Opportunities Afforded By the Shift from Traditional To Blended Learning Model in Delivery of a Medical Representative Pre-Onboard Training Program: An Abdi Ibrahim Experience

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ABSTRACT: Abdi İbrahim re-designed the medical representative pre-on board training program with transition from traditional to the blended learning model, which was delivered via the Cross-Knowledge (elearning) platform used as a learning management system (LMS). This study aimed to describe the initial experience of Abdi İbrahim regarding the implementation of a newly-designed blended learning model in the medical representative pre-onboard training program and to evaluate the opportunities afforded by the use of blended learning-based training compared to previous traditional face-to-face learning-based training. The two training approaches (traditional vs. blended learning) were compared in terms of content and technical properties of the models, the program execution, final trainee success and satisfaction with the program and the total budget. By adopting a blended learning training approach, Abdi Ibrahim provided the medical representatives with a more personalized and effective training program which enabled a 14-day shorter "product and sales training" without decreasing total learning hours, a higher final success (improved by 10%) with improved trainee satisfaction (increased by 10%) in addition to cost savings in total budget (by 36%) and 7% decrease in workload of medical managers. In conclusion, the transition to a blended learning training program, with a successfully planned integration of face-to-face and online courses using the strengths of each approach, seems to confer several advantages in terms of program execution and final trainee success, trainee satisfaction and the total budget.

KEYWORDS - Blended learning, Cross Knowledge, medical representatives, pre-onboard training, traditional learning, outcome

I. INTRODUCTION

Blended learning is a combination of traditional face-to-face learning and online learning (e-learning) into one educational modality by using beneficial elements of both modalities and the technologies support [1-4]. It represents an opportunity to integrate the innovative and technological advances offered by online learning with the motivational attributes of traditional learning [4,5].

The evolving experience with new technologies for learning and collaboration has uncovered the convenience and strategic impact of the blended learning methods on critical business processes [6]. As the pharmaceutical industry continues its exponential growth trajectory with a rapid growth in manpower addition, training new employees along the way has become a critical need [7,8]. The blended learning is considered to play a pivotal role in meeting this need, through its improved effectiveness, access and cost-effectiveness relative to traditional approaches, alongside its potential to change the overall competitiveness of entire organizations [6-9]. Accordingly, increasing number of pharma companies have started learning towards adopting a blended learning strategy which has several use cases within the pharmaceutical industry such as, compliance training, onboarding new employees, product training and sales training of medical representatives, ongoing training, upskilling, and building competency for the job, as well as the external channel partner training [8].

Medical representatives, as the key link between medical and pharmaceutical companies and healthcare professionals, are responsible for building a network with healthcare professionals to promote product awareness [10,11]. When join pharmaceutical companies, they undergo intensive medical training by medical managers that covers anatomy and physiology, diseases and drugs in detail as well as the selling skills training, which is considered equivalent to a full time certification course [10,11].

The COVID-19 pandemic has already resulted in a dramatic shift in medical representatives practice with transition from virtual meetings to in-person meetings in sales presentations to physicians alongside an expansion of online teaching modules (using google net, Microsoft teams, Zoom) in the pharmaceutical industry [11]. Blended learning is considered a promising option in the training of medical representatives, and a particularly safer option in the new COVID era, which enables product training via e-learning modules created

by pharmaceutical companies with use of technology for learning outside the boundaries of the physical classroom [11].

The organization differentiates itself in the marketplace through its people, its products, its processes and its premises [4]. The importance of tailoring learning to the individual rather than applying a 'one size fits all' approach has increasingly been recognized by the organizations [4]. Blended learning, providing a great opportunity in this regard by tailoring the learning to the learner, is considered a prominent trend in corporate training that has implications for distributed learning across a range of venues and constituents [4,5].

Abdi İbrahim is a company with a long-established experience garnered through its 111-year history and an extensive product portfolio in the industry involving more than 250 brands and over 500 products. Hence, Abdi İbrahim needs to hire 200 to 250 new medical representatives every year due to new product launches and organizational changes, and organizes training programs for the newly recruited medical representatives that last 6 to 8 weeks at least once a year.

Recently, Abdi İbrahim re-designed the medical representative training program according to the blended learning model, and started to implement this new training program instead of previous instructor-led synchronous in-class training, by April 2020.

The newly designed blended learning model for the "Inexperienced Medical Representatives Preonboarding Training Program" received the Brandon Hall Group's 2021 Excellence Awards in Excellence in Learning - Best Use of Blended Learning Program (silver) and Excellence in Sales Performance - Best Sales Onboarding (bronze) categories.

Since launching the first course in April 2020, Abdi İbrahim has completed two additional blended courses. Herein, we describe the initial experience of Abdi İbrahim regarding the implementation of a newlydesigned blended learning model in the medical representative pre-onboard training program applied in the recruitment process of medical representatives during the pandemic period. We aimed to describe the product design and digitalization process carried out during transition from the traditional to blended learning, and to compare the newly designed blended learning model and the previous traditional learning model in terms of content and technical properties of the models, the program execution, final trainee success and satisfaction with the program and the total budget.

II. **MATERIALS AND METHODS**

2.1. Study population

A total of 250 employee candidates to be onboarded into medical representative positions during the years 2020–2021 received the medical representative pre-onboard training program via a blended learning model. In addition, 250 medical representatives who were onboarded during the years 2019-2020, before the introduction of blended learning model, served as the traditional face-to-face training group.

2.2. Product design

Abdi İbrahim re-designed the medical representative pre-onboard training program with transition from traditional to the blended learning model, which was developed in accordance with the Kern's six-step approach for curriculum development for medical education, including problem identification and general needs assessment, targeted needs assessment, goals and objectives, educational strategies, implementation, evaluation and feedback [12].

Within the scope of the Abdi İbrahim Medical Academy (AIMed) Digital Transition Project, the contents of 140 products were updated/revised with preparation of 1034 new educational videos, 1045 summary pages, 1186 quizzes and more than 200 tests by the 30 medical managers within a 9-month period and all were uploaded to the Cross-Knowledge (e-learning] platform which was used as a learning management system (LMS) to deliver the blended learning model [13].

The blended learning model involved the self-paced asynchronous formats (BlendedX web-based training modules, print-based materials, assessments/tests and satisfaction surveys, online discussion forums), the synchronous online format (Live e-learning classes and e-mentoring via Microsoft Teams meetings) and synchronous in-class format (instructor-led face-to-face class learning path, assessments/tests). The online learning process, which is the first step of the blended education process, contributes to the selection of people with high learning responsibility competence among Medical Representative candidates. Candidates who take responsibility for learning are successful, especially in the first week of the online education process. This system ensures that candidates who are responsible for learning are recruited.

Abdi Ibrahim provided a Cross Knowledge account for each representative to enable their access to the training programs, while to overcome the potential technical-equipment issues in reaching education materials, each representative candidate was provided with the tablets. The Cross Knowledge in an online learning platform using a structured Blended^X technology, and a user-friendly interface, which aims to give room for both formal and informal learning to happen with learning resources and social activities, to create the right

balance between online and face-to-face training, and synchronous and asynchronous activities and to foster interaction and reinforce learning through polls, assessments, quizzes, surveys, assignments and more [13]. *2.3. Details of training programs: Timeline and focus*

The blended learning program was applied in consecutive periods of phase 1 (4 weeks), recruitment, phase 2 (8 weeks) and phase 3 (5th month). In the phase 1, "Essentials on Product Sales Training" were provided over 23 days of training including 12 days of asynchronous training and 11 days of synchronous training. Then recruitment was performed, as followed by phase 2 which focused on "Onboarding: Systems, Procedures and Practice" through asynchronous and on job activities performed over an 8-week period. Phase 3 was the last phase of the program applied at the 5th month which focused on "Sales Training Advance" via a 10-day training including 8 days of asynchronous training and 2 days of synchronous training (**Fig 1**).

In the previous traditional learning program, Phase 1 was entirely based on a 27-day synchronous training, which necessitates all participants from many different cities across Turkey to accommodate in a hotel. Also, after the recruitment, the program involved only Phase 2 which focused on "Onboarding: Systems, Procedures and Practice" through asynchronous and on job activities performed over an 8-week period, with no Phase 3 period. Hence, the new blended learning program significantly differed from the previous training program, particularly in terms of including a shorter and blended version of the Phase 1 period and the addition of a new Phase 3 period (**Fig 1**).



Fig 1: Timeline and content of the inexperienced medical representatives onboarding program: Comparison of the previous and the new blended learning training programs

As a result, the training process, which took place face-to-face for 27 days and with accommodation previously, was reduced to 23 days in total, 12 days were remote and 11 days were carried out face-to-face and with accommodation (**Fig 2**).

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
						0
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17 🖕	18	19	20	21
22	23	24	25	26		

Fig 2: The schedule for a 23-day Phase 1 program

Although Phase 2 was delivered in the same way, a new phase was added when the employee completed the 5^{th} month, based on his experience. The main goal was to move the level of knowledge and competence that the employee can absorb at the required level in the first phase, after gaining a certain experience, to a higher level (**Fig 1**).

2.4. Phase 1: Modules and training activities

The Phase 1 of the blended learning program consisted of five different modules including Module 1 (Medical Essentials), Module 2 (Medical Product), Module 3 (Product Marketing), Module 4 (Sector Knowledge) and Module 5 (Sales Skills). The training activities were composed of Blended^X (self-paced asynchronous learning path), synchronous teams (online meeting), synchronous class (instructor-led face-to-face class), asynchronous quiz (self-paced quiz with no surveillance), synchronous online quiz (with surveillance), synchronous in-class quiz (with surveillance) and N-forcer reinforcement (daily micro-quiz to reinforce knowledge), depending on the content of the module. Except for the last module "Sales Skills", there were no synchronous class activities in any of the modules (**Fig 3**).

experienced Med Rep Onboarding	Module 1	Module 2 Medical	Module 3 Product	Module 4	Module 5
ended Learning Program - PHASE 1	Essentials	Product	Marketing	Knowledg	• Skills
BLENDEDx: Asynchronous Learning Path	Ø	Ø	\otimes	Ø	\otimes
SYNCHRONOUS Teams: Online meeting	Ø	Ø	Ø	Ø	\otimes
SYNCHRONOUS Class: Face-to-face class	\otimes	\otimes	\otimes	\otimes	Ø
ASYNCHRONOUS Quiz: Self-paced quiz, no surveillance	Ø	Ø	Ø	Ø	⊗
SYNCHRONOUS Online Quiz: Online quiz with surveillance	Ø	Ø	Ø	Ø	\otimes
SYNCHRONOUS Quiz: In-class quiz with surveillance	Ø	Ø	\otimes	Ø	Ø
N-forcer Reinforcement : Daily micro-quiz to reinforce knowledge	Ø	Ø	Ø	Ø	Ø

Fig 3: Modules and training activities in phase 1 of blended learning program

An illustrative example of how a module was carried out is provided in Fig 4, based on one of the Phase 1 modules (Module 2: Medical Product Training). Each medical representative was responsible for the promotion of an average of 4 products. Training for one medical product training was carried out face-to-face in 1.5 days in the old program. In the new blended learning program, the employee candidates were expected to complete the asynchronous digital training first, which was followed on the same day (Day 1) by a 2-hours synchronous online meeting with the medical manager in groups of 10-15 people. In this meeting medical manager answered the questions of the employees who have completed the digital program, reinforced the subjects that were not well understood and improved the pronunciation of Latin concepts with some games to enable employees to have the medical knowledge about the product at the expected level. The next morning (Day 2), employee candidates had a digital test limited to 1 hour to measure the acquired knowledge level, which was followed by a 2-hour synchronous online meeting with the product manager and sales manager. In this meeting, employees received training on topics such as the marketing strategy of the product, its position and positioning according to the competition. Throughout this process, the employee's training participation, completion rates and success in tests were closely monitored. Employees who fail to show the expected development motivation and development performance may be eliminated in the process (Fig 4).



Fig 4: Execution of one of the Phase 1 modules (Module 2: Medical Product training)

Hence, a 1.5-day long training differed significantly between the new blended learning program and the previous program, by enabling transition from a 9-hour synchronous in-class training to a blended training including 4 hours of asynchronous training (digital program and digital quiz) and 4 hours of synchronous online training (Fig 4).

2.5. Details of the asynchronous and synchronous parts of the training program

The blended learning model was based on asynchronous training which was followed by synchronous training. The asynchronous training comprised a 2-3-hour video contents prepared by the medical managers, quiz, discussions, documents and satisfaction survey, available on computers and on mobile devices (Fig 5). In this asynchronous part of the training, representatives assigned to training programs by the trainers were expected to watch the short education videos about their area of expertise and study the summarized content of training provided in the form of booklets. Afterwards they completed a mini test to determine their level of knowledge, which can be repeatable in case of failure and/or the low level of knowledge acquired. Then, openend questions were asked to each representative in order to share their best practices, experiences and opinions. Also, an end-of-program test was applied to determine the efficacy of asynchronous part of the training program, while each representative also provided feedback regarding each video in the training program through a completion of end-of program satisfaction survey. After completing the asynchronous part of training program, each representative participated in the synchronous online part of the training program which was

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carried out as Microsoft TEAMS (video conference) meetings moderated by the medical managers. Medical managers evaluated the reports for every representative before the onset of synchronous part of training to determine which part of the education to be repeated (**Fig 5**).



Fig 5: Details of the asynchronous and synchronous parts of the training program

2.6. Statistical analysis

Statistical analysis was performed using IBM SPSS Statistics for Windows, version 22.0 (IBM Corp., Armonk, NY). Descriptive statistics are reported including means for continuous variables and percentages for categorical variables.

III. **RESULTS**

3.1. Program participation

Overall, 250 inexperienced medical representatives received the 2020-2021 blended learning training course and the first 197 graduates were hired at the beginning of 2021. *3.2. Measurable Benefits*

Adopting the blended learning model revealed measurable benefits in terms of an increase in the overall learning hours by 32.3% (from 31 hours in the previous model to 41 hours in the current model) with 60.7% lesser contribution of in-person training (16.2 hours in the current model vs. 26.2 hours in the previous model) and a 5-times greater contribution of online training (23.9 hours in the current model vs. 4.8 hours in the previous model) along with a considerable decrease in the total duration of in-person training by 14 days (from 25 days in the previous model) (**Table 1, Fig 6**).

	2019- Face-to-face learning model	2021-Blended learning model
Duration of training (days)		
Online	5 days	12 days
In-person	25 days	11 days
Learning hours		
Online	4.8 hours	23.9 hours
In-person	26.7 hours	16.2 hours
Total	31 hours	41 hours
Final examination score,	89.0	97.0

Table 1. Measurable benefits of the blended learning model compared to the previous model

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mean		
Satisfaction with training	83%	92%
Workload (managers)	600 working days	182 working days
Cost of training (total	1.950.000 TL	1.150.000 TL
budget)		



Fig 6. Measurable benefits of adopting the blended learning model

The blended learning model, when compared to previous face-to-face model, resulted in higher final examination scores (mean 97.0 vs. 89.0) and a higher trainee satisfaction with the training program (92% vs. 83%), indicating ~10% increase in achieving successful and satisfactory outcome (**Table 1, Fig 6**).

In addition, use of blended learning model was associated with reduced financial costs by 36% (overall 800.000 TL cost saving) and a decrease in the workload of medical and product managers who saved nearly 418 working days (from 600 to 182 working days) corresponding to 7% of yearly working days (**Table 1, Fig 6**).

IV. DISCUSSION

The use of a newly designed blended learning model in the pre-onboard training program for medical representatives by Abdi Ibrahim revealed favourable outcomes in terms of the higher success and benefit from the program with improved trainee satisfaction (increased by 10%) in addition to cost savings in total budget (by 36%) and improved resource utilization via time relief for tutors, when compared to the previous traditional face-to-face training program. Accordingly, the transition to a blended learning training program which is prepared by the digitalization of education materials and delivered via a web-based learning management system (LMS; Cross Knowledge) providing technology infrastructure (structured Blended^X technology) seems to confer several advantages in terms of program execution and final success, trainee satisfaction and the total budget.

The favourable final outcome and high trainee satisfaction with our blended learning program emphasizes the success of our preparation and digitalization process aimed at delivering an optimal learning experience that is effective and appropriate for participants' learning needs [14-16]. By adopting a blended learning model, Abdi Ibrahim provided the medical representatives with a more personalized and effective training program which enabled a 14-day shorter "Product and Sales Training" without decreasing the total learning hours and gave medical managers 7% more time each year to perform other responsibilities.

In fact, use of blended learning enabled an average of 41 learning hours overall, which is 32.3% higher than the learning hours in the previous model, and also 8 hours more than the consolidated average (33 hours) across all industries and 11 hours more than the average learning hours used by healthcare and pharmaceutical organizations (30 hours) in 2021 as reported in 2022 State of the Industry report (SOIR) published by Association for Talent Development (ATD) [17]. Also, self-paced learning in the blended model, with a 5-times greater contribution compared to the previous model (23.9 vs. 4.83 hours) comprised nearly the half of total learning hours, which is notable given that in 2021, the average organization made 29 percent of its learning hours available via self-paced e-learning and used 30 percent of its learning hours via this method [17]. In this

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regard, our findings seem to indicate the successfully planned integration of face-to-face and online courses in our blended model with use of strengths of each approach in an appropriate and creative manner, enabling the flexibility and likelihood of trainees to absorb more in shorter online sessions, while significantly reducing traditional class contact hours [8,18,19]. In this way, our model seems to reach beyond the benefits of convenience, access and efficiency [8,18]. Abdi Ibrahim has decreased the time spend in hotels and in turn helping to save nearly 800.000 TL every year, while medical managers saved nearly 418 working days that equals their %7 of yearly working days.

Notably, in a survey by The Centre for Digital Education, the top benefits of blended learning were reported as the provision of alternate learning opportunities (92%) and distance learning (85%), promotion of more student engagement (70%), improved academic achievement (61%), ability to monitor student activity (73%) and decreased overall cost (54%) [20].

Our findings support the clearly documented benefits of blended learning previously in many settings, such as improved quality of learning and increased flexibility of training program with self-paced learning option and the reduced travel and accommodation costs by elimination of the geographical or time constraints often associated with traditional face-to-face learning [4,14,15,21-26]. Similarly, LMS-based blended learning in a pharma company was reported to reduce training costs by eliminating the need for unnecessary travel and logistical costs involved in-classroom training [8]. Also, the flexibility of blended learning with use of technology-assisted asynchronous sessions enabling accessibility of time and place in training, and thus the self-paced learning and chance of revisit the course content, was reported to be more satisfactory than instructor-led sessions by the medical representatives who find it hard to retain the complete information presented in the instructor-led sessions [7].

The training activities in our model were composed of Blended^X (self-paced asynchronous learning path), synchronous teams (online meeting), synchronous class (instructor-led face-to-face class), asynchronous quiz (self-paced quiz with no surveillance), synchronous online quiz (with surveillance), synchronous in-class quiz (with surveillance) and N-forcer reinforcement (daily micro-quiz to reinforce knowledge), depending on the content of the module. As corroborated by our findings, using blended programs with a mix of synchronous, asynchronous, co-located, and remote learning opportunities, are considered most likely to balance face-to-face learning benefits with e-learning flexibility [27,28].

Notably, our model involved both web-based and in-class post-tests that certifies the competency of new employees and the online surveys that allows participants to provide their feedback about the learning program for future improvements, which are considered critical elements of a blended collaborative training program that can help balancing learning and performance [6]. Accordingly, participants were better prepared to achieve the intended training results, while medical managers had a chance to make assessment of learners prior to primary training instruction and to know the experience or knowledge of learners which in advance enabled them to develop content that maximizes learning outcomes [5].

The excellent scores obtained on the end-of-program examination with our new training program and 10% increase in the program success compared to previous traditional training seem to support the previously reported association of blended learning with deeper learning and increased trainee learning outcomes [21,29-36]. Likewise, in a systematic review and meta-analysis of 20 studies with 4525 participants on the effectiveness of blended learning in pharmacy education, blended learning was concluded to be associated with better academic performance and achievement than didactic teaching in pharmacy education, along with a significant positive effect size on knowledge and skill using a random effect model [37].

The relevance and the quality of the contents of the modules and learning activities and the learners' motivation are also considered to be the factors involved in high trainee success rates [38]. The 10% increase in trainee satisfaction with use of traditional vs. blended learning model in our experience is important in this regard, given that the learners' satisfaction is considered one of the most important criteria for the effectiveness and successfulness of a training program [30,39,40].

The technical-equipment issues with limited access of students to education materials are reported amongst the major drawbacks of the blended learning [41]. To overcome this issue, Abdi İbrahim provided tablets to the newcomers and a Cross Knowledge account for unlimited access to the education programs. This seems notable given the significant relationship reported between the participants' unlimited accessibility to the computer and their attitude and level of satisfaction toward the blended learning strategy [30].

The main challenge in transitioning from traditional to a blended learning training seems to the preparation and planning phase. To be able to designing a blended learning model, the developer needs to have sufficient time to make a clearly conceived plan for smooth implementation of such a program with a variety of delivery modes and instructional strategies [5]. Abdi Ibrahim has more than 140 products, and the digitalization process during the redesign of the training program according to the blended learning model included preparation of 1034 new educational videos, 1045 summary pages, 1186 exams by medical managers before the recruitment period. This is in line with the trend towards the acceleration of digital transformations and more

effective use of technology to improve human performance and competencies across all industries based on market demands, which translates to improved capability of designing digital initiatives and digital content development with increased utilization of internal sources for the development of learning content and trainee roles [17,42].

In addition, while the constant accessibility and better flexibility concerning location and time is an important advantage of a blended learning method [41], since asynchronous instruction can happen anytime and anywhere, attrition remains to a problem even if time is provided for engagement in asynchronous learning [5]. Use of an LSM-based blended strategy in our training program seems particularly important in this regard, given that it can assist with the participant monitoring by an easier digital tracking process for the learner's presence, time spent on training as well as their progress and difficulties, which is imperative to guarantee training effectiveness [5,43]. Also, through the asynchronous online discussion forums and collaborative coaching sessions, our trainees experienced the advantage of sharing their thoughts, experiences, and best practices to learn from each other, as well as the communication with the members of the management team. This is important since the communication with continuous feedback with trainees is considered critical in the process, as training with varied events may become more complex to manage and implement during a blended learning course [5].

Training is an ongoing activity that starts from the induction and onboarding of the employees in terms of their knowledge transfer, certification, upskilling, and updating them through their journey in the organization. Hence, blended learning seems to play a crucial role in employee engagement and retention, by building a greater degree of automation and workflow systems in the pharma industry [8]. Up-to-datedness is also important for an innovative training program and thus self-paced learning through asynchronous part of the blended learning model should be based on materials that are accurately checked for up-to-datedness and refreshed continuously, rather than the material recycling from year to year [44]. Notably, thorough this initial blended learning experience, Abdi Ibrahim had a chance to build a standard medical education archive that can be upgraded when needed.

Finally, as training program applied in the COVID era, when it was impossible to complete a long-term education program in hotel with face-to-face education model due to restrictions, the use of the blended learning model enabled Abdi Ibrahim to manage to protect its employees from the COVID-19 threat.

V. CONCLUSION

In conclusion, the transition to a blended learning training program, with a successfully planned integration of face-to-face and online courses using the strengths of each approach, seems to confer several advantages in terms of program execution and final trainee success, trainee satisfaction and the total budget. By adopting a blended learning training approach, Abdi Ibrahim provided the medical representatives with a more personalized and effective training program which enabled a 14-day shorter "product and sales training" without decreasing total learning hours, a higher final success (improved by 10%) with improved trainee satisfaction (increased by 10%) in addition to cost savings in total budget (by 36%) and 7% decrease in workload of medical managers. Our findings emphasize the tangible impact of adopting a blended learning based medical representative training program on our company and the likelihood of this platform to provide further benefits in terms bringing uniformity to business processes, enhancing profitability, and improving operational efficiency, in accordance with the company's 2025 vision involving an industry-leading digitalization process aligned to the growth path of the company.

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