Students Can Explain a Research Thesis in Three Minutes

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Introduction

"What is your research about?" is a common enough question that students are asked to field during entrance examinations, orientation sessions with supervisors, research fund and granting agency reviews, and at job interviews. That general question pops up while students collect data from survey participants and after giving 20-minute progress reports during question periods with faculty from related disciplines.

How best to answer this question to different audiences is a challenging task for students. For many university degree-holders, in addition to a diploma, a well-written and well-defended 30-page thesis can represent the tangible, crowning achievement of four years of study. A two-year final Master's thesis culminates in a defense that is often an hour's grilling by a 3-person examination committee. Doctoral candidates are required to speak even longer and must answer in an open-to-the-public venue to a wider cross-section of society. Their research papers can run for hundreds of pages. An 80,000-word academic thesis could take 9 hours to read aloud as a presentation in a classroom setting.

For researchers who have just graduated from college and wish to showcase their research project in the real world, where can they show it? Their academic research probably won't get into a magazine, and they likely don't have enough photos or interesting works for a gallery show or a solo lecture at a public hall.

The hypothesis supported in this article is that students can efficiently explain a research thesis in three minutes. A practical implication of this study includes altering the usual venue and revising the normal presentation rules that undergraduate and graduate students follow to explain their research.

1. Research Method

A severe drought in the Australian summer ten years ago triggered an idea that now challenges graduate students to explain their research in a way that can be understood by non-specialists. Limited to a 3-minute shower to save precious water, a professor at the University of Queensland came up with the founding idea for the Three Minute Thesis competition. Three Minute Thesis (3MT*) is now a registered trademark and challenged by university students at 600 universities and institutions across 65 countries worldwide.

1.1 Procedures

To collect data and conduct interviews for this article, I observed a 3MT Three Minute Thesis competition for university and college students held at a town hall in a medium-sized Canadian city (see Figure 1). I photographed the presenters and took video recordings of their presentations with a handheld camera. I also participated in the audience vote.

Keywords: 3MT*, pecha kucha, thesis presentation, creativity, time restriction
1.2 Participants

3MT is an annual competition held in over 600 universities worldwide. It is open to students, and challenges participants to present their research in just 180 seconds, in an engaging form that can be understood by a general audience. At many events, listeners have no prior knowledge or academic specialization in the research area.

In Canada, I observed how 22 students from Trent University and Catherine Parr Traill College shared their research findings. In Japan, Hiroshima University, Okinawa Institute of Science and Technology, Ritsumeikan University, and the United Nations University Institute for the Advanced Study of Sustainability host 3MT competitions. In Taiwan, National Kaohsiung University of Hospitality and Tourism hosts these events.

2. Background

To keep things moving at academic society meetings, conferences and announcements, the organizers have come up with various presentation formats and venues for presenters.

2.1 Pecha Kucha Presentation Technique

The pecha kucha technique of presenting quicker was developed in Japan. The typical time limit for presentations at these events is 7 minutes as visual aids are limited to 20 Powerpoint slides. The images advance automatically and a presenter talks along to the images.
The efficient "PechaKucha 20x20" (which literally means prattling) is a simple presentation format where students show 20 images, each for 20 seconds. The presentation format was devised by Astrid Klein and Mark Dytham of Klein Dytham, an architecture company. The first pecha kucha event was held at a Tokyo gallery in February, 2003. Pecha kucha evenings now take place in 1,000 cities around the world. The organizers discovered that most cities -- not just Tokyo -- lack public spaces where people can show and share their work in a relaxed way.

Willey (2014) suggests that the pecha kucha rules can be useful to motivate university students to deliver PowerPoint presentations in groups of three as they require students to practice as a team under time pressure. When doing this activity for the first time, most groups will stumble during their presentations. If students are informed that their presentation will be given a group grade, all members might attempt to pull their own weight. It is considered essential for such group presentations to be prepared outside of class time and be practiced as a team.

Hayashi P. & Holland, S. (2017) designed a task-based project that encouraged students to combine the 4 skills of reading, writing, listening, and speaking, as well as engage in critical thinking. Selecting appropriate visuals and paring information down to 20-second segments required students to take control of their learning. The pecha kucha task was a means to develop students' language and technology skills simultaneously in a challenging yet productive way. Even large classes can do a pecha kucha task if the timing of the slides, or the number of slides, is reduced.

2.2 The Three Minute Thesis Presentation

Developed by The University of Queensland for PhD students, the competition does appear to cultivate students' academic, presentation, and research communication skills. 3MT continues to celebrate the exciting research conducted by students around the world. Competitors are allowed one PowerPoint slide, but no other resources or props.

Presenting in a 3MT competition increases a student's capacity to effectively explain their research in three minutes, in a language appropriate to a non-specialist audience. New technology has brought wider possibilities for studying both inside and outside the classroom. When practicing for three minute presentations, students can easily record themselves on their mobile devices. Such creative limitation is the concept of how purposely limiting a task can actually drive creativity.

2.3 Rules for the 3MT Competitions

- A single static PowerPoint slide is permitted. No slide transitions, animations or 'movement' of any description are allowed. The slide is to be presented from the beginning of the oration.
- No additional electronic media (e.g. sound and video files) are permitted.
- No additional props (e.g. costumes, musical instruments, laboratory equipment) are permitted.
- Presentations are limited to 3 minutes maximum and competitors exceeding 3 minutes are disqualified.
- Presentations are to be spoken word (e.g. no poems, raps or songs).
- Presentations are to commence from the stage.
Presentations are considered to have commenced when a presenter starts their presentation through either movement or speech.

The decision of the adjudicating panel is final.

3. Observations

The following observations were made on March 28, 2018 during the Three Minute Thesis completion in Peterborough, Canada. After months and months of preparation, dozens of conversations, a bevy of emails, and a whirlwind of ideas catalyzed by an inspiring and fruitful creative collaboration, the presentation of graduate theses were given its world premiere at the Market Hall.

From the very start, the student presenters tried every trick in the book to get around strict rules that included a 3-minute time limit and only one powerpoint slide with neither sound nor animations.

An English major interested in public texts, Ross Chiasson took the stage to ask the judges, "Are you alive? Prove it."

Eric Bridle came up empty-handed when he tried to get his message across and ask "Was it Good For You?: Sexting and Satisfaction without resorting to his cellphone.

Alison Fraser chose to rant against higher economic groups in society buying up the area where she hangs out as a black-clothed and colored-hair Goth. Her 3-minute rant The City and the Dispossessed: Canadian Goths and Urban Realities was communicated through dance-like gestures performed against a backdrop photo of the gothic Velvet Lounge on Queen Street in Toronto.

Psychology major Ashley Robertshaw got around a no rapping rule by having the emcee introduce her title, I'll Drink My Beer and Smoke My Weed - My Good Friends is All I Need.

The emcee, a principal at Catharine Parr Traill College jokingly bantered with a competitor to check if he thought the 3MT acronym meant three minute title. Joshua Feltham's 22-word title was Habitat Selection, Spatial Ecology, Mating Strategy and Sexual Size Dimorphism of an Ectothermic Vertebrate at the High Latitude Limits of its Range.

English was a second language for half of the 24 students, including Shengnan Kang who analyzed the effects of air pollution on the economy of her hometown Tianjin, China.

As one of 100 attendees I was asked to vote for the best of 24 MA student presentations at Trent University and nearby Catharine Parr Traill College in Peterborough. Sumiko Polacco's efforts to accent blood-red high heels with a black dress to assist her talk Blood-in-the-Dark: Designing a Forensic Blood Substitute did not go unnoticed. She garnered The People's Choice Award and the School of Graduate Studies Prize from the university's dean of graduate studies Craig Brunetti.

The President's Prize went to Chris Magwood, a Sustainable Studies grad who started off by telling the judges he wanted to "grow my house." The winner received a $500 cash award (approximately 50,000 yen) and a travel stipend to compete in the provincial finals at York University.

The international contest stipulates English-only presentations. That could have created an un-level playing field to Canada with its three official languages and a diverse population of citizens who speak over 200 mother tongues. During two intermissions in the 3-hour event I overheard international students counter the
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statement "it must be hard for you in a second language" with "it was too bad you forgot your lines halfway through." Although students knew their research topics like the back of their hands, several stammered and two dropped out of the running when they couldn't remember their rehearsed lines.

Anastasia Nepotiuk was honorably mentioned and given a $250 cash award for her exacting recital of Chop it Up to Experience: The Structure of Memory in Skilled Experts.

4. Findings

The central benefits of short presentations are pedagogical. In an EFL context, a short presentation provides a rich field for learning that extends beyond basic language communication. As students graduate into an increasingly competitive global marketplace, the skills gained through presenting in a short format are transferable to real-world settings.

4.1 Benefits of Short Presentations

In addition to the presentation practice according to 3MT and pecha kucha formats, the task provides a context for the students to modify specialty lexis and textbook language so meaning can be delivered in a natural manner. There are also opportunities for learning self-organization and time management. Students become more time conscious. Short presentation projects require students to be organized. The time spent on the project's separate elements needs to be carefully managed. Students decide on the topic, collect information, design visuals with captions, write and check the presentation script, as well as doing the essential practice. A successful short presentation can prove to be a beneficial exercise in self-organization.

4.2 Adaptations

The three-minute presentation task can be adapted to suit different teaching situations, topics, target language, and language proficiencies.

4.3 Difficulties in Teaching Speaking Skills

The development of effective speaking skills is a challenging task for students. If a students' approach to a communication task is ambiguous or uncertain it becomes even more difficult. For teachers it is complicated to provide individual feedback, however, when focused on a three minute presentation this task is possible. The 3MT presentation aims at developing students’ speaking skills both inside and outside their classes.

Most presentations falter simply because students have not practiced sufficiently. It is recommended to have students try this activity several times before the main event mid-way through the semester. Students should be able to improve their performance in their second and third presentations.

4.4 A Step by Step Approach to Teaching Presentation Skills

To explain keywords and new vocabulary, an effective task could be to ask students to read a text and prepare a 1-minute presentation on the main points which the students records and submits.

To introduce a topic, the teacher could prepare one slide showing a few bullet points, and ask students to
explain them in 2 minutes. Students record their explanations and submit the file for review to the teaching assistant or teacher. Students can come up with good ideas and topics to research by debating, not by brainstorming. Debating ideas and fleshing out an idea in a small group are examples of specific ideation techniques.

The following classroom task can be useful for case studies or debates. Students are asked to present a topic in 3 minutes and are allowed only one slide to defend a point of view.

Pecha kucha rules can be used for summarizing a main topic from a 15-week course. Students could be asked to prepare five picture slides related to one topic dealt with in the course. Given 20 seconds for each slide, students must quickly summarize the topic onto an audio-file.

Figure 2. Waiting for their turn to speak on stage, seated 3MT contestants realize the importance of time management

4.5 Moving from Writing to Presenting a Thesis

Implicit in the challenge to present a compelling spoken presentation on their research topic and its significance, graduate students must write a manuscript. A few of the students told me they wrote their scripts and started practicing two months prior to show-time. Although their supervisors encouraged them to enter the contest, lent an ear during rehearsals, and offered lexical advice, students said they relied more on their peers or family for support. They needed to make their speeches comprehensible and interesting for the judges and audience rather than for professors, and their supervisors or teaching assistants.
4.6 Graduation Thesis Written Essays

Strong structures have foundation stones, cornerstones, and a capstone affixed on the top. Comprehensive curricula have foundation subjects, required subjects, and a capstone thesis. The graduation thesis is a multifaceted assignment in a particular field of study. In undergraduate programs at universities in Japan, a graduation thesis can be referred to as the capstone. University curricula vary, but successful completion of seminars that lead to, and include the required capstone course and thesis can represent 20 credits of a 124-credit university degree program. Formulating a hypothesis, reading related literature, designing a research instrument, and writing up results is the culminating academic and intellectual experience for students. For many degree-holders, in addition to a diploma, a well-written and well-defended 30-page thesis can represent the tangible, crowning achievement of four years of study.

In Japan, instructors in charge of seminars usually provide students with advice on the process of writing a capstone paper in the particular field of study they specialize in. Teachers in the field of English education, for example, can begin these seminars in the freshman year and continue until graduation. Capstone papers written by English language majors are predominantly penned in Japanese, but a number of papers written in English can readily be found online (Kubo, 2018).

Capstone course books, such as that by Kluge and Taylor (2018), can include guides which provide worksheets and easy-to-fill-in templates to explain the style and formats which are essential for academic writing in English. TAs with specialization in a particular field of study can readily guide undergraduate students (Hussain, 2015).

Writing a good research paper is challenging and consumes a lot of class and extra-curricular time. There are always some students, however, who attempt to write a final paper during the closing week of the final semester. The Internet has made it easy for students with wide ranging interests and shallow knowledge to amass information and piece together a report. Kluge and Taylor (2018) suggest the following example of a good thesis statement: “The Internet of Things first showed much promise for improving daily life and health, but now disturbing problems have emerged” (p. 39). With such a topic, as an advisor of dozens of undergraduate theses, I have observed how some students can come up with a report overnight with chapters on: The history of machine communication, The way wireless connections have developed, and The means by which the government has tried to protect users of such technology from hackers. Students can draft such essays by pulling out references in Wikipedia, copy-pasting from computer journal articles, and paraphrasing recommendations from government papers. Data charts and maps can be readily downloaded and pasted into the appendices. The resulting 20 pages might look cohesive and thorough on the surface, but anyone with access to broadband can come up with a similar paper. Gratton (2014) observed similar performances by her own 15-year old before asking, “But does my son actually know anything about [it]? In a sense he does–but this is generalist knowledge created from the scraps and scrapings of information from public sources” (p.205).

An evaluation rubric would assist the course evaluator to assess papers, and sort passable papers from those that are too general to be of value. The capstone paper needs to be assessed on whether it contains original thoughts, well-developed points of view, and valuable insights that others don't have, or is plagiarized. The rubric could also assist students to clearly see how they need to write a passable capstone paper. The TA could
help explain the rubric during class. By doing this, students can grasp step by step what they need to do to write higher quality graduation papers. The supervisor should assess and give a final grade.

Toward the end of the capstone thesis writing process, the author should be encouraged to share their findings with seminar classmates during a group presentation. A final presentation to the whole seminar would encourage students in lower grades to possibly follow in the presenter’s footsteps.

5. Discussion

Speed and intensity is what makes 3MT presentations enjoyable for the audience and presenters (see Figure 3). There is growing recognition among university educators about the need to provide students with opportunities outside the classroom to demonstrate their English and ITC skills to help make them employable in 21st-century workplaces.

5.1 Integrating and coordinating a capstone presentation

Requiring the presentation of undergraduate theses could help universities reach their fundamental goal of equipping students who can participate in society, start on a career, and create the future. As a specific strategic effort to attain this goal, departments and faculties could promote the presentations of research papers, graduation theses, and seminar reports by students at meetings with faculty, TAs, SAs, classmates, and invited guests. This could be an improvement over most final examination systems that give instructors only two
options: requiring students to submit written papers or sit for written exams. Together with those who supported them to graduate, alumni would reap the rewards of having studied in a stronger university structure that placed freshman courses at its foundation, required courses at its corners, and a deserving capstone thesis on top.

5.2 Why the Short Presentation Format Works

Scientific findings and often difficult to comprehend reports and analyses must be explained to scholarship granting agencies or journalists. There is great demand placed upon scientists to wrap-up their findings in a few sentences. Some have started to comply by composing haiku (Economist, 2018 March 24). The American writer Ernest Hemingway was able to write an entire story in just six words. Of course, it seems an impossible feat: how do you introduce characters, explain their relationships and tell a tale about them in just six words? Here's how he did it:

*For sale: baby shoes, never worn*

This one line certainly provides a lesson about working with constraints. With such an extreme brevity limitation, not only did the author have to choose his words carefully, but he also had to craft them in a way that imbued the silence around those words with the rest of his story, since he'd run out of words to tell it.

5.3 Responding positively to a restricted context

The notion that artists must be free is a relativity new idea. Artists from the beginning of time have been employed by other people and have been asked to work within narrow restrictions of form, content, style, location, etc. Furthermore, any medium you use has its restrictions (If you have a black pencil then you can't show colour).

Restrictions of content, medium, time, length, etc. can often give a creative stimulus to the students (and indeed their teachers). Shorter presentation formats can make a creative person even more creative. Creative people like to talk at length about their work, but long presentations that depend on Powerpoint software can stifle an audience.

The time management required by short presentations can be beneficial to students as the time constraints illustrate the value of timed practice. Because of these strict time constraints, students need to be completely ready to present (see Figure 2). Every second does count.

Constraints can seem like the last thing a student wants to come up with a creative research thesis, but they're actually beneficial when it comes to doing good work. The paralysis of too much choice can stop students from getting started. What restrictions do is take away some of the choices available.

Conclusion

During the practice sessions and the final activity, students have an opportunity to learn that time-limited PowerPoint presentations, and presentations in English, can be dynamic and enjoyable for both presenters and audience.
Future Research

The next Asia-Pacific 3MT Competition for universities in Australia, New Zealand, Oceania, Southeast and Northeast Asia will be held on Thursday 27 September, 2018 at the University of Queensland, Brisbane.

References