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Classroom interactions among deaf students, educators and peers in diverse educational environments

التفاعلات الصفية بين التلاميذ الصم و المعلمين وأقرانهم في مختلف البيئات التعليمية

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Abstract

This study explores the experience of deaf students, their teachers and peers in specialized schools, compared to those in mainstream schools across various regions in Algeria such as: Djelfa, Laghouat, Skikda and Khenchla.

The applied questionnaire comprises a collection of dichotomous questions, open-ended questions, multiple-choice questions, and other types. A total of 20 teachers participated in the study, with 10 from mainstream schools and 10 from specialized deaf schools, utilizing a comparative method approach. After analyzing the results based on teachers' responses, it became evident that both specialized and mainstream teachers faced challenges and difficulties in teaching deaf students.

Specialized teachers' answers revealed that deaf student's interaction in specialized schools is more robust and effective than the one in regular school settings. The results also demonstrated that the teacher-deaf student relationship in specialized centers is stronger than that in mainstream schools.

Keywords: classroom interactions, school inclusion, special educational needs, deafness.

1. Introduction

In education, deaf students have two distinct paths, each presenting its own challenges and unique opportunities. Their education has long oscillated between oralism and manualism. As Harlan (1984) noted, the history of the education of deaf children has been marked by a pendulum swing between the oralist and manualist approaches, each advocating different methods for teaching communication and language skills. Specialized schools are exclusively made for deaf students, where they are taught in Signed or Written Arabic merely (Abdelouafi, 2020). Algerian Sign Language [LSA] and other visual methods of communication are also utilized. Integrating deaf individuals into mainstream schools alongside their hearing peers' results in challenges, such as communication barriers and a lack of

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understanding of hearing disabilities among both students and educators. Research indicates that deaf children tend to have fewer close friendships with hearing peers (Wauters & Knoors, 2007), and these relationships are often more sporadic (Lederberg et al., 1987). Additionally, deaf children are more likely to experience a complete lack of friends in their mainstream classes compared to their hearing peers (Nunes et al., 2001).

In their educational journey, the deaf emotional well-being, academic success, and identity development are influenced by the quality of classroom interactions occurring among peers and educators. Nevertheless, the nature of these classrooms' dynamics diversifies between specialized and mainstream schools. Mainstream school settings are designed primarily for hearing individuals, where interaction is predominantly verbal. In contrast, specialized schools utilize sign language, and their environments are tailored to meet the needs of deaf individuals. During the Algerian school integration initiative for disabled individuals, some departments were not adequately prepared to support the needs of children with hearing impairments. Additionally, movement for students and parents was difficult, and there was a lack of internal system. This is due to a shortage of educational resources, like headphones. A lack of language balance can lead to verbal insufficiency, making communication difficult with regular students and hindering teacher-student interactions. Additionally, there is no cultural education between deaf and hearing children (Taun Rogers, 2013, p. 49).

In this context, Amara (2022) advocates for inclusive education, emphasizing that it is not merely about physical access but about creating an environment where all students, regardless of ability, feel respected and included. The goal of inclusive education is for everyone to learn together, allowing deaf students to learn alongside their hearing peers and interact with them.

The integration policy is based on three fundamental assumptions: it automatically facilitates opportunities for interaction between hearing-impaired students and their hearing peers, it fosters increased social acceptance of deaf learners among their hearing counterparts, and it provides ample opportunities for modeling the behaviors of hearing peers. Therefore, the integration policy is considered the most appropriate approach for addressing the needs of students with special educational requirements in all regular schools (Al-Sherbini, 1998).

The inclusion of deaf students in mainstream schools and their classroom interactions go hand in hand, presenting both benefits and challenges. While there has been progress in the inclusion of deaf students in Algeria, there remains significant room for improvement. The Algerian educational system has made substantial efforts to provide adequate educational support through integration into the school district and to reform and implement strategies aimed at achieving quality education for all children, particularly those with disabilities.

To ensure education for children with disabilities, the Ministry of National Solidarity [MNS] has also taken significant steps. Algerian law has actively sought to establish a national policy focused on educating individuals with disabilities, dedicating numerous provisions to guarantee equal access to education for all children, regardless of their background. The state finances national initiatives by incorporating specialized education centers, providing specialized teacher training, and promoting awareness about deafness to create a more inclusive learning environment for all students.

2. Problem

Deaf children are inherently social, influencing and being influenced by others, it is through these reciprocal relationships that their lives gain meaning. However, when deaf learners struggle with classroom challenges, such as communication barriers or a lack of understanding from teachers and peers, it can negatively impact their emotional well-being and hinder their overall development. Research indicates that deaf children are 1.5 to 2 times more vulnerable to mental health difficulties (Hindley, 2005) compared to their hearing peers. These issues may manifest as feelings of loneliness (Most, 2007), depression (Theunissen et al., 2011), and a range of behavioral problems (Barker et al., 2009).

For deaf students, classroom interaction encompasses various methods and mechanisms to ensure a successful comprehension process. These interactions are designed to meet the specific needs of deaf students and may include the use of sign language, visual presentations, and technology. This approach involves collaborating with interpreters, utilizing captioning services, and creating an environment conducive to participation for all students.

Our journey and interest in the subject began when a stranger handed us a paper filled with sign symbols in the street, igniting a spark that prompted further research. After two years of study at the Higher School for Teachers of Deaf and Mute in Beni Messous, Algiers, which specifically trains teachers

for deaf and mute students, we discovered a significant gap. We noticed substantial differences between deaf-mute learners in specialized schools and those in mainstream schools. These differences encompassed the school environments, teachers' knowledge of deafness, language barriers, and the dynamics of classroom communication. Our attention was particularly drawn to these discrepancies after spending a few days in a traditional high school attended by both deaf and hearing students. We observed that the culture of this school was distinctly hearing-oriented, depriving deaf students of the specialized care and support they needed. This experience motivated us to conduct research comparing how middle school deaf students interact in integrated versus self-contained classrooms.

Based on the points mentioned above, inclusion in regular schools enables deaf and hard-of-hearing students to develop a stronger self-concept and engage more fully with their hearing peers, which can lead to improve social and academic success (Marschark, 1997). Moores (2001) emphasizes this need by stating, because the academic achievement of hearing children is receiving greater attention, educators of the deaf must help their students improve in academic achievement merely to maintain their position relative to that of hearing children.

This study attempts to answer the following questions:

- What challenges do hearing-impaired students face in both mainstream and specialized schools?
- What are the most effective assistive methods for improving communication and participation for deaf students in both educational settings?
- To what extent does the knowledge of teachers and peers in mainstream schools about deafness improve classroom interaction for hearing-impaired students?

3. Hypotheses

3.1. Hearing-impaired students encounter educational and pedagogical difficulties, as well as a lack of appropriate educational structures.

3.2. The most effective assistive method for enhancing communication and participation for deaf students in both educational settings is sign language.

3.3. When students and teachers are knowledgeable about deaf individuals, classroom interactions with hearing-impaired students improve significantly.

4. Objectives of the study

The primary purpose of this study is to provide a more inclusive educational experience for deaf learners by clarifying the dynamics of classroom interactions in both specialized and mainstream school settings in Djelfa, Laghouat, Khenchla, and Skikda. Specifically, the study aims to:

- ✓ Expose the challenges faced by deaf students during classroom interactions.
- ✓ Highlight the unique needs of deaf students and identify ways to support classroom communication to ensure their engagement.
- ✓ Address the distinct needs of deaf learners and promote diversity within the educational context.

5. Importance of the study

- ✓ Raise teachers' awareness of hearing disabilities and the well-being of hearing-impaired students.
- ✓ Promote the acceptance of hearing-impaired students in mainstream schools.
- ✓ Examine teachers' methods and strategies to support deaf learners in their educational journey.

6. Determinants

6.1. Classroom Interaction

Classroom interaction is an activity that enables learners to develop critical thinking, share ideas, and enhance their speaking and listening skills. It is also defined as a two-way process between the teacher and students, as well as among the students themselves, where all participants exert reciprocal influence on one another during the learning process (Hanifi & Amra, 2018, p. 254).

6.2. School inclusion

School inclusion refers to the practice of educating students with disabilities alongside their typically developing peers in regular classrooms (Sadanand & Raymond, 2000, p. 113).

6.3. Special educational needs

The term "special educational needs" encompasses a wide range of learning difficulties and holds different meanings for different people in various contexts. It covers an array of challenges, from those associated with specific impairments to those related to learning and behavioral difficulties that some learners face in comparison to their peers (Florian & Hegarty, 2004, p. 8).

6.4. Deafness

Deafness is a complex biological, social and psychological construct that affects millions of people. The World Health Organization defines disabling hearing loss as greater than 40 decibels in the better ear for adults and greater than 30 decibels in the better ear for children. Hearing loss is measured in decibels, and the audiology awareness campaign categorizes hearing loss from normal to profound (Du Feu & Chovaz, 2014, p. 1).

7. Materials and Methods

7.1. Design

The descriptive survey approach is used to describe classroom interactions and identify ways to support classroom communication to ensure engagement, and address the needs of deaf learners and promote diversity within the educational context.

7.2. Participants

Since this study follows qualitative design principles, we utilized purposive sampling, specifically non-probability sampling, where the selection of samples is based on the researchers' judgment. The study focused on a single sample across two educational environments: 10 teachers from various specialized schools in different regions of Algeria (Djelfa, Laghouat, Skikda, and Khenchla) and 10 teachers from mainstream schools in the same regions.

Moreover, the researchers sought to gather a broad and diverse range of information by selecting teachers from central, southern, and northeastern regions of Algeria. This approach aims to enhance the study's validity and authenticity.

7.3. Instruments: Questionnaire

In this study, a questionnaire is designed and distributed it to teachers from both mainstream and specialized schools in various regions of Algeria. Data was collected online using Google Forms, and the results were analyzed and compared based on the teachers' responses and feedback. The questionnaire consisted of multiple types of questions and was divided into four sections, each containing one or more questions aligned with the researchers' objectives. The questions included close-ended, multiple-choice, Likert scale, and open-ended formats, all designed to address the research questions and support the study's findings.

The first section comprised four introductory questions, aimed at gathering information on the teachers' gender, school setting, years of experience, and received training in both specialized and mainstream environments.

Section two consists of one question addressing the first research question of this paper. This section focuses on the challenges faced by deaf students, as reported by ten specialized teachers and ten mainstream teachers.

Section three addresses the second research question concerning the assistive methods utilized by both specialized and mainstream teachers to ensure the understanding and interaction of deaf students in the classroom.

The final section of the questionnaire includes various types of questions related to the third research question of this paper, which explores the role and effectiveness of the knowledge acquired by teachers in both settings in fostering classroom interactions and communication. Questions in this section examine the importance of teachers' and peers' knowledge about deafness, the use of collaborative tasks in the classroom, interactions between peers and deaf students, factors that assist teachers in teaching deaf learners, and conclude with an open-ended question allowing teachers from both settings to share their insights and advice for beginner teachers working with deaf students.

8. Results

8.1. Comparison between specialized and mainstream answers in section one of the questionnaire

As mentioned previously, section one in the questionnaire aimed to gather basic and general information about the ten teachers selected from both educational settings. This section consisted of four general questions designed to identify the participant's gender, years of teaching experience, whether they taught in specialized centers or mainstream schools, and whether they had received special training to teach deaf or hard-of-hearing (HH) students. If they had received such training, they were asked to elaborate.

The responses from specialized teachers indicated that they had considerable teaching experience in specialized centers, with the longest tenure being nine years. Most of these teachers reported having undergone specialized training in teaching deaf students. In contrast, the responses from mainstream

teachers revealed that, while they also had significant teaching experience, it was primarily in regular schools. The longest reported tenure in mainstream education was fifteen years. Furthermore, none of the mainstream teachers had received special training to teach integrated deaf students. This lack of training explains the challenges they faced in teaching deaf students and highlights their limited knowledge in this area.

8.2. Comparison of section two of the questionnaire delivered to specialized and mainstream school teachers

Section two addresses the challenges faced by specialized and mainstream teachers when interacting with deaf students in their respective settings. The results collected from the ten teachers in both specialized and mainstream schools show both convergence and divergence in various areas. Specialized teachers provided detailed and direct insights into the challenges they encounter, reflecting their experience and training in teaching deaf students. They emphasized the need to adapt educational programs to meet the specific needs of deaf learners, mentioning issues such as hyperactivity during lessons and difficulties with memory retention. In contrast, mainstream teachers reported more generalized challenges, indicating their limited understanding of deafness. They identified a significant barrier to achieving their educational goals: the "lack of sign language." They cited deficiencies in sign language and communication barriers as the most prominent obstacles to effectively interacting with integrated deaf and hard-of-hearing (HH) students. Additionally, they noted challenges related to attention deficits and non-adapted programs, which align with the concerns raised by specialized teachers. When comparing the two sets of responses, it is evident that specialized teachers have developed strategies to address the myriad difficulties deaf students face, particularly concerning the use of sign language. This contrasts sharply with mainstream teachers, who identified the sign language barrier as a major obstacle. These findings illuminate the challenges mainstream teachers may encounter throughout their teaching journey.

8.3. Comparison of section three of the questionnaire answers from both specialized and mainstream teachers

Section three focused on the assistive methods employed by specialized and mainstream teachers in teaching deaf and hard-of-hearing (HH) students. Specialized teachers indicated a comprehensive approach, selecting all the assistive aids listed in the questionnaire. The majority chose various methods, demonstrating their versatility in addressing the needs of deaf students. However, most mainstream teachers primarily opted for written instructions and materials as their main tool. This limited selection may stem from their deficiency in sign language skills, as noted in the previous comparison.

8.4. Comparison of section four of the questionnaire responses from both specialized and mainstream teachers

Questions one and two addressed the role of teachers' and peers' knowledge about deafness in fostering classroom interactions and awareness among students. Specialized teachers unanimously recognized the necessity of having knowledge about deafness, reporting full agreement on its importance. In contrast, mainstream teachers exhibited varied responses, with some indicating "No" and others responding "Not sure," highlighting the challenges they face when interacting with deaf students. When asked about the importance of peers being knowledgeable about deafness, 60% of specialized teachers rated it as "very important," while 40% rated it as "important." In contrast, mainstream teachers' responses were more mixed: 50% deemed it "slightly important," while the remainder was divided, with 20% stating it was "not important" and 30% considering it "important." Comparing the two groups, it is evident that specialized teachers firmly believe that having background knowledge about deafness is crucial for promoting healthier classroom interactions and enhancing awareness among all students. Conversely, the majority of mainstream teachers perceived that their knowledge or lack thereof, has only a slight effect on the effectiveness of classroom interactions and the awareness of students.

Responses to question three revealed a notable difference between specialized and mainstream teachers regarding the necessity of encouraging deaf students to participate in the classroom. Specialized teachers unanimously affirmed the importance of fostering participation among deaf students. In contrast, mainstream educators often selected "sometimes" as their response, indicating that they infrequently engage in communication with their integrated deaf students. This hesitance may also stem from mainstream teachers' lack of proficiency in sign language, further hindering effective interactions.

In question seven, specialized teachers rated the interaction and relationship levels between deaf students and their peers significantly higher. In contrast, mainstream teachers selected the lowest ratings, reflecting their challenges in communicating with deaf students and the limited relationships they develop with their integrated peers. This disparity highlights the impact of communication barriers and other factors on the interactions within mainstream educational settings.

Responses to question eight varied among both specialized and mainstream educators. While both groups identified factors such as curriculum adaptation, the use of assistive aids, and raising awareness, specialized teachers explored additional aspects in greater depth. They emphasized the importance of building strong relationships with deaf students, minimizing social and contextual barriers, and fostering emotional inclusion.

Responses to question nine revealed both agreements and contradictions between specialized and mainstream educators. Most specialized teachers offered advice centered on building positive relationships with deaf students and fostering trustworthiness among peers. In contrast, mainstream teachers emphasized practical suggestions, such as improving teachers' competence in sign language and utilizing assistive tools, which are often lacking in regular classroom settings.

9. Discussion

The findings from the questionnaires completed by specialized and mainstream teachers were analyzed and categorized according to the sections corresponding to the research questions posed at the beginning of this study. The first research question examined the challenges that specialized and mainstream teachers face in teaching deaf and hard-of-hearing (HH) students. The second research question focused on the effectiveness of using assistive aids in the teaching process. The final question explored the role of knowledge about deafness in fostering classroom interactions and raising awareness. The findings from the teachers' responses successfully addressed all of these research questions. The results from the specialized teachers' responses in Section 2 of the questionnaire reveal that the primary challenges they face in teaching deaf students stem from the lack of specialized educational programs tailored to meet the needs of deaf learners. This gap significantly contributes to the students' limited educational progress. In comparison, mainstream teachers reported a seemingly never-ending list of challenges, with the most prominent being the absence of sign language proficiency. This deficiency

further isolates deaf students from the regular classroom environment, fostering feelings of unworthiness, incompetence, and a heightened sense of being unfit or handicapped.

Moreover, the hyperactivity and attention challenges encountered by both specialized and mainstream teachers were not entirely identical. In specialized settings, hyperactivity and attention issues often stem from the strong bond deaf students develop with their peers and educators. However, in mainstream settings, these challenges emerge as a consequence of marginalization and exclusion, where deaf students struggle to fit into an environment that does not fully accommodate their needs.

The results gathered from the sections of the questionnaire delivered to teachers in Djelfa, Laghouat, Skikda, and Khenchla also helped answer this paper's second research question, which explores the use of assistive aids by teachers in both educational settings. The findings confirmed that specialized teachers employed all available assistive aids due to their awareness of deaf students' needs. In contrast, mainstream teachers lacked many of these essential methods, relying solely on written materials. This limitation stems from the absence of specialized training programs and a lack of motivation among mainstream educators to effectively support deaf students' interaction and learning.

Additionally, the results gathered from both groups of teachers addressed our third research question regarding the importance of having knowledge in fostering deaf students' classroom interactions. It was affirmed that specialized teachers strongly endorse the effectiveness of both teachers and peers having background knowledge about deafness, which stems from their experience in teaching deaf students and understanding their needs. In contrast, regular school teachers undervalue the importance of such knowledge, reflecting a gap in their awareness of how it can support deaf students and improve classroom interactions.

The results obtained from specialized and mainstream teachers across the four sections of the questionnaire can be summarized as follows:

Teaching deaf/HH students requires several key elements: specialized training for teachers, access to resources in schools, teacher proficiency in sign language (SL), and knowledge of all available communicative and assistive aids. These aids include the use of visual elements such as colors, pictures, written instructions, lip reading, data shows, and most importantly, sign language to facilitate effective communication and enhance learning outcomes.

Classroom interactions between deaf students and their educators and peers in specialized and mainstream schools are notably divergent. Comparing the responses from teachers in both settings highlights this divergence. Specialized teachers reported that deaf students' interactions in specialized schools are more robust and effective compared to regular school environments. The findings show that the teacher-deaf relationship in specialized centers is stronger, largely due to the use of sign language and the availability of assistive aids that meet deaf students' communication needs. These aids enable their inclusion in classroom discussions, group activities, and provide opportunities for feedback to help improve teaching strategies.

This aligns with the findings of Aouaidjia's study, *School Integration of Children with Cochlear Implants (Reality and Aspiration)* see (Aouaidjia, 2018) which highlighted challenges faced by hearing-impaired students in regular school settings, such as difficulty adapting to a crowded environment with hearing students and coping with the large amount of information they are expected to absorb. This is consistent with one of the findings in this paper: the need for deaf-oriented programs that meet the specific needs of deaf students.

In contrast, mainstream teachers face significant obstacles due to a lack of sign language proficiency, the absence of specialized training, and the failure to adapt individualized programs for deaf students. The recommendations from Aouaidjia's study, such as tailoring curriculum content and identifying specific challenges for each student to create individualized educational plans, resonate with the conclusions drawn in this research. These strategies would help address the difficulties deaf students face and improve their overall educational experience.

Furthermore, the results also show that deaf-peer interaction in mainstream schools is low due to several key factors: the lack of knowledge about deafness among teachers and peers, the minimal engagement of deaf/HH students in collaborative activities, and the persistent language barrier, particularly the absence of sign language proficiency.

Another study that yielded similar findings to this research paper was conducted by Alanazi (2021). This study highlighted several crucial elements: the implementation of comprehensive programs that include early sign and spoken language instruction to effectively tackle the communication and interaction challenges faced by deaf students; the provision of official training sessions aimed at

enhancing sign language proficiency, social skills, and awareness among deaf students, their peers, and teachers in inclusive environments, and the establishment of communication training centers designed to educate the broader community on how to interact with and support deaf students. All of these findings align with the aims and conclusions of this research paper, reinforcing the need for targeted interventions and increased awareness to foster a more inclusive educational experience for deaf learners.

An additional study conducted by Keating (2003), addressed the topic of deaf students' interactions in the classroom. Keating emphasized that, just as deaf children are encouraged to develop skills to adapt to hearing peers, hearing children in classrooms with deaf peers should also be encouraged to cultivate similar skills for effectively engaging with deaf students. This approach would not only enhance peer interactions but also ensure that deaf students have equitable access to all educational opportunities. This perspective aligns with the findings from specialized teachers' responses in section four of the questionnaire, which highlighted the importance of teachers' and peers' knowledge about deafness in enhancing classroom interactions and raising awareness.

The aim of comparing students' classroom interactions in both specialized and mainstream settings was to identify the ideal environment for deaf students. However, based on the responses from teachers in the questionnaire, it became evident that both specialized and mainstream educators face significant challenges in teaching deaf students, highlighting a broader dilemma stemming from various factors, one of which is a misunderstanding of the term "inclusion." The primary goal of inclusion is to provide deaf and hard-of-hearing (HH) students with an educational experience in a supportive atmosphere, surrounded by hearing individuals and facilitated by trained teachers, administrators, and support staff. In contrast, what is often practiced in many developing countries including Algeria, is integration, which focuses on socially integrating disabled individuals into mainstream settings without addressing the specific needs for specialized support and attention they require. In Algeria, deaf and HH students are placed in regular schools alongside hearing peers, where they are expected to learn using hearing-oriented programs that do not account for their unique differences. They are taught by non-specialized teachers who may lack the necessary training and resources, and they interact with peers who are often unaware of the specific needs and conditions of their deaf classmates. These factors have contributed to the failure of implementing an effective inclusion policy, which in practice resembles mere integration rather than a comprehensive support system tailored to meet the needs of deaf students.

The same issue manifests in specialized centers, where despite the available facilities, use of sign language by teachers, and support from specialized teams, deaf students often struggle to connect with the hearing world. In these specialized schools, deaf students may inadvertently isolate themselves even before they are marginalized by society, as they spend the majority of their time in deaf-centric environments that limit their interactions with hearing individuals. This prolonged separation results in a diminished desire to communicate and engage with others outside their community. Consequently, these factors highlight the urgent need to reevaluate the "INCLUSION" policy in Algeria to better reflect the realities of education and to enhance classroom interactions for deaf students within suitable educational frameworks.

10. Conclusion

This study aimed to investigate and compare the classroom interactions of deaf students, their educators, and peers in both specialized and mainstream environments. We adopted a descriptive comparative approach since our objectives were exploratory in nature; we sought to gain further insight into the topic to lay the groundwork for future research projects. Consequently, we utilized what we deemed the most suitable data collection tool for this study -the questionnaire- and selected a sample of 20 teachers, comprising ten specialized and ten mainstream educators.

The collected data were analyzed to address the research questions established at the outset of this project. Most findings aligned with the theoretical framework, revealing notable deviations in classroom interactions based on responses from specialized teachers compared to mainstream educators. These differences manifested in terms of strategies, knowledge, challenges, and the assistive aids employed to foster classroom interactions. The study also confirmed that minimizing communication challenges, utilizing various assistive methods, and ensuring that teachers receive specialized training are crucial for the successful inclusion of deaf and hard-of-hearing (HH) students.

However, the study is limited, as the findings cannot be generalized, they do not represent all Algerian specialized and mainstream classroom interactions for deaf students, given that this research is rooted in a qualitative approach. Nonetheless, this does not prevent the present researchers from offering suggestions intended to guide future local researchers interested in this field. These suggestions include:

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✓ Conducting similar qualitative studies in other regions of Algeria to gain deeper insights and obtain more detailed responses;

✓ Carrying out interviews with both specialized and mainstream teachers, as well as peers, to gather additional data on classroom interactions;

✓ Seeking a universal assessment to measure interactions between deaf teachers and deaf students, as well as interactions among deaf students themselves, in both educational settings to achieve more comprehensive findings.

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