

Chapter 12

Storytelling for Tertiary Mathematics Students

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Abstract This paper offers a narrative of ideas, events and opinions addressing the underexposed area of storytelling in tertiary mathematics. A short discussion on storytelling is followed by a brief account of the history of storytelling. Features of stories are discussed as well as options for when a story should be told and the requirements of a good story. The main thrust of the paper is a personal account of experiences of storytelling in a tertiary mathematics classroom. The study involves a large group of engineering students doing a calculus module. The storytelling discussed in this paper takes the form of a structured activity in a specific timeslot. Student feedback presents an unexpected angle, deviating from the intended purpose of entertain, inspire and educate, namely, giving a perception of caring from the teacher's side.

Keywords Storytelling · Mathematics · Tertiary students · Features of storytelling Mathematics stories

12.1 About Stories and Storytelling

Storytelling is part of every culture: It is an ancient art that has been practiced through millennia of human interaction. It ranges from a mother telling her child a story to theatrical storytelling on a stage. Storytelling often relies on the imagination and speaking ability of the storyteller and the listening ability of the audience. Stories have travelled and still travel all over the world, and commonalities in different cultures abound.

Stories come in many forms: they can be in written form, orally conveyed or visually depicted. Stories appear everywhere: in newspapers, on the internet, in magazines, on television and in discourse between people. Stories can be factual or fictional, stem from actual events or be the product of someone's imagination.

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They can range from centuries-old traditional folktales to accounts of current events. Young and old alike find appeal in stories, and it seems as if stories are built into our thinking, as it is easy to remember and to repeat when the time comes. Stories fuel conversation, are compelling and can be a source of entertainment.

Storytelling is basic to education. From a young age children are exposed to stories that open up new worlds for them and expose them to characters and situations from which they can learn moral lessons. Many of these stories come through generations and are brought to life for a new generation by the storyteller at each telling.

12.2 History of Storytelling

As the practice of storytelling stretches over many millennia, an accurate account would be ambitious and falls outside the scope of this narrative. For the sake of simplifying this history, we note several landmarks in the long history of storytelling. This account is a personal perspective formed over a long period and is sourced widely.

The origins of storytelling are lost in the mists of time, but most probably first took form in oral storytelling, which could date back as far as the time of the Neanderthal people. One can imagine people sitting around a fire and relating events of the day, perhaps telling of a narrow escape or a heroic encounter. Stories possibly travelled from clan to clan where the stories also conveyed news.

The first recorded stories date from around 35,000 BC, from when cave paintings show a recording of events, telling stories of people and animals. Amongst the cuneiform clay tablets dating from Babylonian times (around 2000 BC) is the story of Gilgamesh, a forerunner of the modern day superheroes. The Epic of Gilgamesh is considered the oldest piece of epic Western literature (*Ancient History Encyclopedia*, n.d.). Gilgamesh is widely accepted as a real person of superhuman capabilities.

Stories about real people evolved towards stories of imaginary characters. From Greece (500 BC) we inherited the fables of Aesop, presenting moral lessons for life. Homer's *Odyssey* (800 BC), with its mythological characters such as the one-eyed Cyclopes, is one of many Greek and Roman works on fictional characters. The story of Merlin and King Arthur (500 AD) and the *One Thousand and One Nights* stories are more of the early treasures of fictional stories.

Perhaps the biggest thrust in the history of storytelling is the advent of printed books. The first book printed with movable metal type is *Jikji* (an abbreviated title), a Korean Buddhist document, which dates from 1377. The Gutenberg Bible, printed by Johannes Gutenberg in 1450, was the first major book printed in Europe with movable metal type. The printing of books was the process that would make recorded stories accessible to a wide population.

The invention of storytelling machines dates from the early 1900s. A 1907 Lee de Forest company advertisement promised: "It will soon be possible to distribute

grand opera music from transmitters placed on the stage of the Metropolitan Opera House ... to almost any dwelling in Greater New York and vicinity.” (TVTechnology, n.d., p. 1). This promise became a reality in 1910. The radio became a storytelling device that has a place in almost every household and has survived the times.

In 1890, Edison invented the kinetograph, technology that led to an enormous film and television industry. The first of the silent movies, *The Great Train Robbery*, appeared in 1903 and is all of about 10 min long. The year 1927 saw the first of the talkies, *The Jazz Singer*, in which characters could first be heard talking. Almost simultaneously, in 1926, Logie Baird gave life to television, perhaps the greatest storytelling device of all time.

The final milestone in the history of storytelling is internet storytelling. The new millennium has seen storytelling blossom by means of social media, blogs, Facebook, Twitter, YouTube and other platforms. People write fictitious stories but also relate events and experiences in their own lives, reminiscent of the first storytelling of the Neanderthal people, thus seemingly completing a full circle.

Through all the new modes of storytelling that have emerged through times, it is noticeable that despite new devices and modes appearing, the older ones remain. For example, there was talk that printed books would be replaced by e-books, but it has not happened. Both of these co-exist. Oral storytelling is another example of how the most ancient form of storytelling has survived. Every new mode has supplemented rather than replaced previous ones.

12.3 Literature on Storytelling in Education

Zazkis and Liljedahl (2009) have been instrumental in promoting storytelling in the mathematics classroom. The purpose of telling stories in the mathematics classroom, according to these authors, is to create an environment of imagination, emotion and thinking; to make mathematics more enjoyable and more memorable; to engage students in a mathematical activity; to make them think and explore; and, perhaps most importantly, to help them understand ideas and concepts. The ability that stories have for shaping and orientating the listener’s feelings is mentioned by Zazkis and Liljedahl (2009) as a great power. These authors divide stories according to their function in the classroom and their potential for engagement into six categories: stories used to ask a question, stories accompanying a topic, stories for introducing an idea, stories intertwined with a topic, stories to explain a concept and stories used to introduce an activity. Friday (2014) claims that teachers have been storytellers for millennia but do not necessarily see themselves as storytellers. He admits that becoming a storyteller takes effort and inclination but that the effort makes it worth it. Hamilton and Weiss (2005) maintain that stories are the best gifts teachers can give their students because they can never be taken away: they belong to students forever.

Although Tobin's (2007) comprehensive study on using storytelling in tertiary education focuses on information technology (IT), it covers a broad scope of storytelling, listing formats, structure, uses and benefits and implementation with a comprehensive source of references to each of these. He states that the use of storytelling is not "as well established or commonly accepted as the more traditional logical or scientific content-based lecture method" (p. 55). The article serves to stimulate interest in storytelling and concludes with a checklist of issues to be considered when using a storytelling approach. Other valuable resources in the higher education context that offers ways in which storytelling can be used effectively as a tool are presented by Alterio and McDrury (2002) and Kruyvenhoven (2009).

The term digital storytelling describes the practice of people who use digital tools to tell their story, involving some means of technology in storytelling, as opposed to face-to-face storytelling. The implementation and effects of digital storytelling in education have been discussed widely (for example, Heo 2009; Hull and Katz 2006; Ohler 2005; Robin 2005; Sadik 2008).

The purpose of using storytelling to bring the culture of the community—in our case, the culture of mathematics—into the classroom and making it part of students' awareness is captured by Harold Rosen, well-known engineer and educationalist, as quoted in Zipes (1995): "If the culture of the community is to enter the culture of the school, its stories must come too and, more profoundly perhaps, its oral storytelling traditions must become an acknowledged form of meaning making" (p. 1).

Scepticism about the value of storytelling in the corporate environment is voiced by Denning (2004) as he describes his journey in the business world. Executives thrive on analysis and although analysis "might excite the mind, it hardly offers a route to the heart" (p. 3). Denning claims that storytelling is the place to go "to motivate people not only to take action but to do so with energy and enthusiasm" (p. 3). The latter statement applies generally and also in education.

Huggins (2017) discusses the purpose of storytelling from the game design environment that has the mission to inform, inspire and entertain in order to channel teens' interest. The author of this chapter differently interprets the notion of informing as education, thus subscribing to the threefold purpose to entertain, inspire and educate.

12.4 Storytelling for Tertiary Mathematics

The task of teaching tertiary mathematics seems to be remote from the act of telling stories, and lecturers often shy away from this "juvenile" activity. This does not mean that storytelling does not happen in the tertiary mathematics classroom, but rather that it is often an informal rather than structured activity. Historical anecdotes are often woven into teaching, providing context to topics while bringing a moment of relaxation to the class. Mathematics in particular is embedded in a rich history and also relates to almost any other field in some way, thus offering ample material

for storytelling. In this paper I would like to propose including storytelling into tertiary mathematics as a more structured activity.

The question of where to fit storytelling into a classroom experience has no definite answer, but there are various options. Probably the most common usage of storytelling is as an introduction to the lecture or a topic. The story is then related to the day's work or the topic at hand. The aim is to give context to the topic that will follow. My personal experience and opinion is that although there are positives to this method, there are also negatives. There is a measure of sugar coating involved in this practice, in that the pleasantness of the story is followed by the toughness of the mathematics, and unintentionally the lecturer is trying to soften the blow. For large classes of more than 100 students there is another concern, namely that the nature of a story is such that it is a trigger for discussion, conversation and sharing. There is no real opportunity for this, as it not only takes time but also disturbs the calm in the classroom and necessitates regaining its harmony.

Another option is using a story as a "by the way", weaving it into the teaching as a short anecdote or an amusing snippet. The intention is to vary the teaching and pace through the appeal that a story has. Although a commendable practice, the story could in this case come in an abbreviated form, so the richness of the characters and context of the story are not fully exposed. In other words, the potential of the story is curbed.

A third option of storytelling is to use it as a "commercial break" somewhere in the middle of the lesson, between topics. Student attention span is limited and pausing the teaching for the light entertainment provided by the story is an option. The story can be fleshed to suit in terms of characters and storyline. Calling it a commercial break distinguishes the story from the work. After the story, the second half of the lecture ensues. This practice can be successful but holds the same danger as an introductory story; namely, to regain the attention and focus of the lesson could be problematic as one has to deprive students of the repartee that follows a story.

The fourth option emerged for me as the most successful mode after many years of experimenting with different modes of storytelling in tertiary teaching. This mode is to use storytelling as a reward. I teach calculus to a large first-year group of engineering students of around 300 that consists of four contact sessions of 50 min each per week. The last 10 min of the last lecture of the week is dedicated to a full-fledged story. I take care in preparing a story that is mostly in low-tech oral form or sometimes centred around one or two slides. The idea is that we have worked hard on the week's study material and this is the reward. The story could be related to the work at hand but often is not. The mathematics link is always there, stronger sometimes than at other times. Students look forward to the story of the week and alert me as the time gets closer. Student reaction is the motivation; why this is a successful way of incorporating storytelling will be discussed subsequently.

For tertiary students a story needs care from the storyteller: care in preparation and care in presentation. The practice of telling a fleshed-out story demands searching and compiling of facts and anecdotes from various sources. Most important is that the storytellers make the stories their own. You need to be comfortable with both the facts and the storyline. You have to put soul into the

storytelling, fleshing out the characters and bringing the story to life. I have compiled a long list of suitable stories as a resource but am continuously searching for new stories. Sources include the internet, books, listening to people, talking to people, using your imagination to embellish the story and always adding your own touch.

I have practiced storytelling for tertiary students for a number of years. It seems unlikely that a large group of engineering students would take to storytelling, yet it does happen and supports the point that storytelling is for all ages. The time spent on storytelling is little enough not to impact negatively on teaching time.

The question that most probably arises in the reader's mind is what is typical of such stories. A few of the stalwart stories are: "How long is a year?" "How a memory stick burned down the houses of parliament in England." "Pythagoras was possibly a plagiarist." "l'Hôpital's rule? No, Bernoulli's rule." "Why x represents the unknown." "Newton vs Leibniz." "Memorising the digits of pi." "De Moivre's story." "The Millennium problems." "The Fields medal." "Why there is no Nobel prize in mathematics". Two of these stories are included as examples at the end of the chapter.

12.5 Features of Storytelling

Although storytelling is a diverse activity, mostly influenced by the personality traits of the storyteller or author, there are recognizable elements. Firstly there are characters placed in a setting, which the storyteller has to flesh out to bring to life. Characters have ambitions or quests that they pursue or would like to pursue. The character then encounters some problem or some conflict ensues. Through a series of events, the story leads to an outcome or resolution and, most of the time, "they lived happily ever after". In all stories, the human element plays a major role. It provides the audience member with a human connection to the events or character through which the story is brought to life. When considering a story, I pay attention to the presence of these elements.

Compiling a good story is a skill to be cultivated. A collection of facts does not make a good story. My personal list of requirements for a story are: (1) The gist of the story has to be mathematics related in some way. (2) There has to be a human element, preferable a hero and anti-hero. (3) There has to be a flow of events in the story from the start, running through events towards a conclusion. (4) This story has to contain an element that will trigger reaction, be it humour, outrage or the unexpected.

12.6 Data Gathering

The students involved in this study were first-year engineering students doing a calculus module presented by the mathematics department. The teaching model was one of large-group teaching, with around 1500 students enrolled for the module

taught by five lecturers. The study involves one group of around 300 students. The students were of mixed ethnic, socioeconomic and gender distribution, typical of a South African university. The study was conducted in 2016 over a semester of 14 weeks. After concluding the semester, while students were doing examination preparation, I posted an invitation on the Blackboard learning management system for students to share their opinions and views on the storytelling feature at the end of the last lecture of the week. A high response rate was not expected because of the timing. A total of 26 students responded, and it was noticeable that care was taken in responding.

The analysis of the data is based on the systematic methodology of grounded theory. Student responses were studied and anchors were identified in each response and coded. Codes of similar content allowed the data to be grouped. Broad groups of similar concepts were used to generate the following six categories of responses.

12.7 Feedback

The responses were overwhelming in volume and in detail. Not only did students express their appreciation, but they also suggested additional topics for stories and shared their own reading experiences. It was clear that the storytelling struck a chord and that students wanted to share their opinions. Many students did not stop at a few lines but continued to write a page or more about the value it had had for them. The prolific writing certainly came as a surprise.

As mentioned before, the mantra I adhere to is entertain, inspire and educate. The intention is to tell a story, consciously leaving the actual mathematics aside, that will lift their spirits through the entertainment element while at the same time weaving a picture that brings inspiration. Stories open up circumstances and events previously unknown to the students and in so doing educate them.

1. *Emotional impact*

What emerged is that students have a personal need to be included and recognised. The storytelling proved to have an unexpected positive emotional impact.

“Made me feel you are a parent of my own in the university environment because no one seems to care about students in university, unlike in high school.”

“The fact that you tell us inspirational or even just fun stories ... makes me calmer and more focused.”

“Made me feel welcome in the class(room).”

“It is a way of saying: ‘It’s okay, you are in competent hands.’”

2. *Reward*

The intention to use the storytelling as a reward, although never stated, paid off, as students seem to have picked up on this. It also underlines the positive outcome of storytelling at the end of the week instead of at the start of a lecture.

“Gave us something to look forward to.”

“They are a sort of reward for the week’s work. A refreshing beer at the end of a long day.”

“It was almost like an energy bar for the weekend.”

3. *Motivation*

Motivation resulting from the storytelling was mentioned by students as a gain. Motivation links to inspiration, which was one of the three intentions of presenting storytelling.

“Motivates me to wake up that early for a lecture.”

“Motivates me to go to even the last lecture of the week.”

“I will have strength to study because I have a smile at the end of the lecture.”

“It motivated me personally to pursue my studies more enthusiastically.”

4. *Subject impact*

Although storytelling was presented as a separate activity to the formal lecturing, feedback showed that it had a definite impact on perceptions of the subject itself.

“The stories showed me that mathematics need not begin and end with difficult integrals and limits.”

“I feel that a story is an immersive, simple way to get to know the skeleton of the work, before having to add the flesh to the bones.”

“... it can truly inspire some students into delving deeper into mathematics.”

“It made me feel like I was part of some ‘maths family’.”

5. *Appreciation*

A pleasant personal reward came from appreciation showed by students. This appreciation did not so much relate to the stories themselves but to the human side shown through storytelling. This is a significant finding, as the result is far removed from the intention of entertaining, inspiring and educating. Students perceive the lecturer as someone who cares and is approachable.

“Showed me that you as a lecturer put in effort to make the classes interesting for the students.”

“It made you seem less of an almighty professor in front of the class and more of a teacher that actually cares about your class.”

“The stories demonstrated that the lecturer was someone who actually (still) cares about her craft.”

“... it is your peculiar signature move.”

“It helped all of us know you were much more approachable than some others.”

“It made you more approachable and added to your standing in the students’ eyes.”

“I viewed you more like a ‘guardian’ and less like a lecturer.”

6. *Bigger picture*

The storytelling seems to have opened up horizons for students to give a wider view beyond the subject content.

“The stories remind us that there is life ahead of university as they portray general knowledge.”

“It proved that there is more to maths than the calculus we studied in this course.”

“... shows us how maths relates to the world around us.”

“It inspires me not only to work for distinctions but to have a broader view such as inventing new things and being innovative in my career.”

12.8 Critical Reflection

The chapter presents a personal storytelling journey that follows the thoughts of Gallagher (2011), who argues that storytelling is central to education research and maintains that storytelling as a narrative methodology is here to stay.

The storytelling discussed in this paper takes the form of a structured activity in a specific time slot. Feedback shows that the gain experienced by students is perhaps more on an emotional level than on a cognitive level. Students see the storytelling as an act of caring and as a contribution to their well-being from the lecturer’s side. In this sense a fourth reason for telling a story is added to those given by Zazkis and Liljedahl (2009). We tell stories because we enjoy it, because the students like it and because we believe it is an effective instructional tool for teaching mathematics but also because it gives the student the sense of caring from the lecturer’s side, a sense of giving beyond the subject content. This quote captures student perception best: “It shows you care about maths and you care about your students.”

Being active in storytelling for a period leads to agreement with Friday (2014), who claims that teachers do not necessarily see themselves as storytellers and that becoming a storyteller takes effort but that the efforts make it worth it. Becoming a storyteller is a learning process, both in animating the story to the appeal of the audience and in searching for suitable stories. The benefit of delving into the history and characters of mathematics proves to be an ultimately enriching experience.

Scepticism, such as voiced by Denning (2004), about storytelling in a tertiary environment is not uncommon, and yet the enthusiasm and motivation encountered counteract any negativity.

My experience in storytelling has also led to the sobering realisation that it requires full buy-in from the storyteller regarding collecting stories, personalising them and presenting them in an enthusiastic manner.

12.9 Examples of Stories

To conclude the paper, two stories are presented as examples, each followed by an interpretation. The first story on how a memory stick burned down the houses of parliament is loosely related to mathematics and brought into the modern context through seeing tally sticks as the forerunner of the memory stick.

How a memory stick burned down the Houses of Parliament:

Tally sticks have been around for a long, long time. A tally stick is a piece of wood or bone on which notches are carved, mainly to remember things. So a tally stick is just a primitive memory stick. The oldest tally stick found dates back 35,000 years, found in a cave in the Lebombo Mountains on the border between South Africa and Swaziland. It shows 29 notches on a baboon bone that could point to the number of days in a lunar cycle. It is the first evidence of recorded counting.

In medieval Europe, tally sticks came to another use. With coins in short supply and the population largely unable to read and write, tally sticks were used to keep record of transactions. If you borrowed money or bought goods from me, we carved the amount in terms of notches on a tally stick. The tally stick was then split in half (hence “split tally”) through the centre of the carving so that both halves showed the amount. Neither you nor I could add marks as the other had proof of the original transaction. One part was then slightly shortened and given to you the borrower, the longer part to me the lender. Hence the expression that the borrower had “the short end of the stick”. The longer part was called the “stock” and the shorter part the “foil”.

The tally stick system formed the basis of commerce in the British Empire until the 1600s, when the Bank of England was formed in which a paper system was followed. People found it difficult to let go of the tally system, and legislation was slow, as we all know that governments take their time. Charles Dickens was one of the people that canvassed against the use of tally sticks as an outdated practice. It was only in 1826 when the sticks were finally removed from circulation and stored in the Houses of Parliament. The basement was overflowing. In 1834, it was decided to get rid of the mass of tally sticks. Rather than give them away as firewood, it was decided to burn them in the two underfloor coal furnaces in the House of Lords.

Two guys, Joshua and Patrick, were assigned to do the job. They unfortunately chose to ignore the warning that the old building was a fire risk. They stuffed the furnaces with tally sticks all day long. The job was inspected early on, but left to them later in the day. The copper-lined brick flues overheated and during the late afternoon, as people were getting ready to go home, they noticed that the House of Lords chamber was smoky and unusually hot. Again this was ignored. Joshua and Patrick wanted to finish the job and they pushed on as lock-up time drew nearer. An hour later the place was ablaze, helped on by a gusting wind. It is believed that the overheated copper linings set the wooden wall panelling alight.

As expected, a multitude of spectators gather to witness a sight too spectacular to miss, lining the banks of the Thames, testing the crowd controlling skills of the

police and the army. It was a huge disaster and the subject of a painting by JMW Turner. Only the foundations remained.

Interpretation: The story contains historical information, two characters of dubious intention and a disturbing outcome. The story has a beginning and end, it has a human element and an element of surprise. It aims towards creating an environment of imagination, emotion and thinking as well as towards making mathematics more enjoyable and more memorable (Zazkis and Liljedahl 2009). The story also complies with the threefold purpose to entertain, educate and, in this case to a lesser extent, inspire. The story describes events caused by people's actions and can be seen as educating about historical events and about how the forerunner of our banking system worked. It also illustrates how mathematics is engrained in society.

The second story on the rule that is wrongly attributed to l'Hôpital is strongly embedded in mathematics and positioned in the years following Newton and Leibniz's formulation of calculus.

L'Hôpital's rule or Bernoulli's rule?

This story has two players: Guillaume l'Hôpital and Johann Bernoulli. Guillaume l'Hôpital was born in 1661, which makes him about 20 years younger than Newton. His family was considered to be nobility in France. Since childhood, l'Hôpital was passionate about mathematics. He briefly followed a military career because of his family background. He spent his days in the tent doing mathematics and soon found an excuse to quit. He then worked to become one of the best mathematicians in France.

Johann Bernoulli, six years younger than l'Hôpital, was part of the Bernoulli family, who produced six outstanding mathematicians over three generations. Johann's family were traders and he, along with his brother Jacob, did not want to take over the family spice business. They began studying mathematics together and, although successful, the two developed a rather jealous and competitive relationship, trying to outdo each other. After Jacob's early death from tuberculosis, Johann took over his brother's position as professor and merely shifted his jealousy toward his own talented son, Daniel. At one point, Johann published a book based on Daniel's work, even changing the date to make it look as though his book had been published before his son's.

When l'Hôpital was 30 years old and Bernoulli 24, they met by chance at a science meeting in Paris. Bernoulli had just arrived in Paris after giving lectures on the latest development in mathematics, namely Leibniz's differential calculus. Bernoulli liked l'Hôpital for his pleasant personality and l'Hôpital, on the other hand, quickly became intrigued by Bernoulli's knowledge on this new mathematics. Bernoulli agreed to give four lectures a week over a six-month period that l'Hôpital attended. After that, l'Hôpital managed to persuade Bernoulli to give him private lessons on his estate. Then l'Hôpital came with a proposition: He would start by paying Bernoulli 300 pounds. Bernoulli would sell his work and ideas to l'Hôpital and would keep quiet about the transaction. L'Hôpital could publish it as his own. Why Bernoulli agreed to this is not clear. Did he need the money or did the fact that he came from a tradesman's background and l'Hôpital from a nobleman's background make him obliged to be subservient?

Five years after first meeting Bernoulli, l'Hôpital published the first ever textbook on differential calculus. In the introduction, l'Hôpital acknowledges Leibniz and Johann Bernoulli as knowledgeable, but the impression was that the work was his own. He also acknowledges Newton as discoverer of calculus but says that Leibniz's notation was better. In Chap. 9 appears the rule now known as L'Hôpital's rule for a limit where both numerator and denominator tend to zero. This book was an enormous success. It was used for a long time, with new editions produced for more than 100 years. Bernoulli said nothing at first, but after L'Hôpital's early death eight years later (he died at age 43) he became more forceful in saying that the book was essentially his. His claims were not taken too seriously as he had been involved in many disputes. Towards the end of his life Bernoulli boasted of the money he had received from L'Hôpital, exaggerating the amount he had received.

Only in 1921 did a manuscript copy of the course given by Johann Bernoulli to l'Hôpital come to light, and it was seen how closely the book followed the course notes. It was only when the agreement between the two men came to light that more understanding of the events became possible. In fact Bernoulli had not been in a position to complain when l'Hôpital's book was published because of the agreement between them.

We should not judge l'Hôpital's procedure too harshly. L'Hôpital, being a nobleman, was accustomed to paying for the services of others. In fact, Bernoulli did a similar thing to his own son later. The bottom line is that the rule is still known as L'Hôpital's rule and not Bernoulli's rule.

Interpretation: The human element is again present in this story. The sequence of events leads to a surprising outcome and the listener is left wondering whether justice prevailed or not. The purpose of the story is to place L'Hôpital's rule in historical context but also to expose a situation of perceived injustice and thus to create an environment of imagination, emotion and thinking (Zazkis and Liljedahl 2009). The aspiration is also that the oral format does justice to shape the listener's feelings about the information that is communicated. In the categorisation of Zazkis and Liljedahl (2009), this is a story accompanying a topic.

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