

Draft

Best Practice

e-Skilling: Technology Enabled Training

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To surmount the challenge thrown at us by the ubiquitous hazard of Covid-19 and safeguard the valuable time and opportunity of the students, IT-enabled modes of instructions and education are being adopted to reduce the effect of information vacuum during lockdown. The Department of Skill Development and Industrial Training (SDIT), Haryana launched a unique program for online skill development, aptly termed e- Skilling. It is one of the best practices adopted by the Government of Haryana.



The Challenge

The nation-wide lockdown due to the spread of Covid-19 meant that all educational institutions, including the Industrial Training Institutes (ITIs) had to close regular teaching processes from March 2020. e-Skilling is a technology enabled skill-training for the ITI students in the state aimed at engaging them with relevant learning material. The three issues which the department was facing were:

1. How to reach 65 thousand trainees in their homes?
2. Identification of online quality content.
3. Technology tools to deliver relevant content.

During the session 2019-20, more than 65,000 trainees were enrolled in the ITIs all over Haryana. There are 172 government ITIs in the state which provide skill training across 75 trades. More than 30 instructional days or 240 instructional hours have been lost due to the lockdown first phase itself. Loss of instructional hours, especially prior to the examination schedule meant ITI trainees would have lost the opportunity to cover large sections of the syllabus and this would have led to poor performance at the final examinations. It was a problem which certainly needed to be addressed. As they say, Necessity is the mother of invention. So, e-Skilling initiative was introduced. Owing to this innovative exercise, the process of learning for

students largely remained uninterrupted and the trainees could be kept engaged throughout the period of lockdown.

Catching the Bull by Horns

A core team of SDIT staff and experts was constituted to recommend an e-skills approach to the department. The recommendations were accepted, and the e-Skills initiative was launched on 9th April 2020, through a YouTube live stream session by Dr. Rakesh Gupta IAS, Director General, SDIT where he urged all the ITI staff to play an active role in training ITI students from their homes. The program launch was attended Live by more than 2200 viewers, including department officials, ITI staff and others. The Live stream helped communicate the objectives of the program to more than 3500 stakeholders at one go, instead of a cascaded model. The launch event is available at: <https://www.youtube.com/watch?v=A VfAm9-MIBI>

वीडियो कांफ्रेंस में ई-स्किलिंग को किया लांच

सोनीपत, 9 अप्रैल (ब्यूरो): कौशल विकास एवं औद्योगिक प्रशिक्षण विभाग के महानिदेशक राकेश गुप्ता ने वीडियो कांफ्रेंस में ई-स्किलिंग को लांच किया। कोरोना वायरस को वजह से जारी लॉकडाउन में छात्रों को पढ़ाई में होने वाले नुकसान को कम करने के लिए उनके निदेशन में हरियाणा राज्य के सभी औद्योगिक प्रशिक्षण संस्थानों में छात्रों के भविष्य को ध्यान में रखते हुए तुरंत प्रभाव से ई-स्किलिंग के माध्यम से पढ़ना प्रारम्भ कर दिया है।

इससे हरियाणा में लगभग 60,000 छात्र लाभान्वित होंगे। इसमें छात्रों के व्हाट्सएप ग्रुप में प्रतिदिन 3 बार 11 बजे, 1 बजे तथा 4 बजे उनके व्यवसाय से सम्बन्धित स्टडी मैटीरियल पोस्ट किया जाएगा। राजकीय औद्योगिक प्रशिक्षण संस्थान सोनीपत के अनुदेशकों ने अपने व्यवसाय के सभी छात्रों के व्हाट्सएप ग्रुप बना लिए हैं। इनमें वर्ग अनुदेशक, प्रधानाचार्य और निदेशालय के उच्च अधिकारियों को भी शामिल किया



वीडियो कांफ्रेंस द्वारा ई-स्किलिंग को लांच करते महानिदेशक राकेश गुप्ता। छात्रों के व्हाट्सएप ग्रुप में उनके व्यवसाय के सिलेबस अनुसार स्टडी मैटीरियल भेजा जा रहा है। ग्रुप में व्यवसाय संबंधी लिंक भी शेयर किए जा रहे हैं।

इन पर क्लिक करके छात्र अपने व्यवसाय संबंधी वीडियो देखकर पढ़ाई कर रहे हैं। प्रत्येक शक्रवार छात्रों को प्रश्न-पत्र भी दिया जा रहा है जिसको गुरुत्व फार्म पर हल करके ऑनलाइन संबंधित लिंक पर चेंकिंग के लिए जमा करवाया जा रहा है। ई-लर्निंग के दौरान यदि किसी छात्र

को किसी तरह की परेशानी आती है या उनको डाऊट होता है तो वे संबंधित व्यवसाय के अनुदेशक से व्हाट्सएप पर या फोन करके भी पूछ रहे हैं और अनुदेशक इसका समाधान कर रहे हैं।

ई-लर्निंग के माध्यम से छात्रों को पढ़ाने की प्रक्रिया पर संस्थान के वर्ग अनुदेशकों की टीम में जागवंत मलिक, कुलदीप सिंह, सुरेंद्र कुमार, अनिल कुमार, योगेश शर्मा, राजवीर सिंह, कृष्ण दत्त, आनंद सिंह, सुनील दत्त तथा कैप्टन संजय शंभराण शामिल हैं।

Implementation

- 1. Reaching the Trainees:** Most of the trainees are from low-income families and do not have access to laptops/desktops. A quick survey revealed that more than 80% ITI trainees had access to smart phones and social media application 'WhatsApp'. It was realized that the backbone of e-Skilling communication has to rely on WhatsApp, the most popular messaging platform in India. Hence, the delivery platform had to be WhatsApp.
- 2. Quality Content:** Trainers identified quality content from various online sources and catalogued the resources according to the learning outcome. Wherever relevant material was not available, the trainers and the trade instructors created the content themselves. They created worksheets and demo lessons using their mobile devices. Since 75 trades are being taught, each trade was assigned to one ITI to prepare the relevant content. A comprehensive topic-wise plan was prepared by instructors from all the ITIs and the

relevant content was compiled. The whole content was hosted at the department portal - <https://itiharyana.gov.in/en/e-learning-of-iti-curriculum>

3. **Delivery of Content:** To facilitate delivery of right kind of curated content, in a timely manner, a three-level structure over WhatsApp was proposed:

- The First level contained Master Trainers of all trades who joined with State HQ Examination Cell. Master Trainers were responsible to curate contents on a daily basis. They decided which topic was to be taught on a particular day and the information was sent to the Trade Instructors in the ITIs.
- The Second level consisted of 80 WhatsApp groups where all the Master Trainers and the Trade Instructors have been brought together.
- The Third level consisted of 1870 WhatsApp groups where the Trade Instructors joined their trainees. Thus about 2400 + Trade Instructors could reach 45,000 trainees.

4. **Time Table:** A structured timetable was proposed with a streamlined content dissemination mechanism in place. Learning resources were shared at three timeslots, at 11:00 AM, 1:00 PM and 3:00 PM respectively. It was important to relay the content at three different periods of the day to ensure that the trainees stay actively engaged and prepared for the sessions. More than one slot in a day would keep them alert and not leave any excuse to miss a lecture.

5. **Online Assessments:** Weekly Assessments were convened by SDIT every Friday and Saturday to the Trade Instructors who further administered the same to the trainees. The Assessment was administered using Google forms.

लॉकडाऊन के चलते आई.टी.आई. में चल रही ई-लर्निंग क्लासिस

पानीपत, 7 अप्रैल (राजेश): राजकीय औद्योगिक प्रशिक्षण संस्थान पानीपत के सभी अनुदेशकों ने लॉकडाऊन के चलते छात्रों को भविष्य को देखते हुए अपनी-अपनी कक्षाओं के छात्र-छात्राओं का व्हाट्सएप ग्रुप बनाकर उनको ई-लर्निंग के माध्यम से पढ़ा रहे हैं।

संस्थान के मुखिया डा.कृष्ण कुमार ने बताया कि पानीपत आई.टी.आई. के सभी अनुदेशकों ने अपनी-अपनी कक्षाओं के व्हाट्सएप ग्रुप बनाए हैं और इन्हीं ग्रुप के माध्यम से सभी बच्चों तक स्टडी मैटीरियल भेजा जा रहा है। वहीं पर महत्वपूर्ण लिंक जो उनके सिलेबस के हिसाब से मैच करते हैं वह उनके व्हाट्सएप ग्रुप पर अपलोड किए जा रहे हैं ताकि छात्र/छात्राएं

अपने घर बैठे-बैठे इन लिंक को ओपन करके ई-लर्निंग के माध्यम से अपने ट्रेड से संबंधित सभी जानकारियां हासिल कर सकें। वर्ग अनुदेशक महेंद्र धनिया, रमेश वर्मा, कुपाल व रजना शर्मा ने बताया कि संस्थान के अनुदेशक छात्र/छात्राओं को ऑनलाइन कक्षाएं भी ले रहे हैं। पानीपत आई.टी.आई. में ड्राइंग व मैथ अनुदेशक भी सभी ग्रुप में अपना-अपना पूर्ण योगदान दे रहे हैं इसमें बलराज सिंह ड्राइंग अनुदेशक, अशोक कुमार मैथ अनुदेशक, प्रवीन मैथ/आर.ए.सी. अनुदेशक, दिलबाग सिंह अनुदेशक, ट्रेड अनुदेशकों के माध्यम से और संबंधित व्हाट्सएप ग्रुप पर अपने मैथ, ड्राइंग और विषय से संबंधित सारा का सारा सिलेबस समय अनुसार प्रति दिन के हिसाब से उपलब्ध करवा रहे हैं।



Key Implementers

The entire Department from the State including the HQ and all the field units collaborated to make e- Skills initiative a success. Every officer at SDIT HQ was appointed as the e-Skilling officer and allocated certain responsibilities. While the Joint Director was the overall in-charge of the initiative, the Assistant Director (Academics) was in-charge of the Master Trainers. All

other officers at SDIT were designated as e-Skilling officers with responsibilities to implement some aspect of e-Skilling in different districts of the state. There were minimal resource implications as the teachers in the ITIs were utilized, in the form of the Master Trainers, who were not preoccupied with their regular curriculum. Easily and freely available technologies like WhatsApp and YouTube were used for the program.

Testimonials

1) Student: Daksh – Mechanic : Motor Vehicle - ITI Rohtak

“The e-Skilling program being run by the Skill Development and Industrial Training (SDIT) department has been very helpful. I have been watching the contents being shared every day on time and I have been engaging me through the lockdown period. Sometimes, the videos seem very difficult to comprehend. Wherever I have had a doubt, my trade instructors have been available to clear the doubts. Weekly tests were initially difficult due to traffic, but it is solved now.”

2) Trainer: Usha - Trade Instructor

“e-Skilling has been the best way to engage trainees during the lockdown period. While it is not possible to conduct practical classes, videos are the best way to engage trainees. The quality of content being shared is good, and wherever trainees have had an issue understanding the content, I have been creating additional material to simplify difficult concepts”.

Issues with Implementation

Following glitches and their resolution were reported by the implementing team:

Content not available to trainees in some units

When it was realized that the content was not being delivered to the last mile, i.e. trainees, e-Skilling officers took the responsibility to tackle the issues with the delivery of contents. A tracking sheet has been created, to be filled by trainers as soon as content is delivered.

Issues with weekly Assessment

During the first two weeks only one Google-form was available for trainees to answer the weekly test. The form would not work due to heavy traffic. But third week onwards, eight identical Google-forms were created for trainees, largely eliminating the issue of heavy traffic.

Planning: Some trainers complained that there was no central repository of content, other than that being sent on WhatsApp. And since WhatsApp communication was heavy, trainees did not have a view of content.

Based on this feedback, a weekly planning sheet was created for each trade, which could be accessed by all trade instructors. Additionally, a website is also being created for the purpose of creating a central repository.

Outcome

More than 2000 content- pieces across trades were curated within a short span of 15 days by more than a hundred trade instructors across the state. This list is only growing bigger. 1950 WhatsApp groups were created to ensure communication and delivery right from the State HQ to the field Trade Instructors and the trainees. Curated content was made available on the departmental portal (See sample content – Annexure C). 45,000 trainees were added to these groups in a record time of just one day, creating a three-level hierarchy to engage them on a regular basis. The very first online assessment witnessed 65% attendance. All 45,000 trainees attempted the first weekly test. The program ran swiftly and successfully throughout the period. Impact assessment will be initiated once the program gets rid of all the small shortcomings.

Anticipating a long gap between now and going back to the regular way of studying, trade instructors at SDIT have begun assembling and organizing trade-related content through various channels and resources such as Bharat Skills portal, You Tube, NIMI Online resources etc. to create a massive pool of online content.

Lessons Learnt

While the program was conceptualized and implemented in the designed span, certain key lessons were drawn from the situation:

1. Micro technology-based solutions could be implemented at a big scale to deliver outcomes.
2. Innovation is necessary to ensure quality control when micro-tech solutions are implemented.
3. There was a need to establish a technology- enabled digital delivery of lessons, in the case of such a crisis.
4. The lack of a mobile platform made it difficult to engage the trainees on a continuous basis during lockdown.

The e-Skills initiative by the Department of SDIT driven by objective of engaging trainees during a lockdown and providing skill- training using social media channels can be considered as a massive success. While it would have been possible to work on a well-designed technology platform with all the elements in place, the trainees would have lost valuable time. The innovative micro-technology approach ensured that more learning hours are not lost and quality learning is delivered online.

The success of the program lies in identifying micro solutions that could be implemented at scale, the spirit of collaboration among SDIT HQ officers, more than two thousand ITI staff spread across the state and active participation of trainees in the learning process. The fact that more than 45,000 trainees participated in the weekly assessment using Google forms is a testament of the success of the program.

It is a unique program, aimed at engaging trainees with relevant learning material. This initiative is an achievement for the state and can proudly be put in the category of ‘best practices’.

High level of collaboration among all the trade instructors was necessary, since the aim was to reach every trainee during the lockdown. A mobile based Moodle like platform would have been very helpful in case of a crisis and at the same time, to engage trainees on a continuous basis. This will be taken up by the Department of SDIT post-lockdown.

Department of SDIT has also partnered with Medha and Udhyam Foundations to train Employability Skills Instructors and they have played a major role in content creation too. Additionally, Quest Alliance, an organization specializing in creating digital interactive employability skills training- modules has also been roped in to train students on Employability Skills and English Communication.

Reference Material

[E-Skilling Launch Livestream – Link](#)
[E-Skilling Launch Presentation – Link to Presentation](#)
[E-Skilling Content Repository – Link to content repository](#)
[Weekly Assessment Attendance Dashboard – Dashboard Link](#)
[Trade Theory Results Dashboard – TT Results Dashboard](#)
[Employability Skills Results Dashboard – ES Results Dashboard](#)
[Engineering Drawing Results Dashboard – ED Results Dashboard](#)
[Workshop Calculation Results Dashboard – WCS Results Dashboard](#)