

# ASSESSING HOLISTIC DEVELOPMENTAL GAPS AMONG THE STUDENTS DURING THE COVID-19 PANDEMIC: AN ANALYSIS OF PHYSICAL, SOCIO-EMOTIONAL, AND PERSONAL ASPECTS

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## INTRODUCTION:

The Indian vision of education has always emphasized the importance of holistic development, focusing on the integrated development of the body, mind, intellect, and soul. The above approach emphasizes that education is about developing kind, knowledgeable, and well-rounded people rather than merely assisting students to achieve intellectually. Addressing students' physical, emotional, ethical, moral, cultural, social, and intellectual requirements is crucial for advancing the nation into the twenty-first century, according to the National Education Policy 2020 (NEP 2020). The COVID-19 pandemic has challenged the education sector with unprecedented difficulties, disrupting established learning models and emphasizing the necessity for creative and flexible teaching methods (Khari, S. et al., 2024). Students had to address emotional and social issues in addition to intellectual issues, as they made the transition to online study (Li, Y., 2023). The pandemic has underscored the importance of holistic development, as students' overall well-being and resilience have been tested.

With an emphasis on the academic, socioemotional, and physical aspects of students' lives, this study attempts to investigate how the COVID-19 pandemic has affected their overall development. This study aims to inform educational practices and policies that enhance students' overall well-being and foster holistic development by analyzing the opportunities and difficulties brought about by the pandemic. On the basis of a survey of 400 Uttarakhand students, which included 42 items assessing their holistic development, this paper provides an in-depth analysis of various dimensions, such as physical wellbeing, social wellbeing, emotional wellbeing, vocational skills and the personal development of holistic development.

## Holistic development:

Holistic development has gained significant attention in recent years. Various commissions and policies have discussed holistic development from time to time. While earlier policies and commissions have touched upon various aspects of holistic development, the National Education Policy 2020 stands out for its comprehensive and integrated approach towards the holistic development of learners. The National Policy on Education of 1968 laid the groundwork for holistic development by emphasizing National Integration, i.e., promoting unity while respecting diversity and fostering a sense of national belonging; Moral and Ethical Values, i.e., Infusing education with values such as secularism, democracy, social justice, and equality; and Vocational Education, i.e., providing students with the skills necessary for the job market. The National Education Policy of 1986 focused on vocational training for students and value-based education. Currently, the National Education Policy 2020 recommends a robust structure for the holistic development of learners.

## Impact of COVID-19 on students' well-being:

The COVID-19 pandemic has drastically affected the holistic development of students. Loades et al. (2020) conducted a systematic review on the impact of **social isolation and loneliness on the mental health of children and adolescents** during the COVID-19 pandemic. They reported strong evidence that students might experience depression and anxiety due to social isolation and loneliness. The longer the duration of loneliness is, the greater the chance of experiencing depression or mental health issues. In their study, they concluded that loneliness is the major contributor to disturbing mental well-being (Golberstein et al., 2020). In their study, two main things were highlighted: first, owing to the closure of schools, the preexisting structure of school-based mental health services disrupted, and second, this disruption affected more or less people, but the most vulnerable ones, such as those who already had mental health issues or families in low-income groups, were impacted the most.

Dhawan (2020) explored the **shift to online learning during the COVID-19 crisis** and conducted a **SWOC analysis** (strength, weakness, opportunities, challenges). Although the primary focus is on the effectiveness and challenges of online learning, the study also **touches upon the mental well-being of students**. She clearly mentioned that social isolation leads to stress, fear, anxiety, depression and insomnia. She further suggested the flexibility of using blended modes for better social relationships, which in turn will contribute to their proper mental health.

## Physical Well-being and COVID-19:

According to Moore et al. (2020), during the early COVID-19 lockdown, Canadian children's levels of physical activity significantly decreased, whereas their screen usage significantly increased. The use of inactive screens increased sharply, often tripling, whereas the majority of active movement activities, such as sports and outdoor play, decreased. According to parents, screens were both an inevitable default in interrupted daily routines and an aid for stress management. Taken together, these results point to a trend toward inactivity that, if left unchecked, could endanger physical health.

Chinese youth experienced significant decreases in physical activity during the COVID-19 lockdown, with fewer fulfilling suggested weekly exercise thresholds and more time spent inactive, according to Xiang et al. (2020) and related Chinese cohorts. Significant weight increases and decreases in aerobic fitness, strength, and endurance—all of which are markers of weakened physical health—correspond with these behavioural changes. Despite some post-lockdown recovery, many people's levels of physical fitness were still lower than they were before the pandemic. In the absence of focused physical activity programmes, these patterns raise questions about the long-term effects on youth health.

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### Socio-Emotional wellbeing and COVID-19:

The pandemic has highlighted the importance of socioemotional learning (SEL) in promoting students' well-being and resilience. According to Durlak et al. (2011), evidence-based social and emotional learning (SEL) programmes reduce anxiety and depression, enhance self-management, and increase prosocial behaviour. These effects are small to moderate. The findings highlight the ability of the SEL curriculum to promote emotional resilience during crises, although it was conducted before COVID-19. According to research on education during pandemics, SEL incorporated into online or hybrid learning models can help students adjust to interrupted learning environments, reduce feelings of loneliness, and promote mental health.

The intentional use of digital learning tools that integrate mindfulness, emotional regulation, and collaborative reflection promotes emotional well-being, even though Jones & Kahn (2017) did not explore COVID-19 specifically. On the other hand, excessive social media use and other forms of passive screen exposure are linked to increased anxiety and social disengagement. These observations are particularly helpful in the context of pandemic-era schooling, where children's emotional well-being can be protected by active, balanced digital involvement. This review helps identify the existing gaps in practice and the significance and potential of learner-centered approaches. Thus, the current study is grounded in this literature to examine how students' overall well-being was impacted during and after the pandemic and how educational interventions can be better aligned to support their holistic development in line with the vision of the NEP 2020.

**Research objectives:** The research is carried out

- The gaps in the holistic development (physical, social, emotional, vocational and personal) of students due to the COVID-19 pandemic situation have been studied.
- Inform educational practices and policies that enhance students' overall well-being and foster holistic development by analyzing the opportunities and difficulties brought about by the pandemic.

### METHODOLOGY:

The present study was conducted during the COVID in one of the states in the northern region, Uttarakhand. To explore the gaps in the holistic development of primary students (classes 3 and 5) during the COVID-19 pandemic, a mixed research design and survey method were adopted. The learning gaps in holistic areas were studied with the help of a checklist that was administered to learners. The study yields both quantitative and qualitative data for which a mixed method design was used for data analysis.

### Sample of the study:

A sample for this study was selected via a random sampling method. Initially, from the northern region, the state of Uttarakhand was selected randomly. As a planned strategy for maintaining uniformity, two districts (one aspirational and one general) were selected randomly by consulting state officials. Two blocks (one rural and one urban) were then selected randomly from each district. From each block, 10 primary schools were considered. Two teachers and 20 students from each school were selected.

### Distribution of samples:

Sample	Tehri Garhwal	Haridwar	Total
Rural Schools	5	5	10
Urban Schools	5	5	5
Students	200	200	400
Teachers	20	20	40

**Tools used for the study:** The investigator used the following self-developed tools for data collection as per the objectives of the study.

- Checklist for students to study holistic development
- Questionnaire for teachers to study challenges in holistic development
- Focused group discussion for students to study the progress of their holistic development

### Checklist for students:

This tool was used to study the holistic development of children during the COVID-19 period. The tool is designed to check the specific information, such as physical wellbeing (I like to play with friends, I brush my teeth every teeth, drink water regularly, participate in), social wellbeing (I like to share my things, I interact with neighbors, mingle with classmates), emotional wellbeing (I feel lonely at school, I feel nervous at school, I feel bad when someone hurts my friend), vocational skills (I can draw closed figures, I have good handwriting, I can measure the length and breadth of geometric figures), and personal skills (I easily communicate with teachers, I put waste material in dustbin, I follow the rules, and I learn lessons from YouTube). The checklist consists of 42 statements related to physical, social, emotional, vocational and personal skills followed by YES or NO options.

### Questionnaire for teachers:

The aim of this tool is to study the views of teachers regarding the challenges faced in the holistic development of students during the COVID-19 pandemic. A total of six questions is prepared on the basis of different key areas. The questions are like to mention the gap in the holistic development of learners, the gaps confined to the disadvantaged section, and what innovations are done by you in facilitating holistic development. All the items are open ended in nature.

### Focused Group Discussion for students

This tool was used to study the views of students regarding problems and challenges they faced during the COVID-19 pandemic. The researcher formed a group of 10 students from each standard III and V school and administered this tool. The challenges faced by the students in continuing their studies are related to access to devices, electricity, networks, etc., and what kind of support they had received from parents, teachers and parents in operating devices. Furthermore, what are the difficulties they face in motor development, health and well-being? The challenges they faced in continuing learning despite support from parents and teachers during the COVID-19 pandemic were also explored.

### DATA ANALYSIS AND INTERPRETATION

The data collected from various stakeholders were entered into the Excel sheet for analysis. The appropriate codes were prepared for analysis. The data collected from students about holistic development are analyzed in terms of frequency and percentage, and the data are presented tabularly. The data gathered from the teachers were analyzed thematically via intensive reading and contextualizing.

### Learning gaps in the domains of holistic development of learner

The holistic development of the learners studying in classes 3 and 5 was studied via a checklist and analyzed in terms of frequency count and percentage, which are presented in the following section.

#### Physical wellbeing

Sl. No.	Items	No (F & %)	Yes (F & %)
1	I wake up early in the morning.	7 (1.75)	393 (98.25)
2	I brush my teeth every day	18 (4.5)	382 (95.5)
3	I do not like to take baths every day.	215 (53.75)	185 (46.25)
4	I wash my hands before taking food	8 (2)	392 (98)
5	I like homemade food.	9 (2.25)	391 (97.75)
6	I drink water at regular intervals.	45 (11.25)	355 (88.75)
7	I like to play outdoors.	45 (11.25)	355 (88.75)
8	I like to spend time by watching TV and mobile	229 (57.25)	171 (42.75)
9	My parents allow me to play outside	86 (21.5)	314 (78.5)

The above data provide valuable information regarding positive habits as well as trends. For example, almost all the students woke early in the morning, brushed their teeth, washed their hands before they consumed food, such as homemade food and drinking water at regular intervals, and wanted to play outdoor games; however, some worrisome issues, such as almost 88% of the students wished to play outside, whereas 78% of the parents were allowing their wards to go outside. A significant number of the students spent time watching TV and mobile, which may have contributed to a sedentary lifestyle and negatively impacted physical health, and more than 50% of the students were unlikely to take baths every day, which may indicate a need for improvement in personal hygiene practices.

### Implications for educational functionaries in light of NEP 2020:

As emphasized in the National Education Policy (NEP) 2020, the data highlights the importance of encouraging students' physical well-being. These findings can be used by educators to do the following:

- Programmes that encourage regular bathing, outdoor play, and physical activity while limiting screen time should be created to develop targeted interventions.
- Promote parental participation: Encourage parents to let their children participate in outdoor activities to support students' physical health.

- These programmes include physical education and wellness, in the curriculum to promote physical well-being and support the NEP 2020's focus on holistic development.

Educational functionaries can assist students in forming healthy habits and enhancing their holistic well-being by addressing these disparities in physical well-being, thereby supporting the objectives of the NEP 2020.

#### Social wellbeing:

Sl. No.	Items	No (N & %)	Yes (N & %)
1	I like to play with friends.	33 (8.25)	367 (91.75)
2	I like to play video games rather than interacting with parents/siblings.	278 (69.5)	122 (30.5)
3	I feel lonely at school.	339 (84.75)	61 (15.25)
4	I like to share my things (pencil/water bottle etc.) with friends.	47 (11.75)	353 (88.25)
5	I like to interact/talk with neighbours.	119 (29.75)	281 (70.25)
6	I like to mingle with classmates.	45 (11.25)	355 (88.75)
7	I like to participate in school activities.	10 (2.5)	390 (97.5)
8	I feel happy after talking with friends.	19 (4.75)	381 (95.25)

The data provides valuable insights into the social well-being of learners, highlighting both positive and alarming trends. More than 90% of the students wanted to play with their friends and were happy after talking with their friends, suggesting that the students valued social relationships and friends. Most of the students wanted to participate in the school activities. Most of the students wanted to mingle with their classmates, suggesting that the students were generally socially engaged and liked to share their things such as pencil and water bottles with their friends, indicating a sense of cooperation and generosity. However, some bothering trends, such as more than 30% of the students preferred playing video games over interacting with parents and siblings, which may indicate a lack of social interaction and deepening of relationships with family members. More than 15% of the students reported feeling lonely at school, which is a concerning trend that may indicate social isolation or difficulties with peer relationships.

#### Implications for educational functionaries in light of NEP 2020:

Encouraging social-emotional learning: The data emphasizes how crucial it is to encourage social-emotional learning (SEL) abilities, including communication, empathy, and cooperation, to increase students' social wellbeing. Promoting balanced social connections: Teachers can help students maintain healthy relationships with their friends and family by encouraging them to balance their online and offline social contacts. Addressing social isolation and loneliness: Educational institutions can employ tactics such as peer support groups, counselling services, and inclusive teaching methods to combat these issues.

#### Emotional wellbeing

Sl. No.	Items	No (N & %)	Yes (N & %)
1	I do not get irritated when the internet connection gets interrupted.	175 (43.75)	225 (56.25)
2	I feel nervous at school.	254 (63.5)	46 (11.5)
3	I easily get angry.	261 (65.25)	139 (34.75)
4	I am feeling happy in the company of friends.	44 (11)	356 (89)
5	I am not afraid of classwork.	159 (39.75)	241 (60.25)
6	I get irritated when my parents do not fulfil my demands.	272 (68)	128 (32)
7	I am afraid of examinations.	272 (68)	128 (32)
8	I feel bad when somebody hurts my friend.	57 (14.25)	343 (85.75)

The data provides valuable insights into the emotional well-being of learners, highlighting both positive and concerning trends. The data clearly show that a significant percentage (89%) of the learners feel happy in the company of friends, indicating that social relationships play an important role, whereas more than 85% of the students are emphatic toward their friends, as they feel bad when their friends are hurt, and more than 60% of the learners are not afraid of their classwork, indicating their confidence in their academic ability. These data are reversed in regard to examination, which is a concerning trend that may impact their emotional well-being. Approximately 56% of the students become irritated when their internet connection is interrupted, and approximately 35% of the students agree that they easily become angry. This suggests that some students may struggle with managing their emotions, particularly in frustrating situations.

### Implications for educational functionaries in light of NEP 2020:

- As underlined in the NEP 2020, the data emphasizes the crucial role of fostering emotional intelligence and well-being among students. Teachers can create plans to help students become more self-aware, empathetic, and emotionally stable.
- To assist students in overcoming social and academic demands, schools can use stress management and anxiety reduction strategies such as mindfulness, counselling, or relaxation techniques.
- Educational functionaries can focus on building resilience and confidence among students, particularly in areas where they feel anxious, such as examinations.

### Vocational skills

Sl. No.	Items	No (N & %)	Yes (N & %)
1	I have good handwriting.	69 (17.25)	331 (82.75)
2	I can operate a mobile/laptop.	143 (35.75)	257 (64.25)
3	I can draw close figures (circles, triangles).	69 (17.25)	331 (82.75)
4	I can measure the length and breadth of geometric figures.	85 (21.25)	315 (78.75)
5	I complete the project/ homework on time.	36 (9)	364 (91)
6	I like to do household works	85 (21.25)	315 (78.75)
7	I complete my homework independently	34 (8.5)	366 (91.5)

The above data indicates the strengths and areas of improvement in terms of vocational skills. The data indicates that most of the students have good handwriting skills, indicating the strong writing skills of learners, not only writing skills but also drawing skills and measuring skills, which are good enough to indicate a good grasp of practical skills. More than 90% of the students completed homework on time as well as independently. The concerns are that some learners are not prepared beyond academics, as more than 35% of the students are not able to operate mobile phones/laptops.

### Implications for educational functionaries in light of NEP 2020:

- The data underline how crucial it is to offer students training and vocational education that helps them be prepared to handle the workforce. Since the NEP 2020 highlights the importance of vocational education and skill development, educational institutions may focus on providing learners with the necessary training and skills.
- To guarantee that students are adept at using technology and digital tools, educational officials might incorporate technical skills into the curriculum.
- On the basis of the data, it appears that students are gaining practical skills. To encourage vocational skills, educational institutions should continue emphasizing hands-on learning and project-based evaluations.

### Personal development skills:

Sl. No.	Items	No (N & %)	Yes (N & %)
1	I easily communicate with teachers.	43 (10.75)	357 (89.25)
2	I plan time to manage homework and play.	94 (23.5)	306 (76.5)
3	I face difficulty in completing schoolwork.	282 (70.5)	118 (29.5)
4	I do my work (arranging books/notes/dress/shoes).	62 (15.5)	338 (84.5)
5	I help to keep the school and classroom neat and clean.	14 (3.5)	386 (96.5)
6	I put waste materials in the dustbin.	36 (9)	364 (91)
7	I follow the school rules.	22 (5.5)	378 (94.5)
8	I attend school regularly	37 (9.25)	363 (90.75)
9	I learn lessons from YouTube	167 (41.75)	233 (58.25)
10	I lost interest in wearing school dresses	326 (81.5)	74 (18.5)

The above data indicates the strengths and areas of improvement in terms of personal development skills. The majority of the learners follow school rules, attend school regularly, and are not hesitant in communicating with their teachers. They not only are regular in school but also keep their surroundings neat and clean and arrange their books/notes/shoes/dress regularly. The trend indicated by the data is that 58% of learners learn lessons from YouTube and ensuring that students use credible and reliable sources of information is essential.

### Implications for Educational Functionaries in Light of NEP 2020:

- Life skills education: The data highlights the importance of incorporating life skills education, such as time management, responsibility, and environmental awareness, into the curriculum, as emphasized in NEP 2020.
- Support for students with difficulties: Educational functionaries can provide additional support to students who face difficulties in completing schoolwork, such as tutoring or mentoring programmes.



- Promoting responsible behavior: Schools can continue to promote responsible behaviour, such as environmental awareness and adherence to rules, through various initiatives and programmes.

By understanding these trends and areas for improvement, educational functionaries can develop targeted interventions to support learners' personal skills and promote holistic development, as emphasized in the NEP 2020.

- As highlighted in the NEP 2020, the data emphasizes the value of including life skills education, such as time management, responsibility, and environmental awareness, in the curriculum.
- Teachers can offer extra help, such as mentorship programmes, to students who struggle to finish their tasks.
- Through a variety of projects and activities, schools can encourage responsible behaviour, such as respect for the environment and following rules.

#### Analysis of questionnaire for teachers:

When the data obtained from the teachers' questionnaires were analyzed, the following points were highlighted:

- COVID has also affected the physical health and mental wellbeing of learners due to a lack of physical activity. The teachers reported that students have low immunity, low vision, low attention span and increased irritability. Some of the teachers reported the addiction of students to digital devices.
- The COVID outbreak has sensitized students towards their health and hygiene. They are more health conscious now than before.
- In view of the personal and social development of the students, the teachers reported themselves to be less cooperative and like to be alone. The students prefer individual games in place of team-based games. The teachers observed a lack of concentration, mood swings and irritability among the students.
- The pandemic has drastically affected the social adjustment nature and life skills of students.
- The use of gadgets and the ability to reside only at home for more than 2 years affected the motor skill development of the students. However, some teachers believe that no significant changes have been observed among the students.
- The teachers observed gaps in the holistic development of learners belonging to disadvantaged areas such as rural areas and SCs and STs. The students who belong to these classes and areas have suffered more due to a lack of employment, shifting to villages/other places. The students in the belonging area/class reported having less access to digital resources. However, some teachers believe that no significant difference has been observed among students in holistic development.

#### Some additional input received from the focused group discussion with learners:

- When the students were asked about their health and well-being during the pandemic period, they expressed their fear of becoming sick. To develop their motor skills, the students responded that they used to play domestic games such as Ludo, Carom, Chess, Rope Jumping, Badminton, Pakdam-Pakdai and kite flying. The students also responded that sometimes they experienced sadness and loneliness as they wanted to move from their houses and play with others.
- The COVID-19 pandemic has inculcated good habits of washing hands and has created awareness of being healthy and hygienic.

#### CONCLUSION:

This study affirms that holistic development, as strongly emphasized in the National Education Policy (NEP) 2020, is not merely an educational ideal but also a crucial necessity, particularly during crises such as the COVID-19 pandemic. NEP 2020 aims to foster the physical, emotional, social, and cognitive development of each child. The pandemic revealed critical shortcomings in these domains, highlighting the necessity of incorporating life skills, socioemotional learning, health education, and digital literacy into the core curriculum. The findings advocate educational approaches that are learner-centered, inclusive, and flexible, fostering resilience, empathy, and well-being. Enhancing the support ecosystem, comprising educators, families, and communities, in accordance with the NEP 2020 is essential for ensuring comprehensive development in children. Educational policies and practices should prioritize school readiness programmes, emotional support systems, and community-based initiatives to effectively rebuild and sustain student well-being in the post pandemic era.

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#### REFERENCES:

1. Dhawan, S. (2020), Online Learning: A Panacea in the Time of COVID-19 Crisis, *Journal of Educational Technology Systems*, 49 (1): 5-22. <https://doi.org/10.1177/0047239520934018>
2. Durlak J. A., Weissberg R. P., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B. (2011), The impact of enhancing students' social and emotional learning: a meta-analysis of school-based universal interventions. *Child Dev.* 82(1):405-32. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>

3. Dunton, G.F., Do, B. & Wang, S.D. (2020), Early effects of the COVID-19 pandemic on physical activity and sedentary behavior in children living in the U.S.. *BMC Public Health* **20**, 1351. <https://doi.org/10.1186/s12889-020-09429-3>
4. Golberstein, E., Wen H., Miller, B. F. (2020) Coronavirus Disease 2019 (COVID-19) and Mental Health for Children and Adolescents. *JAMA Pediatr.* 174(9): 819–820. doi:10.1001/jamapediatrics.2020.1456
5. Jones, Stephanie M. and Kahn, Jennifer, The Evidence Base for How We Learn: Supporting Students' Social, Emotional, and Academic Development. Consensus Statements of Evidence from the Council of Distinguished Scientists, *National Commission on Social, Emotional, and Academic Development, the Aspen Institute* (2017)
6. Li, Y., Doewes, R. I., Al-Abyadh, M. H. A., & Islam, Md. M. (2023). How does remote education facilitate student performance? Appraising a sustainable learning perspective midst of COVID-19. *Economic Research-Ekonomska Istraživanja*, 36(3). <https://doi.org/10.1080/1331677X.2022.2162561>
7. Loades, M. A. (2020), Rapid Systematic Review: The Impact of Social Isolation and Loneliness on the Mental Health of Children and Adolescents in the Context of COVID-19, *Journal of the American Academy of Child & Adolescent Psychiatry*, 59 (11), 1218-1239. DOI: 10.1016/j.jaac.2020.05.009
8. Moore, S.A., Faulkner, G., Rhodes, R.E. et al. (2020), Impact of the COVID-19 virus outbreak on movement and play behaviours of Canadian children and youth: a national survey. *Int J Behav Nutr Phys Act* 17, 85. <https://doi.org/10.1186/s12966-020-00987-8>
9. National Education Policy 2020, [https://www.education.gov.in/sites/upload\\_files/mhrd/files/NEP\\_Final\\_English\\_0.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf)
10. Khari, S., Salimi Akinabadi, A., Zarmehrparirouy, M., Pazokian, M., NakhostinMoghadam, A., Ashtari, M., Ashtari, S. (2024). Student views on course quality and virtual education during COVID-19: impact on academic performance. *International Journal of Health Promotion and Education*, 1–14. <https://doi.org/10.1080/14635240.2024.2331483>
11. Xiang, M. Q., Tan X.M., Sun, J., Yang, H.Y., Zha,o X.P., Liu, L., Hou, X.H., Hu, M. (2020) Relationship of Physical Activity With Anxiety and Depression Symptoms in Chinese College Students During the COVID-19 Outbreak. *Front Psychol.* 20;11: 582436. doi: 10.3389/fpsyg.2020.582436.