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Public Speaking Training in Front of an Imaginary or Virtual Audience: A randomized controlled trial

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Abstract. When preparing for a public speech, practicing with an audience is suggested to be effective in enhancing speech performance. However, it is often impractical to organize an audience to practice a presentation. Virtual reality can provide a solution, i.e., practicing with a virtual audience. This paper studied this practicing technique for enhancing speech performance and people's training satisfaction. A randomized controlled trial ($n = 40$) was conducted to compare practicing in front of a virtual audience with another practicing technique whereby the presenter had to imagine an audience while practicing. Individuals practiced their presentations in three training sessions with either a virtual audience or an imaginary audience. Participants' performance was assessed in an assessment session where they delivered their speech in front of a human audience. The results showed that individuals seemed to benefit more from a virtual audience than an imaginary audience in reducing speech anxiety. The clearest benefit of practicing with a virtual audience was the satisfaction it gave. Participants were more positive towards training with a virtual audience regarding both the training process and its effect on their presentation ability. We anticipate that virtual audiences can be beneficial in motivating individuals to practice their presentation skills.

Keywords. Public speaking training, virtual audience, speech performance, self- efficacy, intelligent virtual agents

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1. Introduction

Whether we are talking about our research at a conference, making a speech at a friend's wedding, or making a proposal in a business meeting, we have to speak in public from time to time. How well we have delivered a presentation affects the way people think about us and the message of the presentation. For example, people tend to regard presenters as more credible and intellectual when they have more eye contact with their audience during presentations [1], and people are more likely to believe the presenters and be persuaded when the speech is fluent and well organized [2]. To deliver a good speech, preparation is necessary.

Among all the speech preparation activities, Menzel and Carrell [3] specifically found that the amount of rehearsals in front of an audience and the amount of experienced anxiety was associated with the quality of the speech performance. Moreover, a study by Ayres et al. [4] indicated that practicing with an audience helps to decrease public speaking anxiety and increase the willingness to speak.

Although practicing with an audience is suggested to be effective in enhancing speech performance, it is often impractical to organize an audience to practice a presentation. This problem can be solved by virtual reality, providing presenters with a virtual audience. The use of virtual audiences has already been suggested for several application domains, such as therapy for social phobia [5] or anxiety disorders [6]. Interaction with a single or group of virtual characters can affect people in a manner similar to that of interaction with real people. For example, people have reported anxiety when speaking to one or several virtual character(s) [7] or giving a presentation in front of a virtual audience [8]. The presence of a virtual audience has also been found to affect people's performance as a real audience did [9]. Without a visible audience, imagination can also affect people's emotion and performance. Both virtual audiences and imaginary audiences have been used to treat social anxiety disorder and were found comparatively effective in reducing social anxiety [10]. Many researchers also found positive correlations between rehearsal in front of audiences and performance [3,11]. Moreover, some studies [12,13] reported that imagination of a performance, or mental rehearsal of the process, can help to improve the performance. Success in performance can also boost self-efficacy beliefs [14]. Still, practicing with an imaginary audience holds a number of drawbacks when compared to practicing with a virtual audience. First of all, the imagery task itself has some limitations, such as requiring a great deal of attentional resources and being difficult to control. Furthermore, practicing a presentation with an imaginary audience requires individuals to perform two tasks simultaneously: presenting and imagining. However, as dual-task performing requires more attentional resources, the problem of capacity overload may arise, which may deteriorate the performance of both tasks [15].

To the best of our knowledge, little research has been reported on the use of virtual audiences to improve speech performance. This study, therefore, intends to investigate this practicing technique for enhancing public speaking performance, focusing especially on its effectiveness and people's training satisfaction. The empirical study compared practicing in front of a virtual audience with another practicing technique whereby the presenter had to imagine an audience while practicing. The following hypotheses are formulated:

People who practiced in front of a virtual audience (H1) perform better, (H2) are less anxious, (H3) find the practice method more satisfying, and (H4) hold more positive beliefs of their self-efficacy than those who practiced with an imaginary audience.

2. Method

A public speaking training course was organized on the university campus. In this individual course, participants were instructed to practice their own presentations in one of two ways: practice in front of a virtual audience (i.e., VR condition), or practice with an imaginary audience (i.e., IM condition). To compare the effects of the practicing methods, a between-subjects design was employed.

2.1 Materials

(a) Classroom with normal seat positions (b) Classroom with U-shaped seat positions

(c) Conference (d) Public thesis defense

Figure 1. Screenshots of different scenarios

In the VR condition, participants could select out of four different virtual environments to match the presentation setting they were targeting. They were a classroom with normal seat arrangement, a classroom with U-shaped seat arrangement, a conference hall, and a setting for a public PhD defense (Figure 1). A parameterized expressive audience behavior generator [16] was used to create an expressive virtual audience. The behavior generator was accomplished based on statistical models abstracted from observation of real audiences. The generated behavior was modulated by the audience members' personality (extroversion, agreeableness, openness, neuroticism, and conscientiousness), attitude towards the topic (interest, approval, eagerness for information, criticism, and impatience), mood (valence, arousal, and dominance), and energy level, which were also collected in the observation. The virtual audience showed different attitudes by their postures and facial expressions. In this study, participants could select an audience type, namely a positive, neutral, critical, or bored looking audience, to practice coping with the audience. The perception of the four audience types have been validated in a previous user study [17]. Besides selecting an audience type, participants could also select whether an interrupting event would occur during the rehearsal of their presentation such as drilling noises or mobile phone rings. In each training session, at the most, only one interrupting event was triggered around half-way through the speech. For example, if the duration setting was 5 minutes, the event would occur at 2.5 minutes. After the participants rehearsed the delivery of their talk, members of the audience asked the participants six questions, such as "What motivated you to carry out this research?". Besides rehearsing the presentation, the course also included the use of a virtual coaching system in both conditions. A virtual coach provided information about presentation structure, body language during speech, and visual aids. The coach also helped participants to reflect on and improve their presentations.

2.2 Measures

Presentation Performance (PP). The rubric for oral presentations developed by the University of Wisconsin–Madison [18] was used to evaluate people's speech performance and presentation content after the training. The rubric consisted of ten items, which were rated on a four-point scale from 1 (poor) to 4 (excellent). The rubric consisted of four items evaluating the presentation content, five delivery-related items evaluating both non-verbal and verbal skills, and one timing item. In this study, the timing item was excluded as the presentation lengths and their timing requirement varied between participants.

Personal report of confidence as a speaker (PRCS) [19]. It is a 30-item self-report scale, which assesses both behavioral and affective responses to public speaking situations. The questions are answered in a true–false format, and the questionnaire score ranges from 0 (i.e., no fear of public speaking) to 30 (i.e., highest level of fear). This measure was used to investigate whether individual characteristic was associated with the effect of training.

Length of answers (LA). As behavioral assessment for social anxiety [20], the lengths of the presentation and answers to the questions was taken as a measure for confidence or avoidance behavior in the question phase of the assessment session.

Presence response (PR). To measure how well people were involved in the virtual or imaginary public speaking scenario, a three-item questionnaire on presence response was adapted from the one used in a study by Pan et al. [21]. All the items were rated on a seven-point scale from 1 (not at all) to 7 (very much).

Heart rate (HR). Heart rate is a physiological measure of experienced anxiety of people [22]. To measure the elicited fear responses during presentations, participants' heart rate was monitored continuously in each session.

Subjective unit of discomfort (SUD) [23]. This item measures the levels of anxiety experienced by the participants. It is rated on a scale from 0 (no anxiety at all) to 10 (the highest level of anxiety that you can imagine).

Utility questionnaire (UQ). To investigate how satisfying and useful people found the practicing methods, a 12-item utility questionnaire was designed consisting of five items evaluating the practice process and seven items on the effectiveness in improving presentation performance. All the items were rated on a seven-point scale from 1 (strongly disagree) to 7 (strongly agree).

Self-efficacy (SE). A one-item self-efficacy assessment was applied to measure self-efficacy in public speaking following the suggestions of Bandura [24]. The question was formulated as: Supposing that now you need to give the presentation you are preparing for in the real situation, please rate how certain you are that you can successfully give the presentation. The item was rated on a scale from 0 (highly certain cannot do) to 10 (highly certain can do).

2.3 Procedure and apparatus

A total of 48 participants (16 females) were recruited throughout the university campus, while eight participants (5 in VR condition, 3 in IM condition) dropped out during the experiment, the analysis only included the data of 40 participants (13 females) who completed the whole experiment. Each condition involved 20 participants (7 females in VR condition and 6 females in IM condition). Their ages ranged from 20 to 42 years ($M = 27.5$, $SD = 4.6$).

Before the individual training course started, participants were asked to fill in questionnaires on PRCS and SE. To ensure the comparability of the participants in the two conditions, a matched pairs design was employed to assign the participants randomly to either VR or IM condition based on their gender and PRCS scores. The training course includes three training sessions followed by a session where participants gave their presentation to a human audience. These three sessions were scheduled over three to ten working days. The first training session and presentation in front of the human audience were scheduled on separate days, participants were allowed to schedule the second and the third session on the same day with at least a one-hour interval between the sessions to reflect on and improve their presentation.

Each training session included a coaching phase and a practice phase. In the coaching phase of first session, the participants interacted with the virtual coach. This was followed by rehearsing their own presentation in the practice phase. In the VR condition, before the presentation, participants chose a virtual environment, set the attitude of the virtual audience, and defined whether an interrupting event would occur during the presentation. The virtual environment was projected on a projection screen (330*250cm) by an EIKI EIP-200 projector. The participants then presented their presentations to the projected virtual audience and answered the questions asked by the virtual audience. In the IM condition, participants were instructed to look at the blank projection screen and to imagine an audience similar to a real situation. The participants were also instructed to think of possible reactions of the imaginary audience and possible questions from the audience. The participants were requested to keep the imaginary audience in mind when rehearsing their presentation. For both conditions, the participants needed to score their SUD every three minutes from the beginning of the presentation. After finishing the whole session, the participant rated SE and PR during the presentation. The procedure for the second and third session was similar, except that rehearsal and coaching phases were reversed.

In the assessment session, participants first rated SE and then delivered their speech in front of an audience of two people. One of the audience members was an experimenter. Following the presentations, the question-and-answer (Q&A) phase began. Both audience members then independently rated the participants' speech performance while the participants rated their SUD during the presentation, SE, and UQ. Participation in the course was voluntary. The experiment was approved by the university ethics committee.

3. Data preparation and analysis

To measure the rating consistency between the two raters on speech performance, Cronbach's alpha was calculated for the delivery items ($\alpha = 0.85$) and content items ($\alpha = 0.76$). As all the ratings showed acceptable consistency, the score for delivery and content dimensions were obtained by averaging the ratings from the two raters. Cronbach's alpha was calculated respectively for PR, utility questionnaire on practice process, and utility questionnaire on performance outcome, ranging from 0.84 to 0.95. Due to the good consistency between their items, the mean value of the items within each questionnaire was taken as a single measure of that questionnaire. All analyses were carried out with R version 3.4.2 with t-tests, multivariate ANOVA (MANOVA), and repeated measures ANOVA. When conducting ANOVA, practice condition was always included as a between-subjects factor. All the experiment data, the R scripts, figures and output files can be found online [25].

3.1. Results.

To check whether pre-experimental differences existed between the conditions, independent t-tests were performed. The results (Table 1) showed no significant differences be- tween participants in VR condition and IM condition in PRCS, age, and self-efficacy before training.

Table 1 indicates that no difference was found between the two training conditions with regard to the presentation performance: the content and the way the participants presented the presentation in front of human audience. However, Table 1 indicates a significantly higher PR rating in the VR condition than in IM condition in the first training session and a similar trend for assessment session. A mixed ANOVA on PR with time of measurement as within-subjects factor found a significant main effect of measuring time ($F(3, 114) = 34.25$, $p < 0.001$), while for condition, no significant main effect was found ($F(1, 38) = 3.59$, $p = 0.07$). Detailed comparisons also showed that PR in the assessment session was significantly higher ($p < 0.001$) than PR in other sessions.

To study how participants' anxiety changed over the sessions, analyses were conducted on mean values of HR and mean values of SUD during the three practice phases and the SUD score given after the assessment session. A two-way mixed ANOVA was conducted respectively on HR and SUD, with time of measurement as the within-subjects factor. The results showed significant main effects of time of measurement on both HR ($F(2.18, 82.83) = 18.70$, $p < 0.001$) and SUD ($F(1.91, 72.64) = 4.85$, $p = 0.01$), but no significant main effect of condition or interaction effect was found. Detailed comparisons were conducted respectively on HR and SUD between different sessions and the final presentation. The results showed that both HR ($p < 0.001$) and SUD ($p < 0.02$) in the assessment session were significantly higher than those measured during the practice sessions, whereas either HR or SUD during practice sessions did not differ significantly from each other. This suggests that the anxiety experienced in front of a real audience was much stronger than the anxiety experienced with a virtual audience or an imaginary audience. Nevertheless, the mean SUD scores in practice sessions were all significantly above 2.5 ($p < 0.01$), suggesting that participants at least experienced some level of anxiety when practicing.

Table 1. Descriptive statistics of the measures, Mean (SD), and results of independent t-tests.

Measure and phase/dimension		Condition		Effect size *r*
		VR	IM	
PRCS		12.85(5.88)	12.85(5.75)	0.00
Age		26.85(3.38)	28.10(5.56)	-0.13
Self-efficacy	Before Training session	6.10(1.55)	6.10(2.22)	0.00
Presentation performance (PP)	Delivery	3.09(0.42)	3.05(0.35)	0.05
	Content	3.30(0.44)	3.32(0.33)	-0.03
Presence response (PR)	Training Session 1	4.68(1.19)	3.83(1.11)	0.35*
	Training session 2	4.85(1.23)	4.50(1.45)	0.13
	Training session 3	5.02(1.01)	4.35(1.55)	0.25
	Assessment session	6.15(0.75)	5.63(1.08)	0.27
HR	Training session 1	87.55(9.87)	87.34(10.06	0.01
	Training session 2	89.29(10.19)	89.74(9.10)	-0.02
	Training session 3	88.81(12.14)	89.84(9.90)	-0.05
	Assessment session	101.99(20.68)	101.86(16.6	0.00
SUD	Training Session 1	3.71(2.24)	3.84(1.78)	-0.03
	Training Session 2	3.85(2.28)	3.78(2.58)	0.01
	Training Session 3	3.55(2.51)	3.74(2.68)	-0.04
	Assessment session	4.50(2.33)	5.15(2.52)	-0.13
Utility questionnaire (UQ)	Process-related	5.48(0.92)	4.46(1.47)	0.38*
	Outcome-related	5.29(1.09)	3.85(1.65)	0.46**
Length of answers (LA) in total (seconds)		173.31(56.90)	132.99(60.4	0.32

$^{*}p < 0.05$, $^{**}p < 0.01$.

The lengths of the answers to the four questions from the audience were analyzed by a two-way mixed ANOVA with the question sequence as a within-subjects factor. The results revealed no significant difference ($F(1, 24) = 3.07$, $p = 0.09$) between the conditions.

A MANOVA was conducted on the two aspects (i.e., process and outcome) of utility questionnaire (UQ). The analysis found a significant effect for practice condition ($F(2, 37) = 5.17$, $p = 0.01$). Separate univariate ANOVA revealed that both process- related utility ($F(1, 38) = 6.97$, $p = 0.01$) and outcome-related utility ($F(1, 38) = 10.58$, $p = 0.002$) were rated significant higher in VR condition than in IM condition.

To study how self-efficacy changed over the practice sessions and the assessment session, a mixed ANCOVA was conducted. The analysis included two within-subjects factors: time of measurement and pre-or-post measurement. Finally, self-efficacy measured before the start of the course was taken as the covariates. The results showed significant main effects for time of measurement ($F(2.16, 79.97) = 11.51$, $p < 0.001$), for pre- or post-measurement ($F(1, 37) = 18.43$, $p < 0.001$), and for self-efficacy measured before the course started ($F(1, 37) = 35.99$, $p < 0.001$), and significant interaction effects between time of measurement and self-efficacy before the course ($F(2.16, 79.97) = 5.81$, $p < 0.01$) and between pre-or-post measurement and self-efficacy before the course ($F(1, 37) = 9.77$, $p < 0.01$). This suggested that delivering presentations, whenever for practice or the final presentation, help individuals to strengthen their efficacy beliefs on public speaking.

4. Conclusions and discussion

This study compared two practice conditions for public speaking: practice with a virtual audience (VR) and practice with an imaginary audience (IM). Although the findings provided no support for the first hypothesis (H1), considering factors such as the study's relatively small sample size, it cannot be ruled out that presentation performance would enhance after practicing with a virtual audience compared to an imaginary audience. The gain of practicing with a virtual audience however was found in the confidence of giving a presentation, specifically in answering questions. Here the analysis found a trend towards longer answers in the VR condition than in the IM condition. This finding therefore provides some support for the hypothesis that practicing with a virtual audience could reduce anxiety (H2). However, no support for this was provided by the analyses of the anxiety reported by participants or their heart rate. Still, the clearest benefit of practicing with a virtual audience was the satisfaction it gave compared with the imaginary method (H3). Participants were more positive towards training with a virtual audience and they were also more positive about the effect this training would have on their presentation ability. The presence response findings might explain this. Participants indicated to feel and behave more like presenting in front of a human audience when practicing with a virtual audience than with an imaginary audience. Although training increased participants' self-efficacy, practicing with a virtual audience or imaginary audience seemed similarly effective in accomplishing this and therefore no support for H4 was found.

Like any empirical study, this study has some limitations that should be considered. First, the study's sample size was relatively small considering the effect size observed. Second, practicing was not studied in isolation but in combination with a training provided by a virtual coach. Although in principle it was possible to study only the practicing part of training without offering additional educational support, this might be essential for helping trainees to reflect and learn from their presentation experience. The latter has been observed in several studies [26,27] that compared guided and unguided discovery learning. Third, in this study, the reported speakers' confidence, measured with PRCS, was found only correlated with self-efficacy but not with other measures such as anxiety or performance. Thus, PRCS might not be a key measure for this study. Another limitation could be the lack of control over how participants made use of the virtual audience or the imaginary audience. Many participants found it very difficult to keep the imagination through the whole presentation. The final limitation was that one rater was aware of the condition the participant was in, makes the experiment a single-blind study. The main scientific contribution of the work presented is the insight that practicing with a virtual audience improves training enjoyment and presentation performance in the eyes of trainees. In the end, this might be even a more instrumental asset than actually improving the presentation. When preparing a speech, people with higher levels of speech anxiety seem often reluctant to rehearse their presentation [28]. Therefore, getting them to practice would be an essential step forward as practicing with audiences improves the presentation [11], reduces anxiety, and increases willingness to speak in public [4]. In this context, a virtual audience could therefore make an important impact.

5. References

[1] S.A. Beebe, Eye contact: A nonverbal determinant of speaker credibility, *Communication Education* **23**(1) (1974), 21–25.

[2] J.C. McCroskey and R.S. Mehrley, The effects of disorganization and nonfluency on attitude change and source credibility, *Communications Monographs* **36**(1) (1969), 13–21.

[3] K.E. Menzel and L.J. Carrell, The relationship between preparation and performance in public speaking, *Communication Education* **43**(1) (1994), 17–26.

[4] J. Ayres, T. Schliesman and D.A. Sonandré, Practice makes perfect but does it help reduce communica- tion apprehension?, *Communication Research Reports* **15**(2) (1998), 170–179.
[5] E. Klinger, S. Bouchard, P. Légeron, S. Roy, F. Lauer, I. Chemin and P. Nugues, Virtual reality therapy versus cognitive behavior therapy for social phobia: A preliminary controlled study, *Cyberpsychology & behavior* **8**(1) (2005), 76–88.
[6] M.B. Powers and P.M. Emmelkamp, Virtual reality exposure therapy for anxiety disorder**.**: A meta- analysis, *Journal of anxiety disorders* **22**(3) (2008), 561–569.
[7] C. Qu, W.-P. Brinkman, Y. Ling, P. Wiggers and I. Heynderickx, Conversations with a virtual human: Synthetic emotions and human responses, *Computers in Human Behavior* **34** (2014), 58–68.
[8] M. Slater, D.-P. Pertaub, C. Barker and D.M. Clark, An experimental study on fear of public speaking using a virtual environment, *CyberPsychology & Behavior* **9**(5) (2006), 627–633.
[9] C.A. Zanbaka, A.C. Ulinski, P. Goolkasian and L.F. Hodges, Social responses to virtual humans: implications for future interface design, in: *Proceedings of the SIGCHI conference on Human factors in computing systems*, ACM, 2007, pp. 1561–1570.
[10] H.S. Wallach, M.P. Safir and M. Bar-Zvi, Virtual reality cognitive behavior therapy for public speaking anxiety: a randomized clinical trial, *Behavior modification* **33**(3) (2009), 314–338.
[11] T.E. Smith and A.B. Frymier, Get 'real': Does practicing speeches before an Audience Improve Performance?, *Communication Quarterly* **54**(1) (2006), 111–125.
[12] C.W. Choi, J.M. Honeycutt and G.D. Bodie, Effects of imagined interactions and rehearsal on speaking performance, *Communication Education* **64**(1) (2015), 25–44.
[13] L.B. Pham and S.E. Taylor, From thought to action: Effects of process-versus outcome-based mental simulations on performance, *Personality and Social Psychology Bulletin* **25**(2) (1999), 250–260.
[14] A. Bandura, *Self-efficacy: The exercise of control*, wH Freeman New York, 1997.
[15] D. Kahneman, *Attention and effort*, Vol. 1063, Citeseer, 1973.
[16] N. Kang, W.-P. Brinkman, M.B. van Riemsdijk and M.A. Neerincx, An Expressive Virtual Audiencewith Flexible Behavioral Styles, *IEEE Transactions on Affective Computing* **4**(4) (2013), 326–340.
[17] N. Kang, W.-P. Brinkman, M.B. van Riemsdijk and M. Neerincx, The design of virtual audiences: noticeable and recognizable behavioral styles, *Computers in Human Behavior* **55** (2016), 680–694.
[18] E.F. Barkley and C.H. Major, *Learning assessment techniques: A handbook for college faculty*, John Wiley & Sons, 2015.
[19] G.L. Paul, *Insight vs. desensitization in psychotherapy: An experiment in anxiety reduction*, Stanford University Press, 1966.
[20] S.G. Hofmann, M.G. Newman, A. Ehlers and W.T. Roth, Psychophysiological differences between subgroups of social phobia., *Journal of Abnormal Psychology* **104**(1) (1995), 224.
[21] X. Pan, M. Gillies, C. Barker, D.M. Clark and M. Slater, Socially anxious and confident men interact with a forward virtual woman: an experimental study, *PloS one* **7**(4) (2012), e32931.
[22] B.K. Wiederhold, D.P. Jang, S.I. Kim and M.D. Wiederhold, Physiological monitoring as an objective tool in virtual reality therapy, *CyberPsychology & Behavior* **5**(1) (2002), 77–82.
[23] J. Wolpe, *The practice of behavior therapy*, Pergamon Press, 1990.
[24] A. Bandura, Guide for constructing self-efficacy scales, *Self-efficacy beliefs of adolescents* **5**(1) (2006), 307–337.
[25] N. Kang, D. Ding and W.-P. Brinkman, Public speaking training in front of an imaginary or virtual audience: A randomized controlled trial, 2019, Available from https://doi.org/10.4121/uuid:636f6176- e86f-46e3-a50b-84ab4808a18c.
[26] L. Alfieri, P.J. Brooks, N.J. Aldrich and H.R. Tenenbaum, Does discovery-based instruction enhance learning?, *Journal of educational psychology* **103**(1) (2011), 1.
[27] P.A. Kirschner, J. Sweller and R.E. Clark, Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching, *Educational psychologist* **41**(2) (2006), 75–86.
[28] J.A. Daly, A.L. Vangelisti and D.J. Weber, Speech anxiety affects how people prepare speeches: A protocol analysis of the preparation processes of speakers, *Communications Monographs* **62**(4) (1995), 383–397.