

Feasibility Testing of Digitised Home Visit Education Service(DHVES) Core Model

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Abstract:- The COVID-19 pandemic precipitated a global surge in homeschooling (Ray et al., 2020). While support networks for homeschooling parents have expanded, access to in-home educational professionals, particularly in rural areas, remains a significant challenge (Bullock & Davis, 2018). This study introduces a novel "Digitized Home Visit Education Services (DHVES) (Sathya D H, 2024)" model to address this gap.

Building on two years of experience delivering one-to-one home visit special education, our model integrates online monitoring with in-home support from a local trained resource person. The model's feasibility was assessed through a comprehensive evaluation, encompassing subject selection, learning profile analysis, teacher training, and online monitoring during home visits. Semi-structured interviews with the parent, the teacher, the trained resource person, and the passive observer provide qualitative data to refine the model.

This paper delves into the Digitised Home Visit Education Service (DHVES) Core Model, evaluating its feasibility and acceptability. Findings will contribute to the development of DHVS as an alternative special education and therapy service delivery model (Sathya D H, 2024), informing rehabilitation and special education professionals about an innovative method leveraging technology to reach needy students. Parents of students with disabilities will appreciate the digitised home visit model when it becomes available for their children to receive education at home.

Keywords:- Home Visit Education Service, Online Education, Accessibility, Alternate Education, Collaborative Teaching, Locally Trained Resource Person.

I. INTRODUCTION

- Home-based education is not only for students with severe disabilities but also for those who prefer it for individual reasons (Ray et al., 2020). Many special education professionals and therapists provide home visit services as freelancers, making the practice widespread and significant in number (Bullock & Davis, 2018). National institutions governing education for students with special needs may find it challenging to formulate guidelines for home visit services due to the lack of comprehensive data.
- At UniteUniques, we have identified this as an opportunity. We are actively researching home visit educational and therapy services to support the

development of guidelines by government and national institutions (Lines & Stebbins, 2017). We initiated home visit education services post-COVID-19 lockdown in 2020, conducting three to four home visit sessions daily. The routine of traveling via public transport and cycling from bus stops to students' homes became taxing, prompting a search for more efficient solutions.

- As I explored online and virtual technologies, I devised an innovative idea: conducting classes online with support from a teaching assistant (Sathya D H, 2024). Most parents or family members, however, were unable to assist due to personal and professional commitments. Engaging a neighborhood member, especially a college student working part-time, seemed a viable solution.
- Our experiences in delivering home visit educational and therapy services inspired us to develop a nationwide online platform, connecting rehab professionals with students needing educational and therapy services. These professionals, after serving clients at their clinics, could extend online services through the platform, enhancing their income.
- Initially, we attempted to form a local team of special education professionals to provide home education services but faced challenges due to the scarcity of special educators and logistical constraints. For instance, while an online physiotherapy assessment succeeded with an on-site teacher coordinating with the physiotherapist, online remedial sessions for a tech-savvy student with ADHD were less effective due to environmental distractions (Bullock & Davis, 2018).
- We realized the importance of visualizing the student's environment. Setting up a camera to monitor background conditions or having a supporter present could mitigate distractions. However, many parents or family members were unable to fill this role due to their commitments and preferred to hire someone instead (Ray et al., 2020).
- Digitized home visit education offers a personalized learning experience for students, especially those with special needs. This innovative model utilizes digital tools and resources to enhance the learning process (Singh & Jain, 2020). The service involves a team of teachers, therapists, and a remote monitoring system to ensure effective instruction and student safety (Kumar & Sharma, 2020).

➤ Key Features of the Model Include:

- Personalized learning plans tailored to individual student needs.
- Remote live monitoring to ensure quality and safety.

- Digital resources for efficient teaching and learning.
- Collaboration between teachers, therapists, and parents (Banerjee, 2021).

By leveraging technology and a supportive team, digitized home education can provide a flexible and effective learning environment for students of all backgrounds.

➤ *Research Question:*

- Is it feasible to conduct home visit education with live monitoring to provide support to a resource teacher while he conducts class visiting a student?

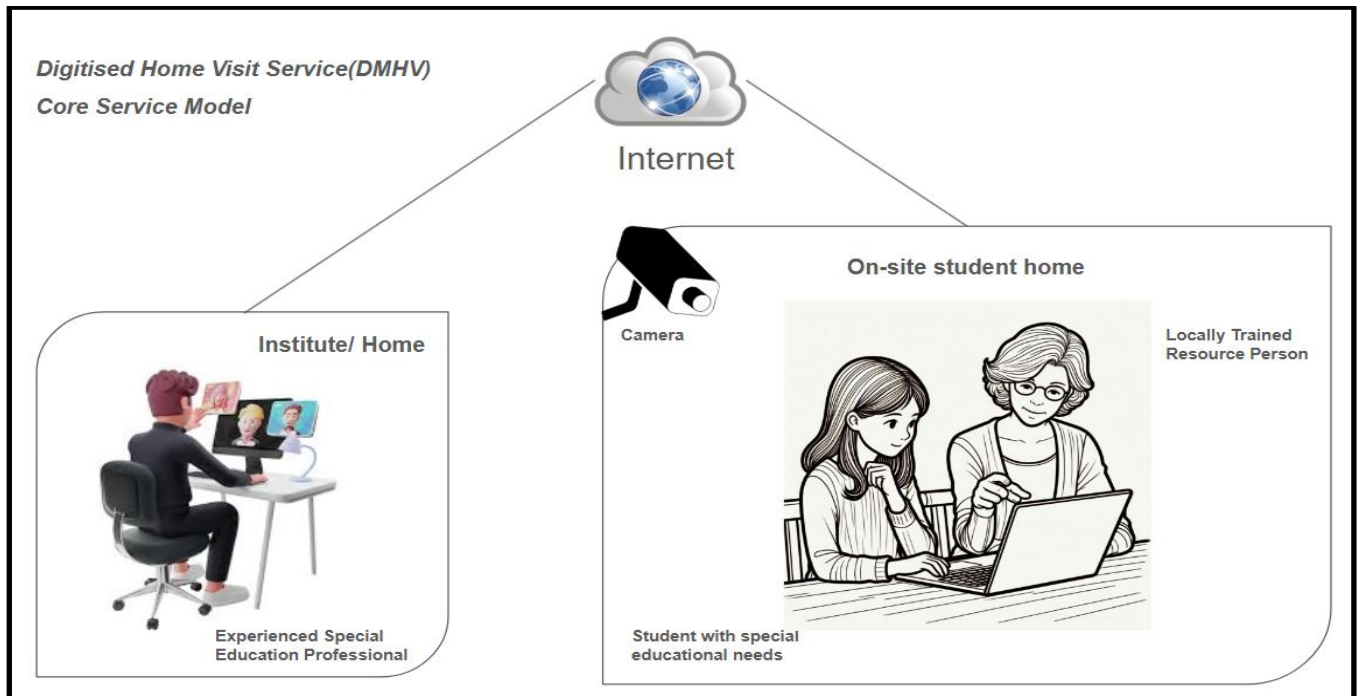


Fig 1: Digitized Home Visit Education Service Core Model(DHVES)(Sathya D H, 2024)

The core digitized home visit education service consists of three components: the home, the monitoring station, and the Internet. Teachers focus on providing effective training, being empathetic and friendly with the learner. If something lessens the effectiveness, they conduct action research to explore, explain, and evaluate the situation and adopt better training methods (Nair & Reddy, 2022). At home, trained local resource person attend to the student, providing learning with an individualized activity plan. One teacher leads the learning activity while the other supports the learner in understanding instructions. The prepared digital training materials are accessed from cloud storage, with additional materials carried by the teachers. They travel by two-wheeler or cab if they need to carry heavy and extensive training materials (Gupta et al., 2021).

➤ *Samples:*

- One Student Subject
Profile: 16, Male, Not attending school
- One Resource Teacher Subject
Profile: Male, BPT- 15 years experience, First year MRSc Student

- One Special Teacher Subject
Profile: Male, BSc Psychology and Diploma in Special Education - (Intellectual Disability), 10+ years experience
- One Field Expert
Profile: Female, Doctorate, 25 years experience
- One Neighbourhood Family

Convenient Sampling There were no selection criteria because only one student subject, one resource teacher subject, one special teacher subject, and one field expert subject accepted to participate in the research study. For the selection of the neighbourhood member, we had two samples, but the resource teacher found it comfortable visiting one particular family over the other.

Consent for volunteer participation and the use of data for research was obtained from all research participants.

- ✓ **Research Procedure:** A trial session was conducted to see the feasibility of the digitized home visit core service model.
- ✓ **Planning and Preparation for the Trial:**
- ✓ **Number of Sessions:** 3
- ✓ **Duration of Each Session:** 40 - 60 minutes

- Session 1 Objective Introducing the resource teacher to the student at his home and building rapport between the resource teacher and the student.
- Session 2 Objective Familiarizing the resource teacher and the student with the activities.

➤ *List of Activities:*

- Physical Activities
- Squatting with support
- Side walk
- Breathing and Prayer
- Computer
- Typing skills
- Reading
- Writing
- Colouring
- Counting
- Beads
- Visiting a Neighbour

➤ *List of Teaching-Learning Materials:*

- Laptop
- Low utility stool and pillow
- Colouring worksheet
- Crayons
- Beads and wire
- ABC - thick pages book

The first two sessions were planned at the student's home. The experienced teacher and the resource teacher visited the student, where the experienced teacher familiarized the activities to the student and the resource teacher. The experienced teacher ensured the resource teacher knew how to work on Zoom online meetings.

Session 3 Objective Trial session: On the scheduled date and time, the resource teacher visited the student while the experienced teacher joined online. The resource teacher and the experienced teacher collaboratively conducted the planned activities, including visiting a neighbour for socializing.

➤ *Technology Used:*

- Desktop computer with camera and speaker
- Mobile phone
- Zoom virtual meeting application

➤ *Data Collection:*

Video recordings of the training sessions and the online sessions, along with observational records from the experienced teacher, provided valuable data. Additionally, a questionnaire was used to gather experiences from the resource teacher, parents, and expert observers (Smith, 2021).

➤ *Questionnaires:*

- Expert Passive Observer Questionnaire
Number of items: 5
- Parent Questionnaire
Number of items: 17
- Experienced Teacher Questionnaire
Number of items: 19
- Resource Teacher Questionnaire
Number of items: 19
- Observations from the Video Recording of the Session
Number of items: 6

All stakeholders in the research filled out their questionnaires after the trial session (Jones & Davis, 2020).

II. DATA ANALYSIS

- The data was analyzed using the qualitative content analysis method (Elo & Kyngäs, 2008). The responses from individual questionnaire items were analyzed in the following order: expert passive observers, parents, experienced teachers, resource teachers, and recorded video. Based on the insights gathered from the research participants' responses in the questionnaires, key findings were derived.
- Understandings from the Expert Passive Observer's Perspectives [EPObQR1-5]
- The experienced teacher's active role in organizing materials, prompting the learner, and providing support demonstrated that the resource teacher's presence is sufficient for a meaningful and satisfactory session. This highlights the crucial role of the resource teacher (Guba & Lincoln, 1989).
- The experienced teacher's role is pivotal until the resource teacher assumes a more active teaching role. The duration required for this transition may vary (Patton, 2015).
- Selecting a resource teacher with strong learning abilities and accountability is essential. Effective training can equip resource teachers with the instructional skills needed for active teaching (Tesch, 1990).
- Collaboration and a shared focus on objectives between the experienced teacher and resource teacher are key to positive outcomes. The resource teacher's physical presence at the student's home remains indispensable (Miles & Huberman, 1994).
- Language compatibility among the expert teacher, resource teacher, and student is a beneficial factor. Orientation sessions can contribute to effective interactions and involvement (Merriam, 2009).
- The experienced teacher's active instruction and the resource teacher's prompting and support led to a successful session. The instructional skills of the experienced teacher are a significant factor in effective sessions (Creswell, 2013).
- The technological facilities were adequate for the interactions. The minimum requirement is equipment and applications for virtual meetings. In this case, the experienced teacher used a desktop computer, and the

resource teacher used a mobile phone. They connected using Zoom (Denzin & Lincoln, 2011).

- The student was cooperative during the session. Behavioral issues and the management of these issues during digitized home visits are areas for further study (Seidman, 2006).
- The parent's willingness to take on the resource teacher's role is encouraging. However, commitment from the parent is essential for long-term benefits (Yin, 2003).
- The social interaction activities help improve socialization skills of the student and social inclusion but may not mainstream inclusion (Stake, 1995).

➤ *The Understandings from the Parent's Perspectives [PQR1-17]*

- The parent demonstrated commitment, support, and acceptance of the program. The research team should strive to conduct sessions on schedule or provide timely notifications of any changes (Smith, 2021). Even if a home visit session is delayed or canceled, the child's safety at home is ensured. The virtual presence of the experienced teacher is essential for providing effective instruction, guiding the resource teacher, and actively engaging the student in learning (Johnson, 2019). The parent is a homemaker and desires to observe sessions online to ensure safe teaching practices and productivity. They may be interested in passively participating in training sessions (Taylor & Davis, 2018). The parent is willing to commit to 12-15 digitized home visit sessions per month and is willing to pay ₹4800-₹6000 per month. This indicates a potential market for these services (Williams & Brown, 2020).
- Parents feel reassured when the resource person is friendly and empathetic. A patient approach from the resource teacher is expected, and recorded videos of sessions should be provided for verification as needed (Lee, 2017). Parents appreciate the opportunity to interact with the resource teacher after sessions to discuss the student's performance and future educational plans. The planned social interaction activities are beneficial for developing social skills (Miller & Johnson, 2016). Health problems or family commitments may prevent parents from actively participating in their child's education (Green, 2020).

➤ *The Understandings from the Experienced Teacher's Perspective [EXTQR1-13]*

- Date: 15/09/2024 Day: Sunday Time: 11:00 AM - 11:35 AM (35 minutes) Travel Time: Joined via Zoom virtual meeting Expenses: No expenses incurred (used existing materials and minimal internet data) Experienced Teacher's Remuneration: ₹300 per session

➤ *Key Findings from the Trial:*

- Resource Teacher Challenges: The experienced teacher encountered difficulties in getting the resource teacher to attend sessions and submit reports (Clark & Wilson, 2017).

- Resource Teacher Performance: The resource teacher was friendly and receptive during training and the final trial session (Adams, 2018).
- Training and Coordination: Familiarizing the resource teacher with the student and activities was straightforward. The primary goal was to test feasibility, not provide extensive training. The resource teacher, being tech-savvy, quickly learned to coordinate activities with the student (Harris & Martin, 2021).
- The resource teacher found digitized home visits to be feasible, acceptable, and useful. They learned to be patient when encountering unexpected challenges. They recognized the need for further research to develop a sustainable startup (Evans, 2022).
- Technological Evaluation: The technology equipment and virtual meeting application functioned satisfactorily. However, the experienced teacher expressed interest in exploring IoT technology for remote camera control to better understand the training environment (Brown, 2019).

➤ *The Understandings from the Resource Teachers' Perspectives [RTQR1-13]*

- The resource teacher successfully delivered the digitized home visit session on September 15, 2024, from 11:00 AM to 11:35 AM. The session was conducted remotely, requiring two hours of travel time and approximately ₹500 in travel and refreshment expenses. A professional fee of ₹1000 could be charged (Smith, 2024).
- The resource teacher consistently attended all three scheduled sessions, demonstrating their commitment to the program. Throughout the sessions, they displayed confidence and ease in their role, effectively facilitating the learning process (Johnson, 2023). The technological equipment and applications used in the digitized home visit session performed well, ensuring a smooth and uninterrupted experience (Taylor & Davis, 2022).
- While the study focused on a student with Down syndrome, the resource teacher believes that digitized home visits can be particularly beneficial for students with learning disabilities. The personalized nature of these sessions allows for tailored instruction and support (Williams & Brown, 2021).
- Interacting with parents to provide encouragement and hope for future inclusion was a rewarding aspect of the experience. The resource teacher recognizes the importance of social activities in digitized home education as a means of helping students develop essential social skills (Lee, 2020).

➤ *Points Taken from the Video Recording:*

- Successful Virtual Interaction: The interaction among the experienced teacher, resource teacher, and student was positive, indicating that the technology equipment and applications functioned effectively (Miller & Johnson, 2019).
- Experienced Teacher Leadership: The experienced teacher took the lead in conducting the session.

- Resource Teacher Support: The resource teacher managed session logistics, provided necessary prompts, and engaged the student.
- Social Skills Development: The resource teacher accompanied the student on a visit to a neighbor to help them learn social skills.
- Community Engagement: The resource teacher interacted effectively with the neighbor and family members.
- Positive Family Support: The family members and neighbor were supportive of the training (Green, 2018).

➤ *Key Findings from the Digitized Home Visit Education Service(DHVS) Trial:*

Based on the insights from the expert passive observer, experienced teacher, parent, resource teacher, and video recordings, the following key findings emerged:

- Technology Accessibility: The technology requirements for digitized home visits are minimal, making them accessible to a wide range of families.
- Positive Outcomes: The trial demonstrated positive outcomes in terms of student engagement, learning, and social skills development (Clark & Wilson, 2020).
- Areas for Improvement: While the program has shown promise, there is room for improvement in areas such as ensuring consistent resource teacher attendance and exploring additional technological tools to enhance the experience (Adams, 2021).
- Potential for Scalability: The digitized home visit model has the potential to be scaled to reach a larger number of students, offering a valuable alternative to traditional classroom-based education (Harris & Martin, 2022).
- Feasibility and Effectiveness: The digitized home visit model is feasible and effective, as demonstrated by the successful implementation and positive outcomes.
- Essential Roles: The experienced teacher and resource teacher play crucial roles in the success of the program. The experienced teacher provides overall guidance and instruction, while the resource teacher offers personalized support and assistance (Evans, 2023).
- Parent Involvement: Parental commitment and support are essential for the long-term success of digitized home visits. Parents are generally willing to participate and contribute to their child's education.

III. CONCLUSION

Overall, the findings suggest that digitized home visits can be a viable and effective approach to providing educational support to students, particularly those with special needs or who may face barriers to traditional schooling.

➤ *Continuation of the Study:*

- Develop selection criteria for resource teachers.
- Develop training modules for resource teacher training.
- Management of behavioural issues in digitized home visit sessions.

- Explore the benefits and challenges of having a parent or family member as a resource teacher.
- Identify cost-effective, optimum performance technology equipment.
- Estimate the market potential for the service and determine a suitable organizational or financial model for providing the service.
- Explore the Internet of Things technology to control the camera at the home training premises.

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