engagement for the purpose of his study. Various research efforts expanded the IS Success Model by adding new attributes, Gharaibeh et al. (2020) employed trust factor, Aldholay et al. (2019) assimilated attributes of compatibility and transformational leadership (TL) and Alksasbeh et al. (2019) used networking quality along with the IS Success model dimensions. Camilleri & Camilleri (2019) deployed the attributes of perceived usefulness, ease of use, enjoyment, and normative pressures. Wang et al. (2018) checked the influence of information quality, information technology (IT) and information environment in the context of online learning.

2.2 *Impact of E-service Quality on Aspects of Consumer Behaviour*

Almaiah et al. (2022) aimed to identify the role of quality measurements in increasing the use of mobile learning applications (MLAs) during the pandemic. Effect of quality factors – information, service and system quality was first studied on the perceived ease of use and usefulness. Results showed quality factors significantly impacted perceived ease of use and usefulness, m-learning usage intention and actual use. Hurtado et al. (2021) conducted a study with the primary objective of measuring the quality of online teaching of subjects, initially designed for offline training. The study checked the impact of system characteristics on the constructs of effectiveness of online education and relation with teachers & evaluation; the latter variables were then studied to check their impact on online learning satisfaction. Considering the findings, the author concluded that five essential attributes of online teaching namely: interaction between the students, concentration level of students, the system for assessing online tests, system ‘s usefulness and the variety in assessment tests are significant for the enhancement of virtual instruction service quality.

Demir et al. (2020) explained the effect of e-service quality on satisfaction, perceived value and readiness to pay for online meeting platforms in the educational domain. Results showed that e-service quality directly affected perceived value and satisfaction, but it was not directly related to the readiness to pay. Perceived value and satisfaction acted as mediating variables between service quality and readiness to pay. Also, it was found that perceived value had a more critical effect on readiness to pay when compared with satisfaction. Camilleri & Camilleri (2019) came up with a conceptual model using TAM, UTAUT and Theory of Planned Behavior (TPB) to check the intrinsic and extrinsic motivations of the primary school students towards learning by employing gameplay through their mobiles. The four hypothesized relationships, i.e., the influence of perceived usefulness, perceived ease of use, enjoyment, and normative pressures on behavioral intention & actual use were investigated using the multivariate regression analysis. Results of which indicated that perceived usefulness of m-learning and behavioral intention to use it were strongly related with each other, but no substantial connection could be seen between perceived ease of use and student's enjoyment in using MLAs at school. Also, perceived ease of use showed a positive effect on perceived usefulness. Arguelles et al. (2013) presented a model to check the perception of service quality in the virtual learning environment. The scale consisted of 24 attributes divided into four areas: teaching, support services, administrative or facilitative services, and user interface. Dimensions of teaching quality had the highest impact, followed by administrative services, user interface and support services, respectively.

DISCUSSION & IMPLICATIONS

Above literature illustrates that researchers have identified various attributes to measure service quality in ed-tech platforms. Ed-tech platforms are past their embryonic stage, now these systems are constantly diversifying

with the technological advancement. In this scenario, new e-service quality measuring attributes are emerging which are discussed in the following paragraphs.

1. ***E-Educators' Aptitude*** – The ed-tech platform educators' aptitude and the teaching methodologies adopted by them severely impact the understanding level of students. Effective use of animations, videos, power point presentations and artificial intelligence by the teacher help in better learning and retention of the topics by increasing the engagement level among students. New education policy 2020, requires teachers to possess skills of effectively using different pedagogical tools. Technology backed online learning has the proficiencies to ease the work of educators with its state of art user interface. Educators can get feedback on their teaching and constantly monitor their career progress. Moreover, highly popular educators are awarded with promotional referral codes in the form of incentives. Thus, advanced technology of ed-tech platforms favors both educators and students by motivating educators to provide quality learning content.
2. ***E-learning Material Quality -*** Along with educator proficiency, providing effective study content that is legible to understand, precise and updated regularly with the emerging requirements of the job recruiters is of utmost importance. Learning content that provides useful insights by integrating learning from different fields will make learning more useful and improve the learning performance of students. Content should also trigger analytical thinking among learners by providing thought provoking exercises. It is one of the key factors that affects the intention to adopt e – learning system.
3. ***Operational Excellence*** - Robustness and smooth operation of the system, compatibility of an app with different operating systems will make students more attentive and learning more effective. Learning system that keeps on adding new features is expected to have a higher chance of acceptance. As systems would be used by students who might not possess sufficient level of technical skill, necessary assistance should be available. A learning app must be free from frequent errors. Another issue that needs to highlighted here is privacy and security of applications from harmful internet security threats. Designing apps and learning platforms that are pleasurable to use, easy to navigate, encourage creativity andincrease self-confidence will be highly beneficial for learners.
4. ***Visuals and Aesthetics*** - Use of interactive graphics in website design will motivate students to make use of a site whenever they face a query. Proper arrangement of the all the icons and interactivity of the system in terms of visuals added to it will help increase productivity of students by enhancing their span of attention. App layout must facilitate an engaging learning environment. Proper color arrangement is another significant aspect. Also, e-learning platforms that encourage students to think creatively will have a higher chance of adoption.
5. ***Learning Autonomy*** - Increased independence and flexibility in learning through e-systems may also impact learner's satisfaction level as they are free to choose from a variety of content, courses and educators. Presently, in learning applications, there are features of storage and recording that promotes autonomy and flexibility. Moreover, learners have registered accounts on the platform where they can check their pending assignments, submit them as per their convenience and regularly monitor their performance in tests and exams.
6. ***Peer to Peer Communication*** - Use of an e-learning system by peer group has boosted the motivation to adopt it. Positive experience of a friend may positively influence one's attitude and trust. Comfort level of the present teachers with online learning has also encouraged students to make use of this technology. Moreover edtech platforms are fully connected with other social media handles and there are learning communities where students can share their achievements and experiences. Thus, peer to peer communication feature is massively enhancing the present scope of education.
7. ***Personalization and Customization*** - Lack of direct contact with the distant teachers always remains an area of concern in the online environment. Therefore, learning apps are providing the facilities that provide personalized learning. Usage of tailor made approaches, giving adequate importance to the suggestion of students, solving their queries and providing personalized feedback by employing assessment tests is promoting personalized learning. Apps offer course suggestions to students as per their individual interest and past performance. Moreover there are discussion forums where students can express their opinions and have discussions with fellow learners and educators about the different concepts.
8. ***Novelty in E-pedagogy***- Integration of learning with storytelling through animations, online role plays and use of game plays in teaching and evaluating the performance of students of lower classes will make learning more enjoyable. Providing practical training by using artificial intelligence and robotics will help students experience a phenomenon and retain it for a longer time. Learners' philosophies are changing dynamically due to new educational policies and competition being faced by them in the current job market. Therefore, novelty in educational pedagogies of online educators can enhance their all-round development.

CONCLUSION

Educators from all regions and age groups need to be tech-savvy so that they can reap the benefits of the latest technologies and employ effective teaching pedagogies. Also, e-learning system developers can encourage self-regulated learning by embedding features of personalized planning and goal setting into the system. Conscious and collaborative efforts from all the stakeholders like teachers, students, parents, government, educational institutions and online educational platforms will help in making India a knowledge economy in the coming years. Future research can be done to check the impact of the suggested attributes along with the other quality features on the satisfaction level of students.

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FACULTY BELIEFS AND TECHNOLOGY USE IN ONLINE DISCIPLINARY TEACHNING

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ABSTRACT
The design of virtual learning systems and the evolvement of technology tools can allow for contextualized online learning and teaching in higher education in relation to the specificities of academic disciplines (Alexander, 2017). Educational developers, instructional designers, and online learning administrators often confront this issue in practice. This paper presents and discusses the findings of a pilot research study about the impacts of faculty beliefs and their subject domain expertise on their use of technology in online teaching across six academic disciplines at a regional Canadian university just prior to the COVID-19 pandemic lockdown in 2020: education, engineering, environment, digital media, nursing education, and sociology. Using the multiple case study, this research highlights commonalities and dissimilarities among online faculty beliefs and disciplinary use of technology. Limitations of the study are mentioned and recommendations for online faculty development, as well as improvement for future research are made.

INTRODUCTION

Face-to-Face (F2F) and distance learning are two different education modalities in terms of location, time, and action. The first refers to the synchrony of location, time, and actions. But thanks to technology, the second can include both the synchrony and asynchrony of these three dimensions of teaching and learning. Studies before and after COVID-19 show that the two modalities achieve the same quality of learning outcomes (Cavanaugh & Jacquemin, 2015; Eansor, et al., 2021; Mahaffey, 2018; Sánchez-Cabrero, et al., 2021). However, regardless of the modality, teaching is different with respect to contextual peculiarities, disciplinary specificities, faculty beliefs, assessment practices and uses of technology (Bachy, 2014; Brinkley-Etzkorn, 2020; Eichelberger & Leong, 2019; Ḥaṭivah & Goodyear, 2002; Jaaskela, Hakkinen, & Rasku-Puttonen, 2017; Owens, 2015; Sánchez-Cabrero, et al., 2021; Steel, 2009; Tiruneh, et al., 2016). Bachy (2014) designed a framework to show how faculty beliefs infuse into the construction of online pedagogical knowledge in their subject domains within a digital learning environment: *Savoir technopédagogique disciplinaire* (STPD), translated as Disciplinary Technopedagogical Knowledge (DTPK). This framework is built on three models: Berthiaume's (2006) Disciplinary Pedagogical Knowledge (DPK); Lenze's (1995) model of Discipline-Specific Pedagogical Knowledge (DSPK); and Mishra & Koehler's (2006) model of Technopedagogical and Content Knowledge (TPACK).

Mishra & Koehler (2006) focus on the consistency between technology, pedagogy, and content (TPACK). Lenze (1995) calls for considering disciplinary specificities in the pedagogical development process (DSPK). As for Berthiaume (2006), instructors' beliefs or epistemologies should be considered in this process (DPK). If TPACK is primarily designed for schoolteachers, it is still relevant for faculty development in higher education but does not explicitly dive into instructors' beliefs about technology. DSPK and DPK were developed for higher education, but they do not specifically focus on technology either. Bachy (2014) underpinned her framework in these tree models for online faculty development in the context of digital technology. However, her study was limited to language education, engineering, and statistics. This paper presents and discusses the results of a pilot study across six academic disciplines at a small regional university in Canada to help enhance online faculty development considering professors' beliefs and their use of technology in distance education. The study examined practices in digital media, education, engineering, environment, nursing education, and sociology.

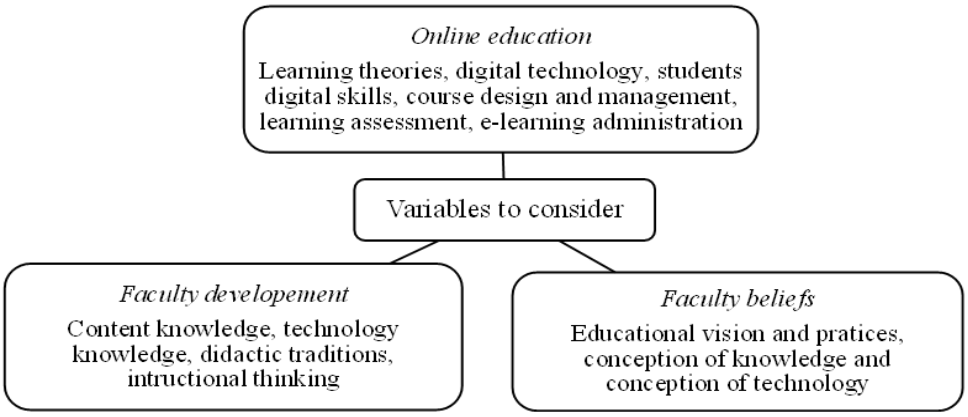
LITERATURE REVIEW

Search methods

The Boolean operators with key words were used to find relevant literature sources that can help inform the research problem: [''Faculty beliefs'' OR Synonyms] AND [''Technology OR Synonyms] AND [''Online teaching'' OR Synonyms] AND [''Higher education'' OR Synonyms] AND [''Subject domain'' OR Synonyms] AND [''Faculty

development'' OR Synonyms]. Multiple search engines in French and English were used in this regard: *Cairn Info*, Elsevier, *Érudit*, Google Scholar, Open Access, Open Athens, Sage Journals, and Wiley Online Library. Relevant sources on distance education and technology were limited to 10 years and less while sources on beliefs, subject domain and faculty development were open to any source that is relevant to the topic regardless of the date of publication. Examination of all selected sources resulted in three broad categories of variables to consider. This has made it possible to map, to some extent, the research scholarship in three broad categories: online higher education, faculty beliefs and faculty development (figure 1).

Figure 1 – Broad categories of variables



Broad

categories of variables

Online Education

Six sub-variables emerged in relation to this overarching variable. First, some studies, based on theoretical analysis informed by empirical data, show that online teaching with digital technology mobilizes student-centered learning theories for active knowledge construction (e.g., Anderson, 2008; Garrison, 2017; Hamilton & Tee, 2016; Harasim, 2015). Second, studies by Alexander (2017), Budhai & Skipwith (2017), Finkelstein (2006), Garrison & Vaughan (2008) and Palloff & Pratt (2007), using different theoretical frameworks and methods designs, point to email, forum, texting, blog, wikis, and multimedia as frequent digital tools for teaching in online education considering the interactivity of these tools and the high occurrences of their use. Third, Da Silva & Behar (2020), through a design-based research, calls for a relevant framework that faculty should consider when supporting the development of online students digital skills. Fourth, the quantitative study by Altinay (2017) highlights the role of peer-assessment as a catalyst for self-reflection in online collaborative learning. Guerrero-Roldá & Noguera (2018), in a designed-based research study, highlight how technology can help build an e-assessment task consistent with learning outcomes in a student-centered online learning environment: They built a framework that leverages technology for designing online learning assessment tasks considering the targeted competencies. However, Watson et al. (2017) questioned, through an in-depth single case study, the data surveillance approach to monitor learning as the learning assessment practices in higher education are torn by the tension between certification and the need for learning: Most students turn out to be more concerned with certification than the need for in-depth learning.

Fifth, online course design and management requires a strong support and very clear specific guidelines. Sanga (2019), using a qualitative data analysis, reports common instructional design and technology issues in 120 online courses (e.g., quiz creation and administration, applications use, etc.). These issues were resolved through a strong collaborative teamwork that brought together faculty, instructional designers, and technologists. Besides, Jeffery & Ahmad (2018) recommend in a case study to use standardized rubrics (e.g., Quality Matters), that can help design relevant and consistent online courses. As for differentiated instruction, the qualitative study by Griful-Freixenet et al. (2017) shows that students with disabilities fully agree with applying the principles of Universal Design of Learning (UDL) in course design despite some shortcomings that can be addressed. And sixth, studies by Cifuentes, Suryavanshi & Janney (2018); Liu, Zha, & He (2019); Miller (2014); Piña et al. (2018); Trevitt, Steed, Du Moulin, & Foley (2017), using different research designs, agree on the implementation of a strong e-learning leadership that calls for

institutional digital transformation and online faculty development. These studies showcase how a collegial leadership can foster a strong institutional digital culture change with positive impacts on learning and teaching.

Faculty Beliefs

Faculty beliefs or epistemologies refer to their conceptions about learning and teaching, as well as their conceptions about any instructional resource such as technology (Bachy, 2014; Berthiaume, 2006; Hativa & Goodyear, 2002; Loiola, 2000; Schulman, 1986). Faculty are expected to teach to some extent, depending on their subject domains, prescriptive and normative contents to develop students skills for the market labor, skills that are rather dynamic and evolving considering the particularities of the students' future professional contexts. Literature points out two paradigms of learning (Jonnaert, 2015): Positivist (knowledge is transmitted) and social constructivist (knowledge is constructed through social interactions). As didactic traditions may fall in either paradigm, faculty teaching practices may lean towards one paradigm depending on their learning experiences when they were students and/or the instructional practices in which their subject domains are anchored (Berthiaume, 2006; Loiola, 2002). In a multiple case study, Eichelberger & Leong (2019) showed that faculty beliefs about online teaching and students' digital skills can impact instructional strategies, resulting in varied online teaching outcomes. In addition, Martin (2018), through a quantitative study accounting for the variables of gender, tenure status, and employment position, highlights how faculty beliefs about technology impact its infusion into teaching.

Faculty development

Literature indicates that disciplines have their own didactic, considering their conception of what knowledge is, how it is produced and how it should be taught and learnt (Goodyear, 2002; Loiola, 2000). One cannot ignore this epistemology underlying teaching, learning and assessment methods since it impacts the faculty pedagogical thinking processes. Shulman (1986) designed the Pedagogical Content Knowledge (PCK), that is the teacher practical knowledge of structuring and presenting content as well as using appropriate strategies to address learning issues regarding the educational contexts and available resources. This type of knowledge requires that every instructor be not only an expert in didactics, but also in pedagogy (i.e., very knowledgeable of teaching, assessment, and class management). Lenze (1995) redesigned the PCK framework in Discipline-specific Pedagogical Knowledge (DSPK) as the network of disciplinary pedagogical knowledge is embedded in disciplinary specificities. What is relevant in both frameworks are the cognitive processes involved in instructional thinking.

Shulman (1986) conceives instructional thinking as a set of critical reflections on content structuring, classroom interactions, learning assessment, instructor self-assessment of teaching strategies and the new educational vision that emerges from the teaching experience. For Mailhos (1999), this is a complex process of theorizing leading to conceptual change, identity construction and professional development. Both authors clearly emphasize the dialogic thought process that must be examined in the instructor's interactions with the learning environment. As for teaching with technology, Mishra & Koehler (2006) built the Techno pedagogical and Content Knowledge (TPACK) model, based on Schulman's (1986) PCK constructs. TPACK considers the key role of technology in content processing and instructional interactions. Content refers to disciplinary knowledge, pedagogy to educational knowledge and technology to hardware and software knowledge. TPACK provides a comprehensive way to align technology, pedagogy, and content: The instructor integrates all the three knowledge areas in a consistent and overarching frame to help students achieve significant learning outcomes. Literature also shows that faculty beliefs impact their construction of a domain-based pedagogy. Beliefs must then be considered in the construction of techno pedagogical knowledge in higher education.

CONCEPTUAL FRAMEWORK AND RESEARCH QUESTIONS

As can be seen, the three categories of variables from the literature (online education, faculty beliefs and faculty development) lay the ground for the research conceptual framework and questions. There are various frameworks to capture how instructors use technology for teaching. But this pilot study focused on what faculty hold for true about content, instructional methods, and technology in online teaching. A model of techno pedagogical knowledge construction in online higher education, based on faculty beliefs and subject domains, can help capture this phenomenon: Bachy's (2014) framework.

Bachy's (2014) Disciplinary Techno pedagogical Knowledge (DTPK)

This model is built on four conceptual frameworks: Berthiaume's (2006) Disciplinary Pedagogical Knowledge (DPK), Lenze's (1995) Discipline-specific Pedagogical Knowledge (DSPK), and Mishra & Koehler's (2006) Technological Pedagogical and Content Knowledge (TPACK). DTPK focuses on faculty development in the specific context of

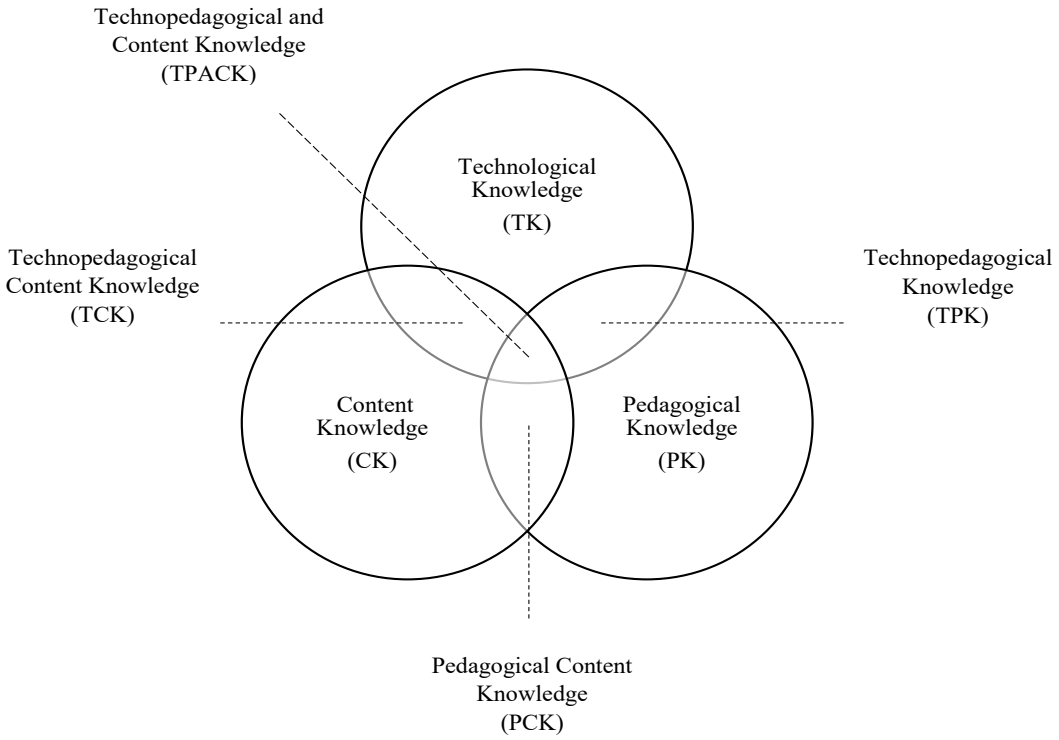
digital technology for online education. It highlights four knowledge areas to consider when examining online pedagogy, and six pairs of interactions that emerge from the relationships of these four areas (Table 1).

Table 1 – Focus of the knowledge areas and interactions

Knowledge areas	**Focus**
1. Pedagogy (P)	Instructor's ability to implement teaching and assessment methods
2. Discipline (D) or Content/Didactics	Instructor's ability to plan learning, teaching, and assessment.
3. Technology (T)	Instructor's relation to technology and how s/he addresses technical issues.
4. Epistemology (E) or beliefs	Instructor's beliefs about learning and teaching
Interactions	**Focus**
1. Pedagogy & Epistemology (PE)	How instructor's beliefs impact his/her teaching methods.
2. Pedagogy & Discipline (PD) or Didactics	Instructor's ability to align pedagogy and content/didactics
3. Pedagogy & Technology (PT)	Instructor's ability to align pedagogy and technology
4. Technology & Epistemology (TE)	How instructor's beliefs about technology impact his/her use of technology as teaching and learning aids
5. Technology & Discipline (TD) or Contents	Instructor's ability to align content and technology.
6. Discipline & Epistemology (DE)	How instructor's beliefs impact the structuring of learning content.

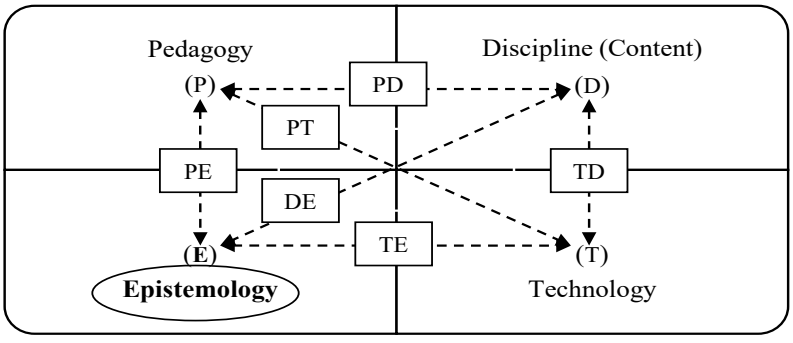
DTPK uses a validated self-positioning metric of 28 items to allow faculty to self-assess their own knowledge of the four areas and show how they related each area to the others to enhance learning. This metric is based on the TPACK self-assessment tool constructed by Archambault & Crippen (2009). These two authors' metric captures relevant teaching methods of learning content with consistent technology: i.e., A Likert scale including open-ended questions based on the TPACK framework to collect data on the three knowledge areas defined by Mishra & Koehler (2006), which intersection allows a consistent integration of technology in education (figure 2).

Figure 2 – TPACK Framework (Mishra & Koehler, 2006)



Bachy (2014) added the beliefs portion (epistemology) to this framework, resulting in a square of interactions between technology, pedagogy, content, and beliefs (figure 3). The author encompasses the key constructs of Berthiaume's (2006) DPK; Lenze's (1995) DSPK; and Mishra & Kohler's (2006) TPACK to redesign an overarching framework that examines the complexity of the interactions of the four knowledge areas: Technology, pedagogy, content/discipline, and epistemology. It should be noted that her framework was built in the context of language education, engineering, and mathematics (statistics) in a European university (Belgium).

Figures 3 – Core knowledge areas and interactions



Research questions and objectives

Considering the relevance, in the research scholarship, of how faculty beliefs and didactic culture about higher education can affect their instructional thinking process, the driving questions for this research study were formulated as follows:

1. What are the faculty beliefs about teaching, learning, and technology in online higher education?
2. How do these beliefs and disciplinary affiliations impact the use of technology in online teaching?

The purpose of this study was to investigate the structure of faculty beliefs, and the impacts on their use of technology in online teaching to support faculty development. Considering DTPK framework, the study sought to understand how online faculty instructional thinking process with technology is anchored in their beliefs and in the particularities of the disciplines. In this regard, the study examined particularly the connection between Technology and Epistemology (TE) while considering the relationships between other knowledge areas.

RESEARCH DESIGN AND METHODS

This research is a descriptive selective multiple case study to refine knowledge on faculty development by examining causal processes between beliefs, subject domains, and online teaching with technology. As Yin (2017) put it, the boundaries between the phenomenon (online teaching) and the context (faculty beliefs and didactic cultures) are not evident. Therefore, multiple sources of information are needed for in-depth insights into the issue.

Participants selection and context

An intentional sampling, based on Huberman's (1989) conceptual framework on teacher development, was conducted: 1 to 3 years of teaching correspond to trials and errors for beginners; 4 to 6 years correspond to commitment to the profession, and consolidation of one's practices. 7 to more years refer to diversification and later to disengagement. Tenured and tenure-track faculty teaching both online and in F2F (synchronous, asynchronous, blended courses) were selected. They worked in the same university, a small regional institution offering online and blended courses in 180 undergraduate and graduate programs across 10 departments. The chairs of the participating departments in the study helped identify the professor considering the selection criteria, the professor's experience, and interest for distance education. Online experience was 2 years or more, and F2F was 4 years or more, so participants could compare their teachings in both modalities and see how they use technology online. One participant per department was selected (table 2). They were presented with the ethic certificate, and they signed the free consent form.

Table 2 – List of participants

Data collection and procedure

Participant	Gender	Department	Course	Online	Face-to-Face
Associate professor	Male	Education	Youth Literature	2 years	8 years
Assistant professor	Female	Sociology	Theories of Social Change	4 years	6 years
Assistant professor	Male	Digital Media	Digital Arts	5 years	5 years
Full professor	Male	Environment	Sustainable development	4 years	16 years
Assistant professor	Male	Engineering	Power System Analysis	2 years	7 years
Associate professor	Female	Nursing Education	Cardiology	6 years	8 years

A semi-structured interview of 1h30 to 2h was conducted with each participant. The questionnaire was divided into 2 sections (table 3). Section 1 on epistemology looks at conceptions of teaching, learning, and technology. Section 2 on online teaching with technology considers how they implement instructional methods with technology in actual online courses. The interview consisted of 8 questions, which had been tested by 8 online professors from another university: 1 tenured and 1 tenure-track per department (law, management, medicine, and pharmacy). This pilot test helped revise the questions before conducting the interview via Zoom. For ethical reasons, as the principal investigator is the participants' colleague, two task-oriented interviewers unknown of them and very knowledgeable of qualitative research interviews protocol were hired to reduce and prevent social desirability bias (Nederhof, 1985).

Table 3 – Semi-structured interview questionnaire

Section	Questions
1. Beliefs about teaching, learning, and technology	3 items
a. What is your vision for teaching and learning in higher education and what justifies this vision? b. What are the intructional practices in your department? c. As for you, what is the purpose of technology in education? What justifies your view of this/these role(s) of educational technology?	
2. Instructional strategies implementation with technology	5 items
a. What are your online teaching methods and strategies? What are they based on and why? b. What kind of online learning tasks do you offer to students and why? c. What platform do you use for synchronous classes and why? How do you interact with students in these sessions? d. What online technology tools do you use for asynchronous interactions and why? e. According to your online teaching strategies and your uses of technology, how would you describe your use of technology to teach online)?	
	8 questions

Data analysis and techniques

Inductive thematic analysis of the transcripts was conducted with Nvivo to identify, organize, and interpret the patterns of meaning in the online teaching practices of each individual case. This data analysis strategy provided insights into each professor's experiences, thoughts, or behavior related to online teaching with technology. To do this, transcripts were checked, and codes were generated to search for emerging themes considering the DTPK framework. Descriptive coding was used to document and categorize emerging themes (Saldaña, 2021). Themes were analyzed to construct meanings from the patterns of connections between them.

To ensure fidelity and validity of the coding framework, triangulation was applied with simultaneous coding by two independent researchers to check for pattern regularities between the generated codes. Data examination process was interpretive: analyzing, combining, comparing, and mapping significant interactions between epistemologies and technology to document, for each case, how the professor articulates beliefs and didactic culture in online instructional thinking process in higher education.

FINDINGS AND DISCUSSION

Description of epistemologies

The themes for this area stem from the questionnaire in section 1: 6 sub-themes for each theme, a total of 12 units of meaning (table 5). The alignment of the sub-themes forms in each case the professor's educational vision.

Table 4 – Excerpts from the transcripts of section 1

Assistant Professor of electrical engineering Course: Power system analysis	[…] You learn when you generate and apply content from evidence-based knowledge in structured ways. We train professional engineers, and as such we should comply with the regulations outlined by the College of Professional Engineers […]. Academic freedom! But we all focus on competency-based approach as common instructional foundation recommended by the board of Professional Engineers […]. Of course, technology is a great support, but machines cannot replace human thinking. Engineers must learn to think and make appropriate decisions […].
Full Professor of environment Course: Sustainable development	[…] Learning happens when the way you see reality is changed. Instructors are facilitators of the process […]. The departmental practices are connecting theory to practice for significant learning. But personally, as a professor of sustainable development, I always seek transformation of mentalities as we see all the dramas related to climate change today […]. How could we enhance learning without technology today? It's not only a tool for learning, but also for professional practices […].

Associate Professor of nursing education Course: Cardiology	[…] Focus is competency-based training for ongoing professional development […]. We have no choice but to follow the recommendations of the College of Nurses for health professions education […]. Thanks to digital technology we can design significant learning scenarios, for instance virtual simulations, that connect theory to practice for deep learning […].
Associate Professor of education Course: Youth literature	[…] Inspire self-confidence and self-development in engaging, creative, and reflective learning environments as outlined by the ministerial teacher education and development framework […]. The department encourages social constructivism, but professors are free to choose their instructional methods […]. Technology improves not only learning but provides opportunities for cross-curricular projects that can support and develop integrated skills […].
Assistant Professor of digital media Course: Digital Arts	When there is creation and innovation, there is learning in the digital age […] As a digital artist, I see tremendous opportunity with technology to let our imaginations flow freely like a bird in the sky! We learn, teach and work with digital technology. It's everything for us. It's the foundation for developing genuine creativity we want our students to achieve in virtually portraying reality with digital media. […].
Assistant Professor of sociology Course: Theories of social change	[…] Learning must lead to a critical stance in reflecting on social dynamics […] This should be reinforced at graduate level. As a critical theorist, I strongly believe my students should learn to understand and overcome the dynamics of social structures […]. We choose whatever teaching methods work for us […]. As a sociologist, I go beyond the simple use of technology as instructional aids and consider it as opportunity to make students reflect on the changes this artefact has brought about in the digital age and in the construction process of individual and collective identities […].

Table 5 – Themes and sub-themes from section 1 verbiage

Knowledge area: Epistemology						
Category: Beliefs						
Themes (Interview section 1)	Sub-themes					
Teaching and learning	Proven knowledge generation and application	Conceptual change	Competency -based education	Engaging, creative, and reflective learning	Creative and innovative learning	Critical stance development
Technology	Teaching aid	Enhance learning	Significant learning scenarios design	Development of cross-curricular competences	Development of genuine creativity	Reflection on social changes and identities construction
	↓	↓	↓	↓	↓	↓
	Professor of Power System Analysis ***Engineering***	Professor of Sustainable Development ***Environment***	Professor of Cardiology ***Nursing Education***	Professor of Youth Literature ***Education***	Professor of Digital Arts ***Digital Media***	Professor of Theories of Social Change ***Sociology***

Professor of Power System Analysis in Electrical Engineering
He is a tenure-track assistant professor, who has been teaching online for 2 years and 7 years in F2F. He teaches a blended undergraduate course (F2F integrating synchronous online instruction) to second year students on electrical design and intended performance. Students use calculations and simulations in this course. For him, teaching and learning foster the generation and application of proven knowledge. He sees technology as a simple tool to optimize learning. But this is done in accordance with the framework of the College of Professional Engineers, which promotes the competency-based approach.

Professor of Sustainable Development in Environment
A tenured faculty member at the rank of full professor, who has been teaching online for 4 years and 16 years in F2F. The synchronous online undergraduate course he teaches to first year students focuses on theoretical and practical frameworks based on research data to intelligibly link environment, economy, and sustainable development. He sees teaching and learning as a process of conceptual change. This vision is embedded in his belief about environmental safeguard, which he connects to mental and behavioral transformations. He is concerned about the practicality of knowledge to make learning meaningful. Technology is more than a teaching aid for him: i.e., it is a professional tool that future ecologists should know how to use.

Professor of Cardiology in Nursing Education
She is tenured at the rank of associate professor and has been teaching online for 6 years and 8 years in F2F. She teaches undergraduate first year nursing students in a blended learning environment. The course looks at a wide range of patient care about cardiovascular diseases and focuses on competency-based learning connected to the College of Nurses educational framework. She sees technology as a valuable tool for designing significant learning scenarios to implement hands-on tasks for deep learning both in F2F and online.

Professor of Youth Literature in Education
He is tenured at the rank of associate professor, who has been teaching online for 2 years and 8 years in person. He teaches second year students in preschool and elementary education programs. His online course is synchronous and provides students with instructional methods that can help connect the world of stories to the world of children to make learning fun and significant. He emphasizes engaging, creative, and reflective learning tasks embedded in the provincial teacher education and development framework. Although professors can choose their teaching methods, his department promotes social constructivism. He sees technology as an opportunity to develop cross-curricular competences for students' autonomy and significant knowledge transfer.

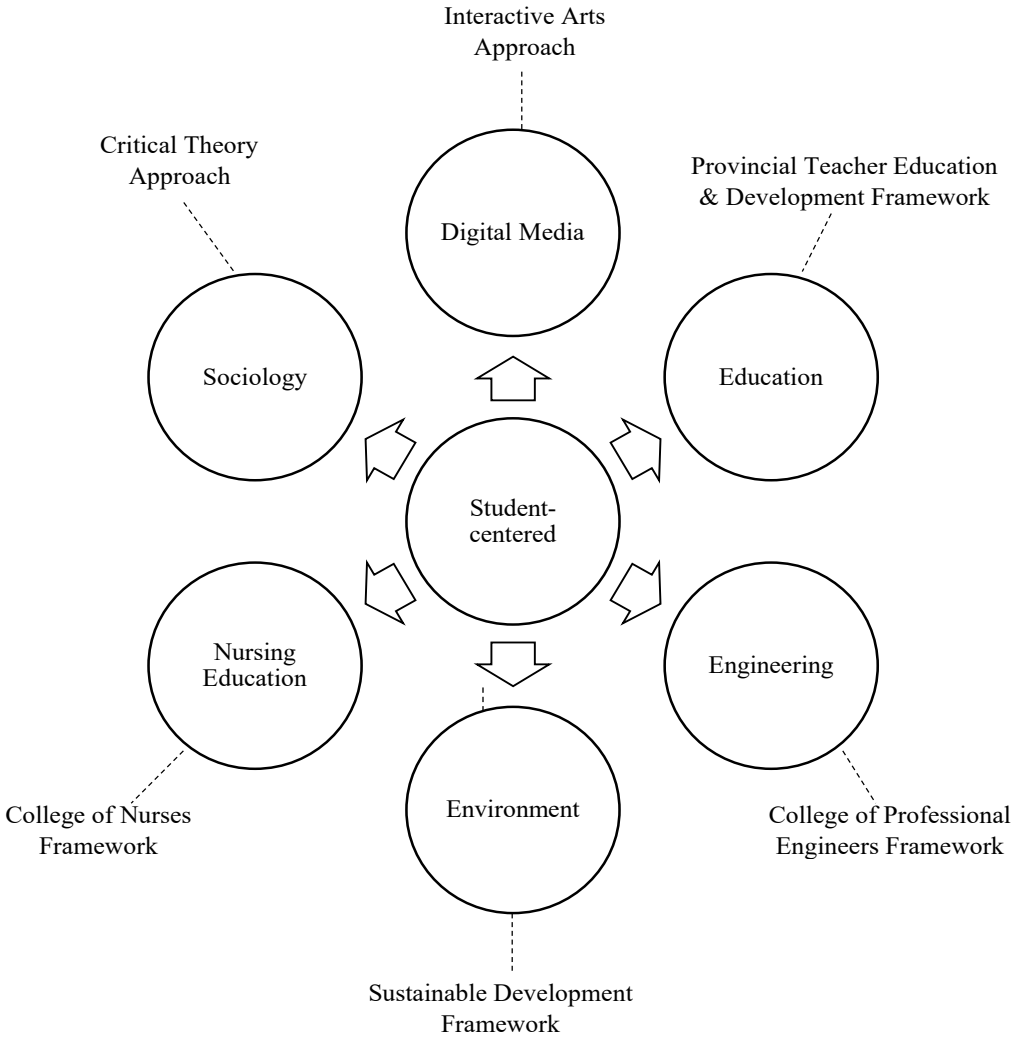
Professor of Digital Arts in Digital Media
He is a tenure-track assistant professor. He has been teaching online for 5 years likewise in person. He teaches digital arts to third year undergraduate students in the online digital media program. His course focuses on interactive arts in immersive and virtual reality. For him, creative and innovative learning are the key words. Technology is a pretext for genuine creativity since it allows the mind to escape and live the freedom of imagination in digital arts.

Professor of Theories of Social Change in Sociology
She is a tenure-track assistant professor. She has been teaching online for 4 years and 6 years in F2F. She teaches graduate students. Her online synchronous course provides students with frameworks for analyzing social change and the ability to understand society through changes related to intimacy and social relationships. Her vision of education is based on critical stance development. She sees technology as a pretext to make students reflect on social changes, as well as on new individual and collective identities in the digital age.

Foundations of epistemologies
Regardless of the discipline, all these educational visions have one thing in common: They are student-centered as shown in the literature on online learning by Garrison (2017), Hamilton & Tee (2016), Harasim (2015), Anderson (2008). The professors focus on students' ability to engage with content, produce, create, innovate, and think critically. If academic freedom allows them to choose their instructional methods, their teachings remain rooted in the educational frameworks of their professional affiliations and academic backgrounds (figure 4): e.g., The professor of youth literature is shaped by the ministerial framework of teacher education and development; the professor of cardiology relies on the regulations of the College of Nurses; and the professor of power system analysis follows the regulations of Professional Engineers. Each vision is shaped by the educational framework of the professional governing body the professor belongs to. Although the other three professors do not belong to such entities, they are influenced by their academic affiliations: e.g., The professor of theories of social change proclaims the impact of her

critical theorist background on her beliefs; the professor of sustainable development grounds his teachning in the educational framework of eco-citizen approach to economic development; and the professor of digital arts focuses on creativity in connection with his background of digital artist. The case of each professor validates research in the literature on the role of faculty beliefs in the construction of pedagogical knowledge regardless of the instructional modality.

Figure 4 – Educational visions foundations



Likewise, Lenze (1995) highlighted how each discipline articulates teaching and learning methods around some key fundamentals, this study discovers core constructs around which these professors' teachings are based. Despite their common denominator of active learning, each field has its core concepts: i.e., Evidence-based knowledge in engineering; competency-based approach in nursing education; engagement, creativity, and reflection in education; creativity and innovation in digital media; and critical stance in sociology. In addition, the study lines up with Berthiaume's (2006) findings on the impact of disciplinary affiliations on faculty beliefs: The visions of the ones in the professional programs (education, engineering, nursing education) are shaped in part by the educational frameworks of governing professional bodies. And those who do not belong to such entities root their visions in their

academic backgrounds (digital media, environment, sociology). But how do these professors relate their visions to practice when teaching online with technology?

EPISTEMOLOGY AND TECHNOLOGY

Common background for educational visions and technology use

As can be noticed, a close look at the beliefs and disciplinary affiliations of the six faculty members show no difference in the educational foundation underpinning their practices in F2F and online teaching. Regardless of discipline and conception of the role of technology, all of them plan and implement active learning (figure 4). An examination of their discourse in section 2 of the interview points to student-centered online teaching (table 5). There is consistency between their visions and declared practices. Their implementation of active pedagogy using technology is based on building content knowledge: e.g., They try to foster interactivity, social connections, and communities of practice; and they strive to provide a social, cognitive, and teaching presence online through synchronous and asynchronous collaborative technology tools that promote interactions and critical thinking (Garrison 2017). Their presence allows instructor-student interactions; student-student interactions; student-content interactions; and student-technology interactions. However, differences emerge from the levels of technology integration in their online teaching. These differences fall into three categories (table 5): basic, enriched, and contextual practices. These differences are not related to their beliefs, but to their appropriation of the technology tools for teaching.

Table 5 – Themes and sub-themes of section 2 transcripts

Knowledge area: Epistemology and Technology

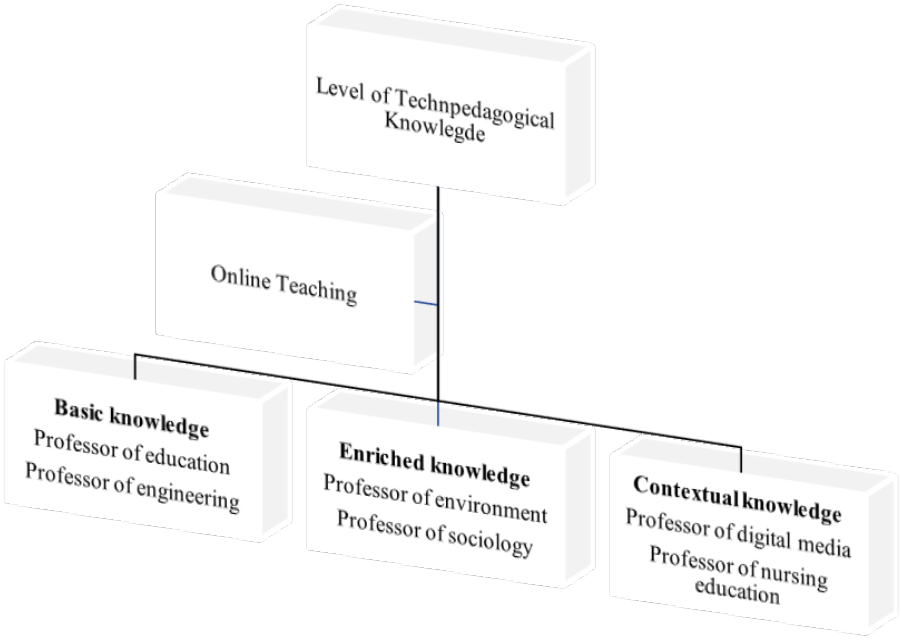
Category: Level of technology integration in online teaching

Themes (Interview section 2)	Sub-themes	Faculty Members	Excerpts from transcripts of section 2
Basic use of online technologies	Course LMS Video lectures Conference platforms Discussion forums	Professor of electrical engineering	[…] The truth is I'm not very familiar with emerging online technologies like Kahoot or Padlet. My use is limited to the tools in Moodle and Teams. Primo, I wanna feel at ease with technology and, secondo make sure it can significantly improve learning before using it thoughtfully. I don't wanna use something that will turn my online experience with students into a nightmare! My vision about technology in education is very clear. As I told you before, technology is just a tool, period. Only me can make learning happen, not technology itself […].
		Professor of education	[…] I'm not a high-tech fun. My use of technology is very basic. Moodle and Zoom […]. How do I describe my use of technology? Very basic, I would say, not beyond the technology supported by the university. Moodle for content management and zoom for live interactions. By the way, I love the poll in Zoom, it's very engaging to start discussions […].
Enriched use of online technologies	Course LMS Video lectures Conference platforms Discussion forums Interactive multimodal platforms	Professor of environment	[…] You're asking me a tough question here! In fact, I love using technologies in both F2F and online teaching. I'm not that tech savvy, but I know for sure which technologies work for my courses, and I know how to use them. I prefer them interactive and collaborative. See for example, whiteboard in Zoom, very practical for concept mapping or brainwriting while breakout rooms are great for idea speed date when sharing insights into a topic during team discussions. When used thoughtfully in connection with the course learning outcomes, technology can greatly enhance active learning, but make sure you know when and how to use it in your lessons […].
		Professor of sociology	[…] I picture my use of technology at an intermediate level, between beginner and expert. I'm not very knowledgeable of

			educational technology as an expert, but I can use it to augment motivation and make learning happen.
Contextual use of online technologies	Course LMS Video lectures Conference platforms Discussion forums Interactive multimodal platforms Game apps OER Animations Social media	Professor of digital media	[…] If I should describe my use of technology to teach online, I would use only one word: Advanced. As you can see, technology is my primary tool, it is fully part of my teaching and professional life as digital artist […]. We run everything with technology in our subject domain […].
		Professor of nursing education	[…] I love exploring new technologies to see how they can improve my teachings and social life. I'm not an educational technology expert, but I'm quite confident with using technology in nursing education […].

Technopedagogical Knowledge in Online Teaching

Figure 5 – Categories of Technopedagogical knowledge



Basic knowledge: Professor of education and Professor of engineering

They happen to be basic online technology users. Their use is limited to the course learning management system (Moodle), its communication and media tools (emails, forum and zoom). But, the professor of education can build communities of practice through virtual workshops, and the professor of electrical engineering uses the online collaborative tool (Teams) for groupwork and case studies. Their online teaching is all the same respectively embedded in teacher education and development and the College of professional engineers frameworks. Even being basic, their level of technology integration fosters online social connections and critical thinking.

Enriched knowledge: Professor of environment and Professor of sociology

The two professors go beyond the basic level to explore technologies outside the course platform. They turn out to be more confident in trying new online technologies. The professor of environment uses concept mapping tools, different strategies for online cognitive engagement, and an interactive multimodal platform (Wooclap) for reflection and discussion. As for the professor of sociology, easily accessible online tools for content creation and sharing, and

blogging are used for reflection, discussion, and writing. Their online teaching is respectively connected to the sustainable development framework and the critical theories approach. Their enriched technology integration fosters deeper processing of content and knowledge production.

Contextual knowledge: Professor of digital media and Professor of nursing education

Both professors are advanced in the use of technology in their online teaching. They have very good knowledge of the set of technology tools and their pedagogical affordances, in line with their specific learning contexts. They use emerging technologies (virtual and augmented realities, 3D, game applications, etc.) to foster knowledge integration and transfer. The professor of digital media uses each technology tool for the learning outcomes it can promote: Animations for concept development; gaming applications for design and critical thinking; open educational resources for tutorials and image libraries; mind-mapping for graphic representations; 3D, robotics, virtual and augmented realities for hands-on design and prototyping experience in digital arts. He uses diverse interactive multimodal platforms to engage students and foster live interactions with them, which requires a sound knowledge of each tool for the instructor and students.

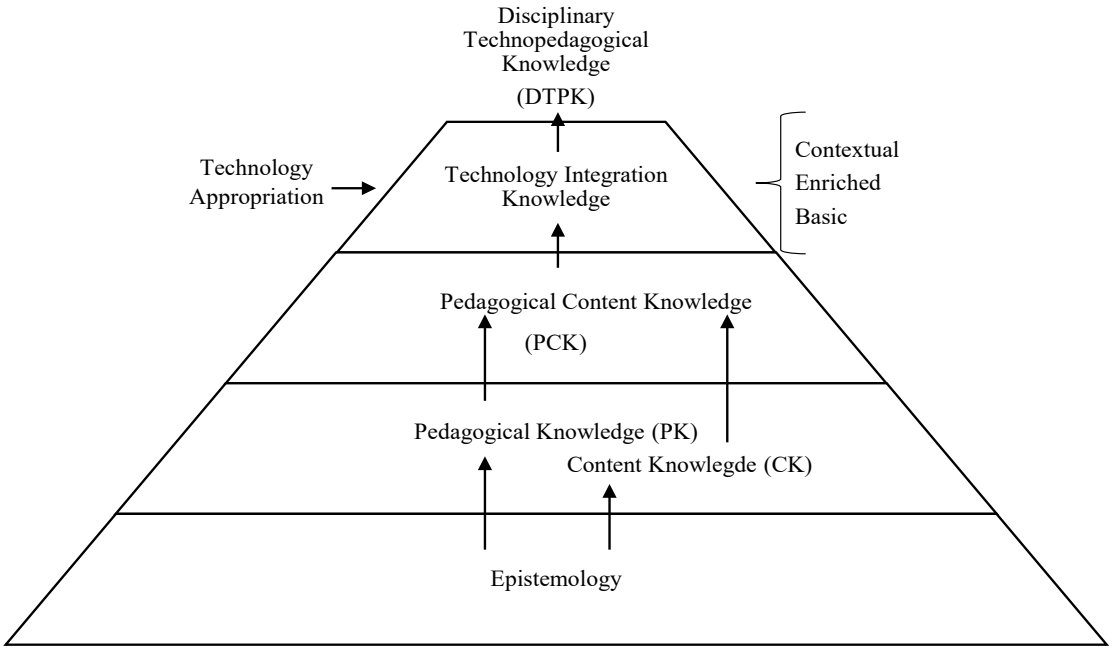
The professor of nursing education is also knowledgeable of technology tools and their instructional affordances in her specific subject domain. As can be noticed, her online teaching strategies foster interaction when students practice peer-review for feedback on laboratory tasks reports. She emphasizes clinical teaching: i.e., She uses virtual reality in patients care for students' hands-on experience; she practices live online demonstrations with zoom and uploads her own tutorial videos on Slack for students' asynchronous self-study; and offline, she uses scenario-based learning to make students resolve clinical issues and exercise nursing power to inform their clinical decisions. Both professors' online teaching is respectively rooted in the interactive arts approach and the College of nursing framework. Their contextual integration of technology fosters practical knowledge construction and production by students.

Disciplinary technopedagogical knowledge in online teaching

Regardless of the technopedagogical knowledge level, the six professors' declared use of technology in online teaching confirms the close relationship between pedagogy, epistemologies, and didactics as Berthiaume (2006) noted it. But as Bachy's (2014) research reported it, this pilot research study has found no clear evidence of close relationship between technology and didactics (TD), nor a clear evidence of the impacts of faculty epistemologies about technology (TE) on their online teaching. Besides, this study makes three observations: (1) The professors' online teaching methods (pedagogy) guide their use of technology; (2) their epistemologies impact the relationship between pedagogy and didactics/discipline/content (PD), which relationship in turn mediates their use of technology, and informs their construction of a technopedagogical knowledge (TPK); and (3) the professors' ability to adapt technology tools to the disciplinary particularities is connected to their level of technology appropriation.

These observations indicate that the disciplinary technopedagogical knowledge (DTPK) is rather anchored in the pedagogical content knowledge (PCK) model designed by Schulman (1986). In this research, it is noticed that each professor tries to adapt online teaching with technology to the subject matter, based on the content knowledge (CK) and pedagogical knowledge (PK). These two knowledge areas provide professors with a comprehensive understanding of the realities of their online teaching (students, content, learning tasks, assessment, and resources), and thus guide their technology integration. The six professors' declared practices shed light on their use of online technology, which is proportional to their technology knowledge (TK). The more faculty know about technology and its pedagogical affordances, the more they can significantly connect it to their subject matter particularities, resulting thus in the development of TPACK in their disciplines (Mishra & Koehler, 2006). The professors of digital media and nursing education have been able to contextualize their use of technology as they are very knowledgeable of the technology tools used in their teaching areas besides the PCK. Epistemologies do not directly impact the use of technology in online teaching. They rather impact directly the PCK, which in turn affects the DTPK.

Figure 6 – Epistemologies and technology in online teaching



CONCLUSION

Based on the findings in the declared practices of the six cases, it is noticed that contextual use of technology in online teaching is directly related to the faculty's level of technology appropriation rather than to epistemology. While epistemology informs their pedagogical content knowledge, their ability to successfully adapt technology to their disciplinary realities depends on their knowledge of the technology tools in their teaching areas. Consequently, focus should be put on contextual or disciplinary technology support to help faculty appropriate the tools in their areas, and the pedagogical affordances of these tools. As a pilot research, this study is limited considering the size of the participants and that of this regional university. A larger sample of participants is needed to vary the data for a broader comprehensive comparative study within the same teaching area and with other areas. Therefore, we are currently designing a research proposal to look at different cases within the faculties of arts, business administration, engineering, law, nursing education, medicine, and science at a large, internationally renowned Canadian university. The results will help inform a grant application for a large-scale study involving different universities in Canada as the online teaching experience during the COVID-19 pandemic might bring about new data concerning this issue.

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FROM SUPPORT TO SUCCESS: THE ROLE OF LEARNER SUPPORT SERVICES IN ACADEMIC ACHIEVEMENTS OF DISTANCE LEARNERS IN ASSAM

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ABSTRACT :
This paper reflects the findings of an empirical study conducted in three selected ODL institutions of Assam, namely KKHSOU, IGNOU, and DODL, Dibrugarh. The study aimed at exploring the existing provisions of LSS and its impact upon the academic achievements of the learners. The size of the sample comprised of 300 learners (100 each) from the three ODL institutions which was determined with help of random sample technique. Descriptive survey method was used to gather pertinent information concerning the current status of phenomena and to draw valid conclusion from the facts discovered. It was found from the study that there does not exist any significant difference in LSS provisions between male and female learners, suggesting equitable distribution across genders. However, a notable urban-rural disparity exists, highlighting the need for policy interventions to bridge this gap. The study also reveals that effective LSS provisions positively correlate with academic achievements.
Key words : Support Services, Resources, Academic Achievements, Open and Distance Learning.

INTRODUCTION :

Learner Support Services :

Learner support services (LSS) are the life-blood of the distance education system, providing indispensable resources that empower learners on their educational journey. Garrison and Baynton (1987) define LSS as the array of resources accessible to learners to facilitate their learning processes. Garrison (1989) elaborates that in the realm of distance education, support encompasses a broad spectrum of human and non-human resources designed to guide and ease the educational transaction. These resources can be as varied as library facilities, media and software programs, community leaders, and socio-economic factors such as financial self-sufficiency and the capacity to juggle family and community roles.

Simpson (2000) underscores that LSS involves all activities beyond the mere production and delivery of course materials, focusing on assisting learners throughout their studies. Craft (2002) stresses the importance of LSS in mitigating the isolating nature of distance education by offering counseling and tutoring services. These services are crucial in addressing issues such as feelings of alienation, lack of adequate study spaces, limited access to libraries, inconvenient work hours, and personal challenges. By tackling these obstacles, LSS creates a nurturing environment that enhances the distance learning experience.

Craft (1991) further refines the concept of LSS, defining it as any service provided by the institution other than the course materials, aimed at helping students achieve the instructional objectives of their courses. This definition highlights the distinct nature of LSS from course content delivery, encompassing facilities, administrative support, supplementary readings, human interactions, advice, and moral support.

In essence, learner support services are the backbone of distance education, ensuring that students receive the comprehensive support they need. By addressing both academic and administrative issues, LSS empowers learners to overcome challenges and successfully complete their courses, transforming the educational experience into a fulfilling and accessible journey.

NEED OF LSS :

Learners in distance education have diverse needs that must be met to ensure a quality educational experience. According to Nabi Bux Jumani, Abdul Jabbar Bhatti, and Samina Malik (2013), these needs can be categorized into four key areas: learning needs, survival needs, advisory needs, and recreational needs. Satisfying all these needs is crucial for delivering a comprehensive and effective educational experience.

To achieve this, both academic and non-academic support services play a vital role. Morgan (2012) emphasizes that these support services are essential in helping learners overcome barriers to their success. Academic support services might include tutoring, access to supplementary readings, and effective use of media and technology. Non-academic support services could encompass counseling, administrative assistance, financial advice, and the provision of recreational activities to ensure a well-rounded educational environment.

By addressing these diverse needs through robust learner support services, educational institutions can create a supportive and enriching environment that empowers learners to thrive and succeed in their studies. However, the

following factors call for additional support services for the learners, in addition to the support needed for an ordinary individual:

1) To ensure increase in enrolment
2) To ensure students' retention
3) To meet the psychological needs of the learners
4) To satisfy diverse social needs of the learners
5) To encourage the students with special needs.

METHODS :

Considering the nature of the problem, descriptive survey method was used to obtain pertinent and precise information concerning the current status of phenomena and to draw valid general conclusions from the facts discovered. Descriptive survey was designed to collect primary data regarding different aspects of LSS at the three ODL institutions of Assam, namely Krishna Kanta Handiqui State Open University (KKHSOU), Indira Gandhi National Open University (IGNOU), and Directorate of Distance Learning(DODL), Dibrugarh University. For this purpose, questionnaires were constructed besides taking face-to-face interview with the tutors and coordinators.

Since the population of the study is large, therefore random sampling technique was adopted to determine the size of the sample. The sample comprises of 300 learners.

The questionnaire (LSSQ) framed for this purpose, consisted of nine parts, namely – admission related services, regional centre/campus services, tutorial services, counseling services, assignment related services, and media support services, library services, course material services and examination related services. The forms of questions in the questionnaires were closed ended having 'Yes' and 'No' response. Besides framing questionnaires, the investigator conducted face-to-face interview with the tutors and the coordinators in order to gather in-depth information about the LSS provided at IGNOU, KKHSOU, and DODL (DU). Interview schedule was also used for the same.

FINDINGS AND DISCUSSION:

The findings of the study reveal about the types of provisions of LSS provided among male-female and rural-urban learners in the select ODL institutions of Assam, namely, IGNOU, KKHSOU, and DODL. The findings also indicate the impact of LSS upon the academic achievements of the learners. The results have been presented through subsections as explained below :

Provisions of LSS across the ODL institutions : The following table (Table 1) and Fig.1 describe about number and percentages of responses concerning different provisions of LSS in the three ODL institutions of Assam :

Table 1: Numbers and percentages of responses of the learners regarding provisions of LSS

Sl.No	Provisions of LSS	Responses	KKHSOU		IGNOU		DODL		TOTAL	
			Nos	%	Nos	%	Nos	%	Nos	%
1	Availability of Admission forms, Prospectus, etc.	No	10	10.0	12	12.0	9	9.0	31	10.4
		Yes	90	90.0	88	88.0	91	91.0	269	89.6
2	Information and guidance regarding academic programmes	No	36	36.0	44	44.0	55	55.0	135	45.0
		Yes	64	64.0	56	56.0	45	45.0	165	55.0
3	Fee Concession/ installment	No	38	38.0	33	33.0	23	23.0	94	31.3
		Yes	62	62.0	67	67.0	77	77.0	206	68.7
4	Provision of Scholarship	No	83	83.0	99	99.0	97	97.0	279	93.0
		Yes	17	17.0	1	1.0	3	3.0	21	7.0
5	Arrangement of Induction meeting	No	10	10.0	8	8.0	9	9.0	27	9.0
		Yes	90	90.0	92	92.0	91	91.0	273	91.0
6	Help of RCs/MCs concerning examination	No	47	47.0	54	47.0	41	39.0	142	47.3
		Yes	53	53.0	46	53.0	59	61.0	158	52.7
7	Additional help from RC/Main Campus	No	58	58.0	64	18.0	40	40.0	162	54.0
		Yes	42	42.0	36	82.0	60	60.0	138	46.0
8	Easy access to Study Centre	No	1	1.0	54	54.0	36	36.0	91	30.3
		Yes	99	99.0	46	46.0	64	64.0	209	69.7
9	Help of the Tutors in solving	No	16	11.0	22	18.0	24	19.0	62	20.7

	problems	Yes	84	89.0	78	82.0	76	81.0	238	79.3
10	Use of TLMs by the Tutors	No	15	15.0	36	36.0	11	11.0	62	20.7
		Yes	85	85.0	64	64.0	89	89.0	238	79.3
11	Assignments given by Tutors	No	46	46.0	62	62.0	52	52.0	160	53.3
		Yes	54	54.0	38	38.0	48	48.0	140	46.7
12	Facility of telephone/online counselling	No	43	57.0	45	11.0	71	71.0	159	53.0
		Yes	57	43.0	55	89.0	29	29.0	141	47.0
13	Facility of Career Guidance	No	79	79.0	98	98.0	87	87.0	264	88.0
		Yes	21	21.0	2	2.0	13	13.0	36	12.0
14	Appreciate by the tutors at the time of submission of assignments	No	37	37.0	42	32.0	54	27.0	133	44.3
		Yes	63	63.0	58	68.0	46	73.0	167	55.7
15	Media support (Radio/TV programme.)	No	0	0	18	18.0	18	18.0	36	12.0
		Yes	100	100.0	82	82.0	82	82.0	264	88.0
16	Library facility	No	0	0	18	18.0	9	9.0	27	9.0
		Yes	100	100.0	82	82.0	91	91.0	273	91.0
17	Xerox facility in library	No	14	14.0	17	1.0	22	22.0	53	17.7
		Yes	86	86.0	83	99.0	78	78.0	247	82.3
18	Separate Reading Room	No	9	9.0	15	15.0	30	30.0	54	18.0
		Yes	91	91.0	85	85.0	70	70.0	246	82.0
19	Receiving SLMs on time	No	28	12.0	41	1.0	37	4.0	106	35.3
		Yes	72	88.0	59	99.0	63	96.0	194	64.7
20	Availability of exam related materials like routine, admit card, etc	No	4	4.0	27	27.0	18	18.0	49	16.3
		Yes	96	96.0	73	73.0	82	82.0	251	83.7

Source : Field data (2020-21)

The analysis of the above table provides valuable insight into the availability of provisions of LSS across three ODL institutions and indicates about the following findings:

i) High Availability Areas: Provisions like admission forms/ prospectus, induction meetings, easy access, help of tutors and library facilities have high availability across all institutions. Effective use of media support and tutors' assistance is notable.

ii) Areas of Concern: Provision of scholarships and career guidance are notably low across all institutions. Facility of telephone/online counseling shows disparity among institutions, with IGNOU performing better. Information and guidance regarding academic programme, additional help of RCs/Main Campus, assignment and appreciation given by tutors are other areas of major concern.

Overall, while many provisions of LSS are well-received, key areas for improvement include the provision of scholarships, career guidance, timely distribution of SLMs, and additional help from regional/main campuses. Addressing these areas can enhance the overall student experience across these institutions. While there are strengths in certain learner support services like the availability of essential academic materials and facilities, areas such as scholarships and career guidance require significant improvement across all institutions. Each institution exhibits unique strengths and weaknesses that can inform targeted improvements in learner support.

Provisions of LSS and Institutional Variations: As the table 1 reveals, KKHSOU generally performs well in most areas, especially in media support, library facilities, and appreciation by tutors. While IGNOU has mixed results, with high ratings in areas like induction meetings and media support but lower in scholarships and career guidance. On the other hand, DODL shows strong performance in fee concessions, induction meetings, and tutor appreciation but needs improvement in areas like career guidance and additional help from the main campus.

Again, the mean and variability in provisions across the institutions can be analysed by the following table (Table2)

Table 2 : Institutional Variations of Provisions of LSS and ANOVA Test

Variable	Institutions	N	Mean	Std. Deviation
Provisions of LSS	KKHSOU	100	11.76	1.875
	IGNOU	100	10.95	1.402
	DODL	100	10.63	1.680
	Total	**300**	**11.11**	**1.725**

	-	Sum of Squares	df	Mean Squars	F	Sig.
Provisions of LSS	Between Groups	67.847	2	33.92	12.252	0.000
	Within Groups	822.300	297	2.769		
	Total	890.147	299	-	-	-

The above table (Table 2) shows that KKHSOU has the highest mean provision of LSS at 11.76. IGNOU follows with a mean of 10.95. DODL has the lowest mean at 10.63. The overall mean provision across all institutions is 11.11.The higher mean in KKHSOU suggests that it generally provides more LSS compared to IGNOU and DODL. The lower mean in DODL indicates fewer provisions of LSS compared to the other institutions. The overall mean of 11.11 indicates a moderate level of LSS provisions when considering all institutions together.

KKHSOU again shows the highest variability in provisions with a standard deviation of 1.875. DODL has a standard deviation of 1.680, indicating moderate variability. IGNOU has the lowest variability with a standard deviation of 1.402. The total standard deviation is 1.725, suggesting that there is some variability in the provisions of LSS across all institutions. The higher standard deviation in KKHSOU indicates that the provisions of LSS in this institution are more spread out around the mean, suggesting inconsistency. The lower standard deviation in IGNOU suggests that its provisions are more consistent. The moderate standard deviation in DODL indicates a middle ground in terms of consistency. As a whole, the data shows that KKHSOU generally provides more LSS but with higher variability, whereas IGNOU provides slightly fewer services with the least variability. DODL has the lowest provision of LSS but shows moderate consistency. The overall analysis indicates that while there is some variability in the provision of LSS across these institutions, KKHSOU tends to offer the most LSS on average, and IGNOU offers the most consistent level of service. The following table (Table 3) reveals about the significant difference exists in mean provision of LSS in the institutions.

Again, ANOVA results (Table 2) show that there is a statistically significant difference in the means of provisions of LSS between the groups. The low p-value (0.000) strongly suggests that these differences are not due to random chance. This implies that the provisions of LSS vary significantly across the groups analyzed.

Nature and degree of difference lies in between Provisions and Gender: The t-value and p-value (Table 4) clearly reveal the statistical difference in Provisions and Gender.

Table 3: Difference between provisions of LSS with Gender

Provisions of LSS	Gender	N	Mean	Std. Deviation	Mean Difference	t	df	P-value
Provisions	Male	106	37.29	3.881	-0.00019	0.000	298	0.999
	Female	194	37.49	3.559	-	-	-	-

(H_0 is accepted at 5% level)

The above table (Table 3) indicates that the mean difference between males and females is −0.00019, which is extremely small and effectively zero. This suggests that there is no practical difference in the means of the two groups. The calculated value of t (0.0000) fails to exceed the tabulated t-value 1.968 Approx.) with df=298 at 0.05 level of significance (two-tailed). Hence, it is not significant at 0.05 levels. It provides enough evidence to accept the null hypothesis. Thus, there does not exist any significant difference in the means of the two groups of gender. The p-value of 0.999 is extremely high. A p-value greater than 0.050 typically indicates that the results are not statistically significant. In this case, a p-value of 0.999 suggests that there is no statistically significant difference between the provisions for males and females.

Based on the above data, we can conclude that there is no significant difference in the mean provisions between males and females. And almost zero mean difference, t-value of zero, and extremely high p-value all support the conclusion that the gender of the participants does not affect the mean provisions. Thus, the provisions seem to be distributed equally between males and females, with no statistically significant difference detected.

Nature and degree of difference lies in between Provisions and Locality: The t-value and p-value (Table 4clearly indicate the significant difference exists in Provisions and Locality.

Table 4: **Difference between provisions of LSS with Locality**

Provisions of LSS	Locality (Area)	N	Mean	Std. Deviation	Mean Difference	t	df	P-value
Provisions	Rural	212	10.665	1.642	-1.528	-7.622	298	0.000
	Urban	88	12.193	1.421				

(H_0 is rejected at 5% level)

The mean provision of LSS is significantly higher in urban areas (Mean = 12.193) compared to rural areas (Mean = 10.665).The standard deviation is slightly higher in rural areas (1.642) compared to urban areas (1.421), indicating a slightly greater variability in the provision of LSS in rural areas. The calculated t-value (-7.622 and -8.090) exceeds the value given in table (1.967) with df=298 at 0.05 level (two-tailed), hence it is highly significant. It provides evidence to reject the null hypothesis. So, there exists significant difference in the provisions of LSS between rural and urban areas.

Thus, it can be concluded that there is a statistically significant difference in the provisions of LSS between rural and urban localities. Urban areas have a higher mean provision of LSS compared to rural areas, and this difference is statistically significant as indicated by the p-values and t-values from the t-tests. This suggests a disparity in LSS provision that could warrant further investigation and possible policy interventions to address the lower provisions in rural areas.

Mean rating and Variability of Marks and Provisions: The following table (Table 5) reveals the means and variability of marks and provisions.

Table 5 : Mean scores and Standard Deviations of Marks and Provisions of LSS

Variable	N	Mean	Std. Deviation
Marks	300	62.22	9.897
Admission related Services	300	4.83	0.990
Regional Centre/Campus Services	300	3.08	0.481
Tutorial Services	300	5.68	1.09
Counselling Services	300	2.61	1.665
Assignment related Services	300	4.77	0.762
Media support Services	300	2.97	0.171
Library Services	300	4.83	0.510
Course material services	300	3.81	0.655
Examination related Services	300	4.85	0.607
Provisions	300	11.113	1.725

The above table (Table 5) summarizes the sample sizes (N=300), means, and standard deviations for various variables related to services and marks. The marks obtained by the learners indicate that the average mark scored by the learners is 62.22, with a standard deviation of 9.897. This reveals that most learners' marks cluster around 62.22, with variability of about 9.897 points. The table indicates that the tutorial services, assignment related services, library services, and examination related services have higher mean ratings, indicating student satisfaction. On the other hand, counselling services and media support services have lower mean ratings, suggesting areas for improvement. Most services have moderate standard deviations, indicating that while some variability exists, many students have similar perceptions of these services.

Impact of LSS upon the academic achievements: The table and diagram (Table 6, and Figure 1) given below, reveals clearly about Correlation between Provisions of LSS and Academic Achievements

Table 6 : Correlation between Provisions of LSS and Academic Achievements

Part	Provisions of LSS	Correlation	Academic Achievement
I	Admission related Services	Pearson Correlation Sig.(2-tailed) N	0.230 0.000 300
II	Regional Centre/Campus Services	Pearson Correlation Sig.(2-tailed) N	0.228 0.000 300
III	Tutorial Services	Pearson Correlation Sig.(2-tailed) N	0.200 0.001 300
IV	Counselling Services	Pearson Correlation Sig.(2-tailed) N	0.110 0.57 300
V	Assignment related Services	Pearson Correlation Sig.(2-tailed) N	0.306 0.000 300
VI	Media support Services	Pearson Correlation Sig.(2-tailed) N	0.034 0.563 300
VII	Library Services	Pearson Correlation Sig.(2-tailed) N	0.222 0.000 300
VIII	Course material services	Pearson Correlation Sig.(2-tailed) N	0.270 0.000 300
IX	Examination related Services	Pearson Correlation Sig.(2-tailed) N	0.116 0.044 300
Provisions		Pearson Correlation Sig.(2-tailed) N	0.311 0.000 300

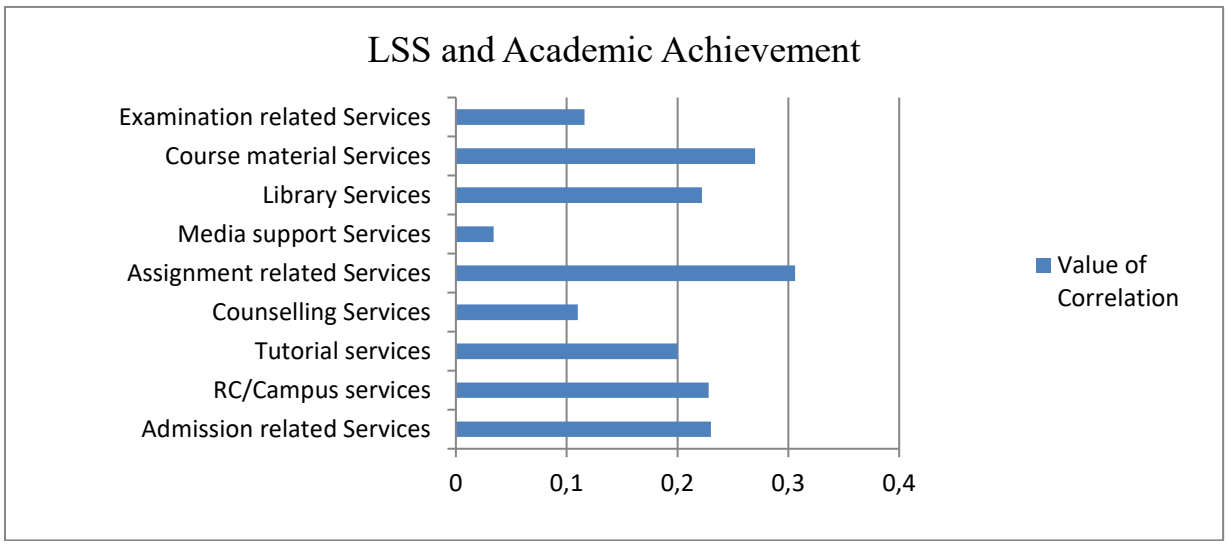

Fig.1: Correlation between Provisions of LSS and Academic Achievement

The table 7 and Fig.1 given above, indicate the nature of correlation that exists between the provisions of LSS and academic achievements of the learners of the ODL institutions of Assam. In case of admission-related services, it is seen that there is a low but statistically significant positive correlation (0.230) with academic achievement. There is a low but statistically significant positive correlation (0.228) between regional centre/campus services and academic

achievement. Again, there is a low but statistically significant positive correlation (0.200) between tutorial services and academic achievement. But, in case of Counselling Services, there is a very low positive (0.110) and not statistically significant correlation (p =0.057) with academic achievement.

Again, in case of assignment-related services, there is a moderate and statistically significant positive correlation (0.306) between assignment-related services and academic achievement. But, there is a very low (0.034) and not statistically significant correlation (0.563) between media support services and academic achievement. Again, the library services, there is a low but statistically significant positive correlation (0.222) between library services and academic achievement. There is also a low but statistically significant positive correlation (0.270) between course material services and academic achievement. There is a very low but statistically significant positive correlation between examination-related services and academic achievement. As a whole, there is a moderate and statistically significant positive correlation (0.364) between overall provisions of LSS and academic achievement.

Thus, the above data suggests that most LSS provisions have a positive correlation with academic achievement, although the strength of the correlations varies. The strongest correlations are observed with assignment-related services and overall provisions, while media support services and counselling services show negligible and statistically insignificant correlations. This analysis highlights the importance of specific learner support services in enhancing academic performance.

Institutional Variations of Marks: The table 7 given below, shows the Institutional Variations of Marks-

Table 7: Institutional Variation of Marks and ANOVA Test

Variable	**Institutions**	**N**	**Mean**	**Std. Deviation**
Marks	KKHSOU	100	63.80	11.455
	IGNOU	100	59.32	9.848
	DODL	100	63.53	7.408
	Total	**300**	**62.22**	**9.897**

Marks	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between groups	1262.247	2	831.123	6.689	0.001
Within Groups	28024.670	297	94.359		
Total	**29286.917**	**299**			

The above table reveals that among the institutions, KKHSOU has the highest mean marks (63.80), indicating that students from KKHSOU tend to score higher on average compared to students from IGNOU (59.32) and DODL (63.53). Again, KKHSOU has the highest standard deviation (11.45), indicating greater variability in marks among students. DODL has the lowest standard deviation (7.408), suggesting more consistency in students' marks. Overall, the standard deviation for the combined data (9.897) is within the range of individual institutions' standard deviations, indicating a moderate level of variability when all institutions are considered together. Thus, it can be summarized that the learners from KKHSOU tend to score the highest on average, while students from IGNOU score the lowest. There is more variability in marks among KKHSOU students and the least variability among DODL students. Again, the above table shows that F-value is 6.689 and p-value is 0.001. Since the p-value (0.001) is less than the significance level of 0.05. This indicates that there are statistically significant differences between the group means.

CONCLUSION

The study on Learner Support Services (LSS) in the ODL institutions (KKHSOU, IGNOU, DODL) of Assam, reveals a mixed landscape. While services like induction meetings, library facilities, and tutor support are appreciated, there are significant gaps in scholarships and career guidance. Urban learners benefit more from LSS than their rural counterparts, indicating a disparity needing attention. Despite high availability of academic materials, timely distribution of SLMs and campus support require improvement. Gender analysis shows equitable LSS distribution, but the urban-rural divide persists. Effective LSS provisions, like tutorial and assignment support, enhance academic performance, while counseling and media support need development. To improve, institutions should enhance communication, technological infrastructure, and administrative support. Pilot programs,

collaboration with other institutions, and a culture of continuous improvement are crucial. These measures will boost academic success and satisfaction for ODL students in Assam.

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NATIONAL ACADEMIC DEPOSITORY: A STEP IN THE DIRECTION OF THE DIGITAL INDIA VISION

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ABSTRACT
The National Academic Depository of India is a manifestation of a previously conceived idea. The depository was conceived as a way to centrally store and digitise all of the academic achievements that are made available by educational institutions. The repository makes it possible to do away with the requirement of physically keeping awards. It is able to authenticate the awards that have been given to various persons by a variety of organisations. A remedy that is helpful in the fight against counterfeit and false certificates is the secure digital depository. There are a lot of parallels to be drawn between the idea of academic depository and the idea of financial securities. In India, the idea of a depository was tested with the assistance of academic awards provided by one of the testing bodies. The pilot was finished in a fruitful manner. In order for the depository to become completely functioning, it is necessary to surmount a few obstacles concerning the academic variations that exist with regard to the length of the courses and their level of equivalent. In response to these difficulties, legislation pertaining to academic repositories is currently in the process of being written. In addition to this, the NAD is becoming expectant with a wide variety of brand-new applications and opportunities. It's possible that the NAD may open up new roles for educational institutions as well, such as preparing reports for teachers based on examination data about learning gaps in the classroom, as opposed to simply labelling kids. The Academic Depository represents a first-of-its-kind initiative anywhere in the globe.
Key Words: National Academic Depository, Certificate ID, Electronic Verification, Grade Reports, Digital Academic Records Repository, and Digital Certificates.

INTRODUCTION

There are roughly 60 school boards, 416 state universities, 124 deemed universities, 54 central institutions, and 364 private universities in India's rapidly expanding higher education system. There are an additional 107 institutions, including the Indian Institutes of Science and Technology, Indian Institutes of Management, National Institutes of Technology, Indian Institutes of Science Education and Research, Indian Institutes of Information Technology, and the National Institute of Advanced Studies in India. Degrees, diplomas, and certificates, as well as mark sheets and report cards, are just some of the academic recognitions that students can expect to receive from these establishments. In addition to these, certificates, diplomas, and advanced diplomas can be obtained from institutions that fall under a variety of Ministries/Departments, as well as other skill-based schools. Access, retrieval, and validation of these academic qualifications need to be made possible in a way that is legitimate, authentic, and user-friendly for those who are either entering the workforce or pursuing further education. The retrieval of outdated academic records that are kept in paper form is a time-consuming and laborious process. Paper copies of student records are prone to a variety of potential dangers, including deterioration and falsification. When students lose or have their certificates or mark sheets destroyed, they frequently have a difficult time replacing them and acquiring duplicates of them. By storing academic awards in a digital repository, educational institutions, students, and employers would have the ability to get online access to, retrieve, and verify digitised academic awards. This would also put an end to fraudulent practices such the forgery of certificates and mark sheets.

The Government of India wanted to make it easier for its students to keep track of their many academic accomplishments, so they came up with the notion of a central online repository called the National Academic Depository (NAD). The goal of NAD is to create a trustworthy and simple means through which academic awards from different schools can be submitted, verified, and validated online. The process of validating and verifying academic degrees and honours from different schools would be greatly aided by this. By facilitating online verifications of certificates and grade reports, it will significantly reduce fraudulent activities like these. Certificates, diplomas, degrees, and other academic prizes that have been formally digitised and registered by educational institutions/boards/eligibility assessment organisations are kept in a secure online repository called Digi Locker NAD, which is accessible around the clock. It validates and verifies the authenticity and safe storage of a scholarly award and makes both easy to access and retrieve. The National Academic Depository (NAD) is an online repository for academic credentials that may be accessed by both institutions and students. Institutions of higher learning can enter award information, and students can then examine their award records. Once a student has registered with Digi Locker, they will be able to access their academic records from their school and download any certificates or documents they need. The NAD platform allows for the installation of multiple roles, such as the creation of student and academic accounts, the production of student data according

to a standard certificate template, and the dissemination of year/course-specific data. This guide's major purpose is to provide academic institutions with step-by-step guidance and education on the registration process, data preparation, and all components of the NAD application up until the release of the prizes.

HISTORY OF NATIONAL ACADEMIC DEPOSITORY

In January of 2010, the ministry established a task force to plan the introduction of the idea of an electronic storehouse for academic achievements. In September 2011, the Lok Sabha first heard the National Academic Depository Bill. The legislation is now in the hands of the Human Resources Development Standing Committee. Due to a change in Government, the bill was allowed to expire in 2014.

During a meeting that took place on October 27, 2016, the Union Cabinet, under the leadership of Prime Minister Shri Narendra Modi, gave its approval to a proposal that was submitted by the Ministry of Education to establish a digital depository of academic awards to be known as the National Academic Depository (NAD). This was done in order to fulfil a commitment made by the finance minister in his Budget Speech for 2016–2017, in which he specified a "Digital Depository" for schools leaving certificates, degrees, and other academic honours given out by higher education institutions.

On July 9, 2017, the NAD was officially introduced by the Honourable President of India at the time. In order to put the NAD into operation, the Ministry of Education (MoE) appointed the University Grants Commission (UGC) as an authorised implementing body. This body was given the responsibility of entering into a tripartite agreement with the NSDL Database Management Limited (NDML) and the CDSL Ventures Limited (CVL) for a period of three years. The time period covered by the tripartite agreement came to an end in December 2019, and furthermore, it has been agreed that Digi Locker, and not the CVL and NDML, will be in charge of putting the NAD plan into action. In March of 2020, a notification addressing the implementation of the NAD scheme was made available by the Ministry of Education (MoE).

UGC- THE AUTHORISED IMPLEMENTING BODY

During the meeting that took place on October 27, 2016, the Union Cabinet gave its approval to the establishment of a digital repository of academic achievements that will be known as the National Academic Depository (NAD). As a direct result of the approval of the Cabinet, the Government, in the exercise of powers conferred under section 20(1) of the University Grants Commission Act, 1956, has designated the University Grants Commission (UGC) as an authorised body to enter into a Memorandum of Understanding (MoU) with Digi Locker as a Single Depository of NAD. For the purpose of putting the NAD into action, the UGC has inked a tripartite agreement with NSDL Database Management Limited (NDML) and CDSL Ventures Limited (CVL). When entering into a legally enforceable agreement for the purpose of utilising the services of NAD, the academic institutions, boards, and eligibility assessment organisations are required to choose one of the two depositories as their preferred option. The strength of this agreement will principally be relied upon for matters pertaining to lodging, access, retrieval, and validity of academic achievements in the NAD.

COMPOSITION

The National Academic Depository is made up of two separate but complementary digital repositories: CDSL Ventures Limited (CVL) and NSDL Database Management Limited (NSDL) (NDML). The digital repositories have guaranteed the quality of their hardware, network infrastructure, and software to enable the safe and effective running of NAD.

STAKE-HOLDERS

Educational Institutions, Students, Verifying Partners, the NAD Repository, and the Digi Locker software are all important members of the NAD community. Participants in academic programmes and recipients of other academic qualifications.

PARTICIPANTS

I. Central Educational Institutions are comprised of Central Universities, Central Higher Educational Institutions, and other institutions that have been granted the authority by an Act of Parliament to award degrees, diplomas, and other forms of higher education.
II. Universities that are run by the state, universities that are considered to be universities, and other universities.
III. Institutions for the awarding of certificates, diplomas, and degrees that were established by different Indian government ministries and departments.
IV. Organisations that have been granted permission to operate by the Ministry of Skill Development and Entrepreneurship.
V. State School Boards, the Central Board of Secondary Education (also known as CBSE), and any other Boards.

VI. Central eligibility exam conducting bodies such as the University Grants Commission (UGC) for the National Eligibility Test (NET) and the Central Board of Secondary Education (CBSE) for the Teacher Eligibility Test (TET).

IMPLEMENTATION & MONITORING

I. The University Grants Commission (UGC) has been designated as an authorised organisation to create and operationalize the National Admissions Depository (NAD) by the Ministry of Human Resource Development (MHRD). As a direct result of being granted this authorization, the University Grants Commission (UGC) has entered into a tripartite agreement with CDSL Ventures Limited (CVL) and NSDL Database Management Limited (NDML) on behalf of all Central Higher Educational Institutions (CHEIs), Institutions of National Importance (INIs), and Boards.

II. In order to set up and run the NAD, the academic institutions, boards, and eligibility assessment organisations are authorised by the tripartite agreement to use CVL and NDML's services for a preliminary three-year period.

III. Each educational institution, board, or eligibility assessment body will have the option of working with either of the two proposed depositories under a legally binding agreement. In the NAD, the agreement will be the primary basis for securing housing, gaining entry, retrieving and validating academic awards.

IV. A National Steering Committee (NSC) has been established by the Indian government's Department of Higher Education within the Ministry of Human Resource Development. This forum brings together representatives from a wide range of government agencies across the country.

V. The NSC is in charge of monitoring the launch as well as the implementation of the NAD project at regular intervals.

FEATURES AND FUNCTIONS OF NAD

I. NAD is responsible for the provision of a number of services, including the housing, maintenance, access, verification, and authentication of academic awards in digital format.

II. It is the responsibility of the academic institutions, boards, and eligibility assessment bodies that lodge data in NAD to ensure its accuracy.

III. In order to make use of the resources provided by NAD, users such as students, academic institutions and boards, and eligibility assessment bodies must first register with the system.

IV. For the purposes of both registration and usage, Aadhaar serves as an identifier. If an individual does not have access to their Aadhaar number, they are assigned a one-of-a-kind NAD ID.

V. A student and/or any verifier who has been officially authorised by the student concerned can receive a digital and authenticated copy of their academic awards. These copies come equipped with the specified security elements.

VI. A person who requires verification and authentication of any particular academic award in the NAD is able to apply online after completing the necessary registration and upon payment of the stipulated user charges, provided the person meets all of the requirements. Requests for the online verification of academic honours and awards are fulfilled on the same day and, at the latest, within 24 hours.

VII. The academic awards can be safely stored in one central NAD repository because all the digital depositories are compatible with one another. Because of this interoperability, there is no longer a need to lodge a single academic award at numerous locations within the NAD system, and information can move freely and in real-time across the various NAD depositories.

VIII. The NAD is responsible for ensuring that the award database is authentic, intact, and kept confidential at all times.

IX.

BENEFITS

Students, academic institutions/boards/eligibility assessment bodies, and verifying users all have access to the NAD's online system, which is open 24X7 for the purpose of submitting, retrieving, authenticating, and verifying academic awards in digital format. In addition to this, it offers a database of academic awards to the government, regulatory authorities, and academic institutions for the purpose of data analytics. Academic awards can be accessed online by educational institutions, boards, eligibility assessment bodies, students, and employers thanks to the electronic depository of academic awards. This eliminates the need for individuals to seek physical transcripts of such awards or mark sheets for verification.

I. Benefits for Academic Institutions

- All academic achievements given out should be kept in a record that is both permanent and secure.

- It is unnecessary to provide duplicate academic awards because students can obtain them directly from NAD.
- Paper certificates that are fabricated or faked are effectively deterred by this measure.
- NAD is able to meet all of your verification requirements for academic awards; they provide an administration that is efficient, effective, and transparent.
- Aimed at the idea of a paperless government, it reduces the amount of administrative work that needs to be done. It does this by reducing the amount of paper that is used and speeding up the verification process. This brings the administrative costs down.
- Providing trusted issued documents is one of the benefits of digital transformation.
- With the student's permission, the Secure Document Gateway performs the function of a secure document exchange platform, analogous to a payment gateway, between a trusted issuer and a trusted Requester/Verifier.
- Real-Time Verification: This feature offers a verification module, which, once user consent has been obtained, may be used to validate data straight from the issuers.
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II. Benefits for Students

- Instantaneous accessibility of academic prizes upon their upload by Academic Institution Online, as well as a permanent record of academic honours and awards.
- There is no possibility of the academic awards being misplaced, ruined, or damaged.
- Access to academic honours on demand, at your leisure, and in any location.
- Essential Documents are Available Whenever and Wherever You Are!
- Digital Document Exchange That Produces Authentic Documents That Are Legally Equivalent to the Originals This service requires the student's permission.
- Delivery of services more quickly, particularly in the areas of government benefits, employment, financial inclusion, educational admittance, and health care.
-

III. Benefits for Verifying Entities

Verifying entities, such as banks, employer companies (domestic and overseas), visa consulates, Government entities, academic institutions/universities/boards/eligibility assessment bodies (domestic and overseas), etc., are referred to as verifiers because they engage in the practice of verifying the academic certificates that students submit to them.

CONCLUSION

The idea behind the National Academic Depository, often known as NAD, is to provide a central repository for all academic honours and awards in the form of an online database. The National Academic Depository (NAD) is an online repository that is accessible around the clock and houses digitised copies of academic awards such as certificates, diplomas, degrees, and mark sheets, which have been submitted by academic institutions, boards, and other eligibility assessment bodies. The National Accreditation Board (NAD) not only makes it simple to retrieve an academic award but also verifies its genuineness and ensures that it is kept in a secure location. Students and educational institutions alike are up against a significant number of obstacles in their pursuit of NAD authorization. It's possible that the depository will collaborate with educational institutions to get things started. The data repository becomes a fool proof option when it is used by both students and educational institutions to keep data from a significant number of years. It would be to the advantage of those storing, retrieving, and validating degrees if the National Academic Depository were to be built successfully and work as intended. By reducing the amount of work that administrative tasks need of staff members hired by educational institutions, it will improve the overall teaching and learning environment. Educational institutions may take on many more significant responsibilities, such as analysing the quality of the test items, preparing reports on students' performances on the test items, and providing feedback to the students' instructors as well as their parents. It would be helpful in allocating the primary aim of evaluation, which is to improve the quality of teaching and learning in educational institutions at all levels.

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PERCEPTION OF ACADEMIC STRESS ON EXPOSURE OF ONLINE LEARNING DURING COVID-19 AMONG NURSING STUDENTS

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ABSTRACT
COVID-19 disease is causing a slew of public health responses around the world. Closures of schools, colleges, and universities are among the most severe social (physical) barriers utilized to restrict the spread of this deadly disease. **T**he aim of this survey- cross sectional study was to assess the level of Perceived of academic stress on exposure of online learning during Covid-19 among nursing students across in India. A Google Form distributed via a WhatsApp group and mail, by convenient sampling technique those who were interested to provide their consent filled out the Google Form A total of 405 nursing students who were enrolled in GNM, B.Sc.(N), PB.BSc(N), and MSc(N) program participated in this study. Tool used in this study are as (a) demographic profile of the participating nursing students and (b) self-structured Perceived academic stress scale (20 items) was used to assess the level of online perceived academic stress. Majority of participants were between the ages of 21 and 25, 81.7% were female, 360 (88.9%) were single, 272 (67.2%) were enrolled in a BSc nursing program, and 152 (37.5%) were in the first year of the program. Additionally, 329 (81.2%) participants were from private institutes, and 206 (50.9%) participants lived in urban areas and 257 (63.5%) majority of the participants from Madhya Pradesh state. Of those surveyed, majority 184 (45.4%) said they were satisfied with their home learning environment. On the other hand, 84 (20.7%) participants were satisfied with their online learning environments for meeting their academic requirements, while 265 (65.5%) people were dissatisfied with online learning environments to complete their requirements. 239 (59% of the total) reported moderate levels of stress, 88 (21.7%) reported mild levels, and 78 (19.3%) reported severe levels, with mean and standard deviation values of 135 and 73.65, respectively. There was a significant association between perceived online academic stress and the number of online classes exposed per day (chi squre value of 20.733, df= 6 with p value = 0.002) and the duration of exposure of online classes per day (chi squre value of 20.734, df= 6 and p value 0.002). This research highlights that online perceived academic stress had a significant association with students' exposure of online classes and duration of exposure / day and academic performance in the context of the COVID-19 outbreak.
Key words: online, Covid-19, academic stress, nursing students, perception

INTRODUCTION

The COVID-19 pandemic has triggered extensive public health measures worldwide, with closures of educational institutions being one of the most significant strategies to curb the spread of the virus. There is no exception in the field of education, where addressing academic stress has emerged as a crucial concern, particularly within nursing institutions. Academic stress can profoundly impact students' health, underscoring the importance of monitoring its levels.

Stress, both physiological and psychological, arises in response to environmental stimuli. It is often defined as the feeling of tension or pressure, accompanied by negative emotions such as anxiety or anger. Stress manifests as a state of mental and physiological arousal, occurring when individuals perceive a situation as threatening to their well-being. (Tenibiaje, 2011)[1]. Modern definitions of stress all recognise that it is a personal experience caused by pressure or demands on an individual, and that it has an impact on that individual's ability to deal, or rather, his or her perception of that ability to cope (Blaug, Kenyon & Lekhi, 2007)[2].

Understanding the dynamic of teaching-learning during this pandemic period is compulsory to devise the different effective methods to ensure the educational continuity of the nursing students. With this backdrop, the present study aims to examine the various aspects of online education, including the delivery mode, learning outcomes, and perceived benefits & challenges associated with online classes amidst the lockdown imposed by the pandemic.

Need for the study:

This corona virus disease was unknown before the outbreak began in Wuhan, China, in December 2019. Then the COVID-19 is a pandemic disease affecting globally. Extensively the pandemic has reshaped the social interactions and leaving virtually no aspect of life untouched, including education. As the pandemic escalated, and also the need for continuation of academic activities, educational institutions have shifted rapidly to distance and online learning. It aims to assist teachers, schools, colleges, and universities facilitate student learning in periods of their closure. Additionally, most of those online systems of classes are completely free which may help ensure continuous learning of students.

Globally, COVID-19 has huge impact on academic delivery adding further degree of complexity to Nursing Education due to the temporary lock downs. Most of the countries have suspended face-to-face teaching and learning activities, physical class room teaching where the chances of transmission of the disease is believed to be high due to direct contact, which forced them to find and practice alternatives for academic delivery like virtual classes, simulation based learning ,on-line mode teaching were the ways forward[3]. There would be many queries like whether the face-to-face classes through technology are effective? And does it has any advantages over offline mode classes? How far does each institution want to continue this virtual learning environment mode? No one knows the absolute solution however we need to promote the internal reflection from the nurse educators as well as students for renewal of teaching-learning process and pedagogical renewal that favors both quality and equality.

The academic delivery in the aspects of facilitation of theory contents can be done by using variety of online platforms and learning management system such as Google class room, Google meet, Google hangout, Zoom meetings, Microsoft team, Cisco webex meeting, go to webinar, you tube streaming, Google duo, college website, social media platforms such as face book groups, whatsApp etc[4].

The impact of covid-19, nursing students they may encounter anxiety and depression about results, examinations, assignments, clinical competencies, scholarship, course completion ,job ,continuing the situations of isolation, or fail to adjust with Tech communications/ online classes ,fear of the event of a long duration of the cessation of face-to-face activities since march 2020 (more than 6 months) to till date of 2020, it is most likely that there will be a spike in the next academic year or delay in completing the course, fear about delayed placements, delayed registration[5]. Learners' had many issues at individual level due to home isolation, cessation of face-to-face learning, technological issues, emotional challenges and other factors, thus affecting the effectiveness of online learning. Hence, its prime responsibility of the nurse educator's to concern about physical and mental health of the students. It is pivotal role to identify the challenges of the nursing students to improve the training and outcome of quality learning.[6]

RESEARCH QUESTIONS

- Is the lockdown, predominant sources of stress among nursing students?
- Is there any relationship between online learning learning and perceived stress?

OBJECTIVES

The following objectives of this study were to

1. assess the socio -demographic background of the nursing students.
2. assess the level of perception of academic stress on exposure of online learning during Covid-19 among nursing students.
3. associate relationship between perception of academic stress on exposure of online learning during Covid-19 and socio demographic background of the nursing students.

HYPOTHESES

The following are the hypothesis of this study -

H0: There is a no relationship between perception of academic stress on exposure of online learning during Covid-19 and socio demographic background of the nursing students.

H_1: There is a relationship between perception of academic stress on exposure of online learning during Covid-19 and socio demographic background of the nursing students.

RESEARCH METHODOLOGY

- **Study approach**: In this study the quantitative approach was used.
- **Study design**: This study used a survey- Cross sectional research study through Google form
- **Population:** Nursing students

- **Sample**: Nursing students studying in GNM, B.Sc (N)., PB.BSc(N)., MSc(N) programme in India
- **Sampling technique**: in this study the non-probability - convenient sampling technique was used to select the sample as per the inclusive criteria.
- **Sample size**: the sample size of this study was 500 participates.
- **Setting**: across the India and data collection was done through google form.

INCLUSIVE CRITERIA:

- Willing to participate through online survey
- Nursing students studying in General Nursing and Midwifery(Diplma) , B.Sc (N) (degree course) ., Post Basic .BSc(N)- 2 years program., MSc(N) program- 2 years program.

EXCLUSIVE CRITERIA

- Not willing to participate and incomplete filling of the google form.

Tools used in this study: the following tools were used in this study for data collection from the participants. Such as Demographic profile of the nursing students and online perceived academic stress scale (3 -points Likert scale). The following is a description of the tools:

- **Tool 1 -** Demographic profile of the participating nursing students like age, gender, marital status, nursing program, year of studying in nursing, type of institution, residence locality, and in which state belongs .
- **Tool 2** - Perceived academic stress score was used to assess the level of perceived academic stress through online perceived academic stress (OPAS) scale (20 items). It was developed and structured by researcher and validated with subject experts, research literature, and took their feedback into consideration.

The level of online Perceived Academic stress and its scoring key interpretation:

- 1-20 score – Mild academic stress
- 21-40 score - Moderate academic stress
- 41-60 score - Sever academic stress

METHOD OF DATA COLLECTION:

A descriptive cross sectional online survey was conducted from General Nursing and Midwifery (diploma), BSc Nursing PBBSc nursing and MSc nursing students across the India. Permission from the institute ethical committee was obtained before beginning data collection for this study. Voluntary participation of all students will be taken through a link created google form and the same information to fill the form sent via created whatsapp group or mail by researcher. Before proceeding to the actual survey, the purpose of this study was clearly explained. Participants were also asked to respond whether or not they were willing to participate in the research. The participants who showed their willingness were then taken into the next step of filling out the demographic and academic stress scale and responses given accordingly. For this investigation, a total of 500 samples were anticipated during the period of August 2021 to January 2022. Responses from 454 were obtained. Of the 454, 49 participants did not provide all of their information. Ultimately, 405 individuals completed a Google form with all of their information. The measurement of subjective online academic stress assessed by online academic stress scale with 20 items.

STATISTICAL ANALYSIS:

A statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 23.0 software (SPSS Inc., Chicago, IL, USA). Categorical variables were expressed as percentages. The Chi square test was used to compare between perceived stress scales (low, moderate, and high perceived stress). ManneWhitney U and Kruskale Wallis tests were also used. When p values were less than 0.05, the differences were considered statistically significant. A statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 23.0 software (SPSS Inc., Chicago, IL, USA). Categorical variables were expressed as percentages. The Chi square test was used to compare between perceived stress scales (low, moderate, and high perceived stress). ManneWhitney U and Kruskale W allis tests were also used. When P values were less than 0.05, the differences were considered statistically significant. A statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 23.0 software (SPSS Inc., Chicago, IL, USA). Categorical variables were expressed as percentages. The Chi square test was used to compare between perceived stress scales (low, moderate, and high perceived stress). ManneWhitney U and Kruskale Wallis tests were also used. When p values were less than 0.05, the differences were considered statistically significant.

The Statistical Package for the Social Sciences (SPSS) version 23.0 program (SPSS Inc., Chicago, IL, USA) was used to conduct a statistical analysis. Frequency and Percentage was used to assess the demographic profile. The low, moderate, and high perceived stress scores were compared using the Chi square test. Chi-square test was used to assess the correlation between the online perceived stress level and demographic variables of the participants.

RESULTS AND INTERPRETATION

Table 1: Assess the socio -Demographic profile of the nursing students according to frequency and percentage n= 405

Table 1: Assess the socio -Demographic profile of the nursing students according to frequency and percentage n= 405

Age in years	Frequency	Percentage (%)
16-20	172	42.5
21-25	187	46.2
26-30	17	4.2
31-35	12	3.0
36-40	12	3.0
41-45	04	1.0
46-50	01	0.2
Gender		
Male	74	18.3
Female	331	81.7
Marital status		
Single	360	88.9
Married	44	10.9
Divorced/ separated	01	0.2
Nursing program		
B.Sc. Nursing	272	67.2
Post Basic B.Sc. Nursing	30	7.4
MSc Nursing	07	1.7
GNM	96	23.7
Year of studying in Nursing		
First year	**152**	**37.5**
Second year	94	23.2
Third year	97	23.9
Fourth year	62	15.3
Type of Nursing institution		
Government	76	18.8
Private	329	81.2
Residing Locality		
rural	199	49.1
urban	206	50.9
State in which belongs		
Bihar	40	9.9
Haryana	29	7.2
J&K	52	12.8
Madhya Pradesh	257	63.5
UP & Tamil Nādu & Kerala	6+6 +6 = 18	4.5
Allahabad, Jharkhand, Odisha, Puducherry, west Bengal	1+1+1+1+1=5	1.1
New Delhi & Maharashtra	2 +2=4	01

Table 1 reveals that the majority of participants were between the ages of 21 and 25. The majority of students (81.7%) were female, 360 (88.9%) were single, 272 (67.2%) were enrolled in a BSc nursing program, and 152 (37.5%) were in their first year of study. Additionally, 329 (81.2%) of the participants were from private institutes,

and 206 (50.9%) participants lived in urban areas and 257 (63.5%) majority of the participants were from the state of Madhya Pradesh, India.

2. **Satisfaction of Home learning environment and online learning environment to complete the academic during the lockdown according to frequency and percentage:**

n=405

Satisfaction of Home learning environment during the lockdown	Frequency	Percentage %
May be	69	17
No	152	37.5
Yes	184	45.4
Are you satisfied with online training to complete your academic		
Both	2	.5
May be	54	13.3
No	265	65.4
Yes	84	20.7

Table 2 illustrates how participants felt about their home learning environment during the lockdown. Of those surveyed, majority 184 (45.4%) said they were satisfied, 152 (37.5%) said they were not, and 69 (17%) said they might be. On the other hand, 84 (20.7%) participants were satisfied with their online learning environments for meeting their academic requirements, while 265 (65.5%) people were dissatisfied with online learning environments to complete their requirements

Table 3: Distribution of to frequency and percentage of the online learning platform and learning device that are commonly or frequently exposed for academic learning

n=405

Online learning platform that are exposed commonly or frequently for academic learning	Frequency	Percentage %
Zoom	381	94.1
Google meet	19	4.7
Microsoft Team and others	5	1.2
Frequently used device for online academic learning		
Mobile phones	401	99.0
Laptop	4	1.0
Do you have own computer / laptop/ separate mobile at your home		
No	104	25.7
Yes	301	74.3
Do you own a separate link to the internet for the academic purpose		
No	173	42.7
Yes	232	57.3

Table 3 shows that 381 participants (94.1%) frequently used the Zoom online learning platform for academic learning purposes. while 19 (4.7%) used the Google Meet platform and Five (1.2%) used the Microsoft Team and other online learning platforms. Of the devices, 401 (99%) were used often Mobile phones for academic online learning: 301(74.3%) had a personal computer, laptop, or separate mobile device at home; 232(57.3%) had a separate internet connection for academic use.

Table 4: Numbers of online classes exposed per day and duration of online learning during lockdown

n=405

How many hours of online classes exposed per day (hours)	Frequency	Percentage %
> 6 Hours	19	4.7
1-2 Hours	116	28.6
2-4 Hours	189	46.7

4-6 Hours	81	20.0
How long that have been exposed to online learning during lockdown		
Nil	1	0.2
<6 months	92	22.7
>6 months	312	77.0
Total	405	100.0

Table 4 represents that majority of them 189(46.7%) have exposed to 2-4 hours of online classes per day and 312 (77%) were exposed more than 6 months duration of online classes for their academic learning during lockdown.

Table 5: **Distribution of Perceived Academic Stress level (OPAS) according to frequency and percentage**

n=405

Online Perceived Academic Stress level (OPAS)	Frequency	%	Mean & SD
Mild	88	21.7	Mean= 135
Moderate	239	59.0	SD (σ) = 73.65
Severe	78	19.3	

Table 5 shows that the level of perceived academic stress of the nursing students, 239 (59% of the total) reported moderate levels of stress, 88 (21.7%) reported mild levels, and 78 (19.3%) reported severe levels, with mean and standard deviation values of 135 and 73.65, respectively. Hence, this above table indicates that the participants had undergone mild to moderate perceived academic stress level towards the implementation of online learning during Covid 19 pandemic.

Table 6 : Association of level of perceived academic stress with selected demographic profile of the nursing students

n=405

		Mild	Moderate	Severe	Total	Chi square	df	P value	Significance
1	Age in years								
	16-20	37	92	43	172	15.008	12	.241	NS
	21-25	38	117	32	187				
	26-30	6	11	0	17				
	31-35	4	6	2	12				
	36-40	3	8	1	12				
	41-45	0	4	0	4				
	46-50	0	1	0	1				
2	Gender								
	Male	17	41	16	74	.527	2	.769	NS
	Female	71	198	62	331				
3	Marital status								
	Single	76	211	73	360	5.670	4	.225	NS
	Married	11	28	5	44				
	Divorced	1	0	0	1				
4	Courses of nursing program								
	B.Sc. Nursing	59	152	61	272	8.280	6	.218	NS
	Post Basic B.Sc. Nursing	6	21	3	30				
	MSc Nursing	3	4	0	7				
	GNM	20	62	14	96				
5	Which year of nursing								

	you are studying now?								
	First year	35	91	26	152	2.267	6	0.893	NS
	Second year	22	55	17	94				
	Third year	17	58	22	97				
	Fourth year	14	35	13	62				
6	Which types of nursing institution under you are studying?								
	Government	16	47	13	76	.372	2	.830	NS
	Private	72	192	65	329				
7	**State in which you belong**								
	Allahabad	0	1	0	1	30.766	28	.328	NS
	Bihar	8	26	6	40				
	Delhi	1	0	0	1				
	Haryana	3	19	7	29				
	J&K	12	36	4	52				
	Jharkhand	0	1	0	1				
	Kerela	1	3	2	6				
	Maharashtra	1	1	0	2				
	MP state	59	142	56	257				
	New Delhi	0	0	1	1				
	Odisha	0	1	0	1				
	Puducherry	1	0	0	1				
	Tamil Nādu	1	4	1	6				
	UP	1	5	0	6				
	west Bengal	0	0	1	1				
8	Are you satisfied with home environment for learning due to lock down?								
	May be	11	40	18	69	4.417	4	.352	NS
	Yes	46	107	31	184				
	No	31	92	29	152				
9	Which online learning platform you are exposed commonly or frequently for academic learning?								
		0	1	0	1	3.740	8	.880	NS
	Zoom	84	222	75	381				
	Google meet	4	12	3	19				
	Microsoft Team	0	3	0	3				
	If Any, specify	0	1	0	1				
10	Frequently used device for online academic learning								
	Mobile phones	88	236	77	401	1.122	2	.571	NS
	Laptop	0	3	1	4				
11	How many number of online classes exposed per day related to the subject concerned to your course?								

	1-2	27	71	18	116	20.733	6	0.002	S
	2-4	49	108	32	189				
	4-6	11	52	18	81				
	Above six	1	8	10	19				
12	**Residing Locality**								
	Rural	43	122	34	199	1.312	2	.519	NS
	Urban	45	117	44	206				
13	**Are you satisfied with home environment for learning due to lock**								
	May be	11	40	18	69	4.417	4	.352	NS
	No	31	92	29	152				
	yes	46	107	31	184				
14	**Which online learning platform you are exposed commonly or frequency**								
		0	1	0	1	3.740	8	.880	NS
	Google meet	4	12	3	19				
	Microsoft team	0	3	0	3				
	Teachmint	0	1	0	1				
	Zoom	84	222	75	381				
15	**Do you have own computer lap top separate mobile at your home**								
	No	20	59	25	104	2.185	2	.335	NS
	Yes	68	180	53	301				
16	**Do you own a separate link to the internet for the academic purpose**								
	No	31	105	37	173	2.872	2	.238	NS
	Yes	57	134	41	232				
17	**How long you have been exposed to online learning during lock do**								
	Nil	0	1	0	1	2.790	4	.594	NS
	<6 months	22	57	13	92				
	>6 months	66	181	65	312				
18	**Are you satisfied with online training to complete your academic**								
	both	1	1	0	2	10.068	6	.122	NS
	May be	14	34	6	54				
	No	51	152	62	265				
	yes	22	52	10	84				
19	**How many hours of online classes exposed per day**								
	>6hours	1	8	10	19	20.734	6	.002	S
	1-2hours	27	71	18	116				
	2-4 Hours	49	108	32	189				
	4-6Hours	11	52	18	81				

Table 6 demonstrates that there was a significant association between perceived online academic stress in the number of online classes exposed per day (chi squre value of 20.733, df= 6 with p value = 0.002) and the duration of exposure of online classes per day (chi squre value of 20.734, df= 6 and p value 0.002). There was no significant correlation found between the nursing students' and other demographic profile with their online perceived academic stress level.

DISCUSSION

In this study , majority of participants were between the ages of 21 to 25. The majority of students (81.7%) were female, 360 (88.9%) were single, 272 (67.2%) were enrolled in a BSc nursing program, and 152 (37.5%) were in their first year of study. 401 (99%) were used often Mobile phones for academic online learning: 301(74.3%) had a personal computer, laptop, or separate mobile device at home; 232(57.3%) had a separate internet connection for academic use. It is supported Oducado, R. M. F., & Estoque, H. (2021) [7] study participants' average age was 19.91 years and the average time spent daily for online learning was 7.20 hours. Most students were females (70.4%)with middle-income status (89.8%) and from the town areas (53.7%). Smart or mobile phone (57.4%) and laptop (38%) were commonly used to connect to the internet for online learning and the majority (75%)had a somewhat stable internet connection. A another study Sharma A, Kumar R (2022)[8]similarly describe about the age of the nursing Students' mean age was 22.22 ± 1.24 years. The mean IES-R was 19.59 ± 12.45 in nursing students.

The findings of this study suggested that stress was a major issue in online learning among the nursing students during the COVID-19 pandemic. In the present study, 239 (59% of the total) reported moderate levels of stress, 88 (21.7%) reported mild levels, and 78 (19.3%) reported severe levels, with mean and standard deviation values of 135 and 73.65, respectively. Sharma A, Kumar R (2022)[8] stress level found a significant association with first-year academic level (OR: 3.250, 95% CI: 1.429-7.390, $P = 0.005$). also concluded that during the pandemic, stress management to support mental health is highly recommended. Oducado, R. M. F., & Estoque, H. (2021)[7,] the undergraduate nursing students considered that online learning during the COVID-19 outbreak was stressful (44.4%) and very stressful (47.2%). Moreover 37% of the undergraduate nursing students had low satisfaction and 46.3% had moderate satisfaction towards online learning. In terms of academic performance, 43.6% were considerably affected, while 30.6% were greatly affected by the pandemic. The undergraduate nursing students' rated their academic performance to be poor (37%) and fair (50%). Moreover, the undergraduate nursing students were not satisfied (42.6%) and unsure (34.3%) with their current academic performance.

This research investigated the undergraduate nursing students' stress, satisfaction, and academic performance towards the implementation of online learning during the COVID-19 pandemic. Remote electronic exams were also found more stressful by one-third of medical students (Elsalem et al., 2020)[9,] The results from a global survey disclosed that the students reported increased workload during online learning (Aristovnik *et al*., 2020)[10]. A global survey among the higher education students also reported the problems with Internet connectivity (Aristovnik *et al.*, 2020)[10].

A significant negative correlation was also noted between satisfaction with e-learning and
stress among the university students in Lebanon during the COVID-19 outbreak (Fawaz & Samaha, 2020)[11]. Kim SC, Sloan C, Montejano A, Quiban C (2021) [12], Among 173 nursing students at a private university in Southern California, USA, self-reported stress, anxiety, and depression were significantly higher during the lockdown compared to the pre-lockdown period ($p < 0.001$). Almost a quarter of participants reported high stress, while more than half reported moderate-to-severe symptoms of anxiety and depression. Oducado, R. M. F., & Estoque, H. (2021)[7,] it was also demonstrated in this study that stress had a significant and negative inverse relationship with the students' satisfaction and academic performance toward online learning. The research findings indicated that a higher stress level led to lower satisfaction and poorer academic performance with reference to online learning. Wynter K, Redley B, Holton S, Manias E et al. (2021)[13], the proportions of students reporting moderate to severe symptoms of depression, anxiety and stress were 48.5%, 37.2% and 40.2% respectively. Poor psychological wellbeing can impact students' successful completion of their studies. Policy makers, Academic nursing institutions, and nursing educators play important parts in addressing the learning challenges in the era of the COVID-19pandemic and beyond in both online and off line mode of teaching – learning process/ blended or hybrid mode at the accessible, and affordable to all.

CONCLUSION

The COVID-19 pandemic has substantially affected the undergraduate nursing students' academic performance and resulted in unparalleled stressful situations. Stress significantly influences the students' satisfaction and academic performance. This research highlights that online learning stress negatively impacts students' satisfaction and academic performance in the context of the COVID-19 outbreak. According to the study, interventions should be

created to lessen stress among undergraduate nursing students and assist them in managing the demands and challenges of their studies in the event of a pandemic.

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CONFLICT OF INTEREST
The authors declare that there is no potential conflict of interest with respect to the research, authorship and / or publication of this article.

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THE USE OF MOBILE DEVICES IN ENGLISH LANGUAGE LEARNING AMONG ADVANCED LEARNERS: INSIGHTS FROM INTERVIEW DATA

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ABSTRACT

This paper explores the role of mobile devices in facilitating English language learning among advanced learners. Based on interview data, it investigates learners' perceptions, usage patterns, benefits, and challenges associated with mobile-assisted language learning (MALL). The findings indicate that mobile devices offer personalized, flexible learning experiences but also highlight concerns about distraction and information overload. The data for this study were gathered from 20 students using a semi-structured interview format. Both qualitative and quantitative analyses were applied to the collected data. Findings from the study indicated that some participants showed an increased awareness of the beneficial role mobile devices play in their language learning. They demonstrated the capability to access appropriate tools and retrieve information to meet their objectives, fulfill their needs, and tailor their English learning to suit their individual learning styles. However, their use of mobile devices in the classroom was often spontaneous and unstructured.

Keywords: Mobile-Assisted Language Learning (MALL), English Language Learning, Advanced Learners, Mobile Devices, Interview Study

1 INTRODUCTION

In recent years, mobile devices, particularly smartphones and tablets, have sparked significant interest among researchers (Byrne & Diem, 2014). This interest is largely due to the potential these technologies offer, such as personalized learning opportunities, a vast array of mobile apps, and easy internet access, as well as their growing prevalence among learners. Such factors make mobile devices valuable additions to both formal and informal language learning environments.

Benson (2011) notes that educational technologies have long been linked to learner autonomy, as they are often intended for self-directed practice. However, Reinders and White (2016) emphasize that future research and practices in technology-mediated learner autonomy should increasingly align with the tools, environments, and activities that are most relevant to language learners. They argue that with a nearly limitless range of settings, tools, and experiences now available, individuals must develop critical adaptive learning skills to fully benefit from and contribute to these contexts. Contemporary language educators should therefore provide foreign or second language learners with the necessary knowledge to leverage mobile devices effectively for language study. Additionally, it is essential for researchers and educators alike to understand the connection between how language learners organize their own learning experiences and the role mobile devices, particularly smartphones and tablets, play in these settings.

Building on these considerations, the present study explores how advanced English language learners use mobile devices for language learning. The article begins with a review of relevant literature, followed by a description of the study's design, including the research question, participant details, data collection methods, and analysis procedures. The results are then presented, leading into a discussion, and concluding remarks.

2 LITERATURE REVIEW

2.1. Mobile-Assisted Language Learning (MALL) and Its Development

The advent of mobile-assisted language learning (MALL) has significantly impacted the field of language education. Researchers have increasingly focused on MALL due to its potential to provide flexible, accessible, and personalized learning experiences (Godwin-Jones, 2011). Mobile devices, such as smartphones and tablets, enable learners to practice language skills anytime and anywhere, making language acquisition a more integrated part of their daily lives. Studies show that mobile devices support not only traditional learning activities, such as vocabulary practice, but also more interactive forms, like real-time language practice and social interaction (Kukulska-Hulme & Shield, 2008).

2.2. Benefits of Mobile Devices for Language Learning

Mobile devices offer several advantages for language learners, including a wealth of resources (e.g., apps, websites, and multimedia tools) and the convenience of immediate internet access. Byrne and Diem (2014) highlight that the increasing availability of mobile apps and the adaptability of these tools to individual learning preferences make mobile devices an asset in both structured and informal learning settings. Additionally, mobile

learning tools facilitate individualized learning, allowing students to practice specific language skills, such as grammar or pronunciation, at their own pace (Stockwell, 2010).

2.3. Learner Autonomy and Mobile Technologies

The concept of learner autonomy has long been connected to educational technologies, as these tools often promote self-directed learning. Benson (2011) describes how educational technologies encourage learners to take responsibility for their own progress and develop skills in self-management and goal-setting. Reinders and White (2016) argue that modern mobile technologies have expanded the scope of learner autonomy, as they provide learners with almost limitless opportunities for practice in varied contexts. However, they emphasize that future research should examine how mobile devices align with the specific tools, settings, and activities that are most relevant to language learners. To fully benefit from these opportunities, learners need to cultivate critical and adaptive learning skills that allow them to navigate and evaluate the vast amount of content available online.

2.4. Challenges of Mobile Device Use in Language Learning

Despite their advantages, mobile devices also present several challenges for language learners. One common issue is distraction; students may be tempted to use their devices for non-learning purposes, such as social media or entertainment (Lai & Zheng, 2018). Moreover, a lack of structured guidance can lead to ad hoc or superficial use of mobile devices, where learners engage with content only on a surface level. Lai (2019) points out that while learners can benefit greatly from mobile devices, they require support and guidance to use these tools effectively and avoid potential pitfalls. Teachers play a critical role in helping students learn to harness the benefits of mobile learning while minimizing these distractions.

2.5. The Role of Teachers in Mobile Language Learning

Educators have an essential role in fostering effective mobile-assisted learning environments by equipping students with the necessary skills to use mobile devices productively (Viberg & Grönlund, 2017). Reinders and White (2016) advocate for teachers to guide students in recognizing and leveraging the affordances of mobile devices for language learning. This involves educating students about suitable mobile tools, applications, and resources and helping them develop strategies to integrate these resources into their self-directed learning. Teachers can also encourage students to adopt a reflective approach to mobile learning, guiding them to assess the usefulness of different apps or websites critically.

The literature on mobile-assisted language learning highlights both the opportunities and challenges presented by mobile devices in language education. While mobile technologies provide unprecedented access to resources and promote learner autonomy, their effective use requires skillful navigation and a thoughtful, guided approach. As mobile devices become increasingly embedded in both formal and informal learning environments, understanding their role in supporting advanced learners' language development is essential for educators and researchers alike.

3 METHOD

3.1. Research Question

How do advanced English language learners utilize mobile devices (such as smartphones and tablets) to support their language learning, and what are the perceived benefits and challenges of mobile-assisted language learning in this context?

This question aims to explore not only the specific ways in which advanced learners engage with mobile devices for language practice but also to understand their perspectives on the effectiveness and potential limitations of these tools in enhancing their language acquisition.

3.2. Participants

The study involved 20 advanced English language learners, selected based on their proficiency level in English (CEFR level C1 or higher). Participants were diverse in terms of age and background, ranging from university students to professionals who regularly use English in academic or professional settings. All participants had prior experience using mobile devices, such as smartphones and tablets, for language-related purposes, ensuring that they were familiar with the tools and resources discussed during the study. This demographic selection aimed to gather insights from individuals with a high level of language proficiency and experience, providing a nuanced perspective on mobile-assisted language learning among advanced learners.

3.3. Data Collection and Analysis

The data for this study were collected through semi-structured interviews conducted with each of the 20 participants. The semi-structured format allowed participants to discuss their experiences and perspectives in depth, while still providing a consistent framework across interviews. Key questions focused on how participants used mobile devices for language learning, the types of apps and resources they accessed, their strategies for

integrating mobile-assisted language learning (MALL) into their routines, and any perceived benefits or challenges.

Each interview was recorded and transcribed for accuracy. Data analysis followed a mixed-methods approach, combining qualitative and quantitative techniques.

3.3.i. Qualitative Analysis: A thematic analysis was performed on the interview transcripts. Responses were coded for recurring themes related to mobile device usage, learning strategies, perceived benefits, and challenges. Themes such as "autonomy," "accessibility," "distraction," and "adaptability" emerged, reflecting common patterns across participant experiences. These themes provided insights into learners' attitudes and behaviors regarding MALL and highlighted specific factors influencing its effectiveness.

3.3.ii. Quantitative Analysis: In addition to thematic coding, quantitative analysis was conducted by categorizing responses based on frequency. For example, data were analyzed to quantify the number of participants who used specific apps or tools, the frequency of mobile device use for language learning, and the types of activities they engaged in (e.g., vocabulary practice, listening exercises, or reading comprehension). This analysis provided a clearer picture of common practices and preferences among advanced learners, supporting the qualitative findings with numerical data.

Together, these analytical methods offered a comprehensive view of how advanced learners use mobile devices in their language studies, as well as the perceived advantages and limitations of this approach.

4 FINDINGS

The analysis of the interview data revealed several key findings regarding how advanced English language learners use mobile devices to support their language studies, along with the benefits and challenges they experience in this context.

Table 1. The students' mobile devices usage descriptions

Student	Sex	Year & Courses of Study	Device Used	Use of MobDs for language study (approx.)	Q1	Q2	Q3	Q4	Q5	Q6
Stu 1	Male	1st year B.Com.	Smart phone and Tablet	2 years	✓	✓	✓		✓	
Stu 2	Female	2nd year B.Com.	smart phone, rarely tablet	4 years	✓		✓	✓		
Stu 3	Female	1st year B.Com.	Tablet and cell Phone	3 years	✓	✓			✓	
Stu 4	Female	2nd year B.Com.	Tablet and cell Phone	4 years	✓	✓	✓	✓		
Stu 5	Male	2nd year B.Com.	Smart phone, rarely Tablet	4 years	✓	✓	✓	✓	✓	✓
Stu 6	Male	1st year B.Com.	Smart phone	3 years	✓		✓	✓		
Stu 7	Female	2nd year B.Com.	Smart phone and Tablet	4 years	✓	✓			✓	
Stu 8	Female	3rd year BCA	Smart phone	3 years	✓		✓	✓		
Stu 9	Male	2nd year B.Sc.(CS)	Smart phone	2 years		✓			✓	✓
Stu 10	Female	3rd year B.Sc.(B.T.)	Tablet and Cell phone	3 years	✓	✓	✓	✓	✓	
Stu 11	Male	2nd year B.Sc.(IT)	Smart phone	7 years	✓		✓	✓		
Stu 12	Female	2nd year M.A. (English)	Smart phone	4 years	✓	✓			✓	✓
Stu 13	Male	2nd year B.Sc.(CS)	Smart phone and Tablet	7 years	✓	✓	✓	✓	✓	

Stu 14	Male	3rd year B.Sc.(B.T.)	Smart phone	4 years	✓		✓	✓		
Stu 15	Male	2nd year M.A. (English)	Smart phone, rarely Tablet	7 years	✓	✓			✓	✓
Stu 16	Female	2nd year B.Sc.(IT)	Smart phone	5 years		✓	✓	✓	✓	
Stu 17	Male	2nd year B.Sc.(CS)	Smart phone	4 years	✓		✓	✓		
Stu 18	Male	3rd year BCA	Smart phone and Tablet	7 years	✓	✓			✓	✓
Stu 19	Female	2nd year M.A. (English)	Smart phone	6 years		✓	✓	✓	✓	
Stu 20	Female	3rd year B.Sc.(B.T.)	Smartphone and Tablet	5 years	✓	✓	✓	✓		✓

*Source Primary Data

4.1. Reasons for using mobile devices

Table 2. Summarizing the key findings from the study on mobile-assisted language learning among advanced English learners

Question	Finding	Description	Percentage of Participants
1	Flexible and Accessible Learning	Mobile devices enable learning anytime and anywhere, allowing learners to integrate practice into daily life.	85%
2	Individualized and Self-Directed Learning	Learners can customize their language practice, setting personal goals and focusing on specific skills.	70%
3	Wide Range of Resources and Tools	Participants access various apps and online content for diverse skills, including vocabulary, listening, etc.	75%
4	Enhanced Motivation and Engagement	Interactive features and gamification in apps increase motivation and consistency in language practice.	65%
5	Challenges: Distraction and Overreliance on Technology	Learners face distractions and risk of shallow engagement when using mobile devices independently.	60%
6	Limited Classroom Integration	Mobile devices are mainly used independently, with limited teacher-supported integration into class learning.	30%

This table provides a clear overview of the benefits and challenges identified in the study, along with the prevalence of each finding among participants.

4.2. Resources and tools

Table 3. This table summarizing common **resources and tools** used on mobile devices for language learning, based on research and learner feedback

Resource/Tool	Description	Percentage of Participants
Vocabulary Apps	Apps like Anki, Quizlet, and Memrise help learners build and reinforce their vocabulary through flashcards and spaced repetition.	80%
Language Exchange Platforms	Apps such as HelloTalk and Tandem allow learners to connect with native speakers for real-time practice and conversation.	65%
Podcasts	Audio-based resources like language learning podcasts or podcasts in the target language, helping with listening and pronunciation.	75%
E-books and Audiobooks	Digital books and audiobooks available on apps like Kindle or Audible help with reading and listening practice in the target language.	70%

Grammar and Pronunciation Apps	Tools like Grammarly, Duolingo, and Babbel focus on grammar practice and help improve pronunciation through repetition and feedback.	85%
Language Learning Games	Interactive apps that use gamification to teach vocabulary, grammar, and language skills, such as Drops or Memrise.	60%
YouTube	A vast resource for language learners offering free video content, including lessons, cultural insights, and real-world dialogues.	70%
Social Media and Forums	Platforms like Reddit, Facebook, and Instagram offer communities where learners can share resources, ask questions, and practice writing.	50%
Speech Recognition Tools	Apps with speech recognition (e.g., Google Translate, Speechling) to help learners improve their speaking and pronunciation skills.	65%
Online Dictionaries and Thesauruses	Apps like WordReference or Merriam-Webster help with quick translation, definitions, and example sentences.	85%
Flashcard Apps	Spaced repetition systems (SRS) such as Anki or Brainscape help learners efficiently memorize and retain new words or phrases.	80%
News and Articles	Apps like News in Levels or Flipboard curate news stories in the target language at varying difficulty levels.	55%

This table presents the various **resources and tools** that learners commonly use on mobile devices for language learning, along with the percentage of participants who utilize each type of resource. The table reflects the importance of diversity in tools and content types, offering learners a variety of ways to engage with language learning on mobile devices.

4.3. Reasons for using mobile devices.

Table 4. The revised table that includes the **reasons for using mobile devices** for language learning based on the previous findings:

Reason for Use	Description	Percentage of Participants
Accessibility and Convenience	Mobile devices allow learners to study anytime and anywhere, fitting language practice into their daily routines.	85%
Personalization	Learners can tailor their learning experience by choosing their preferred apps, tools, and learning goals.	70%
Variety of Resources	Mobile devices provide access to a wide range of resources, including vocabulary apps, podcasts, and e-books.	75%
Engagement and Motivation	Features such as gamification, progress tracking, and rewards boost motivation and make learning more engaging.	65%
Autonomy in Learning	Mobile devices encourage self-directed learning by allowing learners to independently choose materials and methods.	60%
Improved Pronunciation & Listening Skills	Mobile apps provide audio-based exercises that improve listening comprehension and pronunciation.	55%
Real-Time Feedback	Immediate feedback on tasks or exercises helps learners correct mistakes and enhance their learning.	70%
Affordability and Cost-Effectiveness	Many language learning apps are low-cost or free, making them a budget-friendly alternative to traditional resources.	80%
Use of Multimedia	Learners engage with multimedia content (videos, audio) to improve various language skills.	75%
Collaboration and Interaction	Some apps allow learners to interact with peers or native speakers, supporting social learning and collaboration.	50%
Portable Learning	Learners can carry mobile devices with them, providing access to language learning materials on the go.	85%

Language Immersion	Learners can access authentic language materials (e.g., news, podcasts) to immerse themselves in the target language.	70%

This table summarizes the key reasons learners use mobile devices for language learning, highlighting the advantages mobile devices offer in terms of flexibility, accessibility, and engagement. The percentage of participants reflects how common each reason is among learners.

5 DISCUSSION AND CONCLUSIONS

The findings of the study highlight the growing role of mobile devices in supporting advanced learners in their English language acquisition. The use of mobile devices, especially smartphones and tablets, has become integral to the learning process, offering a range of benefits for learners of all levels. The data collected from 20 students reveal that while mobile devices are widely regarded as useful tools for language learning, their use varies across different contexts and learner preferences.

The findings from this study demonstrate that mobile devices are a powerful and widely-used tool in language learning. They provide flexibility, accessibility, and a wealth of resources that cater to individual learning preferences and needs. However, their potential is not always fully realized in formal educational settings. There is a need for more intentional and structured integration of mobile devices into classroom activities, ensuring that learners make the most of these tools.

To optimize the use of mobile devices for language learning, teachers should guide students in selecting effective apps and resources, set clear learning goals, and encourage disciplined use in class to minimize distractions. Additionally, learners should be aware of the importance of balancing educational and non-educational uses of their devices, making sure that their language learning goals remain the primary focus.

Implications for Future Research and Practice:

- Future studies could explore the specific impact of various mobile apps on different language skills (e.g., speaking, listening, writing, etc.), as well as their effectiveness in diverse learner groups.
- Further research is also needed to investigate the optimal integration of mobile devices in classroom settings and how teachers can best support learners in using mobile technologies to their full potential.
- Teachers may benefit from professional development focused on incorporating mobile devices into their teaching strategies, ensuring that these tools enhance, rather than detract from, the learning experience.

In conclusion, mobile devices are transforming language learning, offering students new opportunities for autonomous, flexible, and engaging study. However, to maximize their potential, learners and educators must work together to navigate challenges, ensuring that these devices are used effectively as a tool for educational success.

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UNIVERSITY STUDENT'S ATTITUDE TOWARDS E-LEARNING

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ABSTRACT
In the present era, e-learning occupies an important place in higher education. It provides ample opportunities to all learners to access knowledge anywhere and anytime. The current study was designed to investigate University students' attitude towards e-learning. The primary objective of the study was to disclose the differences in attitude towards e-learning between male and female university students. Using a simple random sampling technique, a sample of 200 University students were taken from various departments at the University of Kashmir. Dimple Rani (2015) Attitude towards e-learning Scale was used to collect the data. Statistical techniques such as percentage and t-test were used to analyze the data. The study reported that there is no significant difference in attitude towards e-learning between male and female university students on (factor wise). Furthermore, the results revealed that no significant difference was found between male and female university students on attitude towards e-learning on (composite wise).
Key Words: Attitude, e-learning, Higher Education

INTRODUCTION

Education is the most powerful instrument to enlighten the human beings. In knowledge based societies every individual needs to be educated. With the advancement of technology in India, the concept of e-learning is growing day by day. The paradigm of education has been significantly impacted by e-learning. By using digital tools, we can improve education across the globe. The availability of numerous learning platforms provided by e-learning raises the quality of higher education (Riza and Singh, 2022). E-learning has transformed the education system significantly, especially at higher levels. Learning in higher education has been improved by e-learning and the integration of information and communication technology. E-learning is becoming a crucial part of universities and other higher education organizations (UNESCO, 2002). The utilization of any electronic media in learning and teaching is referred to as e-learning. It includes a wide range of processes and applications that aim to make education more accessible. E-learning is becoming incredibly popular in higher education, opening up new possibilities for both educational institutions and students (Shivcharan, 2018). A person's attitude is defined as their feelings, whether positive or negative, towards engaging in the desired behavior. When it comes to e-learning, a learner's positive or negative views about computer-based e-learning activities will directly influence how they use online learning. Knowing how a student feels about the e-learning system might help decide how frequently they utilize it (Ong and Lai 2006). E-learning is a popular learning system because it is flexible, dynamic and adaptable to students' needs (Cui et al. 2013; Richardson, 2017). E-learning is therefore, now playing a bigger role in the transformation of knowledge, skills and performance enhancement in higher education. E-learning is not just the change in the medium but it is the facilitator in creating a new set of experiences for the learners in the 21st century. As the New Education Policy (2020) has emphasized on the importance of e-learning, it needs to be studied how Post Graduate University Students perceive the idea of e-learning.

RATIONALE OF THE STUDY

Technology plays an important role in our daily lives in the twenty-first century, and it requires professionals, educators, and learners to reconsider their fundamental beliefs in order to use technology for the redesign or re-shaping of education and training systems. E-learning is an alternative to traditional education, as well as a supplement to it. Today e-learning is based on the concept of connectivism as Siemens describes connectivism, "the model of learning for the digital age where learning is no longer an internal, individualistic activity, which manifests itself in all aspects of human life". Connectivism is a learning theory that gives students throughout the world new learning opportunities. The teacher should employ a range of technologies, such as Twitter, wikis, blogs, free educational resources, etc. to help students draw connections between what at first glance appears to be unconnected content. If you want students to do better in e-learning and feel more at ease by using them in the

future, you must first make them aware of the value and usability of e-resources. As a result of this research, we will be able to better understand how students react and think about e-learning, as well as their attitude towards it.

OBJECTIVES OF THE STUDY

1. To study the Attitude towards e-learning among University Students.
2. To find out the difference between Male and Female University students on Attitude towards e-learning (Factor Wise and Composite Wise).

HYPOTHESIS OF THE STUDY

H_{O1}: There is no significant difference between Male and Female University students on Attitude towards e-learning (Factor Wise).
H_{02}: There is no significant difference between Male and Female University students on Attitude towards e-learning (Composite Wise).

DELIMITATIONS OF THE STUDY

1. The present study is exclusively delimited to University of Kashmir, Srinagar (J&K).
2. This study is also delimited to male and female students at University of Kashmir.

METHODOLOGY AND SAMPLING PROCEDURE

Descriptive research design was utilized to execute research objectives. All the University Students who are pursuing PG courses at University of Kashmir were constituted the population of the present study. In the present study, simple random sampling technique was used to select 200 post graduate university students from different departments. Out of which, 88 was male and 112 was female University students.

DATA COLLECTION TOOL

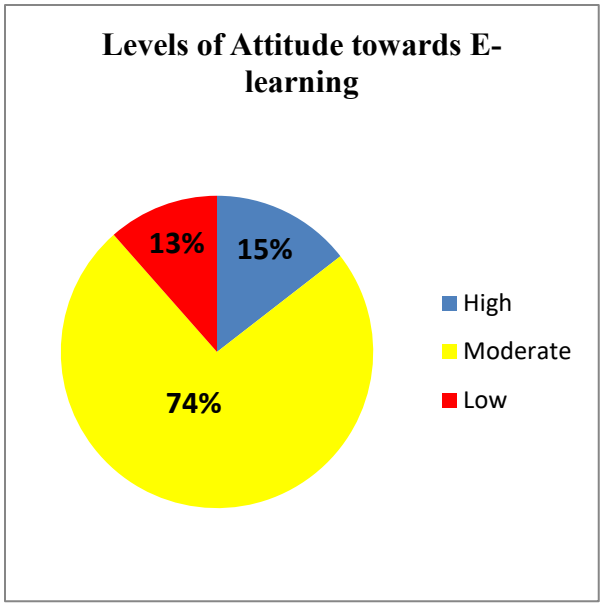
The Attitude towards e-learning scale developed by **Rani, D. (2015)** was used to collect the required data. The scale was standardized using a sample of 200 students from the Punjab district of India's Ludhiana. The scale was developed to assess four aspects of e-learning: **E-Learning Interest, Usefulness, Ease of E-Learning and E-Learning Confidence.**

STATISTICAL ANALYSIS

The data was processing using IMB SPSS V.26 Program. In data processing, descriptive analyses like Mean, S.D and parametric analysis t-test was applied to analysis the data.

Table 1: Levels of attitude towards e-learning:

Level of attitude towards E-learning	No. of Students	Percentage
High	29	14.5%
Moderate	148	74%
Low	23	11.5%
Total	200	100%



According to the above table, 14.50% of university students have a positive attitude towards e-learning, 74% have a moderate attitude towards e-learning, and 11.50% have a negative attitude towards e-learning. As a result, it is clear that majority of university students show a moderate attitude towards e-learning. The results are in line with the findings of Dharanipriya and Bhuvaneswari in 2020; Dash, et al. in 2022; and Pathak, et al. in 2019.

Table 2. Showing the mean score comparison between Male and Female University students on various dimensions of Attitude towards e-learning.

Dimensions	Gender	N	Mean	S.D	t-value	Results
E-learning interest	Male	88	43.15	5.71	1.00	Insignificant
	Female	112	43.91	5.02		
Usefulness	Male	88	90.53	8.85	0.37	Insignificant
	Female	112	90.04	9.28		
Ease of e-learning	Male	88	48.39	5.59	1.01	Insignificant
	Female	112	47.62	5.13		
E-learning Confidence	Male	88	41.36	5.55	0.24	Insignificant
	Female	112	41.21	4.79		

Factor wise Interpretation:

1. "**E-learning interest**" **Dimension:** The table 2 displays the mean difference of male and female University students on Attitude towards e-learning on dimension of E-learning interest. As per the table, the mean score of male and female University student's attitude towards e-learning are 43.15 and 43.91 while S.D is 5.71 and 5.2 respectively. The calculated t-value came out to be 1.00 which is less than tabulated value 2.58. Hence it is insignificant at 0.05level of significance.
2. **"Usefulness" Dimension:** In this dimension the results depict that there is insignificant difference between male and female University students on "Usefulness" dimension of Attitude towards e-learning. The t-value is recorded as 0.378 which is insignificant at 0.05level of significance.
3. **"Ease of e-learning" Dimension:** It is observed from the above table in this dimension that the mean difference between male and female attitude towards e-learning of university students is 48.39 and 47.62 respectively. The t-value is 1.01 which is insignificant at 0.05level of significance.

4. **"E-learning Confidence" Dimension:** It is evident from the above table that the mean score of Male and Female University students were 41.36 and 41.21 respectively. The t-value is observed as 0.24 which is insignificant at 0.05 level of confidence.

The study analyzed that in all the dimensions, no significant difference was found between male and female University Students on attitude towards e-learning. Both male and female University Students use various e-learning platforms for their studies. Both the groups have almost similar e-learning interest, ease of e-learning, e-learning confidence, and its usefulness. The study reported that in all dimensions there is insignificant difference between Male and Female University students on Attitude towards e-learning. Therefore, H_{O1}: "There is no significant difference between Male and Female on Attitude towards e-learning (Factor Wise) stands accepted".

Table 3. Showing the overall mean score comparison between Male and Female University students on Attitude towards e-learning.

	Gender	n	Mean	S.D	t-value	Results
Overall score of attitude towards e-learning	Male	88	223.45	19.94	0.23	Insignificant
	Female	112	222.80	18.57		

Table (3) shows the mean difference on attitude towards e-learning between male and female university students. The results of the table indicate that there is no significant difference between male and female university students on the overall score of attitude towards e-learning. Moreover, mean score favors to male University Students in comparison to female Students, but fails to reach any level of significance. Hence the hypothesis No. 2, "There is no significant difference between male and female university students on attitudes towards e-learning" is accepted.

FINDINGS OF THE STUDY

1. The findings of the study stated that 14.50% University students have high positive attitude e-learning, 11.50% University students possess low attitude towards e-learning while as 74% University students have moderate attitude towards e-learning.
2. It was revealed that there is no substantial difference between male and female University students on their **E-learning interest**" **Dimension** on attitude towards e-learning.
3. No significant difference was found between male and female University students on their **"Usefulness**" **Dimension** on attitude towards e-learning.
4. Furthermore, the study revealed that there is insignificant difference between male and female University students on their **"Ease of e-learning" Dimension** on attitude towards e-learning.
5. The study depicts that there is insignificant difference between male and female University students on their "**E-learning Confidence" Dimension** on attitude towards e-learning.
6. The present study indicates that there is no significant difference between male and female University students on overall score on Attitude towards e-learning.

DISCUSSION

E-learning will become more and more popular with the progression and advancement of Information and Communication Technology (ICT). The result concluded that most of the University students have moderate attitude towards e-learning. The results are in line with the studies carried out by Dharanipriya & Bhuvaneswari 2020; Dash, et al 2022; Pathak et al 2019; these studies also found that most of the students show moderate attitude towards e-learning. In this study, it was observed that there is no significant difference between male and female university students on attitude towards e-learning and both male and female University students have similar attitude towards e-learning. The results are in line with the studies carried out by; Sharma & Gope 2022; Sharma & Yadav 2021; Mahapatra 2021; Chatterjee & Paul 2021; Nachimuthu 2020; Fouzdar & Behara 2017; Khan 2017; Konwar 2017; Khirade 2017; Joshi & Thakkar 2017; Dhas 2016; Kar et al., 2014; these studies also found that there exists no significant difference between male and female students on attitude towards e-learning. Both the male and female University students in the current study exhibit a similar attitude about e-learning; they think it's intriguing, practical, and approachable. Both groups believe that e-learning is more flexible, practical, engaging, efficient, and

adaptive because each learner can learn at their own pace. They also mentioned that e-learning provides more adaptable communication channels, making it easy for learners to engage with one another and share resources.

CONCLUSION

The study reported that most of the students have moderate attitude towards e-learning. So the study suggests that administration should take keen interest to provide necessary ICT facilities to the University Students which are beneficial for their studies. The study recommends that teachers should make proper use of electronic gadgets in the classroom to make teaching-learning process more enjoyable. Now-a-days, e-learning occupies an imperative role in every field of life and one can access information, acquire knowledge, skills in anytime and anywhere (Lone, et al. 2023). With the help of e-learning students have improved their ability to work independently, and they can work at their own pace. It enhances and enriches the quality of higher education by providing number of online learning platforms and students are willing to take benefit from these online platforms. Thus we conclude it with the statement, "e-learning unlocks the promise of anytime and anywhere access to learning with the right and effective technological devices".

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