

How to Visually Analyze Verbal and Nonverbal Skills of Students' Oral Presentation

Jung-Lung Hsu, Kainan University, Taiwan
Yen-Liang Chen, Kainan University, Taiwan
Hung-Jen Fang, Kainan University, Taiwan
Huey-Wen Chou, National Central University, Taiwan

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Abstract

The purpose of this study was to facilitate students their skills concerning oral presentation, a critical competency in any professional fields, including business and engineering. Although the importance of this skill is apparent, seldom studies explore the extent to which it can be enhanced by the intervention of technological assistance. In this study, a methodology was proposed to help students acquire oral presentation skills in an effective way. Through reviewing relevant literature, this study monitored various criteria to evaluate a student's presentation skill, including verbal and nonverbal clues. These clues were visually displayed and analyzed by a combination of technological assistance, namely ANVIL. To validate whether this solution was feasible and plausible, four undergraduate students were recruited as the participants of this pilot study. The data were gathered during the experimental period, which lasts 2 weeks. Through an analysis of the collected data, it was revealed that the participants have significantly stimulated their intentions of giving an oral presentation. As well, their verbal and nonverbal skills concerning oral presentation were improved. It is proposed that students' oral presentation skills could be effectively improved as their verbal and nonverbal clues can be visually analyzed and evaluated.

Keywords: Oral presentation, Motion detection, Speech analysis, Educational technology

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Introduction

Regardless which career is engaged, it is impossible to avoid communicating with others. Therefore, communicating is a critical ability in current work field (Kakepoto, Habil, Omar & Said, 2012). Because communication is important, many organizations have made clear requirements asking their employers to satisfy the criteria in order to get promotion. For example, it is expected for operational workers to have the ability to clearly tell to others. This is regarded as the basic ability of communication. For intermediate workers, it is expected to have further ability to express ideas in words. As for manager level above executives, communication ability focuses mainly on the power of persuasion.

Communication ability can be divided into several styles. One of the styles that is important but generally been ignored is oral presentation. Oral presentation skills are an important capability for undergraduate students in modern society, even for engineering students. Students usually have many opportunities for them to give presentations as they entering University. Although giving a presentation is seen as a way of enhancing students' oral communication skills, it does not mean students' ability would definitely increase. As usual, some students think that giving a presentation is a good opportunity to practice their skills, others might not. This situation is even obvious in engineering students. Engineering education focuses mainly on knowledge and skills of implementation. Generally, engineering students pay less attention to learn how to communicate with others. In fact, most engineering students even consider that oral presentation skills are not important, which is in conflict with the notion that undergraduates are prepared well skills to present their idea. Because fluent spoken in workplace is one of the survival skills that employees should have (Kinnick & Parton, 2005).

Although the importance of oral presentation has been widely acknowledged, there is a gap between employers and undergraduate students regarding how well of the students should be. From employers' point of view, oral presentation is a skill that should have been well taught in schools. However, instructors usually emphasize the proficiency that undergraduate students major, rather than the training of oral presentation (Cronin & Glen, 1991; Schneider & Andre, 2005). In such case, undergraduate students might not have sufficient opportunities to express their ideas, to practice their oral presentation skills, and then to reach a mastery level. As mentioned above, this problem is serious for engineering students because students generally consider that the techniques they are learning is the most important, whereas expressing their ideas is an easy and trifling matter. Unfortunately, many teachers in engineering field have the same belief. As a result, engineering students generally receive little feedbacks and guidance as they giving an oral presentation in classes.

In this study we were attempted to propose a solution for instructors to quickly and effectively assess engineering students' performance of oral presentation. It is expected that having a useful solution can help instructors lessen burdens as they evaluate students' achievements. Briefly speaking, the assessment of oral presentation is the first step for engineering students to improve their skills based on the results. However, oral presentation has its proficiency. Many indicators used to evaluate a presenter's competencies require an assessor's experience and knowledge so that the presenter can receive constructive feedback and comments. This study would like to

propose a solution for instructors to visually diagnose students' oral presentation achievement. Accordingly, the aim of study includes proposing a solution to sustain visual diagnosis, evaluating the feasibility and plausibility of the solution and suggesting the implications for engineering education.

Literature review

Communication is the basic skills necessary to compete in modern society. Effective communication serves as the lubricant in interpersonal interaction. In work field effective communication means the power of persuasion. This is especially important because any innovative idea is supposed to have financial supporters. Before the idea turning into a product, the proposer should have the competency to convince the sponsors that it is a potential product. Engineers are expected to have profound expertise to design and create industrial products. In this regard, most engineers are competent in the jobs they are in charge. However, many employers consider the ability that most engineering students do not well equip as they are graduated is oral presentation (Kennedy, 2007; Russ, 2009).

This problem can be serious because superior managers do not have sufficient time and attention to comprehend the entire techniques needed to establish an industrial product. Also, superior managers do not have sufficient expertise to imagine the vision of an advanced application. In this regard, an engineer with well oral presentation skill might be especially helpful for the managers to better understand the potential in a short time. Considering that current products have shorter life cycle, corporations need to make decision more accurately and quickly. Accordingly, it is expected that engineers in current work field should have domain knowledge and the ability to present their ideas.

So far, it has been recognized that oral presentation is a critical skills, not only for business but also for engineering. However, engineering students have seldom educated to effectively and correctly give an oral presentation. This is considered to be the reason why there is a gap between what employees expect engineering students should have taught and what they have really learnt. Before we can propose a solution to deal with this problem, a question regarding what constitute a good oral presentation should be addressed.

TED is a web-based video show, which providing numerous speech across various fields. Each talk has at least 3 minutes to one hour. Usually the invited speaker gives many insightful and persuasive points of view in the talk. TED is famous because the invited speaker will be taught how to present their ideas in order to ensure consistent high penetrating power and thought-provoking styles. This training prevents TED from ruining by poor skills of the speaker itself. From TED's case it is obvious that an oral presentation is an ability that can be taught.

Briefly speaking, oral presentation is divided into the verbal language and nonverbal language (Murphy, Hildebrandt, & Thomas, 1997; Ober, 2004; Roebuck & McKenney, 2006). Verbal language (spoken) skill includes the pronunciation, the electing of grammar and glossary, the intonation, the acoustic fidelity, and volume as well as the speed. What the non-verbal language (non-spoken) skill refers to an item of eye contacts, laugher, anger, happy and other facial expressions, gestures as well as

body languages. In addition, we must pay attention to the audience to respond that adjusts the volume promptly, the stance, and content expressed that to attract its interest and attention. In addition, the presenters need to focus their attention to the responses from audience in order to timely adjust their volume, gesture, and expression to attract the audience's interest and attention.

To better understand an oral presentation, we need to comprehend both the verbal and non-verbal signals in any communication. This helps to build understanding with other people, develop relationships and reduce conflict.

Difficulties can arise:

- when the verbal and non-verbal signals do not seem to match—eg if you nod but don't agree or understand
- if the non-verbal signals are difficult to interpret
- if the words used are unfamiliar.

A presenter needs to seek feedback and combine verbal and non-verbal cues to build shared understanding.

Based on the statements mentioned above, this study considers a qualified presentation contains two main features, namely verbal and non-verbal skills. Verbal skill refers to spoken language, whereas non-verbal skill means body language. In business school there are many courses for students to practice their oral presentation skills. This is imaginable because business school students are expected to have well trained skill in expressing themselves. Engineering students, in this regard, have relatively less time and frequency to practice this skill, not to mention achieving a mastery level.

Based on Vygotsky's (1980) perspective, ZPD (Zone of Proximal Development) theory suggests that students would learn better when there are more skilled counterparts to emulate. Vygotsky's ZPD emphasizes his belief that learning is, fundamentally, a socially mediated activity. Vygotsky's scaffolding is assistance of some kind that enables students to complete tasks they cannot complete independently. More specific, students cannot do independently, but can do when helped by more competent individuals. It is the process of providing different levels of support, guidance, or direction during the course of an activity.

Taken together, it is believed engineering students can learn oral presentation skills in a more effective way, as long as an appropriate support is available. In this study, we consider that a visual analysis of the critical elements that constitute a qualified presentation might be a solution. According to previous statements, engineering students need to take care both verbal and non-verbal skills in a presentation. That means an engineering student has to practice many critical elements such as voice, speed, gesture, position, and content in a whole. This can be a difficult practice especially for engineering student. The relatively few chances for them to practice these skills especially highlights the importance of giving suggestive feedbacks as they finish an oral presentation.

In this regard, suggesting a feasible and plausible solution for engineering students to effectively receive feedbacks regarding their oral presentation is significant. Visual analysis usually reveals much information for instructors and students because they can easily compare the achievement of the good and bad. As the comparison is easy,

students might be able to quickly choose whom they can emulate, in order to improve their own skills based on the stereotype. In this regard, this notion is in line with Vygotsky's perspective.

Pilot study

In this pilot study, four engineering students were recruited. Before this pilot study started, ANVIL was introduced to the participants. ANVIL is open source software, which is developed by Kipp (2001). Originally, ANVIL was created to annotate video clips for latter analysis. This software has the feature to add tracks for users to label meaningful annotations. ANVIL has many built-in functions that are effective for analysis. For example, it provides correlation analysis for users to make clear a relation between different annotations.

Accordingly, the participants were told that they would be recorded as they were giving an oral presentation. Because each participant had a presentation video, they could use ANVIL to analyze their achievements based on the criteria given by the instructor. Of course, these criteria were in accordance with the critical elements of a good oral presentation. As previously stated, ANVIL allows users to add tracks for meaningful annotations. Thus, the tracks had been standardized by the researchers in accordance with the criteria. In this pilot study we used three tracks for participants to annotate nonverbal language, such as eye contact, movement, and gesture. All participants could easily observe the annotated labels on the tracks. In order to have standardized tracks in this pilot study, the participants were given a temple that the three tracks had been predefined so that the participants were not encouraged to add any track in their attempts.

Discussion and conclusion

In this pilot study, we invited four engineering students in order to using a video annotation tool that allows visual analysis after they had given oral presentations. The purpose of this study was to first test the feasibility of using video annotation tool in oral presentation skill training. It is supposed to be useful because the way of visual analysis is intuitive and friendly so that it could be interesting to draw the participants' attention. Because the relative few chances for engineering students to practice their presentation skills, an effective way for instructors and students to stimulate the learning achievement might be helpful. Not only the feasibility of the solution proposed in this study, but also its plausibility is the aim of this pilot study.

ANVIL was chosen as the video annotation tool because it complies with the features that we suggested in this pilot study. As long as predefined tracks are given to students, they could easily follow the criteria of good oral presentation to label annotations. This feature is especially useful for this pilot study because it allows the participants to review his or others' presentation videos. The purpose behind the action of annotating students' oral presentation videos is to stimulate their motivation to pay more attention to what constitute a good presentation. In accordance with Vygotsky's perspective, when a student observes a more skilled counterpart, he will be more likely to be enhanced because he can emulate the more skilled one. ANVIL in this regard provides the participants more visible results for them to compare who has better presentation skills. Because all the annotated labels together with the

presentation videos were visually displayed in computer screens, the participants would learn how a good presenter express his idea with non-verbal language.

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