

# CPR and First Aid Blended Training Review

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## Background

Cardio Pulmonary Resuscitation (CPR) and First Aid are two of the most commonly delivered emergency care courses worldwide. Each course is carefully designed to equip people with the knowledge and skills required to provide assistance to a casualty of illness or injury until professional medical help arrives (Royal Life Saving society Australia, 2014). It is a reality that accidents happen and a person may require First Aid or CPR at any time and in various situations and environments, such as in the workplace, at home, on the beach or in the community. It is therefore one of Life Saving Victoria's (LSV) aims to engage as many people as possible, from all parts of the community, in CPR and First Aid training and become Everyday Lifesavers.

## Introduction

LSV has identified an urgent need to make CPR and First Aid training more accessible and convenient to Victorian and wider communities, taking advantage of advancements in mobile technology and broadband connectivity. LSV established a strategic goal of promoting members of the community to become Everyday Lifesavers, increasing community resilience by encouraging individuals to take more responsibility for themselves and others in the community. A key aspect of becoming an Everyday Lifesaver is learning CPR and First Aid.

To enable the development of Everyday Lifesavers, LSV aimed to make undertaking CPR and First Aid training more accessible by creating blended training, which combines online and face-to-face training. The blended training provides a far more flexible training option, as demanded by the younger and future generations in the community, and avoids the singular focus on the traditional form of face-to-face delivery of training. In practice, blended training enables a candidate to complete the theory component of a training package online in their own time, and then attend a face-to-face session for any practical components of training. Not only is the blended training format beneficial to candidates, it also grows LSV's training capabilities by making courses more accessible and convenient to the Victorian community.

The benefits of learning online are well known and include efficient, flexible and convenient access to teaching, learning and assessment (University of Melbourne, 2012) and savings in terms of cost (including course delivery and transport) and time spent on-site at a training venue. Furthermore, when combined with well-designed educational content, information and communications technologies (ICT) can provide engaging and effective learning opportunities.

The first courses that LSV developed into the blended form were the standard CPR and First Aid courses. Traditionally, the full CPR and First Aid courses were 3 hours and 16 hours of face-to-face training respectively. Face-to-face training sessions comprised theory content, practical training and final assessment of knowledge and skill. LSV converted the theory content to an online format, which could be completed in a candidate's own time prior to attending the face-to-face training. This approach reduced the face-to-face training hours to 2 hours for CPR and 9 hours for First Aid. Following extensive initial in-house planning to design the blended training program, LSV engaged external suppliers to design and develop the candidate portal and the CPR and First Aid online content. A detailed review was conducted on the CPR and First Aid courses as outlined in this report.

## Review Objectives & Methods

The objectives of the review were to evaluate the useability and effectiveness of the blended training method and the productivity gains in adopting this method. The blended CPR course was used to review useability and effectiveness and the blended First Aid Course was used to review productivity gains.

The useability and effectiveness was reviewed based on the following factors:

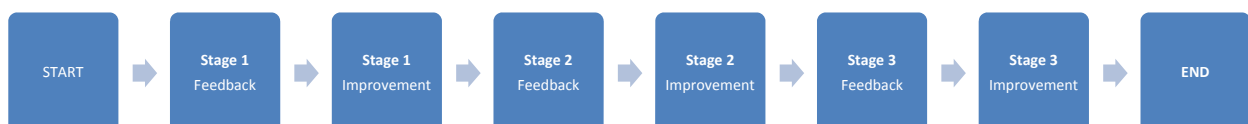
1. The overall useability of the candidate portal
2. How candidates searched and registered for blended training courses
3. How easily candidates accessed online content
4. The quality, convenience and effectiveness of online content
5. How candidates were guided from online content to face-to-face training
6. The quality of the transition between completing the online content and face-to-face training
7. The quality, convenience and effectiveness of the blended training.

The useability and effectiveness review initially involved a number of LSV staff testing the online components. Following this preliminary review, participants were recruited in three groups via invitations through social media and word of mouth to participate in CPR blended course trials. Those recruited were aged 16 to over 60, with over half in the 25-39 age group and came from a range of backgrounds including emergency services (e.g. SES, Police), ARMY, nursing, the aquatic industry (YMCA), hospitality, business, parenting, sports clubs and students.

To facilitate the useability and effectiveness review, two web-based surveys were developed using the CVENT survey management program. They were designed to collect feedback on key points of all stages of CPR training workflow. Participants answered survey one at the conclusion of the online content module. This survey evaluated the online registration process within the candidate portal in terms of ease of use, navigability and layout. Participants also answered questions on the online theory and assessment modules, including content, presentation (e.g. use of video, text, quizzes), navigability and the relevance and difficulty of content and assessment. Finally, survey one collected brief demographic information.

Survey two was completed at the conclusion of the face-to-face practical session and evaluated the overall blended training method. It asked to what extent the online component prepared participants for the face-to-face session, how confident participants would feel if they had to provide CPR to an unconscious person, whether or not they would recommend a blended course to others and provided an opportunity to give general feedback on the overall course. For those who had previously done a CPR course, they were also asked to compare this course in terms of their level of interest in the content and how much they learned.

The useability and effectiveness review occurred in three stages over a 2 month period, represented below, with candidate feedback and LSV observations of candidates at each stage used to progressively improve the candidate portal and online content.

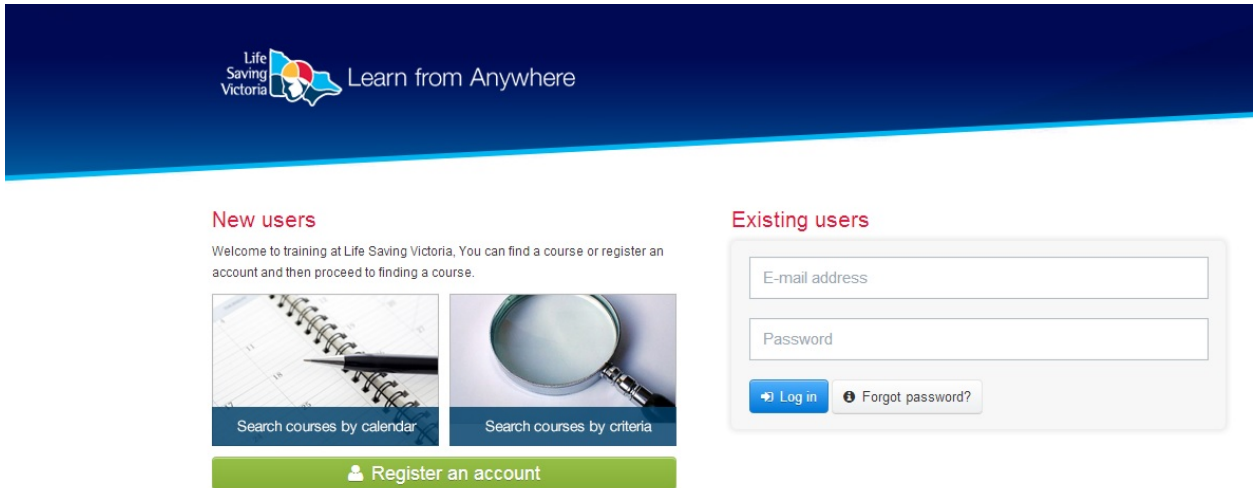


## Useability and Effectiveness Review Outcomes

The following survey results are based on the feedback from all three stages of the testing process.

### Registration process

Screenshot 1: Candidate portal login, modified after stage 2

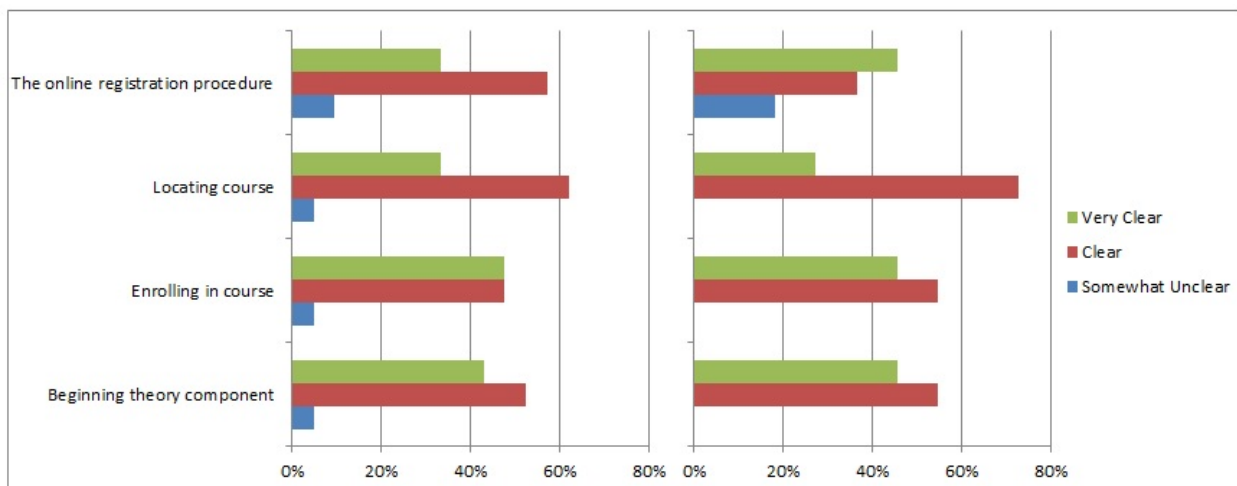


Participants of stages 1 and 2 utilised the first version of the candidate portal. 90% of participants in these stages found the online registration procedure Clear or Very Clear (Figure 1a). Furthermore, almost all (95%) found locating their course, enrolling in the course and beginning the theory component either Clear or Very Clear. After improvements were made for stage 3, all participants in stage 3 rated locating their course, enrolling in the course and beginning the theory component as Clear or Very Clear (Figure 1b). However, 82% found the online registration procedure Clear or Very Clear; a drop of 8%. This was in part due to technical error in the candidate portal that impacted a subset of participants in stage 3 which was later rectified.

Figure 1: Clarity of registration processes (%)

a) Stage 1 and 2

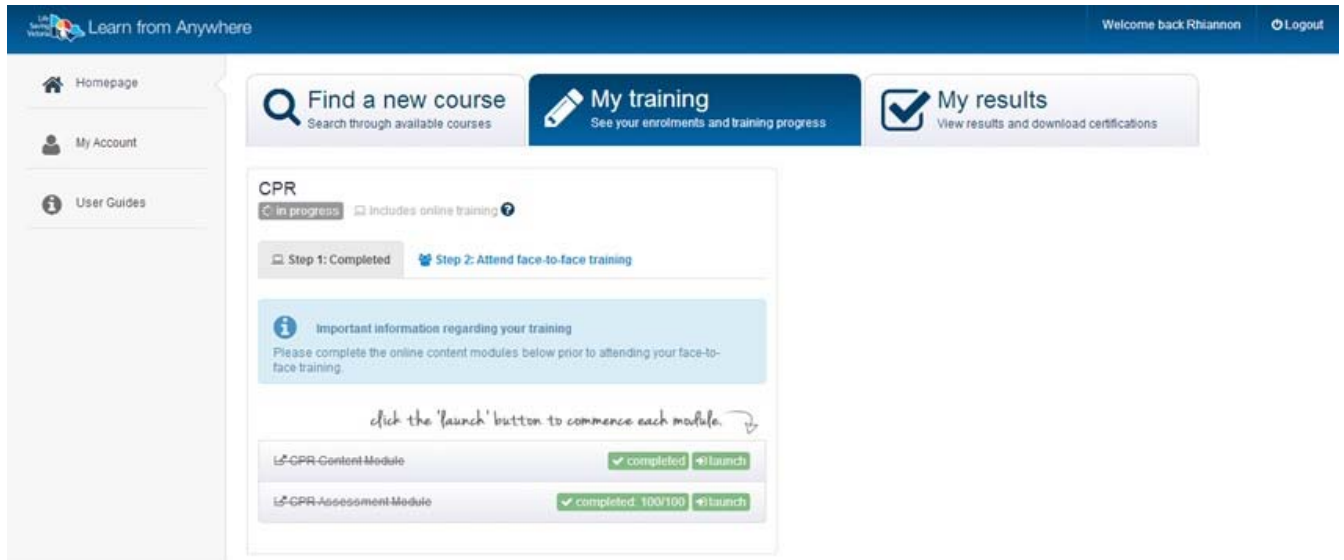
b) Stage 3



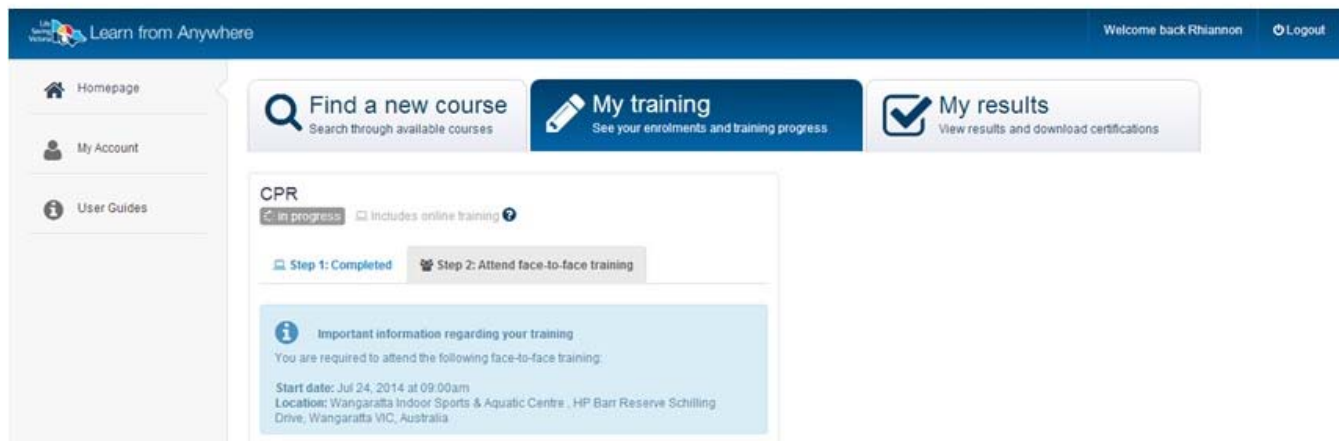
In the first two stages, locating where to register for a course was somewhat unclear to some, as was launching the online content. A number of participants did not realise they needed to

launch a separate assessment page without assistance from LSV staff. These issues were addressed by modifying the content layout so that there were relatively few issues in stage 3, and these were largely related to technical difficulties rather than the interface itself.

Screenshot 2: Step 1 and Step 2 of 'My training' in the candidate portal (%)



The screenshot shows the 'My training' section for a CPR course. The course is marked as 'in progress' and includes online training. Step 1 is completed, and Step 2 is 'Attend face-to-face training'. An information box states: 'Please complete the online content modules below prior to attending your face-to-face training.' A handwritten note says 'click the 'launch' button to commence each module.' Below this, two modules are listed: 'CPR Content Module' (completed) and 'CPR Assessment Module' (completed 100/100), both with 'launch' buttons.



This screenshot shows the 'My training' section for the same CPR course. Step 1 is completed, and Step 2 is 'Attend face-to-face training'. An information box provides details for the face-to-face training: 'You are required to attend the following face-to-face training: Start date: Jul 24, 2014 at 09:00am Location: Wangaratta Indoor Sports & Aquatic Centre, HP Barr Reserve Schilling Drive, Wangaratta VIC, Australia'.

## Online theory and assessment

Following the launch of the official blended courses, candidates will complete the online theory and assessment components off-site, prior to attending the face-to-face session. However, in order to gather instantaneous feedback and resolve any technical difficulties, the participants completed the online and face-to-face components at LSV.

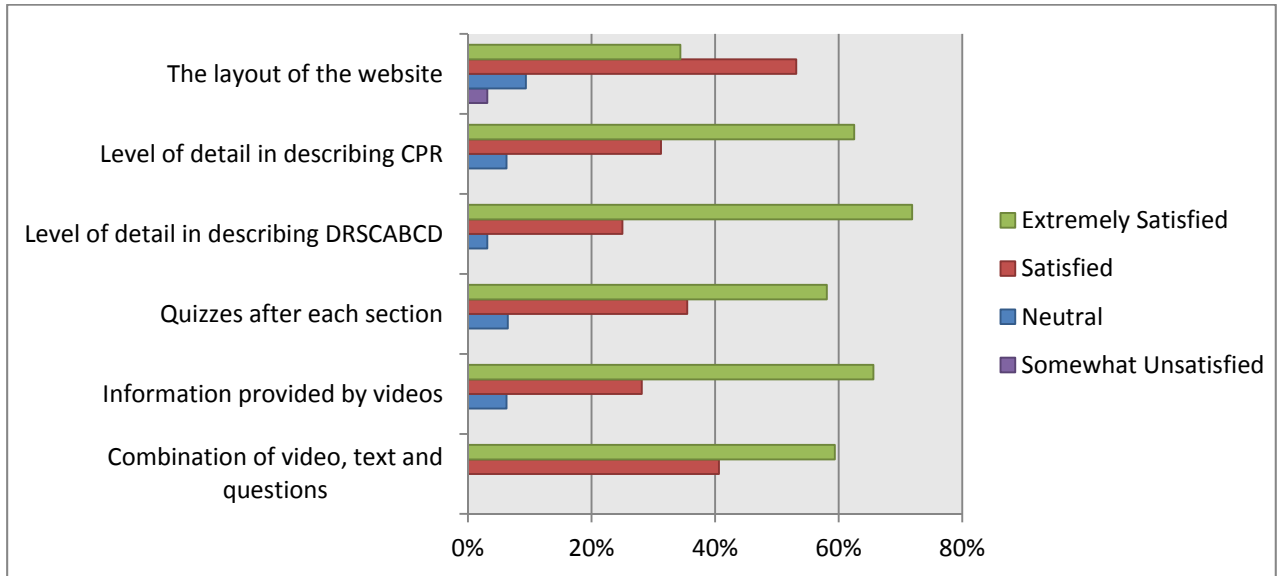
### Online theory component

Screenshot 3: Online theory component sample pages

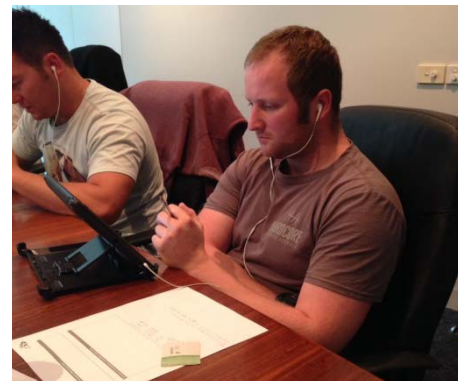


Overall, participants were largely Satisfied or Very Satisfied with all aspects of the online theory component, including the combination of video, text and questions (100%), the level of detail in describing DRSABCD (97%), the level of detail in describing CPR (94%), the quizzes after each topic (94%), the information provided by videos (94%) and the website's layout (88%) (Figure 1).

Figure 2: Level of satisfaction towards aspects of the online theory component (%)



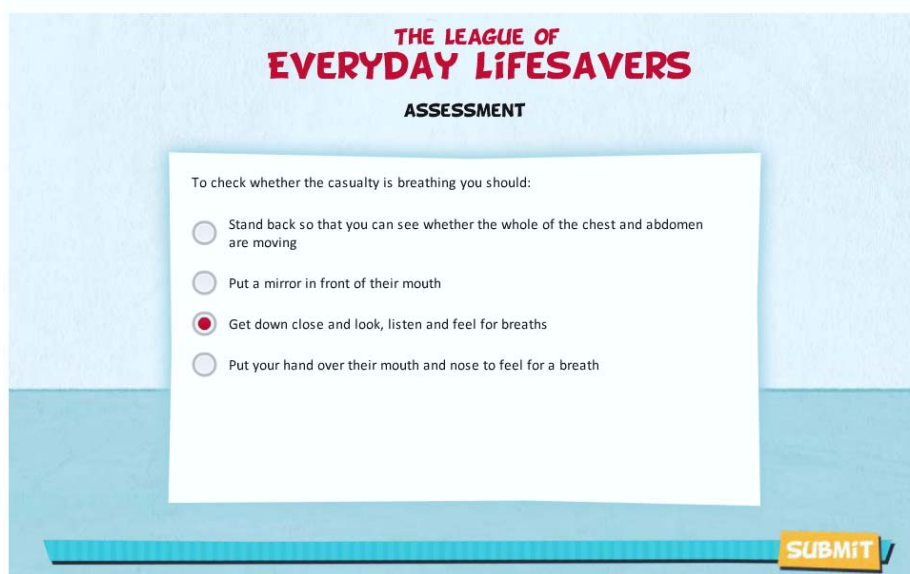
Furthermore, all participants rated the relevance of the content as either Excellent (71%) or Good (29%) and 77% rated the difficulty of the content as Excellent (45%) or Good (32%). Participants also provided written feedback on their experiences, with common responses including that the content was accessible, interesting, well-presented and easy to understand. Some agreed that the online content delivered the facts and key learning that candidate’s need, which minimised variations that result from differing instructor styles. One person, however, found the content ‘childish, not suitable for corporate training’.



### Online assessment component

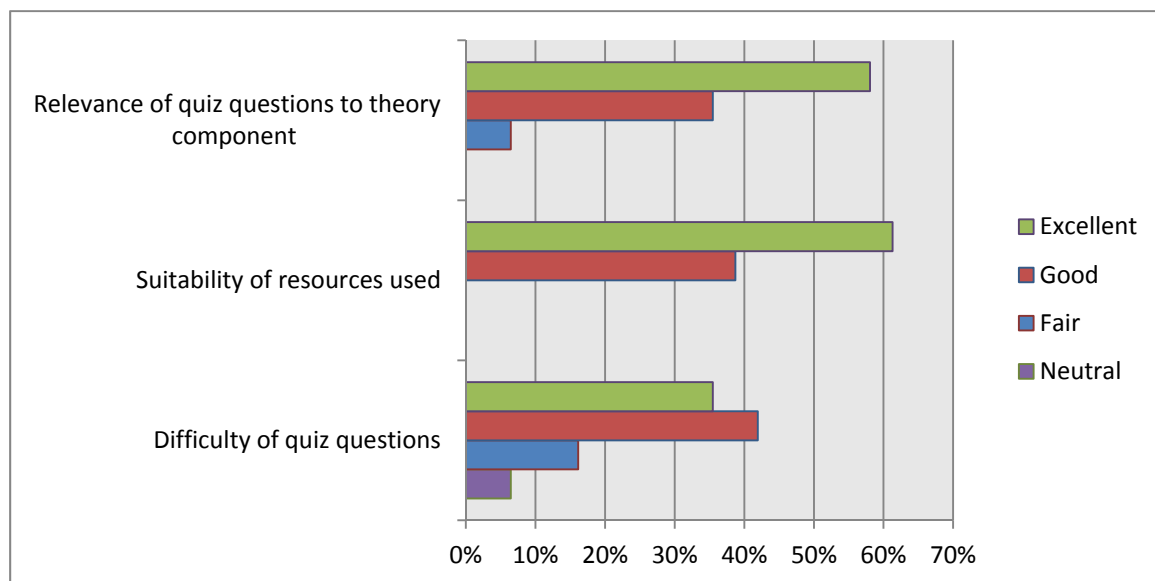
Across all three stages, every participant found completing the online assessment clear.

#### Screenshot 4: Online assessment sample page



A number of issues were identified with the online assessment component. The assessment content was rated as Excellent by just over half (58%) of participants in terms of its relevance to the theory component, and Good by a further 35% (Figure 3). The suitability of resources used (e.g. the online theory component as a training tool, and the assessment program) was rated as either Excellent (61%) or Good (29%). Just 35.5% rated the difficulty of quiz questions as Excellent, with 42% rating it as Good and 22.5% rating it Fair or Neutral. A number of participants found the questions too simple; however it is the opinion of LSV that CPR is not meant to be difficult, rather it should be accessible to a wide range of people and the simplicity of the assessment is therefore not considered an issue.

Figure 3: Participant ratings of various aspects of the online assessment component (%)



### Linking online content with the face-to-face session

The majority of participants were happy with the transition between the theory and practical face-to-face sessions of the course, with 97% agreeing or strongly agreeing that that the online component prepared them for the face-to-face session. Two-thirds thought the instructor should review the online content during the face-to-face session; however these participants undertook both components back-to-back and therefore were less in need of the refresher. In reality, people may complete the online component several days before attending the face-to-face session and need a review of the content with the trainer. One participant for example mentioned that it is ‘*very helpful to have a bit of background knowledge before doing the practical side of [the] course*’.



The duration of the practical face-to-face session was increased between stage 1 and stage 2. In stage 1, the training was conducted in 60 minutes which was deemed too short from both trainer and participant perspectives. In stages 2 and 3, the face-to-face training was delivered in 90 minutes and well-suited both participants and the trainer. Participants who engaged in the 90 minute face-to-face sessions (stage 2 and 3) provided much more positive feedback than those who did the 60 minute session (stage 1). One participant in the shorter session remarked that, *'I wouldn't want someone giving me CPR after they have done this course [as there is] not enough practical learning ... and practice and review from [the] instructor'*. In contrast, examples of feedback provided in stages 2 and 3 include, that *'all content was done in enough depth that I am now confident in providing first aid where appropriate'*.

LSV decided to allocate 120 minutes for the face-to-face training in the live version of the course. This allows the over 150 trainers used by LSV to become accustomed to the new format of delivering while maintaining unrushed outcomes. As the trainers become more confident in delivery, LSV will reduce the face-to-face training to 90 minutes.

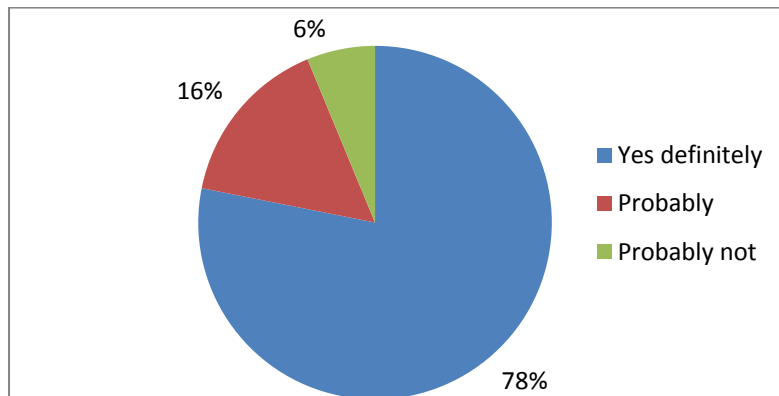
It was identified that trainers must incorporate the following aspects into the face-to-face training to link effectively with the online content and deliver an optimal learning experience:

- Review the theory content
- Provide ample practice time
- Provide individual feedback on technique
- Allow candidates to ask questions.

### Overall course comments

Overall, the blended course was very successful, with 78% of participants reporting they would definitely recommend it to others and a further 16% who would probably recommend it (Figure 4). The remaining 6% who would probably not recommend the blended course participated in the short 60 minute face-to-face session in stage 1, which was the least successful of the three stages and a result of the rushed nature of the face-to-face session on that day.

Figure 4: Whether participants would recommend the blended course to others (%)

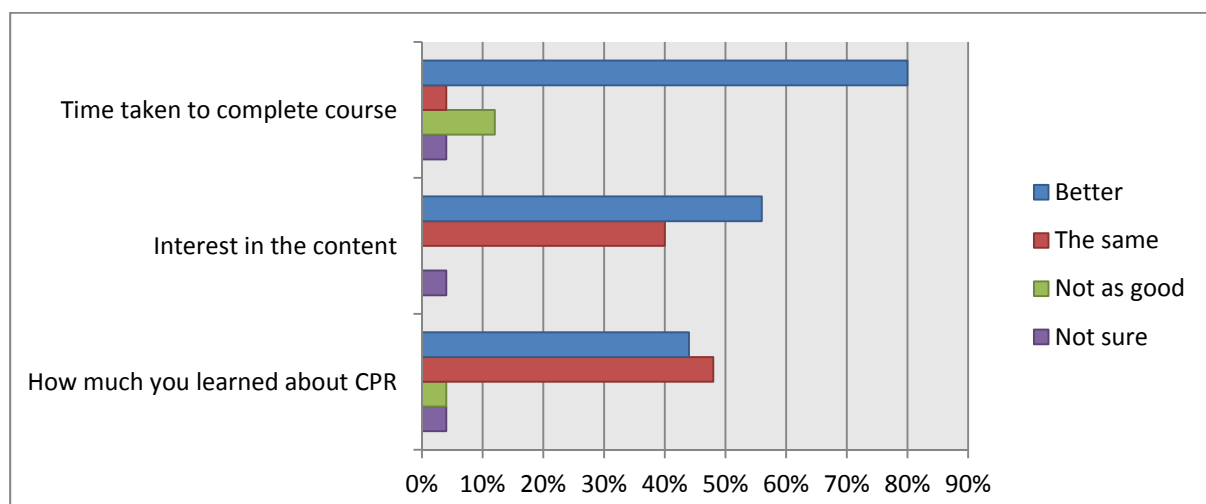


Every participant who engaged in the 90 minute course would prefer the blended course to a traditional format, overwhelmingly because it was a more convenient method of delivery. The common reasons for this include:

- Both the online theory and face-to-face session were clear and easy to understand
- It is interactive and uses various teaching and learning techniques to keep candidates engaged
- The online theory component allowed participants to work with flexibility and at their own pace
- The online theory component prepared participants well and gave them appropriate background knowledge to attend the face-to-face session with confidence.
- Candidates can spend less time at a face-to-face course, which suits employers and people with busy schedules.

Of all participants across the three stages, 78% had done a CPR course previously. Of these, 80% found the time taken to complete the course to be better and 56% said they were more interested in the content of the blended course, compared to their previous course (Figure 5). In terms of how much they learned, 44% rated the blended course as better than their previous course and 44% felt it was the same.

Figure 5: Comparison of blended course with previous CPR courses attended (%)



## Productivity Gains Review Outcomes

LSV conducted a detailed time and cost comparison of the traditional face-to-face only and blended training method for First Aid courses. Figure 6 outlines the calculation of total value created in year 1.

Figure 6: Calculation of total value created by blended First Aid training in year 1

Measurable item	FIRST AID COURSE
(1) No. of candidates expected to complete LSV First Aid courses in 2014-15	4,000
<b>Traditional Face-to-Face First Aid Course</b>	
(2) Face-to-face time per course in hours	16
(3) LSV delivery cost per candidate	\$ 140
(4) Total course time in hours = (1)*(3)	64,000
(5) Total course cost = (1)*(3)	\$ 560,000
<b>Blended First Aid Course</b>	
(6) Average number of candidates per course	16
(7) Online time per course in hours	4
(8) Face-to-face time per course in hours	8
(9) Total time per course in hours = (7)+(8)	12
(10) LSV delivery cost per candidate	\$ 130
(11) Total course time in hours = (1)*(9)	48,000
(12) Total course cost = (1)*(10)	\$ 520,000
<b>Benefits from Blended First Aid Course</b>	
(13) Take up rate of Blended First Aid course in year 1*	25%
(14) Percentage reduction in course time per candidate = $1 - ((9)/(2))$	25%
(15) Percentage increase in flexibility per candidate = $(7)/(2)$	25%
(16) Percentage reduction in LSV cost of delivery = $1 - ((10)/(3))$	7%
(17) Total reduction in candidate course time in hours = $((4)-(11))*(13)$	4,000
(18) Total value of reduction in candidate time = $(17)*\$31.68^{**}$	\$ 126,720
(19) Total value of LSV delivery cost saving = $((5)-(12))*(13)$	\$ 10,000
(20) Total value created in year 1 = $(18)+(19)$	\$ 136,720
(21) LSV training capacity increase in year 1 = $((4)-(11))/(4)$	25%

\* Estimate which will increase each year

\*\* Assuming a value of \$31.68 per hour of candidate time based on average weekly earnings of adults and all persons in Victoria (ABS - 6302.0 Average Weekly Earnings, Australia, TABLE 11B. Average Weekly Earnings, Victoria (Dollars) - Trend)

The blended First Aid course creates a total value of \$136,720 in year 1, based on a 25% take-up by candidates expected to complete First Aid training with LSV in year 1. The blended course offers:

- candidates a 25% reduction in overall training time;
- candidates a 25% increase in flexibility based on less reduction in face-to-face time; and
- LSV a 7% cost reduction in delivery cost per candidate.
- LSV a 25% increase in capacity to train more candidates in First Aid.

## References

ABS – See Australian Bureau of Statistics

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