

# Integrating Social Media into Universal Design for Learning: Pathways to Inclusive Education

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## ABSTRACT

**Aim of the Study:** This study explores how social media can be used effectively to implement Universal Design for Learning (UDL) strategies in higher education as a standard of inclusion.

**Methodology:** A quantitative research model served as the basis for collecting data from teachers on their views, practices, and problems related to using social media in different types of classrooms. Data was collected from (n=300) teachers of private and public schools.

**Findings:** The findings indicate that UDL principles are widely recognized and that social media is also widely used to facilitate the four UDL principles (engagement, collaboration, differentiated instruction, and accessibility) to a large extent. Teachers have found that social media platforms are frequently used for resource sharing, peer interaction, and formative assessment, although issues such as a lack of proper training, limited infrastructure, and privacy concerns remain prevalent. Moreover, the research has revealed demographic variances that influence the incorporation of social media.

**Conclusion:** In short, the investigation identifies the transformation potential of social media for a learner-centered, fair environment; therefore, it needs backing from policy, professional development, and improved digital infrastructure to extend its impact to inclusive education.

**Keywords:** Social Media, Universal Design for Learning, Inclusive Education, Integration, Learning Pathways.

## 1. INTRODUCTION

The world's education systems are changing profoundly in the digital era, driven by technological advances and the ever-increasing diversity of learners. One of the most pressing demands is the creation of inclusive educational settings that can accommodate diverse abilities, preferences, and cultural backgrounds. Universal Design for Learning (UDL) is a brain science- and cognitive theory-based educational framework that focuses on students' flexible engagement, representation, and expression through adaptable teaching methods (CAST, 2018). Additionally, the rapidly growing popularity of social media has introduced a new way of communicating, collaborating, and sharing knowledge that is not only

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central to students' lives but can also serve as a resource in the teaching process. Using social media aligned with the UDL framework can be a powerful tool in traditional teaching to bridge current digital learning practices and make the journey toward inclusive education goals easier (Miller et al., 2023).

Globally, normative frameworks such as the UN Sustainable Development Goal 4 strongly support inclusive education, which is central to the principles of equal rights and opportunities for all learners. It does not matter if they are disabled, have language difficulties, or come from a poor socio-economic background (United Nations, 2023; Safdar et al., 2018; Safdar & Abbasi, 2020). Despite its potential to be a game-changer, most classrooms still cannot implement inclusive practices that go beyond shallow accommodations. Social media platforms like Twitter (X) and YouTube, and collaborative tools such as Padlet, can be instrumental in uplifting learner voices, facilitating peer collaboration, and expanding access to various content formats, which together can lead to the successful implementation of UDL principles (Safdar et al., 2026; Al-Azawei et al., 2022). Consequently, not only do they make knowledge more accessible to all, but also create more genuine, student-centered learning opportunities that are congruent with inclusive pedagogies (Seifert & Becker, 2023).

This study maintains that the complementarity between UDL and social media presents a pivotal frontier in inclusive education research. While some studies have examined social media's capacity to support pedagogy, there remains a limited understanding of its integration into UDL-based instructional design, particularly in environments with high learner diversity. Unlocking this juncture might offer pedagogues practical ways to use social platforms to meet the educational needs of diverse learners and to make inclusion easier and more effective (Zhou & Li, 2024).

The founding of Universal Design for Learning was initially influenced by the increasing reliance on different ways of constructing buildings, but it later evolved into a pedagogical framework that addresses learner differences in the initial design rather than making adjustments after the fact (Meyer et al., 2019). The three main principles of UDL, namely, providing multiple means of engagement, representation, and action/expression, are really the most effective way to get learners to use their own environments to achieve flexibility of instruction. Nowadays, the use of digital technology has made the realization of these principles more effective by offering more ways to deliver content and more opportunities for learner interaction (Rose et al., 2022). While this may be true, social media platforms have come a long way and are now almost everywhere in educational settings, functioning as tools for knowledge dissemination, collaboration, and interaction among learners.

Research has highlighted social media as a tool that can support inclusive learning environments through collaboration, peer support, and learner autonomy (Al-Rahmi et al., 2021). It does so by enabling multimodal content representation, providing learners with diverse needs multiple access points to curriculum materials (Junco et al., 2022). Moreover, the interactive and participatory nature of social media aligns with constructivist theories of learning, which point out that social interaction is the fastest mode of active knowledge construction. The issue of social media as a UDL tool gains even greater weight in higher education and in K–12 inclusive classrooms, where the diversity of learners is, on the one hand, a problem and, on the other, a source of strength (Zhou & Li, 2024).

Nevertheless, research on how social media should be intentionally integrated into UDL is limited; for the most part, there is no treatment of social media as an adjunct rather than a pedagogical component of design (Al-Azawei et al., 2022). The point highlights the need for thorough investigations into how to integrate social platforms into UDL frameworks to enhance engagement, representation, and expression in inclusive settings.

While both UDL and social media have independently attracted significant scholarly attention, their intersection remains underexplored. Current literature predominantly examines the effectiveness of UDL strategies in improving accessibility and engagement or focuses on the general pedagogical value of social media without linking it to inclusive design frameworks (Seifert & Becker, 2023). Very few have provided empirical evidence or theoretical models explaining how to use social media in ways compatible

with UDL-based instructional approaches. Besides that, a bunch of things, such as the readiness of teachers, the rules of the institution, and the way that people think about these things, greatly influence this integration, but they are not visible and hardly understood, especially in the case of the education systems that are less developed. With a critical eye, this research examines how social media can be strategically used to operationalize UDL principles, thereby improving inclusive education outcomes.

While the importance of inclusive education is receiving increasing attention, and social media is widely used for everyday communication, educational institutions still hesitate to use these platforms to implement pedagogical designs based on Universal Design for Learning. As a consequence, the potential of these technologies to address diversity within the learner community and to align classroom teaching and learning with global inclusion agendas remains untapped. Educators who lack a clear understanding of how to use social media to put UDL principles into practice may use technology superficially, thereby maintaining existing inequities rather than breaking them down. Hence, there is an immediate and undeniable need to determine the extent to which social media can serve as a tool for designing and delivering inclusive UDL-based instruction.

1. To investigate how teachers perceive social media as a tool that facilitates the implementation of Universal Design for Learning.
2. To analyze the extent of social media integration in enhancing engagement, representation, and expression for diverse learners.
3. To Examine Educators' Challenges and Barriers when Using Social Media to Support UDL-Based Teaching Practices.
4. To develop a strategic plan that harnesses social media effectively for the dual purposes of inclusive education and UDL principles.

The study is significant to both theory and practice. First, as a theoretical study, it serves as a model that broadens the concept of inclusive teaching by merging two groundbreaking ideas of education, Universal Design for Learning and social media, into one integrated system. Essentially, the study will also serve as a resource of practical methods for teachers, school leaders, and educational planners who are eager to use social media to construct learning environments that are flexible, equitable, and inviting to all. Moreover, the research will profoundly influence teacher preparation programs; thus, educators will become familiar with the most effective methods for using digital tools in instruction. Besides that, by bridging the gap between school activities and the global educational agenda, the study is instrumental in advancing Sustainable Development Goal 4, which targets providing quality, inclusive, and equitable education for all.

## **2. REVIEW OF RELATED LITERATURE**

The worldwide education system is increasingly shifting its emphasis toward inclusion and fairness, as evidenced by international agreements such as the United Nations Sustainable Development Goals (SDGs), which advocate inclusive and equitable quality education for all. Meanwhile, researchers and practitioners have also recognized Universal Design for Learning (UDL) as a comprehensive framework that emphasizes learner variability and, therefore, the design of curriculum, resources, and assessments that anticipate different needs.

The UDL framework is a sound theory, as it is based on using different means of participation, representation, and action/expression to engage learners. These principles constitute an inclusive pedagogy aimed at providing the required access from the design point, without the need for retrofitted accommodations. However, the students' lives are made better by social media platforms and digital tools that are networked and thus have become a double-edged sword for pedagogy; on the one hand, social media's affordances could be used for easy communication, collaboration & knowledge exchange among

different users, while on the other hand, issues such as privacy, equity, and pedagogical alignment can arise (CAST, 2018; Sewell, 2022).

The conceptual compatibility of UDL and social media rests on a shared emphasis on multiple pathways for learners to access content, express understanding, and sustain engagement. UDL frames these aims in cognitive and affective terms, engaging the “why,” representing the “what,” and supporting the “how” of learning, while social media platforms provide flexible channels (text, audio, video, images, interactive threads) through which such design aims can be operationalized. Some recent funds of knowledge have begun to outline how social networks, when deliberately integrated into the design of teaching, could extend the reach of UDL. This is because they might make alternative representations (for example, microlessons, infographics), diverse forms of expression (for instance, vlogs, joint posts), and scaffolded involvement (e.g., interest-based clubs, moderated discussions) available. In any case, the conceptual pieces of work have also emphasized the necessity of the pedagogical framing, due to which social media cannot do the job on their own, but only when design, tasks, assessment, and teacher facilitation are synchronized can inclusive outcomes be achieved (CAST, 2018; Perez et al., 2023).

Almeqdad et al. (2023) Studies in the real world on the effectiveness of UDL methods have increased in recent years. Meta-analyses and reviews of systems show that UDL-aligned interventions can positively affect engagement, motivation, and certain cognitive outcomes when implemented with fidelity. However, the size of effects and consistency across various contexts differ. Most importantly, the evidence is based on methodological diversity, small sample sizes, limited longitudinal follow-up, and variable operationalization of UDL principles, which complicates making stronger causal claims. These reviews urgently call for more stringent, larger-scale studies and also highlight the need for a clear indication of how each particular UDL strategy is linked to measurable results. This suggestion directly impacts research on the use of social media to deliver UDL practices.

Studies on the use of social media in education have likewise expanded substantially, with comprehensive reviews now available for both higher education and K–12. These reviews present the areas where the use of social media yields the greatest benefits, e.g., more effective collaboration, enhanced student engagement, and the significant potential of informal learning and peer support (Perez et al., 2023). They also point out that implementations are frequently poorly theoretically framed, that teachers' and facilitators' inconsistency, issues of concentration, and shallow learning are a source of continued inequities, and that access limitations perpetuate inequities. Reviews, which are of great importance for this topic, claim that the use of social media for pedagogical purposes may yield benefits only when the platform is intentionally integrated into learning and assessment processes, rather than treated as an on-the-fly addition. So, linking social media use to UDL principles may not only strengthen the pedagogical logic but also enhance inclusive outcomes (Purvis, 2024).

Peruzzo, (2024) there is a number of recent research studies that show how social media can be effectively used to facilitate learning in inclusive environments. For instance, educators through the use of moderated class groups have delivered content in a variety of ways (videos with captions, summaries in threads, and visual notes), have employed an audio-only platform for students with a reading challenge, and through short video creations have enabled students to demonstrate their skills in a different way. Perez et al. (2023) These hands-on experiments exemplify the correspondence between UDL and the model's representation and expression aspects, which facilitate students who are weak in text-based assessments in showing their knowledge through oral or visual media. Still, case studies do document some problems. For example, insufficient moderation may result in participants not being engaged in the task at hand; the platform's algorithms can surface unpleasant content, and teachers who haven't received training may not be able to guide the participation of quieter or less technologically skilled students. Therefore, practitioners' reports highlight the potential of these measures while also recognizing the need for staff development and the establishment of safe institutional policies.

It is evident that the teacher's ability is the factor mentioned most often as the one that most affects the positive convergence of social media and Universal Design for Learning (UDL). According to the research, the educators who are not only strong in pedagogical skills but also have practical knowledge of social media tools are more likely to create tasks that offer top inclusion for instance, by organizing discussion topics in a way that the participants can respond using various modes of communication, demonstrating the manners of interaction in an online community, and setting the accessibility that the participants have to follow (e.g., captions, alt text). Professional development that provides both technical training and UDL-informed instructional design has been linked to the implementation of the higher-fidelity program and to improved student outcomes. On the other hand, teachers who lack support often use social media superficially (e.g., as an information broadcast channel), thereby neglecting the platform's features for differentiated expression and scaffolded engagement. The findings here affirm the need for integrated PD models that embed UDL theory within social media pedagogy practice (Sewell, 2022; Perez et al., 2023).

A recurring concern in the literature is equity of access and the digital divide. While social media can democratize participation for many learners by enabling asynchronous engagement and multimodal expression, disparities in device ownership, reliable connectivity, data costs, and access to private learning spaces can exclude already marginalized students. Additionally, intersectional factors such as socioeconomic status, rurality, language background, and disability not only determine a person's access to these platforms but also their ability to use them effectively. Current research also supports the idea that universal interventions, which vary in design at the outset, should account for infrastructural limitations and use low-bandwidth, offline-capable methods alongside cloud-based strategies. This practical equity stance is in line with the spirit of UDL; however, it still needs policy-level (interventions [(resourcing, data subsidies, school-level device provision)]) to avert the situation that exclusion is deepened instead of being lessened (Perez et al., 2023; Peruzzo, 2024).

Another issue in the education system with significant potential for both conflict and positive change is assessment and accreditation frameworks. Normally, standardized, summative assessments tend to favor limited forms of demonstration (such as paper-based tests), which cannot reflect students' multimodal capabilities developed through UDL in conjunction with social media. So the scholars suggest switching to authentic assessment methods like portfolios, multimodal projects, and digital artefacts, which represent the various forms of expression enabled by social platforms and are a true reflection of learners' voices. Their large-scale deployment of such assessments, however, requires changes at the institutional level, including policy, teachers' perceptions of assessment, and quality assurance frameworks. Research shows that in districts where schools implement portfolio-based assessment and provide rubric support for multimodal work, students' engagement deepens and skill development becomes more nuanced; nevertheless, the degree of institutional adoption remains very low (Almeqdad et al., 2023; Perez et al., 2023).

Integrating social media into education raises ethical and safeguarding issues that have been addressed in detail in recent studies. Problems concerning student privacy, data protection, consent, online harassment, and platform-related commercial interests require a carefully planned and proactive governance solution. Given that UDL is focused on equity and the dignity of the learner, it follows that social media usage in classrooms should be accompanied by comprehensive ethical measures: well-defined privacy and moderation protocols, giving consent in an age-appropriate manner, educating in digital citizenship, and e-learning institutional policies that determine platform selection based on accessibility features and data stewardship. The research shows that the benefits of social media for pedagogy are more likely to be realized when schools have clear policies and organized online safety teacher training with lower risk (Perez et al., 2023; Peruzzo, 2024).

Interdisciplinarity and curriculum alignment add additional components to the discussion of literature. The scholars maintain that UDL, along with social media, has the strongest impact when the curriculum is intentionally designed so that digital activities are linked with the learning outcomes of each discipline.

For instance, science teachers might find micro-blogging useful for sharing hypotheses and then having them accepted or rejected through peer critique; language teachers may find that making videos with accurate captions helps their students become multiliterate; and history teachers may use crowd-sourced timelines that combine both student and archival resources to show the timeline of events.

These subject-specific templates demonstrate how social networking sites can be harnessed to support UDL strategies in ways that align with the subject content, thereby preventing generic technological use and reinforcing the relevance and authenticity of learning tasks (Perez et al., 2023; Ewe, 2023). Work on cross-cultural and contextual issues also supports the idea that social media-UDL integration needs to be not only pragmatic but also culturally appropriate, and that educational standards and norms should be respected. What works in a resource-rich, student-centered Western context may not translate directly to classrooms with different teacher roles, family expectations, or language landscapes. Contextual adaptation involves selecting platforms that align with local norms, providing materials in learners' languages, co-designing tasks with community stakeholders, and ensuring that participation modes respect cultural norms around voice and authority. Comparative studies, therefore, advocate participatory design approaches that engage learners, families, and local educators in adapting UDL-informed social media practices to context (Peruzzo, 2024; Purvis, 2024).

Technology design and platform affordances themselves affect inclusionary potential. Accessibility of the material is significantly affected by platform features such as automatic captioning, adjustable playback speed, alt text, and screen reader compatibility. Researchers promote a design-informed method that not only treats platform selection and configuration as pedagogical decisions but also considers choosing tools with built-in accessibility and privacy controls to simplify the teacher's workload and increase the chances of inclusive practice. Additionally, open, interoperable tools that allow the export of student work to institutional learning management systems support assessment and data portability, which are vital to systemic adoption (Almeqdad et al., 2023; Perez et al., 2023).

Almeqdad et al. (2023) in recent years, experimental and quasi-experimental studies have begun to measure learning gains from structured social media interventions guided by UDL principles. A positive trend is that these studies, although still limited in number, show improvements on a variety of engagement metrics, participation rates, and certain skill areas (e.g., collaborative problem-solving, multimodal literacy). Nevertheless, the body of research also shows that outcomes differ notably: top-performing experiments involved explicitly designed support structures, teacher facilitation, and the use of evaluation rubrics, whereas those that relied solely on the spontaneous use of social media achieved worse results. This aligns with findings indicating that a design-based, scaffolded approach grounded in UDL theory is most likely to yield stable learning outcomes (Perez et al., 2023).

Purvis (2024) Learning communities for professionals (PLCs) and teacher networks on social media appear to be the main carriers for scaling UDL-informed practice. Teachers use closed groups to exchange ideas for lessons, accessibility tips (e.g., how to add alt text), and assessment rubrics; such peer networks can facilitate the diffusion of effective methods and provide immediate support. Research on teacher learning through social media suggests that, if platforms are controlled, well-resourced, and linked to formal PD pathways, they may supplement institutional training and help bring about lasting practice change. At the same time, depending on the degree of voluntariness, networked learning poses the equity problem: which teachers have the time and digital literacy skills necessary to participate.

Almeqdad et al. (2023) recent publications in implementation science highlight the need to scale UDL social media innovations with a focus on contextual fit, capacity building, iterative design, and robust monitoring and evaluation. The implementation frameworks suggest trying interventions, recording levels of agreement, gathering mixed-methods evidence, and gradually changing both tasks and platform settings. Such activity-centered attitudes towards work enable the confrontation of practical obstacles, e.g., difficulties finding time for certain activities, obtaining parental consent, and issues with LMS

interoperability, while also creating realistic pathways to securing broader institutional approval (Peruzzo, 2024).

Almeqdad et al. (2023) in the end, the material of the study defines the following research endeavors as most important for the next years: longitudinal studies following the long-term effects on learning and inclusion; comparative studies in different socio-economic areas; strict experimental designs isolating social media's contribution when embedded in UDL-aligned instruction; economic and policy analyses that account for resource implications and scalability; and co-design research which sees learners and communities as the main agents in adapting the practices. Tackling these issues is expected not only to position the field beyond promising case studies but also to robustly confirm how social media, when incorporated into UDL frameworks, can systematically support the scale-up of inclusive education (Perez et al., 2023).

In general, the research works done up to now all confirm that Universal Design for Learning not only provides an inclusive pedagogy with a reliable theoretical as well as practical base, but also that if social media is properly selected, set up, and taught with fairness and accessibility in mind, it has a very high chance of making UDL principles alive in simple and engaging ways. Doing this on a grand scale requires a systemic emphasis on teacher skills, fair distribution of facilities, changes in assessment, morally correct management, continued implementation research, and policies that will show whether social media will be a really helpful way to achieve the education of the masses or just another level of digital complexity.

## **2.1 Theoretical Framework**

This research's theoretical framework is derived from the combination of Universal Design for Learning (UDL) and Constructivist Learning Theory, enabled by the Affordances of Social Media. UDL is a pedagogical approach to inclusive design based on three principles: providing multiple means of engagement, representation, action, and expression. Constructivist theory aligns with this, stating that knowledge is constructed through social interactions, which aligns with how people collaborate on social platforms. The theory indicates that the different aspects of social media, such as its capacity to utilize various types of content, how people can interact with each other, and how users can create their own content, are the most effective ways to implement UDL principles and create learning environments that are supported by the constructivist approach. Hence, social media is not just a means but a vibrant medium that facilitates the production of educational experiences that are adaptable, engaging, and equitable for a diverse range of learners.

## **3. RESEARCH METHODOLOGY**

### **3.1 Research Design**

This research employs a quantitative descriptive survey design, coupled with inferential analysis, to determine the effect of social media use on UDL (Universal Design for Learning) practices and, thus, the promotion of inclusive education. The descriptive portion of the study provided significant detail on the trends, staff practices, and educators' perceptions of using social media to implement UDL principles in diverse classrooms. The inferential component enabled the investigator to uncover correlations among variables such as social media use frequency, teacher readiness, accessibility measures, and perceived inclusivity outcomes. The multi-method approach used in this work enabled the researcher not only to delve into the phenomenon in depth but also to suggest policy and pedagogical interventions supported by the research (Creswell & Creswell, 2018).

### **3.2 Population**

The target population for this study was teachers from public and private elementary and secondary schools in Pakistan. These schools were using or planning to use social media tools in their teaching practices. The research initially planned to include teachers from different areas, i.e., urban, semi-urban, and rural, to represent different socio-educational environments. Moreover, teachers, administrators, and

special educators working in inclusive education programs were also considered, as they are the main stakeholders in decisions about the use of technology and the adoption of inclusive strategies (Gay et al., 2022).

### ***3.3 Sample and Sampling of the Study***

The study used stratified random sampling to ensure that the main variables, such as school type (public/private), location (urban/rural), and teaching level (elementary/secondary), were well represented. Approximately 300 teachers were selected from the general population, which was considered adequate for conducting quantitative research and for generalizing the results. By stratifying the sample, the data became more representative, and the researcher could compare the subgroups. The inclusion criteria focused on educators who had been using social media in instructional design for at least one year or who had been involved in integrating two media in the classroom (Etikan & Bala, 2017).

### ***3.4 Research Tool***

The main research tool used to collect primary data was a structured questionnaire designed to understand teachers' perceptions, feelings, and actions regarding the use of social media within the UDL framework. The questionnaire had two main parts:

**1. Demographic Information:** This part included factors like age, gender, level of education, teaching experience, type of school, and previous training in Universal Design for Learning or educational technology.

**2. Main Questionnaire:** Forty items on a 5-point Likert scale (ranging from Strongly Disagree = 1 to Strongly Agree = 5) were created for the main questionnaire to evaluate various aspects such as (a) awareness and knowledge of UDL, (b) perceived usefulness of social media for inclusive teaching, (c) frequency and type of social media use, (d) barriers and challenges, and (e) perceived outcomes on student engagement and inclusion.

The tool was developed using established measurement tools from areas such as educational technology, inclusive education, and UDL, and adapted for use in Pakistan's schools with support from experts and some trial testing (Bryman, 2016).

### ***3.5 Validity and Reliability***

A panel of five experts representing areas of educational technology, inclusive education, and instructional design ensured content validity. The experts evaluated the initial draft of the questionnaire. The experts' views were used to modify the questionnaire in terms of clarity, relevance, and alignment with the research objectives. Construct validity was established through exploratory factor analysis (EFA) following a pilot test involving 30 teachers who were not participants in the main study. Questions with low factor loadings ( $<0.40$ ) were revised or removed. To ensure the questionnaire was face-valid, respondents' feedback on the clarity and understanding of the items during the pilot study was also sought (Field, 2018).

Questionnaire reliability was enhanced through the internal consistency measure, Cronbach's alpha. A pilot trial with about 30 subjects was conducted, and a Cronbach's alpha of 0.70 or above was considered acceptable, indicating a reasonable level of reliability. In addition, the instrument's stability over time was evidenced by split-half and test-retest reliability analyses (Taber, 2018).

### ***3.6 Data Collection Procedure***

Responses were collected through both online and paper-based surveys to ensure accessibility and encourage more responses. Approval from the educational authorities and the institutional review boards was obtained before the surveys were distributed. Participants were provided with an informed consent form that explained the study's objective, their rights, confidentiality, and data usage. After that, the



questionnaire was circulated for a month, and the non-respondents were reminded two weeks after the first distribution. All the data were kept securely and anonymously for future research.

### 3.7 Data Analysis

Data processing was performed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics (mean, standard deviation, frequency, and percentage) were used to describe demographic data and general trends. The research employed inferential statistics, such as t-tests, ANOVA, and Pearson correlation, to examine differences and relationships among variables, including demographic factors, social media usage patterns, and perceived impact on inclusive education. Additionally, regression analysis was performed to identify significant predictors of inclusive educational outcomes resulting from social media integration within a UDL framework. The significance level for all statistical tests was set at  $p < .05$  (Field, 2018).

### 3.8 Ethical Considerations

The current research followed strict ethical standards for educational research. Before data collection, participants provided informed consent after being informed of the study's purpose and procedures, and of their freedom to leave the study at any time without any disadvantage. The researchers ensured anonymity and confidentiality by refraining from collecting any information that could identify participants and by storing all data on password-protected systems in a secure manner. The research design and questionnaire were made with care to ensure that no psychological discomfort or harm was caused. Moreover, the study obtained ethical approval from the relevant institutional review board prior to its commencement, ensuring that all requirements concerning the rights and welfare of the participants were met.

## 4. RESULTS

**Table 1:** Frequency Distribution of Respondents by Demographics

| Demographics       | Description | Frequency | Percentage (%) |
|--------------------|-------------|-----------|----------------|
| Gender             | Male        | 187       | 37.0%          |
|                    | Female      | 319       | 63.0%          |
| Age of Respondents |             | 506       | 100%           |
|                    | 21-30 Y     | 16        | 3.2%           |
|                    | 31-40 Y     | 156       | 30.8%          |
|                    | 41-50 Y     | 272       | 53.8%          |
|                    | 51-60 Y     | 62        | 12.3%          |
| Qualification      |             | 506       | 100%           |
|                    | Master      | 316       | 62.5%          |
|                    | M.Phil.     | 159       | 31.4%          |
|                    | Ph.D.       | 31        | 6.1%           |
| Area of Posting    |             | 506       | 100%           |
|                    | Rural       | 127       | 25.1%          |
|                    | Urban       | 379       | 74.9%          |
| Experience         |             | 506       | 100%           |
|                    | 1-5 Y       | 127       | 25.1%          |
|                    | 6-10 Y      | 230       | 45.5%          |
|                    | 11-15 Y     | 112       | 22.1%          |
|                    | >15 Y       | 37        | 7.3%           |
|                    |             | 506       | 100%           |

This table 1 shows the demographic distribution of respondents. Most participants were female (63%) and aged 41–50 years (53.8%). A majority held a Master's degree (62.5%), were posted in urban areas (74.9%), and had 6–10 years of teaching experience (45.5%). The data suggest that the study captured insights primarily from mid-career, urban-based female teachers with substantial teaching experience.

Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, Strongly Agree = 5

**Table 2:** *Awareness and Knowledge of UDL*

| Sr. | Statements of Questions                                                                            | 1       | 2        | 3         | 4          | 5          | M    | SD   |
|-----|----------------------------------------------------------------------------------------------------|---------|----------|-----------|------------|------------|------|------|
| 1   | I am familiar with the basic principles of Universal Design for Learning (UDL).                    | 0<br>0% | 16<br>3% | 34<br>7%  | 182<br>36% | 274<br>54% | 4.41 | 0.75 |
| 2   | I understand how UDL can support diverse learners in my classroom.                                 | 0<br>0% | 0<br>0%  | 11<br>2%  | 223<br>44% | 272<br>54% | 4.52 | 0.54 |
| 3   | I have received adequate training on implementing UDL in teaching.                                 | 2<br>0% | 0<br>0%  | 16<br>3%  | 245<br>48% | 243<br>48% | 4.44 | 0.60 |
| 4   | I am aware of the three main principles of UDL: engagement, representation, and action/expression. | 7<br>1% | 20<br>4% | 12<br>2%  | 191<br>38% | 276<br>55% | 4.40 | 0.83 |
| 5   | I regularly update myself on new approaches to inclusive education.                                | 0<br>0% | 22<br>4% | 37<br>7%  | 252<br>50% | 195<br>39% | 4.23 | 0.76 |
| 6   | I know how to design lessons that address multiple learning needs.                                 | 0<br>0% | 26<br>5% | 51<br>10% | 196<br>39% | 233<br>46% | 4.26 | 0.84 |
| 7   | I understand how technology can support UDL implementation.                                        | 7<br>1% | 7<br>1%  | 55<br>11% | 233<br>46% | 204<br>40% | 4.23 | 0.80 |
| 8   | I am confident in aligning my teaching practices with UDL guidelines.                              | 7<br>1% | 4<br>1%  | 41<br>8%  | 251<br>50% | 203<br>40% | 4.26 | 0.76 |

Results in the table 2 shows that most educators had a decent understanding of UDL. In general, they were of the opinion that they were familiar with its concepts, that they employed them in their instruction, and that they appreciated the use of technology. Their average ratings were close to 4.5 (4.23-4.52), indicating a high level of understanding of the core concepts. Nevertheless, certain aspects, such as preparing lessons and staying up to date on the latest developments in the field, received slightly lower ratings.

**Table 3:** *Perceived Usefulness of Social Media in Education*

| Sr. | Statements of Questions                                                             | 1        | 2        | 3         | 4          | 5          | M    | SD   |
|-----|-------------------------------------------------------------------------------------|----------|----------|-----------|------------|------------|------|------|
| 9   | Social media tools enhance student engagement in my classroom.                      | 19<br>4% | 0<br>0%  | 46<br>9%  | 250<br>49% | 191<br>38% | 4.17 | 0.88 |
| 10  | Platforms like Facebook, YouTube, and Instagram help me diversify content delivery. | 13<br>3% | 26<br>5% | 25<br>5%  | 202<br>40% | 240<br>47% | 4.25 | 0.95 |
| 11  | Social media allows students to express their learning in multiple ways.            | 10<br>2% | 7<br>1%  | 50<br>10% | 228<br>45% | 211<br>42% | 4.23 | 0.83 |
| 12  | I believe that social media supports differentiated instruction.                    | 2<br>0%  | 18<br>4% | 60<br>12% | 222<br>44% | 204<br>40% | 4.20 | 0.81 |

|    |                                                                              |         |          |          |            |            |      |      |
|----|------------------------------------------------------------------------------|---------|----------|----------|------------|------------|------|------|
| 13 | Social media promotes collaboration among students with different abilities. | 4<br>1% | 19<br>4% | 39<br>8% | 265<br>52% | 179<br>35% | 4.18 | 0.79 |
| 14 | Integrating social media improves student motivation.                        | 0<br>0% | 14<br>3% | 33<br>7% | 231<br>46% | 228<br>45% | 4.33 | 0.72 |
| 15 | Social media facilitates real-time feedback and communication.               | 0<br>0% | 13<br>3% | 40<br>8% | 221<br>44% | 232<br>46% | 4.33 | 0.73 |
| 16 | I consider social media essential for 21st-century inclusive classrooms.     | 0<br>0% | 17<br>3% | 42<br>8% | 256<br>51% | 191<br>38% | 4.23 | 0.74 |

According to the table 3, teachers considered social media an extremely effective tool for raising student engagement, customizing instruction for diverse needs, collaborating, and communicating. All mean scores were above 4.1, with the highest scores for motivation and feedback ( $M = 4.33$ ). This indicates that teachers perceive social media as a perfect vehicle for making learning more inclusive and thus increasing student involvement.

**Table 4:** *Frequency and Type of Social Media Use*

| Sr. | Statements of Questions                                                      | 1        | 2        | 3         | 4          | 5          | M    | SD   |
|-----|------------------------------------------------------------------------------|----------|----------|-----------|------------|------------|------|------|
| 17  | I frequently use social media as part of my lesson plans.                    | 0<br>0%  | 13<br>3% | 45<br>9%  | 241<br>48% | 207<br>41% | 4.27 | 0.73 |
| 18  | I use social media for sharing educational resources.                        | 0<br>0%  | 12<br>2% | 36<br>7%  | 251<br>50% | 207<br>41% | 4.29 | 0.70 |
| 19  | I use social media to create discussions and forums for my students.         | 0<br>0%  | 20<br>4% | 46<br>9%  | 240<br>47% | 200<br>40% | 4.23 | 0.77 |
| 20  | I integrate video-based content from platforms like YouTube into my lessons. | 8<br>2%  | 16<br>3% | 42<br>8%  | 254<br>50% | 186<br>37% | 4.17 | 0.83 |
| 21  | I encourage students to use social media for collaborative projects.         | 0<br>0%  | 7<br>1%  | 49<br>10% | 252<br>50% | 198<br>39% | 4.27 | 0.69 |
| 22  | I utilize social media to support peer-to-peer learning.                     | 0<br>0%  | 13<br>3% | 52<br>10% | 219<br>43% | 222<br>44% | 4.28 | 0.75 |
| 23  | I use social media to assess students' learning progress.                    | 0<br>0%  | 2<br>0%  | 30<br>6%  | 245<br>48% | 229<br>45% | 4.39 | 0.62 |
| 24  | I adapt my social media use based on students' learning needs.               | 10<br>2% | 3<br>1%  | 40<br>8%  | 193<br>38% | 260<br>51% | 4.36 | 0.81 |

Those surveyed indicated that they frequently use social media to plan lessons, share teaching materials, and collaborate with other teachers (see table 4). The two highest-rated activities were changing how they use social media to meet students' learning needs (average score of 4.36) and monitoring students' learning (average score of 4.39). This means that educators integrate social media not only as an additional means, but also to personalize their instruction for each student and to monitor their progress.

**Table 5: Barriers and Challenges**

| Sr. | Statements of Questions                                                       | 1       | 2        | 3         | 4          | 5          | M    | SD   |
|-----|-------------------------------------------------------------------------------|---------|----------|-----------|------------|------------|------|------|
| 25  | Limited access to digital devices affects social media integration.           | 7<br>1% | 5<br>1%  | 26<br>5%  | 219<br>43% | 249<br>49% | 4.38 | 0.75 |
| 26  | Poor internet connectivity is a challenge in using social media for teaching. | 0<br>0% | 0<br>0%  | 8<br>2%   | 253<br>50% | 245<br>48% | 4.47 | 0.53 |
| 27  | I find it difficult to monitor students' social media use in class.           | 0<br>0% | 0<br>0%  | 19<br>4%  | 229<br>45% | 258<br>51% | 4.47 | 0.57 |
| 28  | Concerns about data privacy discourage me from using social media.            | 0<br>0% | 7<br>1%  | 55<br>11% | 233<br>46% | 211<br>42% | 4.28 | 0.71 |
| 29  | Lack of institutional support limits my use of social media for UDL.          | 0<br>0% | 2<br>0%  | 31<br>6%  | 252<br>50% | 221<br>44% | 4.37 | 0.62 |
| 30  | I need more training to integrate social media effectively.                   | 7<br>1% | 0<br>0%  | 34<br>7%  | 214<br>42% | 251<br>50% | 4.39 | 0.73 |
| 31  | Students' misuse of social media is a frequent problem.                       | 8<br>2% | 20<br>4% | 28<br>6%  | 216<br>43% | 234<br>46% | 4.28 | 0.86 |
| 32  | Curriculum constraints make it difficult to include social media activities.  | 0<br>0% | 14<br>3% | 40<br>8%  | 208<br>41% | 244<br>48% | 4.35 | 0.74 |

Table 5 shows among the issues identified, the top three were a weak internet connection (M=4.47), difficulty keeping track of how students use social media (M=4.47), and insufficient support from the school or institution (M=4.37). Additionally, teachers were concerned about privacy, required more training, and struggled with the school's existing lesson plans. The issues unveiled here indicate that while teachers perceive social media as a useful tool, inadequate facilities and a lack of support remain significant obstacles to effective use.

**Table 6: Perceived Outcomes on Inclusion and Learning**

| Sr. | Statements of Questions                                                                          | 1       | 2        | 3        | 4          | 5          | M    | SD   |
|-----|--------------------------------------------------------------------------------------------------|---------|----------|----------|------------|------------|------|------|
| 33  | Social media helps students with disabilities access learning materials easily.                  | 2<br>0% | 13<br>3% | 27<br>5% | 253<br>50% | 211<br>42% | 4.30 | 0.72 |
| 34  | Social media enhances student participation, particularly for those with diverse learning needs. | 0<br>0% | 25<br>5% | 15<br>3% | 275<br>54% | 191<br>38% | 4.25 | 0.74 |
| 35  | Social media fosters a sense of belonging among all students.                                    | 7<br>1% | 31<br>6% | 40<br>8% | 219<br>43% | 209<br>41% | 4.17 | 0.91 |
| 36  | I have observed improved academic performance due to social media integration.                   | 0<br>0% | 28<br>6% | 37<br>7% | 219<br>43% | 222<br>44% | 4.25 | 0.82 |

|    |                                                                            |          |          |           |            |            |      |      |
|----|----------------------------------------------------------------------------|----------|----------|-----------|------------|------------|------|------|
| 37 | Students are more willing to collaborate through social media platforms.   | 0<br>0%  | 14<br>3% | 56<br>11% | 198<br>39% | 238<br>47% | 4.30 | 0.77 |
| 38 | Social media supports inclusive group work and peer support.               | 2<br>0%  | 34<br>7% | 36<br>7%  | 210<br>42% | 224<br>44% | 4.23 | 0.88 |
| 39 | My classroom has become more inclusive since I started using social media. | 8<br>2%  | 21<br>4% | 40<br>8%  | 203<br>40% | 234<br>46% | 4.25 | 0.89 |
| 40 | Social media integration contributes positively to inclusive education.    | 11<br>2% | 7<br>1%  | 25<br>5%  | 236<br>47% | 227<br>45% | 4.31 | 0.81 |

According to the table 6, most teachers agreed that social media helps foster inclusion by increasing access for students with disabilities, facilitating collaboration, and promoting a sense of belonging. The average scores ranged from 4.17 to 4.31, indicating that most teachers consider social media a positive tool for inclusive education. Those surveyed emphasized, above all, better collaboration and a more inclusive classroom environment as the main results.

**Table 7: Gender-Based Comparison of Responses**

| Gender | N   | Mean   | Std. Deviation | df  | t    | Sig. (2-tailed) |
|--------|-----|--------|----------------|-----|------|-----------------|
| Male   | 187 | 217.24 | 15.45          | 504 | 3.11 | 0.002           |
| Female | 319 | 213.05 | 14.11          |     |      |                 |

According to the table 7, on average, male teachers scored higher than females, with a mean of 217.24 and a standard deviation of 15.45 for males and a mean of 213.05 and a standard deviation of 14.11 for females, respectively; thus, the data suggested that male teachers may have had slightly more positive perceptions or agreed to a higher extent that social media has been integrated into UDL practices. This difference in means is statistically significant, as the p-value (0.002) is below the standard significance level of 0.05.

**Table 8: Area-Based Comparison of Responses**

| Area  | N   | Mean   | Std. Deviation | df  | t    | Sig. (2-tailed) |
|-------|-----|--------|----------------|-----|------|-----------------|
| Rural | 127 | 224.83 | 15.68          | 504 | 9.86 | 0.000           |
| Urban | 379 | 211.17 | 12.71          |     |      |                 |

Table 8 shows that the average score for teachers from rural areas ( $M = 224.83$ ,  $SD = 15.68$ ) was higher than that for teachers from urban areas ( $M = 211.17$ ,  $SD = 12.71$ ), indicating that rural teachers were more positive than urban teachers about integrating social media into UDL practices. It means that teachers in the countryside showed greater agreement and more positive attitudes towards using social media for educational inclusion than those in the city.

**Table 9: Age-Based Comparison of Responses**

| Age            | Sum of Squares | df  | Mean Square | F     | Sig.  |
|----------------|----------------|-----|-------------|-------|-------|
| Between Groups | 8668.60        | 3   | 2889.53     | 14.34 | 0.000 |
| Within Groups  | 101140.97      | 502 | 201.48      |       |       |
| Total          | 109809.56      | 505 |             |       |       |

According to the results in table 9, teachers' opinions on using social media in Universal Design for Learning (UDL) were analyzed using a one-way ANOVA to determine whether there were significant differences across age groups. The findings showed a statistically significant influence of the teachers' age on their perceptions

( $F(3, 502) = 14.34, p = 0.00$ ). Since the p-value is less than 0.05, the null hypothesis is rejected, indicating that age significantly influences perceptions of social media integration in inclusive teaching practices. The results demonstrate that perceptions differ significantly between different age groups, as some groups showed higher mean scores and more positive attitudes than others.

**Table 10:** *Qualification-Based Comparison of Responses*

| Qualification  | Sum of Squares | df  | Mean Square | F     | Sig.  |
|----------------|----------------|-----|-------------|-------|-------|
| Between Groups | 16245.49       | 2   | 8122.75     | 43.67 | 0.000 |
| Within Groups  | 93564.07       | 503 | 186.01      |       |       |
| Total          | 109809.56      | 505 |             |       |       |

Table 10 shows teachers' perceptions of social media integration in Universal Design for Learning (UDL) were analyzed using a one-way ANOVA to determine whether differences were statistically significant by academic qualifications. The test results showed a significant statistical difference among groups with varying levels of qualifications ( $F(2, 503) = 43.67, p = 0.00$ ). A p-value less than 0.05 leads to rejection of the null hypothesis, indicating that academic qualification level significantly influences teachers' perceptions of the use of social media in inclusive teaching practices. Thus, the results indicate that higher-education teachers' perceptions of the integration of social media in UDL were more positive, and they strongly agreed with it, compared with lower-qualification teachers.

**Table 11:** *Experience-Based Comparison of Responses*

| Area of Posting | Sum of Squares | df  | Mean Square | F     | Sig.  |
|-----------------|----------------|-----|-------------|-------|-------|
| Between Groups  | 16214.85       | 3   | 5404.95     | 28.99 | 0.000 |
| Within Groups   | 93594.71       | 502 | 186.44      |       |       |
| Total           | 109809.56      | 505 |             |       |       |

Table 11 shows that an examination of one-way ANOVA in this case showed that the differences in average scores across the four areas of the posting were statistically significant,  $F(3, 502) = 28.99, p < .001$ . Given the significant result ( $p < .001$ ), we can reject the null hypothesis and infer that there are real differences in performance or outcomes between at least some posting locations. Nevertheless, this omnibus test, which only asserts that not all the means of the groups are equal, does not tell us exactly which areas differ from each other; it would be necessary to carry out a post-hoc test to figure out those particular pairwise comparisons.

**Table 12:** *Correlation Analysis*

| Variables  | Awareness | Usefulness | Frequency | Barriers | Outcomes |
|------------|-----------|------------|-----------|----------|----------|
| Awareness  | 1         | .72**      | .68**     | -.41**   | .70**    |
| Usefulness |           | 1          | .74**     | -.38**   | .73**    |
| Frequency  |           |            | 1         | -.36**   | .69**    |
| Barriers   |           |            |           | 1        | -.44**   |
| Outcomes   |           |            |           |          | 1        |

$p < .01$ , two-tailed.

The correlation matrix shows in table 12, that Awareness, Usefulness, Frequency, and Outcomes are all strongly and positively associated ( $r = .68-.74$ ,  $p < .01$ ), indicating that higher awareness relates to greater perceived usefulness, more frequent use, and better outcomes. Barriers exhibit moderate negative correlations ( $r = -.36$  to  $-.44$ ,  $p < .01$ ), suggesting they hinder these positive factors.

## 5. DISCUSSION

The outcomes of this research project provide a persuasive argument that, when social media is appropriately integrated into instructional design, it can be a significant facilitator of UDL-based inclusive education. The finding that teachers are highly aware of UDL principles aligns with the broader adoption of inclusive pedagogies in contemporary education. This aligns with existing research highlighting the need to design instruction so that learner variability is anticipated from the start, rather than accommodations being provided as a retrofit (CAST, 2018; Meyer et al., 2019).

The good perception of the pedagogical value of social media confirms its transformation potential as a learning tool. The interactive and multimodal characteristics of social media support UDL's requirements for using different means of engagement, representation, and expression. As the previous research pointed out, learners may access the content they want in the format they prefer, work asynchronously, and present their understanding through multimedia on platforms like YouTube, Twitter (X), and Padlet. Consequently, learners' engagement and the accessibility of the content improve (Al-Rahmi et al., 2021; Junco et al., 2022).

The statement that social media is frequently used for resource sharing, discussion facilitation, and peer learning suggests that teachers have already begun to move away from past instructional models. This aligns with evidence that social media supports constructivist and participatory learning environments, in which learners co-construct knowledge and exercise agency (Perez et al., 2023; Peruzzo, 2024). Additionally, the use of social media for formative assessment and adaptive teaching demonstrates its potential to personalize learning pathways, a fundamental UDL principle (Rose et al., 2022).

In addition to these strengths, the study reveals severe difficulties that reflect global trends in technology use. Among the problems of the digital divide, infrastructure limitations, and a lack of institutional support slow the process of efficient implementation, especially in developing areas (Purvis, 2024). Concerns about privacy and data security, also raised in the studies reported above, prompt the establishment of robust ethical principles and the provision of digital literacy to both teaching staff and students (Peruzzo, 2024). Additionally, demographic factors that significantly impact the situation indicate that PD activities should be planned to account for diverse teacher profiles, enabling the handling of characteristics such as generational differences and varying levels of digital competence (Sewell, 2022).

The positive changes associated with social media integration, such as improved accessibility, easier collaboration, and deeper inclusion, are the main reasons for the claim that technology guided by UDL principles may be a means to bridge learning gaps and democratize education. However, the full-scale utilization of this technology depends on removing systemic barriers through measures such as policy support, infrastructure development, and ongoing capacity-building initiatives (Perez et al., 2023; Zhou & Li, 2024).

## 6. CONCLUSION

This study centers on the interaction between educators and technology, where teachers view the use of social media as a way to put into practice Universal Design for Learning (UDL), a novel approach to creating inclusive learning environments. In their statements, the educators declare that they have a deep understanding of UDL principles and consider social media a powerful means to engage students, provide them with access to content, and enable them to express their ideas. Moreover, their uninterrupted and diverse communication on social media platforms not only demonstrates their adaptability across different educational settings but also reflects their ability to energize students' personalized learning. On the other

hand, problems such as infrastructure limitations, confidentiality concerns, inadequate training, and institutional constraints should be addressed if we want to fully harness the potential of social media for inclusion. Therefore, policymakers and educational leaders should not view social media as merely an additional feature but as a key element of inclusive instructional design. By integrating technology use with UDL principles and removing systemic obstacles, schools can respond effectively to students' diverse needs and contribute significantly to the global agenda of inclusive and equitable quality education (United Nations, 2023; Perez et al., 2023).

## **6.1 Recommendations**

After analyzing the data and having a detailed discussion, the recommendations given below are the most appropriate:

1. It is suggested that the professional development should be a continuous one of high priority in order for teachers' digital pedagogy to be enhanced by teachers, especially in the effective social media integration, inclusive instructional design, and classroom management in online environments.
2. Creating well-defined institutional policy is crucial that deals with data privacy, ethics, and responsible online practices, at the same time giving off technical support and resources for the implementation, which is not short-term.
3. There is a need to close the gap when it comes to the digital world by broadening access to the internet and making sure that more users are in possession of digital devices and are designing platforms and content that are not only inclusive but also accessible to all learners.
4. The use of social networking sites should be deeply rooted in the curricula of different educational institutions and well-defined national education policies to institutionalize digital literacy, foster inclusive learning, and sustainably integrate teachers' practices.

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