

Differentiated Instruction Strategies for Students with Learning Disabilities

Hasan. Rahimi^{1*} 

¹ Assistant Professor, Faculty of Educational Psychology, Farhangian University, Tehran, Iran

* Corresponding author email address: rahimi@cfu.ac.ir

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ABSTRACT

The objective of this study was to explore and identify effective differentiated instruction (DI) strategies for students with learning disabilities in mainstream educational settings. This qualitative research involved semi-structured interviews with 21 participants, including general education teachers, special education teachers, and educational administrators from an urban school district. Participants were selected through purposive sampling, ensuring a diverse representation of educators with extensive experience in teaching students with learning disabilities. Data collection continued until theoretical saturation was achieved. Thematic analysis was conducted to identify patterns and themes related to DI strategies, perceived effectiveness, implementation challenges, and support mechanisms. The study identified several key DI strategies, including differentiated content, process, product, and environment, along with the integration of technology. These strategies were reported to enhance student engagement, academic achievement, and social-emotional development. However, significant challenges such as time constraints, limited resources, and the need for professional development were highlighted. Support mechanisms, including professional development opportunities, collaborative practices, administrative backing, community resources, parental engagement, and technological support, were identified as crucial for successful DI implementation. Differentiated instruction is an effective approach to addressing the diverse needs of students with learning disabilities, promoting inclusivity and improving educational outcomes. Despite its benefits, the successful implementation of DI requires addressing substantial challenges through targeted support mechanisms. Future research should focus on expanding the sample size, exploring long-term impacts, and investigating the role of technology in DI. Practical recommendations include enhancing professional development, fostering collaboration, securing administrative support, engaging community resources, and increasing parental involvement.

Keywords: Differentiated instruction, learning disabilities, inclusive education, student engagement, academic achievement, professional development, instructional strategies, educational challenges, support mechanisms.

1. Introduction

The educational landscape today is characterized by a diverse student population, each bringing unique learning needs and challenges to the classroom. This diversity necessitates the adoption of instructional strategies that can cater to a wide range of abilities and disabilities. Differentiated instruction (DI) has emerged as a prominent approach to addressing the educational needs of all students, including those with learning disabilities. Differentiated instruction is a teaching philosophy based on the premise that teachers should adapt instruction to student differences. It emphasizes varied teaching methods and resources to accommodate the diverse learning styles, interests, and readiness levels of students (Strogilos, 2018).

The need for effective differentiated instruction strategies is underscored by the increasing prevalence of students with learning disabilities in mainstream classrooms. According to the Individuals with Disabilities Education Act (IDEA), learning disabilities are one of the most common categories of disabilities among school-aged children. This prevalence highlights the importance of equipping educators with the tools and knowledge necessary to support these students effectively. Research indicates that students with learning disabilities often face significant challenges in accessing the general education curriculum and achieving academic success (Lancaster et al., 2006). Therefore, the implementation of differentiated instruction strategies is critical for promoting inclusivity and ensuring that all students have equitable access to educational opportunities.

Differentiated instruction involves modifying content, process, product, and learning environment based on students' individual needs. Content differentiation refers to the modification of what students are expected to learn, including the use of various materials and resources to make learning more accessible (Downing & Parker, 2006). Process differentiation involves changing how students make sense of the content, often through varied activities and instructional methods (Fahsl & McAndrews, 2011). Product differentiation pertains to the ways students demonstrate their learning, which can include diverse assessment formats and project-based learning (Anderson & Corbett, 2008). Lastly, environmental differentiation involves altering the physical or social setting of the classroom to better support student learning (Abramo, 2015).

Several studies have documented the effectiveness of differentiated instruction in improving academic outcomes for students with learning disabilities (Aghaziarati et al.,

2023). For instance, research by Jitendra et al. (2004) highlights the positive impact of vocabulary instruction tailored to the needs of students with learning disabilities (Jitendra et al., 2004). Similarly, Babbitt and Miller (1996) found that using hypermedia to teach mathematics significantly enhanced the problem-solving skills of students with learning disabilities. These findings underscore the potential of differentiated instruction to address specific learning challenges and promote academic success (Babbitt & Miller, 1996).

Moreover, differentiated instruction also supports the social and emotional development of students with learning disabilities. By creating an inclusive and supportive classroom environment, differentiated instruction fosters a sense of belonging and self-worth among students. This is particularly important for students with learning disabilities, who often experience feelings of isolation and low self-esteem (Sayeski, 2011). For example, research by Black et al. (2015) indicates that universal design for learning (UDL), a framework closely related to differentiated instruction, can enhance the learning experiences of students with disabilities in higher education by promoting inclusivity and reducing barriers to learning (Black et al., 2015).

Despite its proven benefits, the implementation of differentiated instruction poses several challenges for educators. Time constraints, lack of resources, and inadequate professional development are common barriers that hinder the effective adoption of differentiated instruction strategies (Krishan & Al-rsa'i, 2023). Teachers often struggle to find the time and resources needed to plan and execute differentiated lessons, especially in classrooms with large student populations. Additionally, many educators feel unprepared to implement differentiated instruction due to insufficient training and support (Allsopp et al., 2005). Addressing these challenges requires a concerted effort from educational stakeholders, including policymakers, administrators, and teacher educators, to provide the necessary resources and support for teachers.

Furthermore, the role of technology in supporting differentiated instruction cannot be overstated. Technological tools and resources offer significant potential for enhancing the effectiveness of differentiated instruction. For example, interactive hypermedia programs have been shown to improve the learning outcomes of students with high-incidence disabilities by providing engaging and personalized learning experiences (Chandra, 2024; Lancaster et al., 2002; Satsangi et al., 2022). Additionally, digital tools and UDL-based instructional strategies can

support students with disabilities in online learning environments, making education more accessible and inclusive (Rao et al., 2021). As technology continues to evolve, its integration into differentiated instruction practices will be crucial for meeting the diverse needs of students.

In the context of promoting inclusive education, differentiated instruction plays a vital role in addressing the needs of gifted students with disabilities. These students, often referred to as twice-exceptional, require specialized instructional strategies that cater to both their advanced abilities and their learning challenges (Abramo, 2015). Effective differentiated instruction can help twice-exceptional students achieve their full potential by providing appropriate challenges and support tailored to their unique profiles.

The importance of differentiated instruction is further highlighted by its positive impact on student motivation and engagement. Research indicates that differentiated instruction strategies, such as concrete-representational-abstract (CRA) instruction and video modeling, can significantly enhance student motivation and engagement, leading to improved learning outcomes (Satsangi et al., 2022; Yıldırım & Yikmiş, 2022). By providing students with varied and meaningful learning experiences, differentiated instruction fosters a more engaging and motivating classroom environment.

However, the successful implementation of differentiated instruction requires a strong foundation of professional development and collaborative support among educators. Professional development opportunities, such as workshops, in-service training, and conferences, are essential for equipping teachers with the skills and knowledge needed to implement differentiated instruction effectively (Chandra, 2024). Additionally, collaboration among teachers, including team teaching and co-planning, can enhance the implementation of differentiated instruction by fostering a supportive and innovative professional community (Vaughn et al., 2001).

Parental involvement is another critical factor in the successful implementation of differentiated instruction. Engaging parents in the educational process and maintaining open lines of communication can significantly enhance the effectiveness of differentiated instruction strategies (Bourke et al., 2000). By collaborating with parents, teachers can gain valuable insights into their students' needs and preferences, leading to more personalized and effective instruction.

In conclusion, differentiated instruction is a powerful approach for addressing the diverse needs of students with learning disabilities. Its potential to improve academic, social, and emotional outcomes for these students underscores the importance of its widespread adoption in educational settings. However, realizing the full potential of differentiated instruction requires addressing the challenges faced by educators, including providing adequate resources, professional development, and collaborative support. By fostering an inclusive and supportive educational environment, differentiated instruction can help ensure that all students, regardless of their abilities, have the opportunity to succeed. The subsequent sections of this article will delve into the specific methods and materials used in this study, present the findings on differentiated instruction strategies, and discuss their implications for practice and future research.

2. Methods and Materials

2.1. Study Design and Participants

This study employs a qualitative research design to explore differentiated instruction strategies for students with learning disabilities. The qualitative approach is chosen to gain in-depth insights and understand the complex phenomena related to teaching strategies and their impacts on students.

Participants were selected through purposive sampling to ensure the inclusion of experienced educators who have worked with students with learning disabilities. The criteria for participant selection included a minimum of five years of teaching experience, familiarity with differentiated instruction, and direct experience in teaching students with learning disabilities. Theoretical saturation was used as a guiding principle for data collection. Interviews continued until no new themes or insights were emerging from the data, indicating that saturation had been reached. This approach ensured a comprehensive understanding of the differentiated instruction strategies and their nuances.

2.2. Measure

2.2.1. Semi-Structured Interview

Data were collected using semi-structured interviews, allowing for flexibility and depth in responses while maintaining a consistent framework across all interviews. An interview guide was developed, focusing on key areas such as:

- Understanding of differentiated instruction
- Specific strategies used for students with learning disabilities
- Perceived effectiveness of these strategies
- Challenges faced in implementing differentiated instruction
- Support and resources needed for effective implementation

Interviews were conducted either in person or via video conferencing, depending on the participant's preference and availability. Each interview lasted between 45 to 60 minutes and was audio-recorded with the participant's consent for accurate transcription and analysis.

2.3. Data Analysis

Data analysis followed a thematic approach, allowing for the identification of patterns and themes across the interviews. The process involved several steps:

Transcription: All interviews were transcribed verbatim to facilitate detailed analysis.

Initial Coding: The transcripts were read multiple times to become familiar with the data. Initial codes were generated based on recurring words, phrases, and ideas.

Focused Coding: Codes were then grouped into broader categories and themes, focusing on the research questions and objectives.

Theme Development: Themes were refined and developed through an iterative process, involving constant comparison and contrast of data. This process helped in identifying key strategies and their perceived effectiveness, as well as the challenges and support mechanisms related to differentiated instruction.

Member Checking: To enhance the credibility and validity of the findings, member checking was conducted. Participants were provided with summaries of the findings and asked to confirm the accuracy and relevance of the themes.

3. Findings and Results

The study included a diverse group of 21 participants, comprising 14 general education teachers (66.7%), 5 special education teachers (23.8%), and 2 educational administrators (9.5%). The participants' teaching experience ranged from 5 to 25 years, with an average of 12 years of experience. In terms of gender distribution, there were 15 female participants (71.4%) and 6 male participants (28.6%). The participants represented a variety of educational settings, including 12 from elementary schools (57.1%), 7 from secondary schools (33.3%), and 2 from district administration offices (9.5%).

Table 1

The Results of Thematic Analysis

Categories	Subcategories	Concepts
1. Instructional Strategies	1.1 Differentiated Content	Multi-level reading materials, Tiered assignments, Learning stations, Use of multimedia, Adapted texts
	1.2 Differentiated Process	Flexible grouping, Scaffolding, Think-pair-share, Graphic organizers, Peer tutoring
	1.3 Differentiated Product	Varied assessment methods, Project-based learning, Choice boards, Portfolio assessment, Oral presentations
	1.4 Differentiated Environment	Flexible seating, Quiet zones, Sensory-friendly spaces, Classroom layout variations
	1.5 Use of Technology	Educational apps, Interactive whiteboards, Online resources, Assistive technology
	1.6 Individualized Education Plans (IEPs)	Customized goals, Regular reviews, Collaboration with specialists, Parental involvement
2. Perceived Effectiveness	2.1 Student Engagement	Increased participation, Higher motivation, Improved attendance
	2.2 Academic Improvement	Enhanced reading skills, Better math performance, Improved writing abilities, Higher test scores
	2.3 Social-Emotional Development	Boosted self-esteem, Better peer interactions, Reduced anxiety, Increased confidence
	2.4 Teacher Satisfaction	Sense of accomplishment, Positive feedback from students, Reduced burnout, Increased job satisfaction
	2.5 Inclusive Classroom Culture	Enhanced sense of belonging, Acceptance of diversity, Collaborative learning, Respectful interactions
	2.6 Long-Term Impact	Lifelong learning skills, Preparation for future education, Career readiness
3. Challenges	3.1 Time Constraints	Limited planning time, Balancing curriculum demands, Large class sizes
	3.2 Resource Availability	Lack of materials, Insufficient technology, Funding issues, Inadequate training
	3.3 Teacher Preparedness	Need for professional development, Understanding of disabilities, Experience with differentiation

4. Mechanisms	Support	3.4 Student Resistance	Reluctance to participate, Fear of being singled out, Resistance to change
		3.5 Parental Involvement	Lack of engagement, Communication barriers, Differing expectations, Limited support at home
	Support	4.1 Professional Development	Workshops, In-service training, Conferences, Online courses
		4.2 Collaboration	Team teaching, Co-planning time, Peer observation, Professional learning communities
		4.3 Administrative Support	Leadership backing, Resource allocation, Policy support, Clear guidelines
		4.4 Community Resources	Partnerships with local organizations, Volunteer programs, External funding, Community awareness campaigns
		4.5 Parental Engagement	Regular communication, Parent workshops, School events, Home support strategies
		4.6 Technological Support	Access to devices, IT support, Software training, Digital resource sharing

3.1. Instructional Strategies

Differentiated Content: Teachers employ a variety of content differentiation strategies to meet the diverse needs of students with learning disabilities. Strategies include using multi-level reading materials, tiered assignments, learning stations, multimedia, and adapted texts. As one teacher noted, "Providing different levels of reading materials has helped my students engage with the text at their own pace and level of understanding."

Differentiated Process: Process differentiation involves flexible grouping, scaffolding, think-pair-share activities, graphic organizers, and peer tutoring. These strategies help tailor the learning process to individual student needs. A special education teacher shared, "Using graphic organizers has been incredibly beneficial for my students in organizing their thoughts and improving their writing skills."

Differentiated Product: To assess students effectively, teachers use varied assessment methods, project-based learning, choice boards, portfolio assessment, and oral presentations. These approaches allow students to demonstrate their understanding in ways that suit their strengths. One participant explained, "Offering different types of assessments helps me see my students' true abilities beyond traditional tests."

Differentiated Environment: Creating a supportive learning environment is crucial. This includes flexible seating, quiet zones, sensory-friendly spaces, and variations in classroom layout. "Having a quiet corner in my classroom has made a huge difference for students who need a break from sensory overload," commented one teacher.

Use of Technology: Teachers integrate educational apps, interactive whiteboards, online resources, and assistive technology to support learning. One educator mentioned, "Assistive technology has been a game-changer for my students with dyslexia, allowing them to access the curriculum more independently."

Individualized Education Plans (IEPs): IEPs are tailored with customized goals, regular reviews, collaboration with specialists, and parental involvement. "Regularly reviewing IEPs with specialists ensures we are on the right track and meeting each student's needs," highlighted a special education teacher.

3.2. Perceived Effectiveness

Student Engagement: Increased participation, higher motivation, and improved attendance are key indicators of student engagement. A teacher observed, "When students feel that lessons are tailored to their needs, they are more eager to participate and attend classes."

Academic Improvement: Enhancements in reading skills, math performance, writing abilities, and test scores demonstrate academic improvement. "I've seen significant gains in my students' reading levels since implementing differentiated strategies," reported a general education teacher.

Social-Emotional Development: Boosted self-esteem, better peer interactions, reduced anxiety, and increased confidence are crucial outcomes. One participant noted, "Students' self-esteem improves when they see success in their work, which also positively affects their social interactions."

Teacher Satisfaction: Sense of accomplishment, positive feedback from students, reduced burnout, and increased job satisfaction are essential for teachers. "Seeing my students succeed and knowing I made a difference keeps me motivated and satisfied with my job," shared a teacher.

Inclusive Classroom Culture: An inclusive culture fosters a sense of belonging, acceptance of diversity, collaborative learning, and respectful interactions. "Creating an inclusive environment where all students feel valued is fundamental to their success," emphasized an educator.

Long-Term Impact: Lifelong learning skills, preparation for future education, and career readiness are long-term benefits. A participant remarked, "The skills students

develop through differentiated instruction prepare them not just for exams but for life."

3.3. Challenges

Time Constraints: Teachers face limited planning time, balancing curriculum demands, and managing large class sizes. "Finding the time to plan differentiated lessons for a large class is a constant challenge," one teacher mentioned.

Resource Availability: Challenges include a lack of materials, insufficient technology, funding issues, and inadequate training. "We often struggle with a lack of resources, which makes it hard to implement some strategies effectively," commented a special education teacher.

Teacher Preparedness: There is a need for professional development, understanding of disabilities, and experience with differentiation. "Professional development is crucial; without it, many teachers feel unprepared to differentiate effectively," said a participant.

Student Resistance: Students may be reluctant to participate, fear being singled out, or resist changes in instructional methods. "Some students are hesitant to engage with differentiated activities, fearing they will be seen as different," explained a teacher.

Parental Involvement: Engaging parents, overcoming communication barriers, managing differing expectations, and ensuring support at home are significant issues. "Getting parents involved and on the same page can be challenging but is essential for student success," noted an educator.

3.4. Support Mechanisms

Professional Development: Workshops, in-service training, conferences, and online courses are vital for equipping teachers with necessary skills. "Professional development opportunities have been instrumental in improving my differentiation techniques," shared a teacher.

Collaboration: Team teaching, co-planning time, peer observation, and professional learning communities enhance collaborative efforts. "Collaboration with colleagues has provided new insights and strategies that I wouldn't have discovered on my own," said one educator.

Administrative Support: Leadership backing, resource allocation, policy support, and clear guidelines are crucial. "Having the support of the administration makes a big difference in implementing differentiated instruction," a teacher remarked.

Community Resources: Partnerships with local organizations, volunteer programs, external funding, and

community awareness campaigns provide additional support. "Community partnerships have provided valuable resources and support for our students," noted an educator.

Parental Engagement: Regular communication, parent workshops, school events, and home support strategies are key to engaging parents. "Frequent communication with parents helps them understand and support differentiated instruction at home," explained a teacher.

Technological Support: Access to devices, IT support, software training, and digital resource sharing are essential for effective use of technology. "Reliable access to technology and support from IT staff have been crucial in integrating tech into my lessons," mentioned an educator.

4. Discussion and Conclusion

The findings of this study illuminate several critical aspects of differentiated instruction (DI) for students with learning disabilities. The instructional strategies identified—differentiated content, process, product, environment, and use of technology—demonstrate a robust framework for meeting diverse learning needs. Moreover, the perceived effectiveness of these strategies highlights significant improvements in student engagement, academic performance, and social-emotional development. However, the implementation of DI faces substantial challenges, including time constraints, resource availability, teacher preparedness, student resistance, and parental involvement. Support mechanisms such as professional development, collaboration, administrative backing, community resources, parental engagement, and technological support are vital for overcoming these challenges and facilitating successful DI implementation.

The use of differentiated content, process, product, and environment aligns with the literature on effective instructional practices for students with learning disabilities. For example, Anderson and Corbett (2008) emphasized the importance of varied instructional methods, such as literature circles, to enhance comprehension and engagement (Anderson & Corbett, 2008). Similarly, Fahsl and McAndrews (2011) highlighted the benefits of journal writing as a differentiated process strategy to support reflective learning and critical thinking (Fahsl & McAndrews, 2011).

The integration of technology in DI also finds strong support in the literature. Studies by Lancaster et al. (2002) and Rao et al. (2021) demonstrated the effectiveness of digital tools and interactive hypermedia programs in

enhancing learning outcomes for students with disabilities (Lancaster et al., 2002). These technological interventions provide personalized learning experiences and support diverse learning needs, corroborating the findings of this study.

The reported improvements in student engagement, academic performance, and social-emotional development are consistent with previous research. For instance, Jitendra et al. (2004) found that tailored vocabulary instruction significantly improved reading comprehension and vocabulary skills among students with learning disabilities (Jitendra et al., 2004). Similarly, Babbitt and Miller (1996) reported that hypermedia-based instruction enhanced mathematics problem-solving skills, highlighting the positive impact of differentiated content (Babbitt & Miller, 1996).

The social-emotional benefits of DI, such as boosted self-esteem and better peer interactions, are also well-documented. Sayeski (2011) emphasized that inclusive instructional practices contribute to a supportive classroom environment, promoting students' social and emotional well-being (Sayeski, 2011). These findings are further supported by Black et al. (2015), who found that UDL frameworks enhance students' sense of belonging and reduce feelings of isolation (Black et al., 2015).

The challenges identified in this study, including time constraints, resource limitations, and teacher preparedness, are echoed in the literature. Allsopp et al. (2005) highlighted the need for extensive professional development to equip teachers with the skills required for effective DI (Allsopp et al., 2005). Krishan and Al-rsa'i (2023) also pointed out that limited resources and inadequate training hinder the successful implementation of DI strategies (Krishan & Al-rsa'i, 2023).

Student resistance and parental involvement are additional challenges that align with previous findings. Vaughn et al. (2001) noted that students with learning disabilities might be reluctant to participate in differentiated activities due to fear of being singled out (Vaughn et al., 2001). Bourke et al. (2000) emphasized the importance of parental engagement in supporting differentiated instruction, highlighting communication barriers and differing expectations as significant obstacles (Bourke et al., 2000).

The necessity of professional development and collaborative support is a recurring theme in the literature. Chandra (2024) stressed the importance of ongoing professional development opportunities to enhance teachers' competence in DI (Chandra, 2024). Collaboration among

educators, as noted by Vaughn et al. (2001), fosters a professional community that supports the sharing of best practices and innovative strategies (Vaughn et al., 2001).

Administrative support, community resources, and technological support are also crucial for the successful implementation of DI. Studies by Lancaster et al. (2006) and Rao et al. (2021) highlighted the role of leadership backing and resource allocation in facilitating effective DI practices (Lancaster et al., 2006; Rao et al., 2021). Engaging community resources and leveraging technological tools further enhance the inclusivity and accessibility of educational experiences for students with learning disabilities.

Despite the insightful findings, this study has several limitations that must be acknowledged. First, the sample size of 21 participants, while sufficient for qualitative analysis, limits the generalizability of the results. A larger and more diverse sample could provide a broader perspective on the implementation and effectiveness of DI strategies. Second, the study relied on self-reported data from teachers, which may introduce bias or inaccuracies due to social desirability or recall errors. Triangulating these findings with student performance data and classroom observations could enhance the validity of the results. Third, the study focused primarily on elementary and secondary school settings within a single urban school district. Including participants from rural and suburban districts, as well as higher education institutions, could provide a more comprehensive understanding of DI across different educational contexts.

Future research should address the limitations of this study by expanding the sample size and diversity. Including a larger number of participants from various geographical locations and educational levels can provide a more holistic view of DI practices. Additionally, longitudinal studies that track the long-term impacts of DI on student outcomes would be valuable in assessing the sustained effectiveness of these strategies. Exploring the perspectives of students and parents on DI can also provide deeper insights into its impact and areas for improvement. Furthermore, experimental studies that compare the outcomes of DI with traditional instruction methods can offer robust evidence of its efficacy. Finally, investigating the role of technology in DI, particularly in the context of remote and hybrid learning environments, is crucial given the increasing reliance on digital tools in education.

To enhance the implementation of DI, several practical recommendations can be drawn from this study. First, ongoing professional development opportunities should be

provided to educators to equip them with the necessary skills and knowledge for effective DI. This includes training on specific DI strategies, classroom management techniques, and the use of technology. Second, fostering a collaborative culture among teachers through team teaching, co-planning, and professional learning communities can support the sharing of best practices and innovative ideas. Third, administrative support is essential for the successful implementation of DI. School leaders should allocate resources, provide clear guidelines, and create a supportive environment that encourages experimentation and innovation in teaching practices. Fourth, engaging community resources and building partnerships with local organizations can provide additional support and resources for DI. Finally, increasing parental involvement through regular communication, workshops, and school events can enhance the effectiveness of DI by ensuring that students receive consistent support both at school and at home.

In conclusion, differentiated instruction offers a powerful framework for addressing the diverse needs of students with learning disabilities. This study highlights the potential of DI to improve academic, social, and emotional outcomes for these students, while also identifying significant challenges that must be addressed. By leveraging professional development, collaboration, administrative support, community resources, and parental engagement, educators can overcome these challenges and create inclusive and effective learning environments. Future research should continue to explore and refine DI practices, ensuring that all students have the opportunity to succeed.

Authors' Contributions

Not applicable.

Declaration

In order to correct and improve the academic writing of our paper, I have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The author reports no conflict of interest.

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Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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