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Viva Survivors – the effect of peer-mentoring on pre-viva anxiety in early-years students
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Abstract

Viva voce exams are used in many disciplines as a test of students' knowledge and skills. Whilst acknowledged as a useful form of assessment, vivas commonly lead to a great deal of anxiety for students. This anxiety is also apparent for vivas in phonetics, where students must produce and recognise sounds drawn from across the world's languages, and previous work has shown that viewing a video of a mock-viva does not reduce this anxiety. To address anxiety prior to phonetics vivas, 63 students, across three cohorts, engaged in a brief, isolated, peer-mentoring session with previously successful students ('viva survivors'). Anxiety about the viva was measured before and after the mentoring experience, using the short form of the State Trait Anxiety Inventory. There was a significant reduction in anxiety after mentoring, and a significant correlation between anxiety before mentoring and the decrease in anxiety after mentoring. Short-term mentoring is posited as a time- and cost-effective method to decrease viva-related anxiety across disciplines.

Key words

Anxiety, peer-mentoring, vivas, oral exams

Introduction

This paper discusses how a single peer-mentoring experience can reduce anxiety associated with *viva voce* exams in phonetics. Traditionally *viva voce*, or oral, exams are used as a complement to written exams in a wide range of disciplines. Vivas take different forms but all involve a candidate giving verbal responses to questions posed by at least one examiner. The rationale for the use of vivas in phonetics is that they provide an ideal format for assessing oral production skills as well as the understanding of key theoretical constructs. In their training, students of phonetics learn to describe, recognise and produce speech sounds from all languages of the world, and additionally must learn to transcribe, which involves symbolising these sounds using the International Phonetics Alphabet (IPA). Thus phonetics curricula include a range of knowledge- and skill- based learning outcomes, which are typically assessed by traditional exams, class tests and coursework. The students' productive capabilities, however, which been considered a key skill for the phonetician since the early days of the discipline (Ashby and Ashby, 2013), cannot be assessed using these methods.

Production skills, along with some description and transcription skills, are traditionally tested in a *viva voce* examination. In phonetics, the term 'viva' refers to a combination of an in-class group dictation and the individual oral exam. For comparability with other disciplines, in what follows, we will use the term 'viva' to refer solely to the individual oral. The oral part of the viva, which is our focus here, is an individual exam typically lasting 15 minutes, with one or two examiners. Although the format varies somewhat across institutions, in a typical oral, students must produce non-native sounds from IPA symbols, recognise and verbally label sounds produced by the examiner, and describe the stress and intonation of a sentence produced first by themselves, and then by the examiner. Thus the viva allows the assessment of the oral components of phonetics, alongside aspects of the content and theory (Ashby and Ashby, 2013; Joughin 1998). Despite the specialist activities involved, the phonetics oral retains many aspects of vivas in other disciplines such as foreign language studies and PhD examinations: students have to think and respond quickly, are not able to consult notes or prepare for specific questions, and all their responses must be given orally.

Whilst vivas are acknowledged as giving a unique insight into students' abilities, they tend to give rise to a great deal of anxiety and uncertainty for students across disciplines. Davis and Karunathilake (2005) note that there is no evidence concerning whether vivas are more stressful than other types of exam, yet studies across disciplines suggest that vivas are indeed anxiety provoking. For example Ardnt et al. (1986), investigating medical vivas, found a very high degree of anxiety, higher than that for a selection interview. Similarly, Sayce (2007) for business, and Pearce and Lee (2009), for marketing, noted pre-viva anxiety concerns.

Ardnt et al. (1986) also discuss the aspects of vivas which make students anxious. They cite the work of Gray (1982), which highlights three major causes of anxiety. First, anxiety arises when people are in a situation where they might be punished or not rewarded, which would be the case in a viva if the student does not do well enough to pass. Second, new stimuli are anxiety provoking, which is true of vivas in terms of the novel situation and also the previously unseen material that is presented. Third, Gray lists "innate fear stimuli (including those that arise during social interaction)", as is the case with individual face-to-face interactions in a viva, as causes of anxiety. As Mellanby and Zimdars (2011) describe, the relationship between anxiety and academic performance is complex, and different types of anxiety (state and trait) may interact other factors such as student ability and the nature of the assessment. However, if anxiety levels are too high, learning will not be facilitated (Ashcroft and Foreman-Peck, 2002).

Similarly to vivas in other disciplines, the phonetics viva provokes a good deal of anxiety for students. For example, Knight, Cruice and Dipper (2013) show that two months prior to their viva, students felt anxious about all components on which they would be examined. This was the case regardless of how much information had been provided about these components, how much they had been practiced in class, or whether they had been examined before using different assessment methods. Furthermore, Knight, Dipper and Cruice (2013) demonstrated that, whilst watching a video of a mock-viva increased students' *knowledge* about the viva process, it did not decrease their anxiety. There are two possible reasons for why the video of a mock-viva did not decrease anxiety. The first relates to the tool used to measure anxiety - a simple rating scale was used, wherein students answered the question 'I am anxious about the viva' using a scale from 'strongly agree' to 'strongly disagree'. It is possible that this tool lacked sensitivity to capture change in the degree of anxiety experienced. The second reason pertains to using a video rather than a live mock-viva experience. Although fear has been successfully treated using video (also known as a vicarious experience, or symbolic modelling (e.g. Bandura and Menlove, 1968)), it is possible that video does not provide a sufficiently realistic environment to reduce anxiety. Similar claims have been made by researchers investigating concepts related to anxiety: for example, Luzzo, Hasper, Albert, Bibby, and Martinelli (1999) found no increase of self-efficacy for maths students viewing video models, and suggested that live models may be preferable to symbolic models.

One way of creating a more realistic, live experience for students is peer-mentoring. Although peer-mentoring does not involve a vicarious experience, it has advantages in that students can interact with a more experienced student, one who has survived a particular experience themselves, and so they are able to ask questions that are directly relevant to them and their concerns. Andrews and Clark (2011, p24) describe peer-mentoring as 'reciprocal peer support and learning [... whereby...] peer mentors help newer students settle into, and succeed at, university'. Peer-mentoring is often

undertaken in order to ease the transition to university, or as a strategy to reduce attrition. In their summary of peer-mentoring across several institutions, Andrews and Clark suggest that peer-mentoring is often used in the transition period for students beginning university, when students worry about settling in and becoming part of the community. Longer-term peer-mentoring occurs after this transitional period, and can help when students begin to find academic aspects of the course challenging. Other types of peer-mentoring, such as those involving writing, do not involve the mentor and student building a long term relationship, but instead are offered on an *ad hoc* basis, in order to support a particular assessment or skills, such as writing.

The functions of peer-mentoring have been described in terms of their value to students. For example, Jacobi (1991) notes three functions of peer-mentoring, namely emotional support, assistance with professional development, and role modelling. Whilst peer-mentoring can take many different forms, it has been shown to promote independent learning (Andrews and Clark 2011), and provides pedagogical value when integrating peer learning within academic courses (Topping 1998, cited by Smith 2008) and in a formal class-based setting (see Topping & Ehly, 2001; Topping 2005). Furthermore, Leidenfrost, Strassnig, Schabmann, Spiel, & Carbon, (2011) and Leidenfrost, Strassnig, Schütz, Carbon, & Schabmann, A. (2014) demonstrated that students who underwent peer-mentoring had better average grades and passed more courses than those who were not mentored.

Currently there is a small body of evidence which suggests that some forms of peer-assisted learning can reduce anxiety for students. Topping (1996) discusses the role of peer tutoring, rather than peer-mentoring, and notes two studies (Greenwood Carter and Camps (1990), and Bobko (1984)) indicating reduced anxiety for students who are tutored by their peers. In terms of peer-mentoring, Rodger and Tremblay (2003) investigated the effects of a mentoring programme on over 900 new undergraduates across a range of subject disciplines. Mentoring was long-term and designed to be regular, with some mentors meeting with their students throughout the academic year. Amongst the mentored group, those who were high in anxiety at the start of their programme performed equally well academically as those who were low in anxiety. However, in a control group of students who did not receive mentoring, those who were initially high in anxiety performed more poorly than those lower in anxiety. One explanation for this finding is that peer-mentoring reduced anxiety.

Whilst Rodger and Tremblay reported on long-term mentoring, Sprengel and Job (2004) investigated peer-mentoring for nurses in a single clinical experience. Ratings of anxiety were collected two weeks prior to students' first clinical experience, and results indicated that students were anxious about many aspects of this upcoming experience, such as making mistakes. Students were then assigned to a more advanced student mentor during their first clinical experience. Although there was no direct post-test of anxiety, many students indicated in qualitative comments that the mentoring experience had reduced their anxiety, and mentors also reported that they felt they had lessened their student's anxiety during the clinical experience. Given the high levels of anxiety surrounding phonetics vivas, and previous failures to address this anxiety using video modelling, this paper investigates the effect of a single peer-mentoring experience on the viva-related anxiety of undergraduate students.

Method

Participants were students in the second year of a BSc (Hons) in Speech and Language Therapy at a metropolitan university. The entire second year cohort took part in three consecutive years (circa 40 students in each year), but results are presented here only for those students in each cohort who consented to their data being used for research (63 in total). Students completed questionnaires anonymously, as explained below, and we did not collect demographic data, to ensure students knew they could not be identified. Therefore it is not possible to provide further demographic information for those who consented to their data being used. However, students in the cohorts were aged 19 to 43, and were 99% female, as is typical for students on Speech and Language Therapy programmes.

Students participated in a single-session of peer-mentoring during class time, roughly 2 months before their phonetics viva. Mentors were students who had successfully completed their phonetics viva (viva survivors), and were in the third or fourth year of the programme. Mentors were not given any explicit instructions about what to say to the participants, but were reminded about the format of the viva, asked to reflect on how they had felt before, during and after their own viva, and to think about any strategies that had helped them succeed. Mentors were not selected on the basis of any criteria, other than being willing and able to attend the mentoring session. Mentors visited for around 25 minutes during regular class time, and each mentor was randomly assigned to a group of 3-5 participants. In two cases, two mentors shared a group of students in order to balance numbers.

Immediately before and after the mentors' visit, participants anonymously completed the short form of the State-Trait Anxiety Inventory (STAI; Marteau and Beckker, 1992), a widely used validated instrument, consisting of 6 questions addressing anxiety, which are rated on a 4-point Likert scale. Participants completed the STAI in relation to their feelings about the viva examination. A total score between 6 and 24 was calculated for each student pre- and post- the mentors' visit as per the test instructions, with higher scores indicating higher anxiety. Students completed each STAI on one side of a double-sided sheet so that their ratings at each stage could be compared.

Qualitative information was also gathered. Before the mentoring session, students wrote questions that they would like to ask of their mentors. After the session they wrote the advice the mentors had given, and identified one thing that they would take away from the mentoring experience. They also indicated if the mentor had said anything they found unclear or unhelpful, and if they needed any more information about the viva, so that any difficulties could be rectified in later class sessions. Participants took photos of these notes for their own development and submitted the anonymous originals to be used for the research project.

Results

Insert figure 1 about here

Non-parametric Wilcoxon tests were used, as appropriate for the rating scale data collected. Data were initially analysed separately for each cohort, but results were almost identical so are combined here across participants in all three years. As shown in figure 1, there was a significant reduction in anxiety from pre- (Range 7-24, Mdn=16) to post-visit (Range, 6-20, Mdn=13) ($Z = -6.57, p < .001$,

$r=.83$) as measured by the STAI. Thus the median reduction was 3 points out of 24, and it is noticeable that three out of four outliers pre-visit moved into the normal range post-visit. The difference between pre- and post-visit scores was also investigated at an individual level. Of the 63 participants, 56 felt less anxious about the viva after the mentors' visit. For one participant, there was a reduction in anxiety of 14 points. Four participants' ratings remained stable, and only three participants felt more anxious, and each by only one point. Furthermore, as shown in figure 2, there was a significant positive correlation ($r_s=.64$, $p<.001$) between pre-visit ratings of anxiety and the difference between pre- and post-visit anxiety, indicating that those with higher anxiety before the mentoring session experienced more reduction in anxiety after mentoring.

Insert figure 2 about here

Qualitative analyses of participants' pre- and post-mentoring comments revealed a number of key themes. A full qualitative analysis is not given here for reasons of space, but some extracts are given below. Before the mentors' visit, participants had queries regarding: revision strategies, viva strategies, how much preparation the mentor did for the viva, how the viva examiner behaved (i.e. were they supportive and considerate), what the hardest part of the exam was, and how to cope with nerves, (listed in decreasing order of frequency).

Participants also identified key information provided by the mentors, largely regarding revision tips. Participants noted the need to revise regularly in small sessions, for example "Revise little and often to break up other revision". They also noted the need to make opportunities for revision within their normal everyday activities, such as "use every hour of the day! even when travelling short distance", as well as some creative revision strategies, for example "practise intonation with YouTube videos" and "listen for intonation in casual conversation".

Comments were also analysed in order to inform our understanding of the STAI ratings. As noted above, the anxiety ratings of three students increased by one point after the mentors' visit. Analysis of these students' free-text comments shows the ratings are related to the amount of work needed in preparation for the viva. For example, one student commented "[the mentor was] very helpful however I'm a little more worried about myself now as compared to my mentor I feel like I'm not doing enough revision". The comment of the student whose ratings reduced by 14 points was simply, "I feel much better", which clearly reflects the rating data, but does not allow us to understand why the experience was so beneficial for this individual.

Overall participants noted that they were reassured by their mentors in relation to the viva experience itself. They noted the need to believe that the information they had received about the viva in class throughout the year was correct, that the viva was not a confusing experience, and that the examiners were helpful. Furthermore, the mentoring experience met participants' needs, as no student indicated that they found the mentors unclear or unhelpful, and no student expressed a need for more information about the viva in future classes.

Discussion

This study investigated the effect of a brief, isolated, peer-mentoring experience on student anxiety before a viva. Previous literature has shown video modelling to be ineffective at addressing anxiety, whilst other studies have shown peer-mentoring to be a useful tool. Sixty-three students rated their anxiety related to the viva using the short form of the STAI before and after a 25-minute mentoring experience, and free text comments were collected.

There was a significant reduction in anxiety after the mentoring experience. This finding is congruent with others in the literature suggesting that peer-mentoring can reduce anxiety. Unlike the mentoring programme reported by Roger and Tremblay (2003), however, this reduction in anxiety came about after only a single, 25-minute, session of peer-mentoring. Sprengel and Job (2004) also used a single session of peer-mentoring, although this took place over a full day of clinical work, and anxiety reduction was not captured by formal ratings after the experience. Thus, to our knowledge, this is the first time that such a short period of mentoring has been shown to reduce anxiety. One reason why positive results were found may relate to the very specific focus of the mentoring, concentrating on a single assessment.

Approximately 89% of the sample reported reduced anxiety; on average this reduction was 3 points on the STAI, although for one student anxiety was reduced by 14 points. It was also clear that anxiety reduction was greater for students who were more anxious before the mentoring experience, suggesting that this method of anxiety reduction was most effective for those who needed it most. The two students whose anxiety increased, albeit only by one point, were both low in anxiety before the mentoring experience. Their free text comments reveal that their increased anxiety related to an incomplete knowledge of the viva before the mentoring experience, and a realisation that they were probably not doing enough revision and preparation to perform well. Thus, although these two students reported slightly greater anxiety, it is to be hoped that this was facilitative anxiety, enabling them to adjust their study habits accordingly.

Qualitative analyses of free-text comments revealed that mentors had provided many useful and appropriate strategies to participants. Whilst some of these were specific and innovative (such as using YouTube), it is noticeable that most of the strategies were those frequently suggested by the staff team in phonetics teaching. For example, lecturers frequently recommend a system of short regular practice, such as is appropriate for developing any skill, including those in identifying and producing speech sounds. Similarly it is notable that students are continually reassured about the amount of help they will receive in the viva, and the disposition of the examiners. Although not the focus of this paper, it is interesting to note that this information seems better received when it comes from a near-peer than when it comes from the staff team. Andrews and Clarke (2011) note that students will often rather go to a mentor than to a lecturer for advice, and it seems from the current project that such advice is also more likely to be taken into consideration, even if it is identical to that delivered by teaching staff; this may be a future avenue for research. As an aside, it is also notable that many participants used the end of their mentoring experience as an opportunity to move beyond the viva and discuss other aspects of the course to which mentors were currently exposed. This has also been noted (Andrews and Clarke, 2011) in other areas of mentoring, for example when mentoring focussed on writing is also used as an avenue to explore generic concerns about university. These findings suggest that, whilst the short experience is effective at reducing

anxiety around a single assessment, further mentoring experiences could be valuable in allowing students to discuss more generic and programme-wide issues and concerns.

It is important to consider why a short live peer-mentoring experience reduced anxiety when observing a video of a mock-viva failed to do so (Knight, Dipper and Cruice, 2013). As discussed in the introduction, part of the reason might be due to the different instruments used. Knight, Dipper and Cruice (2013) used a bespoke rating scale, which asked participants to agree or disagree with the statement 'I am anxious about the viva'. The current study instead used a standardized, and widely-used tool where participants rated the degree of their anxiety. Additionally, the reduced anxiety may relate to the use of live peer-mentors who had undergone a real viva, rather than a passive viewing of a mock-viva. These different approaches can be considered in relation to Bandura's (e.g. Bandura and Menlove, 1968) sources of self-efficacy in social cognitive theory. The mock-viva video represents a vicarious experience, in which students view a model performing the task they are hoping to master. To be most effective, observers and model should share certain attributes, and the model should be presented as someone who had previously struggled before succeeding at the task. Peer-mentoring, however, can be seen as a type of verbal or social persuasion, and was targeted to be believable, and be delivered by a trustworthy source, as the mentors had genuinely passed vivas previously. A vicarious experience is generally believed to be the second most effective source of self-efficacy after a mastery experience, whilst verbal persuasion is usually believed to be the third most effective source (Chowdury, Ednres, and Lanis 2002). In this case, it appears that verbal persuasion was more effective than a vicarious experience, but it would be crucial to take anxiety ratings for peer-mentoring and viewing a mock-viva using the same scales, and during a similar time period, in order to confirm this suggestion.

There are some limitations of the study that must be borne in mind when interpreting and generalising the results. For example, there was no long-term assessment of anxiety, so it is unclear if a reduction in anxiety two months before the viva also reduced student anxiety immediately before or during the viva itself. In future studies, students could be asked to complete the STAI immediately before and after the viva, so that their scores could be compared to those from the mentoring session. However, there are some difficulties with this approach, most notably that it is advantageous for all student ratings to be anonymous, so that they do not feel that their markers or examiners will be privy to their ratings. Unfortunately such anonymity is almost impossible to achieve in a longitudinal study. Alternatively, students could fill in an anonymous questionnaire after the viva asking if the mentoring experience had a positive effect on their anxiety. However, this would not be a direct test of anxiety and may be perceived as extra burden to students at what is already a stressful time.

Furthermore, it is not clear if the demonstrated reduction in anxiety relates to improved academic performance for mentored students. Although this is outside the current focus of research, it would be a useful addition in future studies, as higher anxiety is associated with lower levels of study skills (Culler and Holahan, 1980). For the current study, it is not possible to compare the viva results of mentored students to those from previous, un-mentored cohorts, due to changes in student demographics, and changes in the viva assessment, but such an avenue could be explored by implementing a control group of unmentored students in future years. Such a group could be self-selected from those who are unable to attend the mentoring session, although it is likely that this

would be a very small number compared to the mentored group. Alternatively, the group could be usefully split, so that half see the mock-viva video, whilst half experience peer-mentoring, before swapping over, with STAls completed at each point. Such a crossover study would also allow the mock-viva video and peer-mentoring experience to be directly compared.

An additional limitation is that there was little training or selection of mentors. In some ways this presents little difficulty, as positive results were achieved across three cohorts using the current system. However, much of the literature suggests that these are important characteristics of a successful mentoring experience, and Andrews and Clark (2011) recommend a rigorous training and selection process. It may be that these areas are of lesser importance in a one-off mentoring experience than when mentoring is more long-term. Nevertheless, future work should consider more training for mentors, and possible matching of mentors and students in terms of academic and demographic characteristics. Finally, although data is presented representing the mentored students' reduction in anxiety, no data was officially collected on possible risks or benefits for the mentors, as this did not directly address the research questions. Whilst, informally, mentors reported a sense of being able to 'give something back' to more junior students (as also identified by Andrews and Clarke 2011), a useful complement in future work would be to formally assess the mentors' perspective.

This study has demonstrated that a brief, isolated, peer-mentoring experience can significantly decrease student anxiety concerning an upcoming viva. Whilst the viva was specific to phonetics, it is likely that a similar experience would also be beneficial for students in other disciplines. In the current climate of limited financial resources, methods of improving the student experience must be time and cost effective. The peer-mentoring experience reported here makes good use of student and staff time, taking only 25 minutes of class time, and very few organisational or developmental resources. When compared to other methods, such as providing mock-vivas to individual students, it can be considered as a useful and effective method to reduce student anxiety in relation to oral examinations.

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Figure captions

Figure 1 Ratings on the STAI before and after the mentoring experience

Figure 2 Relationship between pre-visit anxiety and change in anxiety