Blended learning on family planning policy requirements: key findings and implications for health professionals

Rupali J Limaye,[1] Naheed Ahmed,[2] Saori Ohkubo,[2] Anne Ballard[2]

[1]Department of International Health, Global Disease Epidemiology and Control, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA
[2]Center for Communication Programs, Johns Hopkins University, Baltimore, Maryland, USA

Correspondence to
Naheed Ahmed, Center for communication Programs, Johns Hopkins University, Baltimore MD 21202, USA; naheed.ahmed@jhu.edu

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ABSTRACT

Background To address unmet needs for family planning and advance women's rights, US federal foreign aid recipients must ensure compliance with the family planning legislative and policy requirements. Because many health providers work in rural and remote settings, blended learning, which combines in-person and online experiences, is a promising approach for strengthening their compliance knowledge.

Methods This cross-sectional study examined the effect of blended learning that included three components (online course, in-person training and conference call) on retention of family planning compliance knowledge. A total of 660 learners from 44 countries completed the online survey (8% response rate). Study participants were asked about their knowledge of family planning compliance and suggestions to improve their learning experiences.

Findings Knowledge retention was higher in the group that utilised all three learning approaches compared with the online course plus conference call group (P<0.05). Participants who took the online course multiple times tended to retain knowledge better than respondents who took it only once, although this result was not statistically significant.

Limitations The study relied on a convenience sample, which may contribute to bias. The response rate, while low at 8%, was representative of the user base, and included 660 respondents.

Conclusion Participation in a blended learning training resulted in the highest gains in knowledge retention compared with online-only learning. These findings suggest that blended learning and repeat online trainings are critical to ensuring health professionals are aware of family planning compliance regulations.

Key messages

- Results from this study suggest that blended learning initiatives may be an effective approach to increasing knowledge of family planning compliance among health professionals in low- and middle-income countries.
- Blended learning approaches, specifically online and in-person courses, reinforced key messages and knowledge retention of family planning compliance.
- Health professionals in low- and middle-income countries have limited access to health information, and this study indicates that blended learning interventions may be one approach to increasing their learning opportunities.

INTRODUCTION

Modern family planning methods have made it possible for women to plan when and if they have children, the benefits of which impact not only women but also their families and societies at large in terms of health and economic welfare.[1] For example, when women space their births, it allows them to recover from pregnancy and plan for a specific number of children commensurate with a family's resources.[2]

For over 50 years, the basic principles of voluntarism and informed choice have guided US assistance for family planning. These principles are codified in US legislation and United States Agency for International Development (USAID) policy. The guiding principle of these requirements is that "individuals and couples in developing countries have access to voluntary family planning services and are free to make informed decisions about their reproductive lives".[3] To that end, the US government requires its employees and aid recipients to complete family planning

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compliance training to ensure awareness and adherence to US laws.

In order to ensure that programmes are implemented in line with these principles, it is critical that international family planning health professionals – both those based in the US and in other countries around the world – receive timely, accurate information on relevant laws and regulations. This is a significant issue in lower- and middle-income countries in particular, where access to health information resources may be limited.[4]

In order to reach and educate health professionals around the globe, USAID established The Global Health eLearning Center (GHeL), which provides free, self-paced online courses on a variety of health topics. GHeL offers a number of compliance courses, including 'US Abortion and Family Planning Requirements,' which provides an overview of US abortion and family planning legislative and policy requirements. Users are able to move back and forth between training modules in the course, and take the course multiple times. Since the course was launched in July 2013, approximately 15 589 learners have completed the compliance course. It is strongly recommended that US foreign aid recipients who work on family planning programme complete the course annually.

Online learning can increase access to education around the world, strengthen the healthcare workforce capacity in low- and middle-income countries, and address faculty shortages.[5] Blended learning combines traditional learning settings (ie, face-to-face learning) with online learning approaches. The objectives of blended learning are to strengthen learning outcomes and application of knowledge by providing a variety of approaches to ensure that learners receive information in the format that works best for them.[6 7] Therefore, USAID also provides other learning opportunities, such as in-person trainings and annual conference calls, to support a blended-learning environment for US government employees and implementing partners completing the compliance course.

A number of studies have explored the value of blended learning compared with traditional learning settings or online-only settings. Some studies suggest higher knowledge retention among blended learning students compared with traditional or online-only learning models, while other studies indicate no difference in knowledge retention between the approaches.[5 8] Other studies comparing blended learning with online-only formats suggest students prefer the blended learning approach because course instruction is clearer and the workload is less burdensome.[9–11] Findings from other studies suggest that blended learning is an effective approach for teaching medical information and fostering skills development.[8] However, many of these studies evaluated blended learning approaches among higher-education students in high-income countries; few studies of learners in lower- and middle-income countries exist.[12–14]

Blended learning is a promising approach for strengthening the technical and operational knowledge of health professionals in lower- and middle-income countries. However, there has been no systematic study of the relationship between various learning approaches and the impact on learning outcomes within this context. This study addresses this research gap by examining the effect of a blended learning model that included three components (online course, in-person training and a conference call) on knowledge retention among US federal foreign aid recipients in lower- and middle-income countries.

This article examines the effect of different learning models used in the 'US Abortion and Family Planning Requirements' compliance course on knowledge retention among health professionals in lower- and middle-income countries, and the implications of these results for distance learning initiatives around compliance and other global health topics. More specifically, this study sought to answer the following research question: Which learning approach or combination of approaches resulted in greater knowledge retention among participants who completed the 'US Abortion and Family Planning Requirements' compliance course?

METHODS

Design

This cross-sectional study collected data through online surveys.

Study sample

Using purposive sampling, respondents who had completed the 'US Abortion and Family Planning Requirements' course between July 2013 and April 2015 were sent an email invitation to complete an online survey. A total of 8099 learners received the email invitation, of which 660 completed the survey (8% response rate). The survey consisted of 36 questions about knowledge and challenges related to family planning, sources of information related to compliance, retention and application of family planning and abortion compliance knowledge, motivations and satisfaction with trainings, and suggestions for improving trainings. The primary outcome of interest included knowledge retention related to compliance with family planning and abortion requirements.

Data collection

Surveys were administered over a 3-month period. The survey instrument was developed by members of the study team, and was finalised after several rounds of pre-testing. Pre-testing was conducted before the survey was sent to potential respondents with a small sample of GHeL users. Once the survey was sent out, it was not edited. The survey was offered in English

Table 1 Exposure categories

Exposure Group 1				
1A: Took online course		1B: Blended learning: took online course and participated in in-person training and/or participated in conference call		
Exposure Group 2				
2A: Took online course	2B: Took online course more than once	2C: Took online course and participated in in-person training	2D: Took online course and participated in conference call	2E: Took online course, participated in in-person training, and participated in conference call

because the 'US Abortion and Family Planning Requirements' course is only available in English.

Data analysis

Survey data were analysed through SPSS (v.23) and STATA (v.14). After cleaning the data, bivariate analyses were conducted to ascertain associations between the primary outcome of interest and other relevant variables.

As this study was primarily interested in understanding the differential effects of various learning approaches, respondents were split into exposure group types. Respondents had several opportunities for exposure to trainings related to compliance with family planning and abortion requirements: by taking the online course, by participating in an in-person training, and by participating in a conference call. USAID conducts the in-person trainings for its staff and partners, and conference calls for its staff.

After conducting preliminary analysis, data were analysed in two different ways (table 1). The first group, Exposure Group 1, had two exposure categories: respondents who took the online course only (Group 1A) and respondents who took the online course and attended an in-person training and/or participated in the conference call (Group 1B). The second group, Exposure Group 2, had five exposure categories: respondents who took the online course once (Group 2A), respondents who took the online course multiple times (Group 2B), respondents who took the online course and participated in an in-person training (Group 2C), respondents who took the online course and participated in the conference call (Group 2D), and respondents who took the online course, participated in an in-person training, and participated in the conference call (Group 2E).

Outcome variable

We were interested in one main outcome, namely knowledge retention.

Knowledge Retention

Respondents were asked to answer 10 knowledge questions that covered topics included in the trainings, such as requirements under relevant legislative amendments, appropriate monitoring methods, permitted compensation methods for referral agents, and standards related to specific family planning methods. A knowledge score was created that comprised these 10 questions. For each correct question, the respondent was awarded one point with total scores ranging from 0 to 10. Mean scores were then calculated to assess how knowledge differed across the learning types.

RESULTS

Background of respondents

Most (56%) of the survey respondents were men. Almost all the respondents (96%) were from lower- and middle-income countries – 59% from sub-Saharan Africa, 35% from Asia and 2% from other regions.

Respondents were public health professionals with varying levels of experience. A majority (70%) reported working for an non-governmental organisation (NGO) or private voluntary organisation (PVO); 18% of respondents worked for USAID, including USAID Missions (14%) and USAID/Washington headquarters (4%). The vast majority (72%) of respondents reported working in family planning and/or reproductive health as their technical focus area, while 40% said they worked in HIV/AIDS. More than half identified themselves as either a programme manager (31%) or technical advisor (25%).

Retention of knowledge related to family planning and abortion legislation compliance

Mean knowledge scores varied significantly by respondent characteristics, such as country income category and sex, with respondents from higher-income countries scoring higher than those from lower- and middle-income countries, and women scoring higher than men. However, there was no difference in mean knowledge scores with regard to country family planning priority status (priority status as determined by the US. government) (table 2).

There was no significant difference in mean knowledge scores between groups in Exposure Group 1 (mean score of 7.83 for Group 1A compared with a mean score of 7.61 for Group 1B). However, mean scores differed significantly within Exposure Group 2 (table 3). Those respondents who took the online course, participated in the in-person training, and participated in the conference call (Group 2E) scored highest, followed by the respondents who took the online course multiple times

Table 2 Mean knowledge scores by respondent characteristics

Characteristics	Mean score (SD)	P value
Country income category		<0.05
Lower and middle (n=622)	7.73 (1.98)	
Higher (n=16)	8.94 (1.39)	
Sex		<0.05
Male (n=362)	7.59 (2.05)	
Female (n=289)	7.93 (1.89)	
Family planning priority status		0.95
Priority (n=541)	7.74 (1.97)	
Non-priority (n=119)	7.81 (2.01)	

(Group 2B) and the respondents who took the online course once (Group 2A).

DISCUSSION

The findings from this study support blended learning as an important strategy for reaching health professionals in lower- and middle-income countries with information about family planning and abortion requirements. Findings on knowledge retention suggest that respondents who took the online course multiple times had high knowledge retention. Respondents who participated in all three learning approaches had greater knowledge retention in comparison to respondents who completed only one or two of the learning modes. These findings suggest that blended learning and repeat online trainings are critical to ensuring health professionals are aware of family planning compliance regulations.

Although this study did not evaluate the cost-effectiveness of the different learning modes, we must note that blended learning approaches may require more resources than traditional approaches, due to their reliance on multiple modes of instruction and user requirements. In addition, our study suggests that stand-alone conference calls may not be the most effective mode for conveying information related to family planning and abortion requirements. However, conference calls, bundled with other modes of learning, do have the potential to transfer knowledge effectively. As such, the results of our study will be used to inform learning strategies related to family planning and abortion requirements for US foreign aid recipients.

These results have broader implications for long-distance learning for health professionals in general. While online courses are effective teaching platforms for reaching health professionals in lower- and middle-income countries, blended learning models have the potential to reinforce learning, which is crucial to ensuring health professionals around the world have access to accurate and timely health information.

STUDY LIMITATIONS

This study has several limitations. A few survey respondents misunderstood and misclassified their participation in the in-person training and conference call. Project team members followed up with several study participants to gather additional information regarding ease of use of the various learning approaches. During follow-up of selected participants, project team members ascertained that a number of participants who said they attended the in-person training had actually participated in an in-person training on family planning compliance provided by a different organisation. Some implementing organisations offer their own US family planning compliance training, the content of which is unknown to us, but we know that the GHeL online course is strongly recommended for staff of organisations receiving US foreign aid for family planning. In addition, in a handful of instances, several respondents indicated that they had participated in the annual conference call, but cross-checks against the invitee list indicated they had never actually been invited to participate in the call. On further probing, it was understood that they had actually participated in a compliance-related conference call hosted by another organisation.

Related to the conference calls, we heard anecdotally that the calls had many participants, at times there was background noise, and we speculate that callers may not be fully engaged. Several exposure categories also had a small number of participants, which limits the interpretation of results. Finally, the study relied on a convenience sample, which may contribute to bias.

The response rate of 8% is a significant limitation. Nonetheless, the study sample was representative of the GHeL user base in terms of profession and geographic location. Of the top 10 countries that contributed to the survey, the top six – Kenya, Bangladesh, Nigeria, Nepal, the Philippines and Rwanda – are also ranked in the top 10 countries earning GHeL certificates from 1 September 2014 to 31 October 2015. The vast majority of respondents worked in family planning priority countries and were from lower- or middle-income countries.

Table 3 Mean knowledge scores for exposure group 2

	Mean score (SD) by group					
	2A: Online once (n=217)	2B: Online multiple times (n=204)	2C: Online+in-person (n=201)	2D: Online+ conference call (n=16)	2E: Online+in-person+ conference call (n=22)	P value
Value	7.63 (1.95)	8.05 (1.80)	7.55 (2.11)	6.88 (2.45)	8.68 (1.64)	<0.05

CONCLUSIONS

Participation in a blended learning training resulted in the highest gains in knowledge retention compared with online-only learning, suggesting the importance of global health education initiatives using blended learning to disseminate information on global health topics. To validate these findings and contribute to the evidence base on blended learning for health professionals, we recommend that researchers embarking on similar research evaluate blended learning models in lower- and middle-income countries. Similarly, we recommend continued research on the impact of blended learning among specific cadres of health workers and various global health topics to better understand the potential impact of blended learning on global health.

Availability of data and material

The datasets generated and analysed during the current study are not publicly available due to the IRB application not including the public release of the study data, but are available from the corresponding author on reasonable request. This work was presented at the 8th Annual Consortium of Universities of Global Health Conference in April 2017 in Washington, DC.[15]

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Ethics approval The Johns Hopkins Bloomberg School of Public Health Institutional Review Board reviewed this study and classified it as non-research.

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REFERENCES

1 Butler AS, Clayton EW, eds. *A review of the HHS family planning program: mission, management, and measurement of results*: National Academies Press, 2009. https://www.ncbi.nlm.nih.gov/pubmed/25009936 (accessed 4 Dec 2016).
2 Denton EH. Benefits of family planning. *Global Population and Reproductive Health* 2014:199.
3 United States Agency for International Development (USAID). USAID's family planning guiding principles and U.S. legislative and policy requirements. https://www.usaid.gov/what-we-do/global-health/family-planning/usaids-family-planning-guiding-principles-and-us-0 (accessed 4 Dec 2016).
4 Pakenham-Walsh N, Bukachi F. Information needs of health care workers in developing countries: a literature review with a focus on Africa. *Hum Resour Health* 2009;7:1.
5 Frehywot S, Vovides Y, Talib Z, *et al*. E-learning in medical education in resource constrained low- and middle-income countries. *Hum Resour Health* 2013;11:4.
6 Chio K, McLean L, Mazursky S, *et al*. *K4 health blended learning guide*. Center for Communication Programs, Johns Hopkins Bloomberg School of Public Health; Cambridge, Massachusetts, Management Sciences for Health: Baltimore, Maryland, 2013.
7 Singh H. Building effective blended learning programs. *Issue of Educational Technology* 2003;43:51–4 http://asianvu.com/bookstoread/framework/blended-learning.pdf
8 Kiviniemi MT. Effects of a blended learning approach on student outcomes in a graduate-level public health course. *BMC Med Educ* 2014;14:47.
9 Akyol Z, Garrison DR. Understanding cognitive presence in an online and blended community of inquiry: assessing outcomes and processes for deep approaches to learning. *Br J Educ Technol* 2011;42:233–50.
10 Al-Qahtani AAY, Higgins SE. Effects of traditional, blended and e-learning on students' achievement in higher education. *J Comput Assist Learn* 2013;29:220–34.
11 Lim DH, Morris M, Kupritz V. Online vs. blended learning: differences in instructional outcomes and learning satisfaction. *Journal of Asynchronous Learning Networks* 2007;11:27–42.
12 Atkins S, Yan W, Meragia E, *et al*. Student experiences of participating in five collaborative blended learning courses in Africa and Asia: a survey. *Glob Health Action* 2016;9:28145.
13 Lucas H, Kinsman J. Distance- and blended-learning in global health research: potentials and challenges. *Glob Health Action* 2016;9:33429.
14 Protsiv M, Rosales-Klintz S, Bwanga F, *et al*. Blended learning across universities in a South-North-South collaboration: a case study. *Health Res Policy Syst* 2016;14:67.
15 Ohkubo S, Limaye R, Ahmed N, *et al*. Blended learning on family planning policy requirements: key findings and implications from a mixed methods study. *Ann Glob Health* 2017;83:125.