Can an interactive e-learning training package improve the understanding of personality disorder within mental health professionals?

Lamph, G, Sampson, M, Smith, D, Williamson, G and Guyers, M

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Authors	Lamph, G, Sampson, M, Smith, D, Williamson, G and Guyers, M
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Introduction

Mental health services have seen a significant increase in mental health needs since 1993 (Mental Health Networks NHS Confederation, 2011). Although the prevalence of borderline or antisocial personality disorder has not increased in the general population the prevalence of personality difficulties is significant higher with up to 72% of the general population reporting personality difficulties (Yang et al, 2010). Mental health services are a seeing an increase in people with personality related difficulties with many having problems consistent with long standing difficulties in coping and therefore many will be meeting the diagnosis criteria for a personality disorder. It has been repeatedly demonstrated that people with this diagnosis elicit strong emotions and experience negative attitudes from mental health staff (Bodner et al, 2015).

This paper sets out to provide an overview of the design and development of a co-produced e-learning training package for personality disorder awareness and an evaluation of its effectiveness. This study was carried out to explore if e-learning is an effective mode of training delivery for raising personality disorder awareness. The evaluation took place within the geographical footprint of the North West Boroughs Healthcare NHS Foundations Trust (previously 5 Boroughs Partnership NHS Foundation Trust) and trust permission was sought and granted via the Trust R&D department.

Face to face training in this subject has also been made available in various formats to those working in this geographical area. Previous evaluations of face to face training have focused on mental health professionals (Davies et al, 2014), mixed multi-agency workers (Lamph et al, 2014) and one external evaluation with mental health professionals (Ebrahim et al, 2015). These papers will be used to provide comparisons in the evaluation of this project.

Background

Since the ground breaking publication of 'No-longer a diagnosis of exclusion' (NIHME, 2003) significant work has been carried out to address the awareness deficits of health professionals and negative attitudes towards personality disorder. There have been several randomised controlled treatment trials (RCT's) for borderline personality disorder (Stoffers et al, 2012) and antisocial personality disorder (Gibbon et al, 2010) and two NICE clinical guidelines – 'Borderline personality disorder guidance 78' (NICE, 2009a) and 'Antisocial personality disorder guidance 77' (NICE, 2009b) that recommended care and treatment approaches for people whose needs meet these disorders.

In addition to treatment progress, training and raising awareness of personality disorder has been a key focus since the 'Personality disorder, no longer a diagnosis of exclusion policy paper' (NIHME, 2003) and the subsequent personality disorder capabilities framework (NIHME, 2003b). In 2007 a national partnership between the Institute of Mental Health, Nottingham; the Tavistock and Portman NHS Foundation NHS Trust, Emergence; and the Open University was commissioned, jointly by the Department of Health and the Ministry of Justice (UK government bodies). This collaboration developed an inspirational national training programme that challenged misconceptions about personality disorder. Not just with the training content, but in the way the training was developed and presented in co-production with people with lived experience of personality disorder. The Knowledge and Understanding Framework (KUF) as it was called, was co-produced and co-delivered by 'experts by experience' and 'experts by occupations'. The whole training approach from development to delivery was set out to challenge misconceptions and stigma associated with people who met the diagnosis of personality disorder.

In the UK, the KUF is a highly regarded multimodal co-produced personality training programme, with the standard awareness level format co-delivered by experts by experience (EBEs) and expert by occupation (EBOs) over three days with an impressive Virtual Learning Environment (web based learning aide) that is used within and between the three training days.

Review of evaluated personality disorder training in the UK

Evaluations of the KUF training have demonstrated that this training has a significant impact on staff's understanding of personality disorder; enhances their positive emotion to working with personality disorder; and also improves their belief in their own capability in working with people with this diagnosis. What is also encouraging is that this training works with multi-agencies as well as health staff and can be delivered locally with equally good results (Lamph et al, 2014, Davies et al, 2014 and Ebrahim et al, 2016).

Despite these positive results, questions still remain about its longer term effectiveness. Whilst all evaluations have shown a positive effect between pre training scores and post training scores, a decline at follow up is consistently reported. Both Davies et al (2014) and Ebrahim et al (2016) identified a reduction in practitioner perceived capabilities (confidence in working with personality disorder) as at the 3 and 6 months follow ups, many of the gains immediately post training were lost. Whilst Lamph et al (2014) found that all areas showed a reduction in effect at the 3 month follow up, this reduction was more markedly reported in those without a core professional background.

Ebrahim et al (2016) highlighted several key points for future research. One area that they felt warranted further investigation was to explore the individual components of the training to explore the impact of the multimodal KUF training. A need for ongoing training, support and application of skills to practice is highlighted (Ebrahim et al, 2016). However repeated KUF training every year is unlikely to be supported and refresher type training is suggested (Lamph et al, 2014).

Whilst KUF does show some positive change in delegates understanding, capabilities and emotional reactions, over time these results decline but not to baseline pre-training levels (Lamph et al, 2014; Davies et al, 2014 and Ebrahim et al, 2016). Furthermore, there is still a large population of health-care professionals and multi-agency partners who have not received this training as KUF is not routinely available in all areas. The accessibility of 3 days training plus a VLE component has also been a point of contention in some services that are under increasing pressures.

It is suggested that the public sector continues to value training and a need for smarter training strategies has been recommended (Jewson et al, 2015). This was a driver for the development of a more accessible and cost effective e-learning approach to raising personality disorder awareness training. However, the challenge was whether any personality disorder e-learning training program could incorporate co-production and the powerful implicit challenges to stigma of co-delivery. Although e-learning is often seen as pragmatic approach to delivering wide scale training the authors did not want this to be at the cost to effectiveness.

The mode of training delivery

There have been several evaluations comparing face to face training against online training. There are arguments for and against e-learning. One view is it's the method that is important in training outcomes not the mode of delivery (Biel and Brame, 2016).

E-learning has in recent years become an increasingly popular mode of training delivery. This could be attributed to the advances in and increased accessibility to technology. E-learning is a highly accessible mode of delivery and is cost effective, as it is often completed in reduced time and without the additional room or travel costs (Clarke and Mayer, 2016). It is however argued that e-learning should not be made routinely available without a thorough evaluation (McCarthy, 2014).

Within this paper we explored whether this concept can be applied to personality disorder awareness training by changing the mode of delivery away from face to face, to delivery via e-learning.

Consequently and in adherence with the methods employed in KUF, we mirrored the key ingredients of co-production by ensuring that this was co-produced in the development of e-learning personality disorder training and the service user voice was fundamental to the programme.

Development of the E-learning

In this project the aim was to see whether incorporating the principles of co-production with service users and service user experience into a short e-learning programme, delivered in group format, would be effective.

To evaluate the effectiveness of the training we used the PD –KASQ (Bolton et al, 2010). This evaluation tool was also used in other studies evaluating the effectiveness of KUF, hence enabling the drawing of comparisons (Lamph et al, 2014; Davies et al, 2014; Ebrahim et al, 2016). This project set out to explore whether a short 2 hour e-learning programme would demonstrate similar improvements in attitude change as seen in the above studies.

This e-learning was commissioned after personality disorder awareness was identified by 7 Mental Health Trusts in the North-West and also the North-West e-learning lead as a high priority area. This awareness was highlighted as important for staff development as many Trusts at that time had no or limited access to personality disorder awareness training as an online training provision for their staff.

An initial analysis was carried out by the North West e-learning lead in collaboration with the identified subject matter experts. The e-learning was developed in the NHS de-facto rapid development tool called 'Lectora'. This is an e-learning development tool that the NHS adopted to create e-learning quickly. This was to ensure that the learning could be made available to the widest audience in the North West. In an attempt to ensure that the service user's voice presented in the e-learning it was decided that the e-learning would be built around videos developed by people with lived experience of personality disorder. Therefore design adopted gave significant bias towards a video scenario approach due to the considerable research into the use of video to motivate and engage staff (Kindley, 2002)

A thorough pre-course analysis was carried out to identify the audience, include relevant resources and to employ the most engaging design approach. A collaborative and learner focused approach was taken by the

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North West e-learning lead and subject matter experts. Focus groups were set up and experts in the field from several neighboring NHS Trusts offered feedback on the content for refinement in its draft stages. The North West Boroughs Healthcare NHS Foundation Trust took a lead role in the design and development of this e-learning due to their extensive experience in the delivery of personality disorder training strategies that had embraced the method of co-production.

A Model of Co-production

A group of patients, carer's and EBE's who were part of the face to face training teams in the North West Boroughs NHS Foundation Trust played a key role in the development of the materials. All members of this group were registered, trained and experienced KUF trainers. This ensured that the lived experience voices that had made the KUF so successful and the method of co-production was still evident within this training resource. They were involved in the very early stages of the e-learning course development to provide insight and lead the development in the right direction.

This group provided 3 service user developed videos that provided a spine to the e-learning training: that guided the learning, reflection opportunities and the training aids. Incorporating these videos ensured that those with lived experience were given a voice, heard and at the heart of this training. This also mirrored the model of co-production in an attempt to replicate the success of the KUF programme. The videos covered the following areas;

- The development of personality disorder,

- The interpersonal interactions of staff and patients

- A positive story recovery and the factors that aided recovery

The e-learning videos provided were developed by experts with lived experience of personality disorder diagnosis. The experts by experience wrote the scripts and participated in the filming of the videos – experts by experience also provided the captions for the photographs. These were used to guide reflective practice and were also interactive with the content of the e-learning with delegates completing a series of exercises that related to and complemented learning from the videos.

In addition, a consultation group was also formed, made up of leading personality disorder clinicians from across the North West. This group provided advice and consultation in the early development phases and then

subsequently provided feedback on the materials which were then refined before the e-learning was made available.

The North West e-learning lead developed the individual components of the e-learning and carried out the technical work to put the content into an e-learning format. Throughout the programme a mixture of interactive styles and exercises are used to ensure that the learner remains engaged and interested.

Evaluation Methodology

Design

The e-learning was evaluated following a similar procedure to the published evaluations of the KUF training as discussed earlier (Lamph et al, 2014, Davies et al, 2014). Pre and post scores were collected (a repeated measure within-participant approach) and the scores used to evaluate participant learning. Self-reported measures were completed 3 times to evaluate the training's effectiveness with individuals who deliver care or come in contact with individuals with a personality disorder diagnosis. Three questionnaires at 3 separate intervals were completed to evaluate the data: prior to completion, upon completion and three months following completion. Quantitative data was collected via these questionnaires. The self-reported measures were employed in an attempt to reduce bias given several of the e-learning development team were also involved in its evaluation. However authors (MG and DS) were independent from the development process. MG was responsible for the facilitation of a majority of the e-learning groups and gathering of the self-reported evaluations, whilst (DS) was responsible for the analysis of results.

Recruitment

This was achieved through contact with:

- North West Boroughs NHS Foundation Trusts (via a staff training communications email)

- Mental health nursing tutors at Liverpool John Moores University

- 3rd sector care providers.

E-learning Participants

The e-learning programme was delivered to (n=80) participants over the course of 1 year and 7 months. Participants with various occupations and qualifications were invited to attend training via self-selection. Participant's job roles varied with a high proportion of learners coming from both qualified and non-qualified hospital ward or community based positions. Of those participants who provided information, 45% had worked in the mental health field for over 5 years, 10% for 3-5 years, 17% for 1-3 years and 28% for less than 1 year. 66% of the participants reported they had not had any personality disorder training. 31% reported they had, whilst 3% chose not to answer.

<u>Materials</u>

Personality disorder awareness training was delivered by the use of an interactive e-learning training package. It required learners to independently read and understand 4 sections:

- What is personality disorder?

- Why is it my business?

- Working with personality disorder.

- Recovery.

The sections included written materials, interactive questions and answers pages and linked to the EBE developed videos. All learners were warned prior to the commencement of learning that the course contained some emotionally powerful video content and explicit language.

<u>Outcome Measures</u>

<u>PD-KASQ</u>

The Personality Disorder-Knowledge, Attitudes and Skills Questionnaire (PD-KASQ) (Bolton et al, 2010) was used to evaluate the training. This questionnaire includes 18 items that are rated on 5-point Linkert scales (ranging from strongly disagree to strongly agree). The responses create 3 factors: (1) *understanding:* referring to the level of understanding each participant assesses themselves as having; (2) *capability efficacy:* referring to how capable a person rates themselves as being when working with an individual with personality disorder; and (3) *emotional reaction:* referring to levels of positive emotional reaction to a personality disorder diagnosis.

Additionally quantitative data was elicited from the participants within the different versions of the PD-KASQ. Pre-training questionnaires ask whether or not personality disorder training has been undertaken previously with options of a yes/no response; post training questionnaires provide a five-item 'course' evaluation scale and an opportunity to record 'other comments'. The 3-month follow-up questionnaire has an opportunity to report organisational and individual factors that have enabled or hindered changes since training.

Visual Analogue Scale (VAS)

A locally developed Visual Analogue Scale (VAS) which was first developed for the evaluation of KUF (Lamph et al, 2014) was used to ask two simple questions which would establish the efficacy of the training without resorting to complex statistical methods.

Question 1 – When interacting with people who display powerful emotions, how equipped do you feel you are to deal with this on an interpersonal level?

Blind scale of 1-10, 1 = I feel poorly equipped to deal with these situations; 10 = I feel highly equipped to deal with these situations.

Question 2 – When interacting with people who display behaviours that can be challenging, how equipped do you feel you are to deal with this on an interpersonal level?

A Blind scale of 1-10, 1 =I feel poorly equipped to deal with these situations; 10 = I feel highly equipped to deal with these situations.

The VAS was utilised at pre, post and three months after training. All measures were self-rated by individual participants.

E-learning procedure

Participants were invited to attend a number of training dates of their choice across a number of hospital sites. Although the training was not time controlled, on average it took learners 1 and a half hours to complete the learning and evaluation. Before the training began, participants were asked to independently complete the PD-KASQ and VAS. Participants then engaged with the e-learning programme independently. Following completion, participants were asked to complete the post PD-KASQ and VAS again before leaving the session. The 3 month follow up questionnaires were emailed to participants exactly 3 months after they had attending training and were given approximately 1 month to return questionnaires.

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How the programme was evaluated (analysis)

Statistical analysis relating to pre-data and post-data was performed using only the participants who had a complete data set and no omissions for both questionnaires (n=80). A comparison of pre-data and 3-month follow up data was also performed using the complete data sets. The sample size for the follow up analysis was limited due to a poor response rate and high levels of attrition at 3-month follow up (n=12)

Results

PDKASQ outcome data

PD KASQ data was analysed using SPSS (v.22) for Windows to ascertain differences between the pre-, post- and follow-up phases on the three sub-scales (understanding, capabilities and emotional reactions). The five-point Likert Scale data was analysed at the ordinal level since there were two or more categories that can be ordered or ranked. Scores ranged from strongly disagree (scored as 1) to strongly agree (scored as 5) and a composite score was calculated from the items on each sub-scale.

A series of Friedman, non-parametric, one-way repeated measures analysis of variance were used to consider the data as a whole, across all three different timescales. The Friedman test measures the changes in means scores over 3 or more timepoints, takes into account individual differences and only uses whole sets of data (where all participants have answered all of the questions). The test is also appropriate to compare changes over time where response rates are low to avoid over-inflated p-values or false-positive results

Following the Friedman tests, in order to explore the differences in mean scores further and more specifically, Wilcoxon signed-rank tests were applied, with Bonferroni correction at the significance level of 0.017 (0.05/3).. Bonferroni correction adjusts the 0.05 p value accordingly because several statistical tests are being performed on a single data set, again to avoid over inflated p values. The means and standard deviations at each training phase are presented in table 1.

Table 1 – Whole data set (all responses)

Mean (SD), n on each sub-scale at pre-, post- and three month follow-up

Sub-scale	Pre-training	n	Post-training	n	3 month follow-up	n

Understanding	2.87 (0.61)	80	3.81 (0.41)	80	3.79 (0.34)	12
Capabilities	3.24 (0.47)	80	3.63 (0.39)	79	3.76 (0.38)	12
Emotional reactions	3.68 (0.51)	80	3.95 (0.42)	80	4.04 (0.44)	12

The means and standard deviations in terms of the whole data set, only incorporating the participants who responded across all 3 phases, are reported in table 2

Table 2 – Data set of responders to all 3 phases

Mean (SD), *n* on each sub-scale at pre-, post- and three month follow-up of complete response sets

Sub-scale	*Pre-training*	*n*	*Post-training*	*n*	*3 month follow-up*	*n*
Understanding	2.64 (0.68)	12	3.71 (0.46)	12	3.79 (0.34)	12
Capabilities	3.21 (0.36)	11	3.47 (0.40)	11	3.77 (0.40)	11
Emotional reactions	3.60 (0.54)	12	3.92 (0.40)	12	4.04 (0.44)	12

Understanding sub-scale

Using the Friedman one-way ANOVA to consider the differences between mean scores (n=12) across the three training phases, there was significant variance on the understanding sub-scale (χ^2 (2) = 12.65, $p<0.05$).
To explore this difference further, Wilcoxon signed-ranks test found that there was a significant difference on the understanding sub-scale between pre-training and post-training (z=-7.37, $p<0.017$) and between pre-training and follow-up (z=-2.94, $p=<0.017$) in that, mean scores increased however, between post-training and three month follow-up there was a reduction in the mean scores on the understanding sub-scale but this was not significant.

Capabilities sub-scale

There was a significant variance between the scores on the capability sub-scale (χ^2 (2) = 9.26, $p < 0.05$). Further exploration using the Wilcoxon signed-ranks test indicated a significant difference on the capabilities sub-scale between pre-training and post-training (z=-5.79, $p<0.017$) and a significant

difference between pre-training and follow-up (z=-2.95, *p*<0.017*)*; all mean scores increased. There was also an increase in the mean scores between post-training and follow-up but this was not significant when the Bonferroni correction was applied (z=-1.92, *p* = 0.05).

<u>Emotional reactions sub-scale</u>

With regard to the emotional reactions sub-scale there was a significant variance found between the mean scores across the three training phases.($χ^2$ (2) = 7.66, *p*< 0.05). To ascertain in more detail where these differences were, Wilcoxon signed-ranks test found a significant difference between pre-training and post-training mean scores (z=-5.21, *p*<0.017) and between pre-training and follow-up mean scores (z=-2.61, *p*<0.017); the mean scores improved There was an increase in the mean scores between post-training and follow-up but this was not significant at the 0.017 level (z=-1.14, *p* = 0.26).

VAS outcome data

Questions 1 and 2 were on a blind scale of 1-10. 1= I feel poorly equipped to deal with these situations; 10 = I feel highly equipped to deal with these situations.

1. When interacting with people who display powerful emotions, how equipped do you feel you are to deal with this on an interpersonal level?

2. When interacting with people who display behaviours that can be challenging, how equipped do you feel you are to deal with this on an interpersonal level?

Mean (SD), *n* for each question

VAS scale question	Pre-training	n	Post-training	n	3 month follow-up	n
1	5.39 (2.43)	70	7.31 (1.81)	73	7.75 (1.52)	11
2	5.83 (2.25)	71	7.55 (1.68)	73	7.35 (1.60)	11

Qualitative Data

Some very brief qualitative data was recorded and derived from post questionnaires elicited by the prompts 'What is the one thing you have learnt?'

and 'Please add any other comments you have about the training'. However the limited responses at follow up reduced the elicitation of valid data for analysis and reporting.

Discussion

E-learning is a popular model for delivering high volume low cost training. Although popular within organisations, e-learning can often be frowned upon by practitioners as a 'tick box' exercise (McCarthy, 2014). The development of this e-learning has been developed using a model of co-production attempting to ensure that the service user's voice is at the heart of the programme. Innovative approaches have been taken to ensure the content is interactive and enjoyable. We have also ensured that the training programme does not stop delegates with end of unit tests or tick box exercises that would frustrate and stop them progressing. Instead, we encouraged their reflections after each section. Having the patient voice as a spine to the training via the videos also created an interesting focus point that ensured the patient voice is heard and mirrors the KUF methods of delivery. We consulted the subject matter experts at various points for their feedback and made refinements prior to the training being evaluated.

The results from this evaluation show that the e-learning is an effective mode of delivery for raising the awareness of personality disorder amongst mental health professionals. A thorough statistical analysis relating to the 3 sub scales of understanding, capability efficacy and emotional reaction on the KUF demonstrated that, although attrition was high between the post training phase and the 3 month follow-up, respondents consistently improved and demonstrated positive changes across the 3 phases of the training. It has achieved similar outcomes to those reported in the earlier studies that evaluated KUF. It should be noted that this was achieved with less time out of role and without the use of trainers and therefore could be viewed as a cost effective solution to raising the knowledge and awareness of personality disorder.

With regard to the attrition rate of participants, this could be something to consider in future programmes. For example, Hoogendoorn et al (2013) suggested that one way to improve response rates to longitudinal data collection might be to offer a different response mode, such as telephone or interview. It might also be useful to keep in contact with the participants over the 3 month follow-up period by perhaps providing a monthly newsletter, article or some similar material, via email, so that they remain engaged with the subject of programme.

The VAS data provided similarities with the KUF data as outlined by Lamph et al (2014). Within this group only a minor reduction is noted in confidence levels of delegates at follow up for dealing with challenging behaviours. In contrast a slight increase in confidence is reported at follow up in interacting with people who display powerful emotions.

The findings support the hypothesis that the method rather than the mode of training is important. We felt that by keeping the service user and co-production central to the e-learning has led to enhancing its effectiveness. As a team we feel that this should not replace face to face training but can be effectively used to compliment face to face training. E-learning can make training increasingly accessible to different health professionals, such as night staff or those who cannot be released for a 3 day training programme, working on the philosophy 'some exposure to training is better than no training'.

Further investment is recommended to include service user developed material and videos in other e-learning programmes. It may also be worth exploring how the co-production can link closer with technologies for instance in the use smart phones apps. Not only to help training for staff but also training for service users themselves.

Conclusion

From this study we have concluded that an e-learning that has be co-produced with patients and subject matter experts can provide effective training that can positively impact on the understanding, capabilities and emotional reactions of the delegates. The findings are positive from an economical perspective given the time saved. The concept of co-production and co-delivery can be incorporated into e-learning or in fact any technological advances and co-production. Co-production should not be lost to technology but rather co-exist and adapt to fit alongside this. We also feel, given earlier findings, in which KUF outcomes decline at follow up, that e-learning may provide an effective top up alongside ongoing work based supervision.

Limitations

One of the major limitations of this evaluation is in the reduced follow up rates. The attrition at follow up in this study is disappointingly consistent with the other studies that evaluated KUF (Lamph et al, 2014; Davies et al, 2014 and Ebrahim et al, 2015). Without a dedicated research team or some motivating factors for delegates to complete the follow up, high levels of attrition can be expected. This evaluation has also been completed in an area where

personality disorder training is widely available and therefore the baseline knowledge of the delegates may have skewed the results slightly. It is likely that participants would have been working with people in their teams who have previously undergone some personality disorder awareness training. It is also important to highlight that several of the participants completed the e-learning in a group. Although they completed the e-learning independently, a group affect may have occurred.

The sample were self-selected by expressing their interest. This may have resulted in only those with a genuine interest in personality disorder accessing the training. Many others were also recruited from Universities and therefore had not been fully exposed to the challenges of working in secondary mental health services.

This study is relatively small and further investigations into the active components of the training may prove beneficial. Further analysis of the effect of the training at follow up would also be useful. In light of these limitations recommendations should be treated with caution.

A final limitation to declare is that this evaluation was led by the lead developers of the e-learning and the participants were recruited from within the geographical area in which it was developed however efforts were made to reduce bias with the inclusion of co-authors who were not part of the original e-learning development team but instead were included to support the phases of evaluation and data analysis.

Key points

- E-learning can provide flexible training to compliment and act as an alternative to face to face personality disorder training.

- E-Learning awareness level training is effective but appears to have some decline in effect at follow up.

- E-learning may provide an alternative refresher course to KUF or other face to face methods.

- Method of training appears to be more important than the mode of its delivery.

- Co-produced training can be mirrored within an e-learning programme, careful planning to ensure the service user voice is heard and that their lived experience is embraced is required.

This e-learning is currently hosted on the National Learning Management System (NLMS) and can be accessed by all mental health NHS Trusts in the North West. Further expressions of interest in the product can be made by contacting ……..

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