

## VIVA VOCE AS AN AUTHENTIC ASSESSMENT TOOL DURING THE COVID-19 PANDEMIC

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### Abstract:

Viva voce is one of the traditional educational assessment tools which has lost its prominence in many disciplines over the years. We now see a resurgence of viva voce due to the need for remote examinations during the COVID-19 pandemic. During our experience of teaching business and entrepreneurial concepts to technology-focused students, we have implemented several oral assessment methods and now have used viva voce for over 1000 students. In our experience, the viva has given a more direct view of what students have or have not learnt throughout a semester. Our methods of applying viva voce and lessons learned are discussed in this practice paper.

**Keywords:** Viva voce, assessment, undergraduate students, business concepts

### I. INTRODUCTION

Viva voce (in short, viva) is an oral examination conducted by spoken word in real time. It was more prevalent in ancient education and was slowly replaced by written examination from the 18th century [Stray 2001]. It is commonly used for defending doctoral dissertations and in medical education [Arico 2021; Akimov and Malin 2020; Ganji 2017; Pearce and Lee 2009] but limited for other courses. Arico [2021] pointed out that it is underused for undergraduate students, however, vivas are used as assessments for students in marketing [Pearce and Lee 2009], education [Carless 2002], physiotherapy [Munro and Hollingworth 2014].

An assessment is a major component of education which is used to determine the amount of learning students undertook for a particular subject or course. Akimov and Malin [2020] summarised the literature and stated, "...implementing oral examination in an assessment strategy has led to enhanced communication skills, knowledge and confidence among students, has increased their motivation to learn and understand the subject matter, and has decreased their likelihood of cheating" [p.1207]. With similar objectives, we implemented viva voce for over 1000 students (in cohorts of around 400 students) in an introductory business and entrepreneurship subject for engineering students.

Many different business concepts are covered in the subject. While we were planning on assessing students using a viva with randomised questions prior to the COVID-19 pandemic, the transition to online learning has modified the plan somewhat as we could not hold the viva in a physical classroom. Instead, we implemented the viva online via Zoom sessions. In our experience, the viva has given a more direct view of what students have or have not learnt throughout a semester.

In this practice paper, we have outlined the context by giving a brief overview of the subject and how it is delivered in each semester. Steps of implementing viva voce as an assessment is described in the following section. While running vivas for a large subject, there are certain steps you have to pay attention to and we have discussed those points carefully in that section. Finally, our experiences and lessons learned from applying viva as an assessment for the last three semesters have been discussed.

## **II. CLASS SETTING / CONTEXT**

Viva voce (oral exam) has been implemented as a replacement to the final exam in a subject which introduces business and management concepts for technology-focused (engineering and IT) students in their final year of an undergraduate course. The subject is taught over a period of 12 weeks (one semester) to around 400 students per semester. During the first year of the COVID-19 pandemic situation, the class was run as a three hour workshop over Zoom where both concepts and practical cases were discussed. The following year, the delivery of the subject changed to 1.5 hours of lecture and 1.5 hrs of tutorials. Concepts are introduced with examples during the online lecture class for all students and practical examples are discussed in their virtual tutorial classes. The average size of the tutorial classes is around 30.

The subject introduces different business functions of an enterprise by getting students to prepare a business plan for their own proposed business. Initially, the understanding of a market is developed by introducing basic supply and demand concepts from economics, and students individually complete a market analysis for their chosen market. For the second assessment, they are required to propose a new business, ideally in the same market, with a clear problem or opportunity statement. They prepare a one minute business pitch for this assessment and it is shared with the whole class.

Students then watch some of the pitches and form a group of 4 for the following assessment (Business Plan). After submitting the business plan, they individually attempt the final oral exam. It is conducted over two weeks at the end of the semester.

## **III. OUR APPLICATION OF VIVA VOCE AS AN ASSESSMENT TOOL**

### **Transitioning from Interactive Lecture to Viva Voce**

Prior to the current subject, we have been exploring many different methods such as student peer review, interactive lectures, video pitches, and industry mentors in another subject within the Business Information Systems major. The interactive lecture (a variation of viva voce) was introduced in the pursuit of incorporating 'flipped learning' in the classroom. Students were given a set of questions (between 10 to 15) and related articles or chapters to read in advance but they would only be assigned a particular question to answer in the class. Following the initial answer from the student, the rest of the class would also have the opportunity to interact by adding their input to the concept/question. Usually only a few students participated in the follow-up discussion. Following the discussion, the teacher corrected or filled in details about the concept being discussed. This process of learning the concept and discussing it in the class in this manner had promising results.

For the current larger class, we were planning to implement a viva as the final exam, due to our previous experience with in-class viva (interactive lecture). We wanted to implement some form of open book exam with randomly allocated questions so that students would review all of the major concepts from the semester. Because we are spot-checking their knowledge with a random question, the students are prompted to revise comprehensively, which is the time that most of their learning occurs, however, they do not need to spend several hours in an exam to demonstrate it.

### **Preparing Students for the Viva and Scheduling**

Students are given a pool of 14 questions three weeks prior to the viva. Those questions are provided in a table alongside a list of readings, which had been introduced to the students over the relevant weeks of the semester. Students are encouraged to keep up with the readings, week by week, and the table associates the viva questions with the specific readings for their revision.

A schedule for the viva is also made available for students in the same week, so that they can reschedule it if needed. The exam is scheduled by giving each student a 10 minute slot, starting from 9 AM to 5 PM on weekdays for two weeks. Although this exam is individually assessed,

students are scheduled together with their groups from the previous assignment (Business Plan) to allow them to give their group members some moral support. This also helps to reduce our mental context switching when different business ideas are being presented.

The students are also provided with clear instructions on what they need for the assessment including their student ID card as well as having tested their microphone and webcam camera in Zoom. They are also instructed to find a good location with a reliable internet connection on the day, such as university campus or a local library, if their home connection is unreliable. During the exam, if students experience technical problems, we actively reschedule them. Students with various emergencies or special needs are handled on a case by case basis.

The process of running the viva is illustrated in the diagram below:

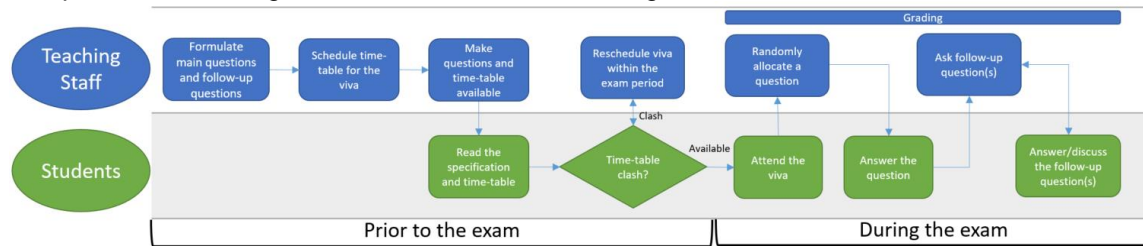


Figure 1. A process of conducting Viva voce

## Running the Vivas

On the scheduled day, students attend the Zoom session, with the same link used for weekly lectures throughout the semester, preventing the need to help any lost students while managing the exam. Students are able to join at any time during the exam period and spectate other students presenting. This helps them to preview the format of the exam and avoid repeating basic instructions for each student. Whilst some students may see this as an opportunity to glean the answers, they cannot be certain about the correctness of any answers given by other students, and the large pool of questions further frustrates any such attempt. We also anticipate that presenting in front of some peers and not just teachers encourages students to prepare more. Additionally, having multiple students present allows us to examine them in a different sequence if one is late or has technical problems, etc.

As instructed, most of the students join the Zoom session a few minutes prior to their scheduled time. We call each student when it is their turn - if they are absent, we offer others the possibility of taking their turn early if they are ready. First we ask them to verify their identity by presenting their student ID card in front of the webcam. Due to some students being overseas during the pandemic, we allow them to present alternate forms of identification. When they are ready, we start a 2-minute on-screen (screen-share) timer for their business pitch. As will be discussed in detail later, we record marks concurrently with the student's presentation.

The remainder of our time with each student is used for the randomly allocated question (the viva). At this point, we screen-share a spreadsheet that uses a random-number generator to allocate one of the questions for the students to answer. Although we read the question to the student, having the question number and text shown helps if the student did not hear the question clearly, or just prefers to read it themselves. We encourage students to have some key points prepared for each of the questions, rather than reading their answers. As an exception, if other members of the student's group are present, and the same question has been drawn for one of them, the randomisation is re-run until a unique question is drawn.

Once the student presents their initial answer, we ask follow-up questions relating to the concept underpinning the allocated question to determine the student's level of understanding. We might also ask students to clarify their business idea. Within the available time, the follow-up can take the form of a short discussion with the student, particularly if the student gives brief answers. Once we have probed sufficiently to assess the student, we conclude the viva and proceed to call the subsequent student.

## Assessment

While students are presenting their answers, concurrently we record the marks. Two examiners are marking this assessment independently in separate rubrics to avoid bias and marks are averaged between them. We followed this process to reduce concerns due to the subjective nature of assessment in viva [Arico 2021] and halo effects [Ganji 2017].

Asking follow-up questions to evaluate the student's understanding of the particular concept is necessary to deal with several common situations:

- Students can make a mistake/omission in their initial answer. Follow-up questions here can help to tease-out their actual understanding of the topic.
- Students can present a very confident answer to the initial question that relies on common sense or dictionary definitions of key terms rather than the concept underpinning the question. For example, "variable cost" has a well-defined accounting definition but also a natural language interpretation. Follow-up questions here can verify whether the student actually understands the concept taught in the subject.
- In cases where students read their initial answer in full (rather than just relying on a few prompts in their notes), we cannot make a determination of who prepared their answer. In these cases the follow-up questions/discussion is the primary data for assessing the student.

Depending on the level of preparation for the exam by students, the answers to follow-up questions vary widely and give a good basis for allocating marks appropriately.

Since the viva is conducted online during the pandemic, it is recorded for audit purposes or in cases where we need to revise the marks for a particular student. It also gives us the flexibility to continue the viva uninterrupted with one examiner and mark asynchronously when the other needs to attend some pre-commitments or family emergencies during the 10 day period.

## IV. OUR EXPERIENCE / LESSONS LEARNED

### Student Performance

Based on our observation, we can roughly divide our students into the following four categories:

- (~15%) Thoroughly prepared to answer any allocated question - these students rarely need to refer to any documents while presenting an excellent synthesis of literature with their business idea. Answers to follow-up questions show a strong command of the allocated topic.
- (~35 %) Reasonably well-prepared with good answers to the initial question. Follow-up questions can reveal that whilst they have read the provided literature, this may have been a cursory read rather than in-depth study.
- (~30%) Reading a prepared answer verbatim. Most of these students struggle to answer the follow up questions.
- (~10%) Poorly prepared students who are not ready to answer their allocated question. Some of these students plead to have a different question allocated or state that they could have performed better with one of the other questions.
- (~10%) Not prepared at all but try to answer the question through guess-work or quickly searching online. Most of these students are not able to answer follow-up questions.

Worth noting here is that the interactivity of a viva can sometimes afford opportunities for students to learn more about their allocated topic during the exam, for example, while we are waiting for the next student.

### **Time Management**

While most of the viva sessions run smoothly, some events can impede the flow of the sessions. In the past three semesters during the pandemic, we have encountered the following situations which have caused disruptions to the flow of the sessions:

- Connection problems - some students, notably those overseas, have poor internet connections. This can result in drop-outs or exacerbation of audio problems.
- Device problems - despite instructions to test their camera and microphone ahead of the session, some students report that they have problems with these on the day.
- Finding a student ID card - some students forget to have their card ready for the viva and when prompted they try to find it, sometimes in another room.
- Late students - rare, with various reasons cited by students.

As the viva sessions are tightly scheduled each day, any of these obstructions result in a divergence from the time-table and possibly running over the allocated time if we cannot recoup the lost time. To keep things on track, we react to the situation at-hand by using several methods such as:

- Asking other queued students to swap turns with those that are causing a delay (as mentioned above).
- Asking any spectating students to take their turn early at various opportunities (absentees, prior to breaks, etc.) so as to free up their allocated time slot later.

By recouping time with these methods, we are able to reschedule students who missed their exam slot due to an emergency.

### **Student Anxiety and Stress**

As mentioned earlier, we have come across different types of students in terms of their preparation for the exam. Likewise, they vary in their stress-responses. For example, we see that high-achieving students can experience performance anxiety. Often we find that students who are anxious at the start of the viva turn out to be quite capable and perform well once they start to speak. However, there are also students who are stressed because they are not prepared for the exam. Sometimes the stress of these students only manifests when we ask them follow-up questions. Finally, some students are apathetic to the whole experience, either because they are not interested in the subject and have not prepared, but also those who have prepared moderately and are just aiming for a pass mark.

## **V. CONCLUSION**

Viva voce is an authentic assessment that eschews time-consuming written examination in favour of an interactive probing of students' understanding. At times conversational, the method offers a surprisingly sharp perspective into how much students have learned about the topics being examined. We find that asking follow-up questions both cuts through student bluffs while also helping those who have trouble explaining newly learned concepts.

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