

E-learning: An Effective Approach for Enhancing Social and Behavior Change Communication Capacity in Bangladesh

Mohammad K. Abedin, Mohammad Shahjahan, Zeenat Sultana, Tawfique Jahan, Jesmin Akter

Abstract—To strengthen social and behavior change communication (SBCC) capacity of Ministry of Health and Family Welfare (MoHFW) of the Government of Bangladesh, BCCP/BKMI developed two eLearning courses providing opportunities for professional development of SBCC Program Managers who have no access to training or refresher training. The two eLearning courses – Message and Material Development (MMD) and Monitoring and Evaluation (MandE) of SBCC programs – went online in September 2015, where all users could register their participation so results could be monitored. Methodology: To assess the uses of these courses a randomly selected sample was collected to run a pre and post-test analyses and a phone survey were conducted. Systematic random sampling was used to select a sample of 75 MandE and 25 MMD course participants from a sampling frame of 179 and 51 respectively. Results: As of September 2016, more than 179 learners have completed the MandE course, and 49 learners have completed the MMD course. The users of these courses are program managers, university faculty members, and students. Encouraging results were revealed from the analysis of pre and post-test scores and a phone survey three months after course completion. Test scores suggested a substantial increase in knowledge. The pre-test scores findings suggested that about 19% learners scored high on the MandE. The post-test scores finding indicated a high score (92%) of the sample across 4 modules of MandE. For MMD course in pre-test scoring, 30% of the learners scored high, and 100% scored high at the post-test. It was found that all the learners in the phone survey have discussed the courses. Most of the sharing occurred with colleagues and friends, usually through face to face (70%) interaction. The learners reported that they did recommend the two courses to concerned people. About 67% MandE and 76% MMD learners stated that the concepts that they had to learn during the course were put into practice in their work settings. The respondents for both MandE and MMD courses have provided a valuable set of suggestions that would further strengthen the courses. Conclusions: The study showed that the initiative offered ample opportunities to build capacity in various ways in which the eLearning courses were used. It also highlighted the importance of scaling up these efforts to further strengthen the outcomes.

Keywords—E-learning course, message and material development, monitoring and evaluation, social and behavior change communication.

I. INTRODUCTION

VIRTUAL and offline e-Learning platforms offer

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boundless opportunities to transform learning capacity in SBCC in the context of global health [1]. These platforms present the unique advantage of reaching large audiences across different geographic regions [2]. The World Health Organization (WHO) estimated that 4.3 million health professionals are required to deliver essential health care services worldwide. Although 57 countries face severe shortages in their health care workforce [3], Bangladesh has a large health workforce at the grassroots level [4]. Strengthening human resources for health care delivery is crucial to building sustainable health service delivery systems. Increasing opportunities for continuous learning and developing the knowledge base are the main ways to empower the workforce and health system [5]. Challenges still remain for continued education of the health workforce in terms of time, cost and human resources. Therefore, eLearning courses could decrease costs associated with engaging outside experts in content delivery and could provide opportunities for wider dissemination of knowledge, beyond typical funding cycles.

BKMI – a project of BCCP – aimed at enhancing the health status of the people of Bangladesh, lent thrust on SBCC capacity building of the three communication units of the MoHFW, the staff of other USAID projects and numerous stakeholders, to build committed teams for running SBCC campaigns and programs. The critical issues pivotal of BKMI's capacity building efforts were coordination, knowledge management and Use of ICT in SBCC [6].

Two eLearning courses on SBCC programs – Monitoring and Evaluation and Message and Material Development – were created for SBCC professionals' development for no cost. This will provide scope to SBCC program managers and planners to enhance their professional capability. These managers seldom get to attend face-to-face training to update their knowledge in the ever-changing information world.

Before finalizing the courses, pretests for both courses were taken. Three categories of participants were invited for the pretests:

- technical experts,
- trainers and
- trainees.

The e-Learning portal is meant for the professionals interested in enhancing their skills in SBCC in Health, Population and Nutrition (HPN). The audiences for the two courses are primarily SBCC program managers in government and NGO sectors and students of health and nutrition sciences.

The courses are currently available in English and Bangla

languages and promoted among government and non-government stakeholders as well as university students.

All users are required to register, so their participation and results can be monitored. Introduction to Monitoring and Evaluation for SBCC Programs is a cascaded course containing core concepts of Monitoring and Evaluation and their use in SBCC programs. SBCC programs are incumbent on Monitoring and Evaluation for its success. Monitoring and Evaluation of SBCC programs can contribute significantly for early re-planning of a program as a continuum of the program processes. The course contains four modules. Upon completion of the course, learners will be able to define basic Monitoring and Evaluation concepts, apply a Monitoring and Evaluation framework to SBCC programs, develop indicators and tools, and interpret data. On the other hand, Message and Material Development course has 6 modules. After taking the course, the learners attain the capability of translating data and lend innovative ideas to create audience-specific messages and illustrate the step by step approaches.

An evaluation of the use of these two SBCC eLearning courses was also conducted by BKMI. The objectives were:

- To provide a quantitative estimate of how an e-Learning course was applied to the learner's work (training, development of tools, development of indicators, proposal preparation, report writing, use of Monitoring and Evaluation Checklist, etc.).
- To assess the communication patterns of discussing the e-Learning courses with others.
- To assess if the learners were recruited to the courses through referral by course participants.
- To identify what learners liked about the courses in reference to the content of the course, the layout of the course, the design of the course and its assessment.
- To identify problems faced by learners in as the speed of Internet, content, and layout of the courses, design of courses and assessment of the courses.

II. METHODOLOGY

The course evaluation was designed in two phases— online tests both pre and post and survey over telephone calls. The online pre and post scores were collected for four modules of Monitoring and Evaluation, and overall pre-post scores were collected for Message and Material Development. The second phase included a phone survey 3 months after course completion to assess

- how course content was shared with others,
- if the course was recommended to others, and
- which aspects of the two courses helped build individual capacity in SBCC.

The most important objective of the phone survey was to estimate the different ways in which course content was applied on a day to day use by study participants.

A systematic random sample of 100 learners was selected for the survey over telephone calls. Following frame illustrates the research design:

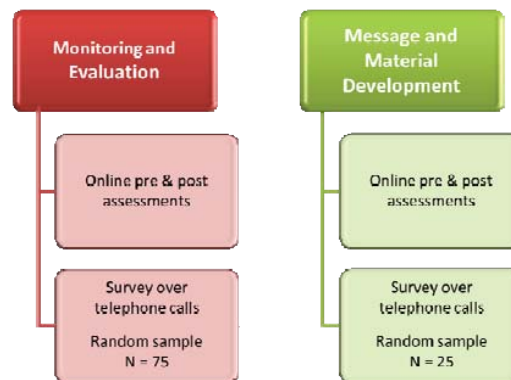


Fig. 1 Research Design

A. Outcome Variables

The primary outcome variables for the study are,

1. The extent of application from e-Learning courses to study participant's own work.
2. Types of application of the course/s to the study participants' setting
3. Extent to which information about the courses was shared with others

B. Eligibility Criteria for the Respondents

- a) The person should have completed all modules of the course
- b) The person should have completed all the online assessments related to the course

C. Sampling Procedures

Different sampling procedures were undertaken for the two courses. Systematic random sampling was used for the Monitoring and Evaluation course from a sampling frame of 179 learners who had completed the course. A sample of 75 was randomly selected from a sampling frame of 179 respondents. A random start was used to begin the sampling process, followed by a sampling fraction of 2.

For Message and Material Development sampling, on the other hand, 25 respondents were purposively selected from a group of 49 learners who completed the Message and Material Development course. Since the sampling frame was small, a purposive sample was selected for the Message and Material Development course.

D. Online Pre and Post Test Scores to Assess Cognitive Gain

Both the courses included provisions for pre and post online assessments. The Monitoring and Evaluation course had pre and post assessments for each of its four modules. The Message and Material Development course had one consolidated assessment before and after the course. Learners who had scores of 70 percent or higher were eligible for a course certificate.

The pre-post online assessment questions were in multiple choice format and primarily measured knowledge gained from the scores for the two courses. The analyses planned for the pre- post test scores included assessing the degree of cognitive

gain derived from the courses.

E. Phone Survey to Assess Sharing, Application and Use of e-Learning Courses

The phone survey contained sections such as,

- a. background,
 - b. course assessment,
 - c. knowledge sharing,
 - d. knowledge use (application and its use),
 - e. meaning and emotional response, and
 - f. experiences with the eLearning courses.
- The background section focused on the socio-demographic profile of the study participants.
 - Study participants had to provide feedback on the courses using a 0-100 scale for the course assessment section. Course assessment dimensions included simplicity, comprehensibility, practical examples, new concepts, work application, and relevance.
 - The phone survey was designed to obtain in-depth knowledge on the process through which information about the courses was disseminated by its learners. The knowledge sharing section specifically explored the following aspects,
 - g. Number of persons the course was discussed with
 - h. The type of persons (colleague, friend, student, etc.) the course was discussed with
 - i. The medium used to discuss the course (email, face to face, social media, etc.)
 - j. Specifics of the course that were shared with others
 - k. Number of persons the course was recommended to
 - (d) The knowledge use section assesses the utility of the courses on a scale of 1 to 100 from the respondents' perspectives. Two specific questions on application include the type of work application (to improve programs, to strengthen training, to inform policy, etc.) and to assess if course content was adapted or not (for writing a report; development of a curriculum, development of a Management Information System (MIS), development of communication materials etc.).
 - (e) Meaning and emotional response section are about how much at ease the participants felt while taking the courses if the courses increased their self-confidence and/or their Monitoring and Evaluation and Message and Material Development capacities.
 - (f) The final section of the questionnaire is open ended and provided an opportunity for respondents to share experiences and suggestions about the two courses.

F. Data Collection

Two interviewers and a research officer from BCCP were trained for the phone interviews. An email was sent to each randomly selected participant for Monitoring and Evaluation and Message and Material Development followed by a phone survey.

III. RESULTS

Evaluation results are presented in two parts- cognitive gain

and use and application. The first part is about the pre-post online assessments that the participants undertook as part of completing the online courses and receiving course certificates. The second part details the respondents' application of the course content to their work/study settings. It also provides participants feedback and suggestions on improving the two courses.

The Monitoring and Evaluation course had an almost equal number of women and men participants. The Message and Material Development course participants were two-thirds male and one-third female. The majority of the participants were in the age group 24-34 years for both courses, followed by the 35-44 age group. The overall education level of the study participants was high, with a minimum education of a Bachelor's degree. About 40 percent Monitoring and Evaluation study participants and 52 percent Message and Material Development study participants had a Master's degree.

A. Cognitive Gain

The data presented here are for all learners who received a certificate for the Monitoring and Evaluation and Message and Material Development courses by June 2016. A total of 179 learners for the Monitoring and Evaluation course and 49 learners for Message and Material Development course who successfully passed their online assessments were the respondents.

1. Monitoring and Evaluation

The Monitoring and Evaluation course had online pre and post assessments for each of the 4 modules of the course. The online assessments for each module had a total of 10 points divided into three levels- low, medium and high. The overall course assessment has a maximum of 40 points.

The average pre-assessment score for 179 learners for Module 1- Introduction to basic concepts of Monitoring and Evaluation was 5.6, and in post-assessment, it increased to an average of 8.7. We see a trend of similar increase for module 2 on the Monitoring and Evaluation framework (from an average of 5.8 to 8.9) indicating a substantial cognitive gain for the learners. Modules 3 and 4 show an increase in average scores from 6.3 to 8.8, and 6.7 to 8.9 respectively. Module 3 focuses on data management for SBCC, and module 4 was designed to enable learners to learn and practice the skill of data interpretation (Table I).

TABLE I
ONLINE PRE AND POST TEST SCORES FOR MONITORING AND EVALUATION
COURSE BY LOW, MEDIUM AND HIGH SCORES

Monitoring and Evaluation Course	Pretest N= 179	Post-test N=179
Module 1: Basic MandE Concepts (0-10)	5.6 (±2.0)	8.7 (±1.0)
Module 2: MandE Framework for SBCC (0-10)	5.8 (±1.9)	8.9 (±1.0)
Module 3: MandE Data Management for SBCC (0-10)	6.3 (±1.9)	8.8 (±1.1)
Module 4: MandE Data Interpretation for SBCC (0-10)	6.7 (±2.2)	8.9 (±1.0)
Total Score (0-40)	24.4 (±6.1)	35.2 (±3.2)

Results are expressed in percentages

The same online pre-post assessment data for the

Monitoring and Evaluation course by dividing the scores into 3 categories of knowledge, low (0-3 points), medium (4-7 points) and high (8-10 points) are presented in Table II. The result shows that 19 percent of the learners received a high score (8-10 points) for Module 1 at the pretest and 83 percent had recorded a high score at posttest. The data indicate a major shift of scores from the medium to high categories for the introductory module of the Monitoring and Evaluation course.

Similar trends are observed for modules 2, 3 and 4 where more than 80 percent of the learners fall in the high knowledge category at post-test while their high scores at pre-test ranged from 22 to 40 percent. For the course as a whole, high scores increased from 19 percent to 92 percent.

TABLE II
ONLINE PRE AND POST TEST SCORES FOR MONITORING AND EVALUATION
COURSE BY LOW, MEDIUM AND HIGH SCORES

Monitoring and Evaluation Course	Pretest N= 179			Post-test N=179		
	Low (0-3)	Medium (4-7)	High (8-10)	Low (0-3)	Medium (4-7)	High (8-10)
Module 1	14%	67%	19%	0%	17%	83%
Module 2	10%	68%	22%	0%	15%	85%
Module 3	7%	67%	26%	0%	17%	83%
Module 4	9%	51%	40%	0%	15%	85%
	Low (0-15)	Medium (16-30)	High (31-40)	Low (0-15)	Medium (16-30)	High (31-40)
Total Score (0-40)	8%	73%	19%	0%	8%	92%

Results are expressed in percentages

2. Message and Material Development

The evaluation of the Message and Material Development course includes one overall online assessment that was administered before starting the course and after completion of the six modules of the course. The course has a 10-point assessment tool. Table III indicates that the proportion of learners scoring high at pre-test was 30 percent and in the post-test, it was 100 percent.

TABLE III
PRE AND POST TEST SCORES FOR MMD E-LEARNING COURSE

MMD Course	Pretest N= 50			Post-test N=50		
	Low (0-3)	Medium (4-7)	High (8-10)	Low (0-3)	Medium (4-7)	High (8-10)
Total Score (0-10)	10%	60%	30%	0%	0%	100%

Results are expressed in percentages

B. Use and Application

Few evaluation studies are able to measure the extent of application of learnings from online courses. The results of a phone survey to determine areas of use, adaptation, and sharing of the two eLearning SBCC courses are presented. The aim of this section is to obtain quantitative estimates of processes of sharing and adaptation in addition to the use of the courses.

1. Course Assessment

The Monitoring and Evaluation and Message and Material Development courses evaluation will provide important pointers to strengthen the courses further. About 89 percent of

Monitoring and Evaluation study participants and 69 percent Message and Material Development study participants completed the course in 1-3 days indicating a preference for completing the modules in short duration. The Message and Material Development course was of longer duration and included 6 modules (with exercises). The participants were asked to rate on a scale (0-100) how they felt about core areas of course contents such as relevance, the introduction of new concepts, use of practical examples and simplicity of course content.

Both courses were rated as highly relevant by three-fourths of the study participants (Fig. 2). About 68 percent of the Message and Material Development participants and 69 percent of the Monitoring and Evaluation participants stated that the courses introduced a high level of new concepts. Both courses received very high ratings (88-89 percent) on the use of practical examples. Similarly, more than 80 percent of the study participants in both courses rated the course contents as simple to comprehend.

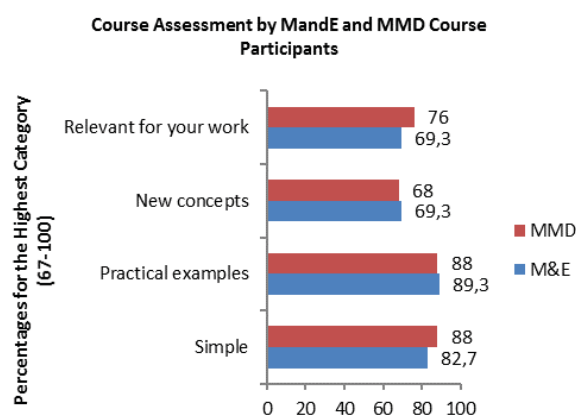


Fig. 2 Course assessment for online SBCC Monitoring and Evaluation (N=75) and MMD (N=25) Courses

2. Knowledge Sharing

Several dimensions of knowledge sharing are included to assess the level at which study participants shared new ideas, learnings, and information with others. How this sharing occurred is also important to know as the plan for the two SBCC eLearning courses is to make them available nationwide in Bangladesh as well as globally.

It is learned that both Message and Material Development and Monitoring and Evaluation study participants talked about the courses on an average to more than 10 persons (11.9 persons for Message and Material Development and 13.3 persons for Monitoring and Evaluation). Fig. 3 indicates a distinct trend of sharing course information with the others in both groups of study participants.

About 70 percent of the study participants reported having shared course information face to face, email (21 to 32 percent) and Facebook (20 percent) were also popular. Course content was the most commonly shared information with others, followed by course access and course utility.

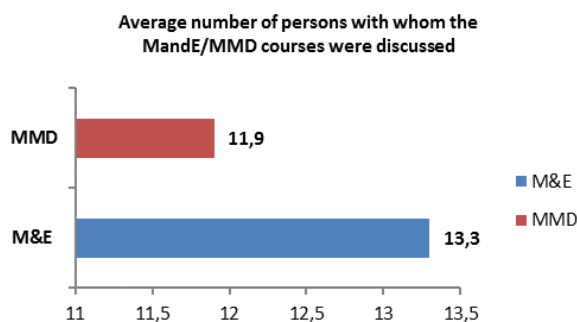


Fig. 3 Sharing patterns related to the MandE/MMD courses

3. Knowledge Use

The study participants' perceptions of how the courses specifically helped them were intended to measure. Fig. 4 describes the Monitoring and Evaluation study participants building their own capacity in SBCC Monitoring and Evaluation was the biggest take away from the course. Study participants also stated that the Monitoring and Evaluation course helped them learn how to establish an MIS system and how to develop new SBCC indicators. Similarly, for the Message and Material Development and Monitoring and Evaluation study participants' responses. More than half the Message and Material Development study participants stated that the course helped to develop their own Message and Material Development capacity and it introduced new ideas in the Message and Material Development process (Fig. 4).

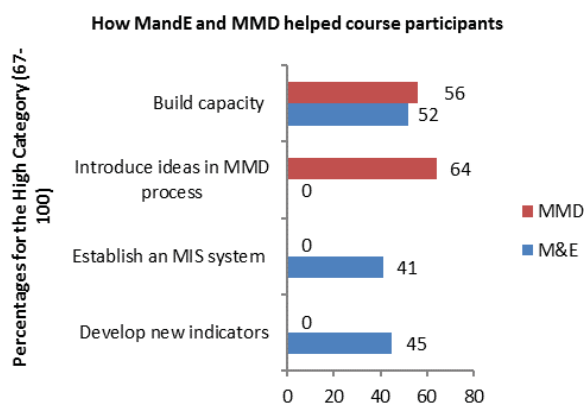


Fig. 4 Use of MandE and MMD knowledge

The extent to which the two online courses had impacted the study participants was measured. About 66 percent of the Monitoring and Evaluation participants rated their ability to interpret data in the high category better. Similarly, 88 percent of the Message and Material Development participants reported being better equipped to develop effective messages. A high proportion (72 to 84) of respondents reported that the course increased their self-confidence. In terms of the extent to which their capacity has been built, 76 percent of Monitoring and Evaluation respondents recorded a 'high' category rating to their capacity development. And about 67 percent of the Message and Material Development participants

gave a 'high' rating to their capacity development in Message and Material Development (Table IV).

TABLE IV
PRE AND POST TEST SCORES FOR MMD E-LEARNING COURSE

Individual Impact	MandE (0-100%) N= 75	MMD (0-100%) N= 25
	High (67-100) Percent	High (67-100) Percent
Better equipped to interpret data	66.7	NA
Better equipped with tips to develop effective messages	NA	88
The course increased confidence	84	72
MandE capacity has been strengthened	76	NA
MMD capacity has been strengthened	NA	67

Percentages for the high category (67-100)

IV. CONCLUSIONS

The two eLearning SBCC courses, Monitoring and Evaluation, and Message and Material Development were developed ground upwards in an attempt to reach a group of SBCC practitioners in government and NGO sectors that reside in districts and sub-districts and don't have opportunities for on the job capacity development in SBCC. The evaluation study assesses the English version of the two courses and provides many learnings and future directions. This evaluation has been designed to go beyond knowledge increase after taking an online course. We have tried to assess how SBCC knowledge was assimilated, shared and applied.

The two BKMI SBCC online courses are different from other university-level online courses because they are practical in contents, use real life examples and provide an opportunity to practice the basic skills being taught. The Monitoring and Evaluation course may be termed "too simple" for a Monitoring and Evaluation professional, but this is a basic course for program persons who are tasked to monitor and supervise SBCC programs. The Message and Material Development course is a detailed six module compilation of how to acquire the skills for a core SBCC competency; the development of materials and messages.

The evaluation results lead to the following conclusions:

The cognitive gain for both eLearning courses was high as indicated by the pre and post scores. Although cognitive gain is high, future evaluations should focus on improving the testing instrument. All the respondents have a minimum education of Bachelor's degree. It will be necessary to see how well the course does once the Bangla version now made available online for the grassroots level is evaluated with the outreach participants.

The surprise element of the evaluation was the information sharing patterns of the study participants. Data indicate that most of the participants discussed the courses with their colleagues, friends and family members. They even used email and social media to share this information. Perhaps satisfied learners can be the best advocates of the Monitoring and Evaluation and Message and Material Development courses.

We learned that more than half of the study participants had applied what they learned to their work setting. Different types of the application included use of course content for capacity development, program improvement (development of new indicators) and the use of a strategic framework for the design and development of messages. Even students who are in university settings mentioned that the courses helped with their assignments.

In terms of individual impact, study participants felt that their confidence increased and their SBCC capacity was strengthened. It seems that the courses have filled a gap for SBCC practitioners and they need to be made available to many more SBCC program personnel.

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