Use of Social Marketing to Improve Science Teaching in Maharashtra, India: 2014–18

28

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This case study is based on personal communication and reports [Lagvankar, (n.d.) (a); (b); (c)] shared by the principal investigator of this project, Mr. Hemant Lagvankar.

Chapter Overview
This case study narrates a story of an India-based educator, Mr. Hemant Lagvankar, whose team trained teachers of grades nine and ten in the public schools of the western state of Maharashtra to improve their science teaching skills and improve the learning levels of students. The social marketing planning process proposed by Lee and Kotler (2015) was employed to elaborate on the steps taken by Mr. Lagvankar's team to design and implement the behavior change initiative. Science teachers were trained in the constructivist education approach (Gruender, 1996) through workshops. The emphasis of the training workshops was to teach how to prepare and use science kits as an aid to better deliver the science curriculum.

Campaign Background

In early 2014, as Mumbai-based educator and science communicator, Mr. Hemant Lagvankar was browsing through the government reports, he lamented the continued education-related challenges that India faced among students enrolled in secondary school grades (grades six through ten, in Maharashtra schools). According to the Indian census reports, the literacy rate in 2011 remained low at 73% (Office of the Registrar General and Census Commissioner, India, n.d.) although it had increased from 64.8% in 2001. Similarly, the dropout rate was

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D. Z. Basil et al. (eds.), *Social Marketing in Action*,
Springer Texts in Business and Economics,
https://doi.org/10.1007/978-3-030-13020-6_28

3.13% in 2012–13 among those enrolled in grades six to eight (National University of Educational Planning and Administration, n.d.) and 14.54% in grades nine and ten. The situation was worse among female students and those belonging to the lower caste. Hemant knew that this dropout rate reflected many socioeconomic factors as well as the difficulties that students faced in science, mathematics, and English subjects. But dropout was not the only consequence of the subject difficulty.

While these statistics painted a grim picture, his experience informed him that the problem ran deep even among those who were currently enrolled in schools. The system failed to deliver the content well, with the result that students continued to show poor understanding in math and science. While several organizations were active in improving literacy among children in India, very few dealt with improving the quality of curriculum delivery, especially in science content in the western state of Maharashtra.

Deep in his thoughts, he pondered.

Rather than just remembering definitions and theories, understanding of concepts by practically witnessing them, and thereby applying those concepts, is an effective way to learn science. Similarly, observations, analysis, validation, and arriving at correct conclusions are the right steps to embrace scientific method. Unfortunately, in our schools, science is taught just by "chalk-and-talk" method. What difficulties do teachers face in carrying out activity-based science instruction in classrooms? How can we deliver better science education to our children? What is the solution to this problem?

Hemant decided to do something about it.

He embarked upon on a systematic, extensive, and grassroots-led teacher-training project to change the landscape of science education and positively influence teaching standards and student experience. He launched this project after working for four years, assembling the team of a nonprofit organization (NYASS Trust), support of school principals and senior teachers, cooperation of the Department of School Education of the Government of Maharashtra, and utilizing resources (such as kits, experiments, and activities that help teachers in the teaching-learning process) developed by several government organizations like the National Council of Educational Research and Training (NCERT), and individual activists like himself, as well as non-governmental organizations.

Hemant implemented the solution proposed by India's India's National Curriculum Framework (NCF) by NCERT (2005) and Maharashtra State Curriculum Framework (SCF) by MSCERT (2010). This approach, popularly called "Activity-Based Science Learning" (ABSL), adopted a constructivist approach of demonstrating science concepts and experiments with science kits in the classroom. Hemant called this project, "Mission NCF 2005 for Science Learning in Classroom" and promoted the use of science kits to equip teachers to be effective educators. Thanks to the vision of Mrs. Ashwini Bhide, then the Principal Secretary of the Department of School Education of Government of Maharashtra, Hemant profusely documented every aspect of his project, a rare practice among social change managers in India.

Target Audience

At the pilot stage, Hemant focused on improving teaching skills among science teachers of grades eight and nine. In the main studies, he shifted his focus to grades nine and ten due to the requirements of Government of Maharashtra's Education Department.

SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats)

Hemant was confident about his success in this intervention because he perceived the strengths and opportunities would overcome the challenges posed by weaknesses and threats.

Hemant had immense prior experience working on improving education standards in Maharashtra, including the capacity to conduct workshops for science teachers. Thanks to this experience and participation in science education movements, he was in close touch with several science teachers in the state. Additionally, by the time he launched this project, Hemant had served as a member of the Curriculum Committee of Primary and Secondary Education of Maharashtra.

Hemant and NYASS also had the advantage of learning from others' experience. Many organizations and even government bodies had in recent past organized teachers training workshops to demonstrate how science teaching aids can be effectively used in the classroom. Previous workshops in other parts of India had revealed that teachers respond well to these workshops and commit to using this method in the classroom. However, teachers do not necessarily follow up on their intentions. To overcome this challenge, Hemant organized meetings with various teachers, organizations, and government bodies and created appropriate teaching material.

Interactions with various stakeholders created one more advantage. Hemant secured their financial and moral support. Schools, school principals, nonprofit organizations, and the state education ministry agreed to partner. The education ministry offered an official endorsement and complete support to the initiative. Similar institutional linkages were established with key organizations working in the field of school education and teacher training such as the District Institute of Education and Continuous Professional Development (DIECPD) and the State Council for Educational Research and Training (SCERT).

However, the biggest challenge was potentially posed by teachers who were reluctant to attend the workshops and to implement the teaching aids in the classroom. Previous experience taught Hemant that teachers found the teaching aids a burden on the already overwhelming syllabus that they had to deliver in a brief period of time and ensure students do well in exams, a key metric for student success as put forth by school principals and parents. Teachers of the older generation were especially reluctant to change their well-established habits. Teachers

were also confused between *teaching aids*, *experiments*, and *scientific toys*.[1] Hemant was aware of these challenges and took steps to overcome these hurdles.

Campaign Objectives

The primary objective of the social marketing intervention was to create and utilize science kits in the classrooms (*actual product* (Lee & Kotler, 2015)) and thus adopt a constructivist approach to science education (*desired behavior*). Teachers were invited to attend workshops organized by Hemant (*augmented product*) to become aware of and get convinced of the superiority of the constructivist approach in science education over the "chalk-and-talk method" (*current behavior*).

Target Audience Analysis

Hemant carefully analyzed the perceptions of his audience group. He knew he had to exploit the benefits teachers perceived from the desired behavior, retain benefits of their current behavior, and reduce barriers from the desired behavior.

Benefits to Desired Behavior (Delivering Science Curriculum Using a Constructivist Approach)

Workshops were expected to improve teacher skills, and use of science kits in the classroom would enable them to teach the concepts more effectively. The ABSL method was a way to enhance student learning, increase involvement in the learning process, and improve grasp of the material that students were likely to remember beyond exam time and the academic year. Students would potentially take ownership of the learning process and come up with creative ways to learn the material. They would thus develop an interest in the science curriculum, which is otherwise considered boring, and appreciate teachers for imparting science lessons in an innovative manner.

Benefits to Current Behavior (Delivering Science Curriculum via Chalk-and-Talk Method)

Teachers, especially of the older generation, were used to teaching in the traditional way, which is well-suited to deliver the syllabus on time and achieve positive test results. This was consistent with the metrics of teacher performance, which did not

[1]Additional threats are discussed in the "Target audience analysis" section.

include increased understanding of science concepts. Teachers felt, "why unnecessarily change the system that is not broken?"

Barriers to Desired Behavior

Teachers perceived the act to create, familiarize with, and use the kit, and modify the curriculum delivery as extra work and time investment, disrupting the habit of teaching science the old way. Combined with the discomfort of embracing the new teaching style, teachers were anxious about the errors and awkwardness they will face in front of students. Teachers were also uncertain whether students will like the science kits and whether they will learn more. In addition to these non-monetary entry costs, teachers perceived incurring the monetary cost of either purchasing the kit or purchasing materials to prepare the kit. Finally, teachers perceived incurring the non-monetary costs (time and travel) of attending the workshop.

Positioning and Marketing Strategy

Factors described in the audience analysis strongly shaped the marketing strategy of Hemant's behavior change initiative. He positioned the NCF 2005 initiative as a mechanism superior to the traditional chalk-and-talk method to empower and transform teachers into excellent educators and positively shape the student learning experience. To deliver this positioning, Hemant crafted the following 4-P marketing strategy.

Product Management

The *core product* (core benefit to the audience) was to enjoy the teaching process and produce better educational outcomes. This benefit and the desired behavior were tangibilized in the form of the *actual product*, a 2-foot by 1-foot science kit packed in a transparent plastic box that weighed less than a kilo (Fig. 28.1). The contents of the kit in the pilot stage highlighted 43 concepts from the science syllabi of grades eight and nine explained through 50 experiments, which were expanded in the main studies to 200 concepts of grades nine and ten syllabi explained via 215 activities. These contents were arranged concept-wise in small plastic bags so that teachers could conveniently carry relevant bags to the class. Support resource materials, in print and digital format, contained PowerPoint presentations, aids to conduct in-class experiments, teaching methods, manuals, and photographs and videos of activities.

The *augmented product* was the workshop that teachers attended and learned how to create and use kits and related resources in their classroom (Fig. 28.2). The training program displayed the following features:

Fig. 28.1 Science kit

Fig. 28.2 Hemant Lagvankar conducting a training workshop with teachers

The interactive program was conducted over five days split into two parts: a two-day workshop on pedagogy and teaching aid development outside his/her school and a three-day support mechanism within the classroom. Each teacher learned how to deliver the constructivist approach by taking an actual lesson followed by receiving feedback from senior teachers regarding his/her on-the-job performance.

The creation and use of kits and support resources were taught by highlighting three broad topics related to grade eight (reflection of light, electric current, and metals and non-metals) and three related to grade nine (why bodies float, energy, and music of sound).

The training took place before the end of August so that teachers could execute the new teaching method in their classrooms on time.

Before, during, and after the training program, digital communication between science teachers, organizing team, government officers, and resource persons was set up to facilitate continuous dialog and support.

Price Management

The barriers to desired behavior were reduced by:

- delivering the training program free of cost to the teachers;
- seeking approval for quality (of content and of the trainers) from the state education ministry, thus giving assurance of high standards;
- ensuring that the workshops were delivered and attended by peers that were known to teachers to reduce stranger anxiety and facilitate improved learning;
- patiently responding to teacher queries, improving their skills and confidence, and encouraging them to embrace the new teaching style; and
- ensuring that the materials used to prepare the kit were something teachers had easy access to and the cost was affordable at INR 1500 (US$23).

Place Management

Organizers ensured convenience by organizing workshops at easy-to-reach locations as well as at the place where they work (their classroom). Convenience was also ensured by restricting kit creation with easy-to-access materials and easy-to-carry concept-wise plastic bags.

Promotion Management

The attractiveness of the training program was communicated with the promise of improvement in teaching skills, empowerment, and enhancement of the student experience. The message was delivered to teachers by school principals on behalf of DIECPDs.

Implementation

Mr. Hemant implemented the project in three parts: the pilot study in 2014, followed by the first main study in 2015–16, and ending with a larger, second main study in 2017–18.

Pilot Study

The pilot study was undertaken in 15 selected schools of two cities of Kalyan and Dombivli in Thane district. The schools represented distinct categories such as municipal schools, government-aided private schools, and non-aided private schools. Each workshop was attended by 25–30 science teachers. The pilot study was funded by the NYASS Trust.

Experts in innovative science teaching were invited to serve as master resource persons (MRPs). The pilot study was implemented in three phases. In the first phase, the kit of teaching aids was prepared, followed by organizing meetings with MRPs and school principals. In the second phase, an action plan was finalized in terms of dates when MRPs will visit the schools. In the third phase, teachers were trained, and observers (representing senior teachers, educationists, parents, and NGOs) were sent to schools to observe teachers perform with and without teaching aids.

Observations of 30 teachers delivering 48 lectures revealed that:

- Teachers liked the kit and its concept-wise categorization, making it easier to carry (Fig. 28.3);
- Few teachers had already used the kit prior to observers visiting them;
- Several teachers actively involved students while using the teaching aids in the classrooms (Fig. 28.4);
- Before the workshop, among a small sample of 25 teachers, 80% envisioned difficulty in implementing the constructivist approach in the classroom. Teachers found the actual experience to be contrary. With teaching aids,

Fig. 28.3 Positive experience of teachers under training

Fig. 28.4 Teacher delivering science curriculum using the science kit

teachers found it easier to explain the abstract concepts of physics and to "show" the chemical reactions;

- Teaching aids allowed teachers to cover the same topic in lesser time;
- Teaching aids benefitted teachers with comparatively weak communication skills as the learning depended less on the communication skills of a teacher;
- Many teachers added their own ideas to the teaching aid kit to teach other lessons as well as other grades;
- Teachers and schools realized that the constructivist approach can be implemented without disturbing their regular school timetable and schedule and that they did not require any extra time to deliver the contents; and
- With teaching aids, students could drive the instructional process. This resulted in an overall increase in student learning and excitement in their participation (Fig. 28.5).

Two representative quotes reflect positive feedback from the participant teachers:

> It was very interesting to teach using activity kits. In this method, students understand the concept clearly. The kit is not only useful for 8th and 9th standard but also for 6th, 7th, and 10th standard. It is also useful for teachers to understand lessons. Students pay more attention in the class when learning takes place through activities. They were very eager, curious and happy to handle the kits.

Fig. 28.5 Positive experience of students with the constructivist approach to science learning

Mrs. Jayashree Walimbe, Mrs. Jayalakshmi Sreeram, and Mrs. Dipti Pore, Greens English High School, Dombivli

Students gets real satisfaction of learning when the concepts get cleared. I experienced this when I prepared Leclanche Cell and showed it in the class. Students enjoy learning through activities and experiments. Though students watch their image in the mirror every day, they enjoyed the class when I took mirror in the classroom to explain reflection of light. The teaching-learning process became enjoyable due to this approach.

Mrs. Rutuja Patankar, Gajanan Vidyalaya, Kalyan

Main Study

Thanks to the positive results of the pilot study, the state education ministry invited Mr. Hemant and NYASS to scale up the study to reach teachers in all 36 districts of the state. The project was coordinated and implemented by SCERT, Pune, and the State Institute for Science Education (SISE), Nagpur, in coordination with NYASS Trust for grades nine and ten. The main study was undertaken into two parts. The first study was conducted in 2015–16 and the second one in 2017–18.

Main Study 1

In phase one, science kits, a teachers' manual, and a CD consisting of presentations, manuals, video, and photograph links were designed by Hemant's team and produced by the supplier selected by the state education ministry. WhatsApp groups, as

well as online networks, were formed at district and regional levels with key stakeholders. In phase two, representatives of each district were trained in a two-day workshop on the content of the audience workshop and the creation and use of the science kit. In phase three, four key resource persons (KRPs) from each district were trained in two-day workshops held in eight regions of the state. In phase four, teachers were trained in 36 two-day workshops at the district level. In each district, 25 schools were selected. In phase five, five MRPs conducted two-day workshops in their district for 25 teachers (one from each district) and took demonstration lessons on the constructivist approach to learning. In phase six, reports from all activities were documented and submitted to the government.

A total of 1,060 teachers were trained through 44 workshops, approximately 30 from each district, out of which five, with state-level training, were capable to serve as resource persons to train their peers for the next level of the project. The training workshops received a positive response from journalists. Several Marathi language newspapers highlighted this effort (e.g., Fig. 28.6).

Main Study 2

The 2015–16 training program was scaled up in 2017–18. In phase one, approximately five MRPs (along with two representatives from DIECPD) from each district were invited back to receive a state-level orientation in a two-day workshop. In total, four workshops were conducted with a total of 175 MRPs and DIECPD attendees from across the state. Later, 315 workshops were conducted August 2017 onward that trained more than 13,000 science teachers in 36 districts of the state. Of these, more than 80% (approximately 10,400 teachers) had changed their teaching style and adopted ABSL (*behavioral outcomes*).

Observations by MRPs and KRPs, monitoring of the effectiveness of the training program with the help of SISE and DIECPD, and a written survey among select participants revealed similar results as the pilot project. Teachers were largely pleased with the training program and reported positive experience delivering the concepts with teaching aids.

Budget

The total budget for the two main studies was INR 290 million (US$4.46 million) funded by the state ministry of education. Funds for the state-level and regional workshops were channelized through SISE, and funds for the district-level workshops were channelized through DIECPD.

११ | मुंबई, रविवार, दि. १३ मार्च २०१६ रविवार विशेष लोकमत

महाराष्ट्रातल्या एक हजाराहून जास्त माध्यमिक विज्ञान शिक्षकांचे प्रशिक्षण अगदी अभिनव पद्धतीने घेण्यात आले. हे प्रशिक्षण 'राष्ट्रीय माध्यमिक शिक्षा अभियाना'अंतर्गत महाराष्ट्र शासनातर्फे घेण्यात आले. या कार्यक्रमाला 'मिशन एसीएफ - २००५' असे नाव देण्यात आले. राष्ट्रीय अभ्यासक्रम आराखड्यात व्यक्त झालेला ज्ञानरचनावाद वर्गाबाहेर पोहोचविण्यासाठी आखण्यात आलेले हे एक मिशन! शासनाच्या अधिकाऱ्यांनीही हा नेहमीचा प्रशिक्षण कार्यक्रम न मानता, 'मिशन' या शब्दाला अपेक्षित असलेला न्याय दिला.

एक अभिनव विज्ञान प्रशिक्षण!

दोन दिवस विज्ञान शिक्षक काहीतरी कृती करत आहेत... विज्ञान प्रयोग स्वत: करून त्यामागचा कार्यकारणभाव समजून घेत आहेत... हे प्रयोग करता-करता प्रत्यक्ष वर्गात एखादी वैज्ञानिक संकल्पना ज्ञानरचनावादी पद्धतीने कशी स्पष्ट करायची, हेसुद्धा शिकत आहेत.... आणि हे सगळं अतिशय खेळीमेळीच्या वातावरणात, अगदी आनंदात! दिवसाचा घरच्या वेळ शिक्षक कधे राहून हे सगळं करत आहेत, पण तरीसुद्धा प्रशिक्षणाचे दोन दिवस संपण्याचं कुठलाही धाकधूक नाही, उलट दोन दिवसांचं प्रशिक्षण संपण्याची रुखरुख आहे... नेमक्या अशाच प्रकारच्या प्रशिक्षणाची गरज होती, पण इतका वर्षात असं प्रशिक्षण पहिल्यांदा मिळालंय...

एखादी शिक्षक प्रशिक्षण म्हटलं की, उद्घाटन, व्याख्याने, समारोप असा साचेबद्ध आणि काहीसा कंटाळवाणा कार्यक्रम! त्यामुळे प्रशिक्षण वर्गाला येणे हा बऱ्याच शिक्षकांसाठी एक उपचार ठरला आहे, पण या सगळ्या प्रकाराला छेद देत,

महाराष्ट्रातल्या एक हजाराहून जास्त माध्यमिक विज्ञान शिक्षकांचं प्रशिक्षण अगदी अभिनव पद्धतीने घेण्यात आलं. हे प्रशिक्षण 'राष्ट्रीय माध्यमिक शिक्षा अभियाना'अंतर्गत महाराष्ट्र शासनातर्फे घेण्यात आले. प्रशिक्षण पद्धत ठरवणं, प्रत्यक्ष प्रशिक्षण वर्ग घेण्यात मदत करण्याची जबाबदारी, विज्ञान प्रसाराचा भारत सरकारचा राष्ट्रीय पुरस्कार मिळालेले आणि शैक्षणिक सल्लागार म्हणून कार्यरत असणारे हेमंत लागवणकर यांच्यावर सोपवण्यात आली होती, तसेच दोंबिवली येथील 'न्यास ट्रस्ट' या संस्थेला मार्गदर्शक आणि समन्वयक संस्था म्हणून जबाबदारी दिली. राज्य विज्ञान शिक्षण संस्था, नागपूर ही शासनाची संस्था या प्रकल्पात सहयोगी संस्था म्हणून कार्यरत होती. शिवाय, प्रत्येक जिल्ह्यात असलेल्या शिक्षण प्रशिक्षण संस्थेला त्या-त्या जिल्ह्यात महत्त्व करण्यात सांगितले गेले.

वर्गात शिकवताना काहीतरी शैक्षणिक साधने किंवा कृती वापरायला हवी, ही संकल्पना आज सर्वमान्य आहे आणि शिक्षकांनासुद्धा हे मान्य आहे, पण तरीसुद्धा प्रत्यक्ष वर्गात अध्यापनात कृतीप्रधान शिक्षण का दिले जात नाही? ५ वर्षे शालेय शिक्षकांसाठी कोणत्या ना कोणत्या प्रशिक्षण वर्गांचे आयोजन केले जातेच, पण या प्रशिक्षणांचा जेवढा गलिच्छ व्हायला पाहिजे, तो का होत नाही? आज अनेक तरल शैक्षणिक साधने

शिक्षक प्रशिक्षणसुद्धा गेलाबाजा पद्धतीने आखले गेले. प्रत्येक शैक्षणिक विभागातल्या प्रत्येक जिल्ह्यातून, पाच उपक्रमशील शिक्षकांचा ऑनलाइन फॉर्म भरून घेऊन प्रशिक्षण घेण्यासाठी निवड करण्यात आली होती. प्रत्येक शैक्षणिक विभागात एक याप्रमाणे एकूण आठ कार्यशाळांचे आयोजन करण्यात आले. या कार्यशाळांना हेमंत लागवणकर आणि मी मार्गदर्शन केले. प्रशिक्षणात सर्वसाधारणपणे आढळणाऱ्या व्याख्यानांना छेद देण्यात आला होता. दोन दिवसांच्या कार्यशाळेत शिक्षक स्वत: शैक्षणिक साधनांची निर्मिती करत होते, गेम्सदेखील कृती स्वत: करून यथत समजून घेत होते. ९वी आणि १०वीच्या विज्ञानाच्या अभ्यासक्रमातल्या प्रयोग, ध्वनी, ऊर्जा, विद्युतधारा, विद्युतचुंबकत्व यांतील अमूर्त संकल्पना शैक्षणिक साधनांच्या मदतीने, मूर्त स्वरूपात प्रत्यक्ष आणण्यासमोर पडत असताना, शिक्षक स्वत:च रंगून जात होते आणि त्यावरोवरच ज्ञानरचनावादी अध्ययन पद्धती कशी असली पाहिजे, याचे धडेसुद्धा घेत होते.

विशेष विश्वास भावे

तयार करत आहेत, ती शिक्षकांच्या पर्सोनलही पडत आहेत, तर मग ती वर्गात वापरली का जात नाहीत? हा अंतर दूर करण्यासाठी केवळ शिक्षक प्रशिक्षणे, कार्यशाळा आयोजित करून चालणार नाही, हे लक्षात आले. ज्ञानरचनावादी पद्धतीच्या शिक्षणाची केवळ चर्चा करण्यापेक्षा, ३५ मिनिटांच्या तासिकांघधून प्रत्यक्ष वर्गामध्ये विज्ञान प्रयोग 'शैक्षणिक साधन' म्हणून कसे वापरता येतील, यासाठी शिक्षकांची मानसिकता तयार करणे आणि ज्ञानरचनावाद वर्गात प्रत्यक्ष कसा प्रकारे अंमलात आणता येईल, या दृष्टीने प्रयत्न करणे, हे महत्त्वाचे होते. मुख्य म्हणजे, स्वत: प्रयोग करून बघण्याची सवय शिक्षकांना लावणे आवश्यक होते.

महाराष्ट्रभरातल्या शिक्षकांना प्रशिक्षण देण्यासाठी आखण्यात आलेल्या या कार्यक्रमाला 'मिशन एन्सीएफ - २००५' असे नाव देण्यात आले. राष्ट्रीय अभ्यासक्रम आराखड्यात मांडला झालेला ज्ञानरचनावाद वर्गाबाहेर पोहोचविण्यासाठी आखण्यात आलेले एक मिशन! शासनाच्या अधिकाऱ्यांनीही हा नेहमीचा प्रशिक्षण कार्यक्रम न मानता 'मिशन' या शब्दाला अपेक्षित असलेला न्याय दिला.

या प्रशिक्षणासाठी ९ वी आणि १० वी च्या जवळजवळ सर्व संकल्पनांवर अत्यंत कमी खर्चातील नवीन शैक्षणिक साधने तयार करता येतील, असे साहित्य आणि पाठ, संकल्पना आणि अध्यापनाचा आधारित दोनशेपेक्षा जास्त कृती, पाठ घेताना काय प्रश्न विचारले गेले पाहिजेत ते प्रश्न, वर्ग अध्यापनामधील काही अनुभव असे सर्व असलेली हस्तपुस्तिका तयार केली गेली. त्याचप्रमाणे, काही व्हिडीयो, फोटो आणि सादरीकरणे यांचा समावेश असलेली सीडी तयार केली गेली.

राज्यातल्या प्रत्येक जिल्ह्यात २५ शिक्षकांसाठी एक याप्रमाणे ३६ कार्यशाळा घेतल्या गेल्या. विशेष म्हणजे, या कार्यशाळांमध्ये आधी प्रशिक्षण घेतलेल्या त्या-त्या जिल्ह्यातल्या चार-चार शिक्षकांनी मार्गदर्शन केले. शिक्षकांनी स्वत: 'हँड्स मार्गदर्शक' व्हावे, हे या प्रशिक्षण कार्यक्रमाचे एक महत्त्वाचे उद्दिष्ट होते. हे उद्दिष्ट साकल झाले. कार्यशाळा झाल्यानंतर प्रत्येक जिल्ह्यातून निवडलेल्या २५ शिक्षकांच्या शाळेत, त्यांच्या वर्गात जाऊन प्रत्यक्ष विद्यार्थ्यांसमोर ज्ञानरचनावादी पद्धतीने 'आदर्श नमुना पाठ' घेण्यात आले. त्याचप्रमाणे, शिक्षक हे वर्गात वापरतात की नाही, याची चाचपणीसुद्धा सुरू झाली. शिक्षकांनी स्वत संपर्क ठेवण्यासाठी प्रत्येक शैक्षणिक विभागाचा एक आणि प्रत्येक जिल्ह्याचा एक असे एकूण ४४ व्हॉट्सॲप ग्रुप तयार करण्यात आले.

फक्त दोन दिवसांच्या या प्रशिक्षणाचा प्रभाव इतका होता की, सर्व शिक्षकांनी स्वत:च्या हाताने जोडणी केलेली शैक्षणिक साधने वर्गात वापरायला सुरुवात केली, तसेच विद्यार्थी वर्गात रस असल्याचे पाहून शिक्षक स्वत:च अनुभवायला लागले.

आज गोंदियापासून सिंधुदुर्गापर्यंत, नंदुरबारपासून नंदेडपर्यंतच्या शाळांघधल्या वर्गातील दृश्ये बदलताना दिसत आहेत. 'पहले दिखाओ बाद मे सिखाओ' हा राष्ट्रीय अध्यापक आराखडा '२००५ गाळे गाडलेला विचार प्रत्यक्ष वर्गात आज पडायला शिवते आहे. यामुळे एक हजार प्रशिक्षकांची फौज तयार झाली आहे. पुढील काळात हा प्रशिक्षण प्रकल्प, याचा शिक्षकांच्या मदतीने महाराष्ट्रातल्या इतरही माध्यमिक शाळांतील शिक्षकांसाठी आखण्याचा शासनाचा मानस आहे. (लेखक दोंबिवलीच्या न्यास ट्रस्टचे सचिव आहेत.)

Fig. 28.6 Media coverage in a prominent Marathi newspaper, *Lokmat*, on March 13, 2016

The NCF 2005 project has empowered teachers; they were thus expected to spread the good word among their peers. Along with teachers, their school principals, MRPs and KRPs, and the government officials were satisfied with the outcomes of the project. Only time—and subsequent third-party monitoring reports—will tell whether students have enhanced their understanding of science (*intervention impact*). But so far Mr. Hemant Lagvankar feels satisfied with his accomplishments of influencing 10,400 science teachers to adopt a constructivist teaching style. While he and his team have achieved remarkable milestones, he knows he has miles to go in the future.

Discussion and Lessons Learned

Mr. Hemant learned from his experience the value of tangibilizing the desired behavior (i.e., delivering the science curriculum by using science kits). If he had directly asked teachers to adopt the ABSL approach in their teaching, they would have been confused and uncertain on what to do and how to implement this approach. Tangibilizing the behavior facilitated the adoption of the desired behavior and made it easier and joyful.

Involvement of key stakeholders such as school principals and government officials improved the brand recognition and perception of quality and authority, and thus the adoption of the desired behavior.

Delivery of the training program with the help of peers improved the relevance and believability of the content and thus the involvement and adoption of the behavior.

Finally, the proof was in the pudding. Better response from students increased confidence in the constructivist approach and the efficacy of the science kit, thus enhancing the motivation levels of teachers.

Discussion Questions

1. Referring to Andreasen (2002), which social marketing benchmarks seem to play a prominent role in the success of the initiative?
2. How did the marketing strategy overcome audience perceptions regarding barriers to the desired behavior?
3. How did the organizers implement the stakeholder management approach?
4. What underlying theory explains the success of the intervention?
5. Was social marketing appropriate for improving teaching standards in Maharashtra schools?

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