

Storytelling as a Way for Humanizing Research Methods

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ABSTRACT

This article examines how the use of storytelling can serve as a pedagogical strategy in the teaching of research methods. Research methods and statistics anxiety is fairly widespread among students in higher education. Introducing storytelling has been found to decrease this anxiety. The term “humanizing research methods” implies a focus on students’ needs that goes beyond transferring knowledge of the content of the curriculum. Storytelling is an approach for creating a safe-learning environment where the students may even be able to enjoy research methods. The case, and examples of stories, refer to a compulsory course for executive students at the Norwegian Business School.

Key Words: Storytelling, Teaching Research Methods, Humanizing, Executive Students

“Anyone who thinks there is a big difference between education and entertainment knows nothing about either subject”. Marshall McLuhan

1. Introduction

Storytelling as a pedagogical strategy is not new or unique. Egan (1988:2) has argued for the conceptualization of teaching as storytelling: “.the story, then, is not just some casual entertainment; it reflects a basic and powerful form in which we make sense of the world and experience”. Storytelling can be perceived as tangible when individual awareness advances storytelling into the educational content of the curriculum (Abrahamson, 1998). As a pedagogical strategy, “teachers themselves [can] gain insights into their practices and set new directions for their professional development” (Wood, 2000: 199).

The author’s experience with storytelling stems from more than five years of teaching research methods to participants in the Executive Master of Management program at the Norwegian Business School (NBS). The research methods course was introduced in 2005 as a compulsory introductory course for executive students. The curriculum and the teaching methods for this course were designed to reflect the diversity of the participants in both educational and professional backgrounds. Using storytelling as a teaching strategy, however, happened more or less accidentally. When this (new) course and the curriculum were introduced, it became clear that a good portion of the executive students were outright frightened of not being able to pass the exam and thus earn their master’s degree. From the school’s point of view, it therefore became necessary to find a way to “soften” the course without compromising when it came to the professional level.

What does it mean to teach research methods? Although there is no definite answer to the question, research tends to focus on teacher’s content knowledge and/or pedagogical knowledge, or an integration of the two. Foot et.al (2011) suggest that teachers seeking to communicate a subject effectively and comprehensively should be equipped with an in-depth understanding of content knowledge. However, having an in-depth understanding of content knowledge in research methods does not necessarily equate to or result in teaching research methods effectively. In

addition to knowledge of the content of research methods, in order to be successful the teacher must also develop expertise in pedagogy for teaching research methods and, not least, knowledge of the students (Foot et al, *ibid*). As we have briefly described above, executive students constitute a student body with a mixture of educational backgrounds as well as diverse work life experiences. The requirement for admission to the program (in addition to at least five years work experience) is that an applicant has a certain number of credits (equivalent to a bachelor's degree). Many of the executive students who were admitted to the master's program had not taken any courses in research methods in their previous studies, and were not enthusiastic when they realized that a compulsory research method's course stood between them and the grade they wanted. Thus, the problem the school had to solve was to deliver a solid, rather standardized course in research methods, and at the same time see to it that the course was positively received by students with little or no knowledge of research methods from previous education.

Clearly, this called for new ways of teaching research methods, and storytelling emerged, more as a coincident than being part of a pedagogical plan, as a mean of transmitting knowledge to this particular group.

The purpose of this article is to outline and discuss how the use of storytelling can serve as a pedagogical strategy, that is, how it can be used in teaching research methods, and how and why storytelling is an appropriate pedagogical practice in executive students' education.

2. Review of literature

Storytelling is quite simply the use of stories as a communication tool to share knowledge (Abrahamson, 1998). As a pedagogical tool storytelling draws on a range of techniques to engage, involve and inspire the listener, uses everyday language that is more authentic than "academic buzzword speak" and employs narrative forms that most students find interesting and, at times, even entertaining. In this sense, storytelling differs markedly from the more common pedagogical methods used in teaching research methodologies. While talking about the role of education, Doxiadis (2003:2) states that "... [it] should be, at its best – a process involving the complete human being". Using narrative inquiry as a pedagogical tool strengthen the possibilities

of obtaining just that. “Interestingly storytelling has also been found to support teachers’ epistemological development (Clark and Medina, 2000), i.e. teachers’ theories of knowledge which serves to decide how problems related to teaching and learning will be studied and solved. Using storytelling gives the teacher a new epistemological tool for teaching students of e.g. the important difference between causal and correlational explanations, why Popper stressed that a hypothesis has to be falsifiable, or why significant relationships need not be meaningful ones.

Even though storytelling has existed for thousands of years as a means of exchanging information and generating understanding, teachers have only recently begun to use it as a deliberate pedagogical tool (Burk, 1998). According to Hogg (1995), one of the pedagogical advantages of storytelling is that it helps create a "shared experience in the classroom". There is little doubt many students consider the course on research methods to be difficult. However, by sharing stories instead of simply listening to the teacher and taking notes, students are able to gain insight and understanding of even relatively complex issues.

As mentioned above the diverse educational and professional backgrounds of executive students present a further challenge to conventional teaching strategies. In this case, storytelling enables students and teachers to cultivate a learning environment open to what one might term “multi background dialogues” where everyone has an opportunity to contribute. Putman (1993: 11) stresses the importance of considering “the unique needs, characteristics, and learning styles of all students in the design and delivery of instruction”. Using a variety of teaching methods, including storytelling, increases the likelihood of students having positive avenues for achieving success in the classroom (Burk, 1998).

As the following story illustrates, one of the main advantages of storytelling is its ability to communicate complexity. The filmmaker George Lucas invited John Seely Brown, who holds a PhD in computer science, to participate in the making of a film about education and the future of education in the 21st century. While discussing the content of the film, Seely Brown realized that Lucas planned to include a number of very complex aspects of cognitive theory and retorted: “George, there’s no way anybody is going to hear about this stuff! No way!”

To which George Lucas replied: “John, perhaps you don’t know, but most people consider me a pretty good storyteller”.

Besides being a pretty good story itself, this anecdote effectively underscores the point that storytelling can provide a simple platform for communicating complex matters. In contrast to the conventional approach to information, where communication is viewed as a message sent from a communicator to a recipient, storytelling presupposes a more interactive process. As a listener is able to imaginatively recreate a story in his or her own mind, the information is not perceived as coming from the outside, but as something, that is part of the listener's own identity. The story actually becomes the listener's own (Denning, 2001).

Ramsden (2004) has outlined the following three generic ways of understanding the role of the teacher in higher education, each of which has corresponding implications for how students are expected to learn:

1. Teaching as telling or transmitting information
2. Teaching as organizing student activity
3. Teaching as making learning possible

The first description implies that there are two distinct roles in the classroom: the teacher as the active transmitter of knowledge, and the students as passive recipients. This way of describing the role of the teacher is similar to what is often referred to as "the banker model of education" (Freire, 1973), meaning that the teacher deposits knowledge into the students' minds and then ask students to withdraw requested knowledge. With the second view, however, the focus moves from the teacher to the student. From this perspective, teaching is seen as a supervisory process that involves articulating techniques to ensure that students learn.

While the first two roles focus on the teacher and the student respectively, the third looks at teaching and learning as two sides of the same coin and hence communicates a more complex view of the relationship between teaching and learning. According to this outlook, teaching also involves learning about students' expectations and misunderstandings and creating a context that encourages students engage with the subject matter. In short, creating a learning environment that empowers students.

Robinson (1994) suggests that empowerment signifies respect for each individual in the

classroom, in the sense that each individual has a valuable contribution to make. Furthermore, empowered students see themselves as significant contributors to the classroom environment (Mirman et al., 1988). Especially where it allows students to contribute their own stories, storytelling can give students a better understanding of specific and complicated concepts through the linkage to personal experience. For example, students may relate how the work climate in their organization is measured, which is a topic that can be turned into a discussion about methods, with reference to measurement scales (e.g. with or without an arithmetic midpoint) or the need for quantitative or qualitative data – or a mixture of both.

Although the content of research methods courses may vary, a survey of various postgraduate courses in the UK (Morris, 2005) revealed that all aimed to provide a basic practical introduction to research principles, methods and practices to prepare students for their dissertations. The following topics are typically covered on most of the courses surveyed:

- Introduction to the research process
- Research design
- Identifying research issues and developing research questions
- Literature searching, reviewing and citation
- Methods of data collection; qualitative and quantitative
- Sampling
- Data analysis
- Dissertation and report writing
- Research ethics

An interesting observation from this survey is that research methods teaching seems to have undergone changes during the last five years (Morris, op. cit). There appears to be a shift away from theoretical topics and a heavy reliance on lectures towards more practical “hands-on”, student centred approaches to learning. More use is also being made of Virtual Learning

Environments and discussion boards. This is especially important for executive students who may not always be able to attend class because of work and/or family obligations. Not restricting involvement to stated times and to be able to allow students to participate in courses at times suitable to their personal schedules is of great importance to executive programs. With technology now being infused into all dimensions of society, higher education has the means to ensure students are provided with requisite learning opportunities (Ivankova and Stick, 2005). Still, there is ample evidence that the teaching of research methods tends to cause much anxiety among students (Dilevko, 2000; Bos and Schneider, 2007; Wilensky, 1997). This is probably even more so among executive students, as the typical executive student has not been required to learn research methods since s/he was a student many years earlier. Moreover, executive programs attract students from a wide array of fields, many of which do not require research method courses at the undergraduate level. Often accustomed to high levels of achievement in their jobs, executive students suddenly find themselves being introduced, often at great speed and with significant conceptual shortcuts, to a largely alien mathematically based logic-driven discipline. The new and challenging material confronting executive students taking statistics and research methods courses is likely to trigger a number of responses. As Onwuegbuzie and Daley (1999: 1091) remark, statistics anxiety “occurs as a result of encountering statistics in any form and at any level and . . . appears to involve a complex array of emotional reactions which have the propensity to debilitate learning”.

In many ways, student anxiety about research methods courses creates a sort of a paradox: on the one hand, students need a solid methodology background to succeed with their thesis work while, on the other hand, classroom exposure to research methods often contributes to difficult learning experiences (Dilevko, 2000). Accordingly, the development of teaching strategies to tackle this anxiety and to turn the learning experiences into something positive is of the utmost importance. In her survey of research methods courses in the UK, Morris (2005) uses the term “best practice” to characterize the most successful aspects of research methods teaching. These so called “best practices” include efforts to get students to apply the knowledge they have learnt in seminars and practical situations, getting students to teach each other, enabling students to critique each other’s proposals, and letting the students present their research ideas in the form of a viva. Optional workshops and the use of multi-media were also considered innovative. A few institutions introduced an online multi-choice question assessment (the course at NBS also uses

online multi-choice questions).

Despite these changes in classroom teaching, as well as the introduction of a computer-mediated learning environment, Morris states that these innovative practices have had little effect on the way research methods are taught.

Consequently, a necessary question to ask would be: How can teachers of research methods design specific classroom techniques to facilitate learning (and avoid frustration) among students? (Bos and Schneider, 2007).

3. The Case

When a new, compulsory introductory course in Research Methods and Thesis Writing for executive students was planned for implementation in the Fall semester of 2005, the particular needs of the student body were taken into consideration with regard to both structure (modular based) and content. It was quickly recognized that the main objective of this course should be to provide a basic practical introduction to research principles, methods and practices to prepare students for their dissertations. Because the executive students enrolled in the Master of Management program lived and worked all over Norway, in 2006 the School decided to also offer the course through the Web, using the Blackboard platform. In addition to this compulsory course, the school also offers two optional two-day workshops, one covering quantitative methods (including a demonstration of SPSS) and one covering qualitative methods (including demonstration of software programs such as NVivo). The workshops are offered “on demand” and at a time when the students are expected to have progressed into the stage of their thesis work when data collection and analysis are their main concerns.

3.1 The problem – and what to do.

Confronting the problem(s) outlined above, this paper draws from phenomenology rather than (pure) pedagogy. Consequently, the central question needed to be answered is not “How to (most effectively) teach research methods?”, but rather “What does it mean to teach research methods?” This question is inspired by Van Manen (1991) who has stated that the meaning of

pedagogy encompasses far more than the principles of effective teaching and learning, more than a “strategy tool-kit”. He even goes so far as to suggest that it is possible to learn all the techniques, but still remain pedagogically unfit to teach. The main criteria for what may be coined phenomenological pedagogy is to increase the awareness of the needs, interest and abilities of the students at hand. None has expressed this more clearly and convincingly than Kierkegaard (1998:61) as he writes that...” If one is truly to succeed in leading a person to a specific place, one must first and foremost take care to find him where he is and begin there”, and “...[in] order to truly help someone else, I must understand more than he – but certainly first and foremost understand what he understands”.

The teaching strategy proposed in this paper is designed to decrease student anxiety through humanizing research methods. The idea of humanizing stems from teaching mathematics. Research on teaching mathematics (Doxiadis, 2003, Chapman, 2008), suggest that humanizing mathematics requires teaching mathematics in a way that focuses on the “being” of a student as a participant in mathematics which is beyond delivering content of mathematics or teaching certain skills set. From a humanistic perspective, Chapman (2008:16) reveals that storytelling is “...a way of specifying experience, a mode of thought, a way of making sense of human actions or a way of knowing”. In the same way, Storytelling humanizes research methods because the students are able to relate to research methods at a personal level. Stories of people actually doing research using different methods, sometimes right and sometimes wrong, create situations for the students to experience both surprise and disappointment. Modi (2012:31) states, “the value of story to teaching is precisely its power to engage the students’ emotions”. Storytelling creates an environment of imagination, emotion, and thinking which makes research methods both more enjoyable and more memorable for the students.

In his analysis of research methods and statistics anxiety, Onwugebuzie (1997) reveals that teaching strategies that impart knowledge of the value of research methods and statistics and its useful application are the key to a successful course. Accordingly, the teaching strategy described here is primarily designed to decrease student anxiety by improving the perceived value of knowledge of research methods.

The core element in this strategy is storytelling that can be further divided into two sub-elements; the first is to use stories based on current issues. Typically, these are current news

stories from major Norwegian newspapers, though stories drawn from other sources are also used. The second element is to use stories from the history of science or/and books that deal with science related topics which are fundamental to understanding and mastering research methods.

3.2 Stories

A conventional and typical start of the research methods course is to define and discuss the concept “science”. It is, however, not obvious what “science” means (Chalmers, 1982) or what is to be regarded as scientific knowledge. Because a mere theoretical discussion of the idea of science will probably not draw much enthusiasm from executive students, creating a story using the bestselling author, Michael Chricton’s (2006) sceptical approach to the conventional scientific explanations for global warming makes a much better, and not least relevant, introduction to this topic. Chricton’s main argument is that the dominant scientific community suppresses open and frank discussion of the data indicating global warming. Chricton’s view is more or less in line with that of Polanyi (1964) who defines science as a *guild* in which masters train apprentices to the point that they are able to frame and pursue scientific problems of their own. Science, according to Polanyi is thus a practice and a body of knowledge socially constructed by scientists. Concepts such as “paradigms” (Kuhn, 1962) and “paradigm shifts” can also be used in stories to give students a more realistic and complex picture of science. A story about a Norwegian politician who wanted to include alternative medicine in the national health budget, and who met considerable opposition from physicians who argued that only scientific proven medicine was worthy of the state’s money, gives rise to further discussion of what science is in the real sense of the word. This story usually leads to rather heated discussions among the students because many has personal (often positive) experiences with the use of alternative medicine.

Both of the elements mentioned above are intended to introduce and explain basic concepts and methodological issues. The concepts of *statistical correlation* and *cause and effect relationships* are illustrated using a newspaper article where the Norwegian Prime Minister lectures a Supreme Court judge about the difference between the two. The judge had recently given a speech criticizing the family policies of the ruling Social Democratic party, especially it’s emphasize on building kindergartens to allow moms to work outside their homes (instead of staying at home and taking care of their children). Social statistics at the time revealed that more

youngsters than before were coming into conflict with the law and the judge concluded that this had to be an effect of the family policies of the Social Democrats. In response, the Prime Minister (a Social Democrat *and* a Social Science graduate) underscored the important point that although two phenomena appear to be simultaneous, this in no way implies that one causes changes in the other. In other words, relationships between variables (in this case between a high rate of women working outside the home and a high rate of juvenile delinquency) do not have to be causal. The fact that more mothers working outside the home does not lead to more young people breaking the law! It is particularly important to teach executive students the problem(s) of causality because in their jobs they have a tendency to treat complex matters as if they can be explained by simple cause and effect relations – sometimes referred to as “naive” reasoning – where the cause is usually attributed on a post hoc basis (Dooley et al., 1998).

Another newspaper article is used to illustrate the difference between an axiom and a hypothesis. The article concerns the use of incentives and their assumed (positive) effects on employee attitudes and behaviour. The provision of different forms of bonuses to employees is quite widespread and indicates a rather strong belief among human resource managers that bonuses create incentives. Rather than having been critically evaluated, this belief has more or less obtained its status as an *axiom*, i.e. a self-evident truth or something taken for granted as valid. The newspaper article presents the (somewhat surprising) findings of a study, which revealed that bonuses had zero effect on motivation and commitment, favoured lazy employees, and were expensive to administer! (See Kuvås, 2006 for the original journal article.)

The students find the distinction between an axiom (a statement which is regarded as self-evident) and a hypothesis (a statement which is closer to “an educated guess” and which has to be tested to find out if it holds or not) much clearer after having been told this story.

Another story concerns the worst outbreak of cholera in Victorian London (Johnson, 2006) and explores how Dr. John Snow’s solution revolutionized the way we think about disease, cities, science, and the modern world. Johnson’s book, “The Ghost Map,” tells of Dr. Snow’s struggle to convince the scientific community that the then dominant theory of how the disease spread was wrong. The general assumption at the time was that cholera spread through *miasma* (polluted smells stemming from the river Thames). This, in turn, led to a hypothesis of elevation, i.e. that higher ground was safer. A tabulation of cholera deaths in relation to elevation

seemed to confirm the hypothesis, as the number of deaths decreased as the height of the ground rose. However, as Johnson (p. 101) comments: “This would prove to be *a classic case of correlation being mistaken for causation*: the communities at the higher elevation tended to be less densely settled than the crowded streets around the Thames, and their distance from the river made them less likely to drink its contaminated water. Thus higher elevations were safer, but *not* because they were free of miasma. They were safer because they tended to have cleaner water”.

Concepts such as *paradigm* and *falsification* are also well illustrated in Johnson’s story. By the late 1840s, the miasma theory had established itself as the dominant paradigm (see Kuhn, 1962) regarding the question of the cholera’s transmission. Not only was it dominant among the professionals, folklore and superstition were also on the side of the miasmatics; the foul inner-city air was widely believed to be the source of most disease. Even when proof against the miasma theory was produced by Dr. John Snow, the scientific establishment refused to accept his theory that contaminated water was the source of the disease. Blinded by their ideas, and fearing loss of authority, the scientific establishment continued to fight against the “threat” of seeing their theory falsified (see Popper, 1959).

Another story is about Dr Ignaz Semmelweis and the Hypothetico-Deductive Method.

Perhaps the most popular story told during the methodology course (based on student reactions and evaluations) is this story about the Austrian-Hungarian physician Ignaz Semmelweis, who discovered that the incidence of puerperal fever (or child fever) could be drastically cut by improving hand washing standards in obstetrical clinics. Puerperal fever was common in mid-19th century hospitals and was often fatal, with mortality at 10-35%.

Semmelweis’ set out to find the cause of the mortality, and the way he went about it is a near perfect example of the Hypothetico-Deductive method of investigation. After having become the titular house officer of the First Obstetrical Clinic in 1846, Semmelweis realized that the mortality rate due to puerperal fever at the clinic was 13.10%, as opposed to 2.03% at the Second Clinic. Systematic observations revealed that the women at the First Clinic gave birth while lying on their back, while the women at the Second Clinic lay on their sides. Accordingly, Semmelweis first hypothesized that the fever was caused by women giving birth lying on their backs. However, this hypothesis had to be rejected after the women at the First Clinic changed

their position without any reduction in the number getting the fever. Next, he hypothesized that the women were frightened of the priests who went through the rooms to give dying women “the last rite”, and that this fear was the cause of the fever. As the situation did not change when the priests stopped going through all the rooms, he also had to reject this hypothesis. Semmelweis’ third hypothesis was a result of the observation that, in spite of the differences in mortality rate between the two clinics, the only difference between the two was the people working there. At this stage in the story there is also an opportunity to discuss whether Semmelweis is in fact carrying out a quasi-experimental research design, in reference to the phrase “all other things being equal”, (see, e.g., Cook and Campbell, 1979). The decisive difference between the two clinics was that the first was the teaching clinic for medical students, while the second had a few years earlier been selected for the instruction of midwives. The students performed autopsies in the morning, and did not wash their hands before going to the clinic. Semmelweis’ hypothesis was that the students brought infected “particles” on their hands that were introduced into women and caused the fever. He then ordered everyone who had performed autopsies to wash their hands before attending the women. However, this order met resistance, among other things it was claimed that it went against the principle of academic freedom!

The breakthrough occurred when a colleague died from an infection contracted after his finger was accidentally punctured with a knife while performing a post-mortem examination. The autopsy showed a pathological situation similar to that of the women who died from puerperal fever. Following this, Semmelweis’ instituted policy of washing hands between autopsy and patient examination was finally accepted, and shortly after the mortality rate at the First Clinic dropped from about 13% to 1%!

Obviously statistical and mathematical concepts can also be communicated with the aid of storytelling. For example, a newspaper article based on a study that found a significant negative correlation between female leaders and profit margins is used to challenge the concept of significance. Because the sample of firms investigated was rather big (1500) even a modest negative correlation between gender and profit (in this case $r = .089$) proved to be significant. This example gives an opportunity to discuss the relationship between significance versus meaningfulness (Salkind, 2006).

3.3 What are the benefits?

According to Hannabuss (2000), storytelling, when used effectively, offers numerous advantages over more traditional techniques:

- Stories communicate ideas holistically
- Storytelling provides the context in which knowledge arises as well as the knowledge itself
- Stories are an excellent vehicle for learning, as true learning requires interest
- Stories are memorable
- Storytelling help make abstract matters more “human”
- Humans enjoy sharing stories

According to Denning (2001), effective stories also need a “hero”. In the above stories, Semmelweis and Snow definitely stand out as heroes. They are figures everyone in the classroom can instantly empathise with, as the students can resonate with their dilemmas and understand what they were going through.

Stories that are either sensational, like those of the Cholera outburst or the mortality rate of women giving birth at hospitals, or that make instant sense to executive students as they concern bonus systems or female leaders, contribute to more effective learning. Furthermore, as a teaching method storytelling emphasizes connections to the learner’s knowledge that make a transition to new knowledge both safer and more meaningful (Wilensky, 1997). Stories also contributes to “an atmosphere in which it is safe for students to express their partial understanding and values regardless of their degree of correspondence with canonical mathematical or statistical truths” (Wilensky, op. cit: 176). In short, storytelling as a method for teaching research methods gives value and significance to matters which normally fill students with anxiety and/or indifference.

Students’ evaluations seem to underscore this. Close to 1500 executive students who have finished the course provide a pretty good basis for evaluating.

One measure is the success-failure rate of the final exam of the course. The exam is based on an on-line multiple choice questionnaire containing 30 questions, drawn by random from a pool of between 100 and 200 questions. The failure rate has on average been about 10%, and is reduced to close to zero after the students who failed take the exam for the second time.

More important, though, for evaluating the course than student pass–fail rates are the students' own perceptions of the course. For this evaluation, the School has chosen the web-based tool Questback, which allows students to evaluate the course using a 7-point Likert-scale and by giving personal comments. While the average score through the years has been closer to 6.0 than to 4.0, the students' feedback has provided the most relevant measure for verifying to what degree storytelling has contributed to overcoming students' learning barriers. Nonetheless, the fact that many students enter the research methods course with low expectations also has to be taken into consideration when interpreting the students' evaluations. Comments such as “I really did not look forward to this course, because I believed that research methods courses were dull and full of statistics and mathematics which I never have been comfortable with”, were common. Referring to the “theory of disconfirmation” (Parasuraman et al., 1985), that is, how well experiences meet expectations, one may argue that teachers of research methods courses are in a favourable situation. With such low expectations the possibility of experiences exceeding expectations (e.g. “positive disconfirmation”) should be fairly good. Even so, teaching research methods to students with diverse backgrounds is a challenging task. Despite the best intentions of lecturers, research methods courses tend to cultivate methods anxiety among the majority of students (Onwuegbuzie and Daley, 1999). According to the students' comments, however, there seems to be little doubt that integrating storytelling as a method of teaching research methods has contributed to reducing anxiety and fear and thus removing a serious obstacle to learning. Comments such as “This course was not as I had expected, but was genuinely interesting and provided me with new knowledge and insight of the practical usefulness of research methods”, or “I am convinced that the story of the Hungarian physician ensures that I will never forget what the Hypothetico-Deductive method is about” are typical examples.

4. Discussion and conclusions

Despite the fact that storytelling seems to compensate for many of the shortcomings of conventional teaching methods, it is important to stress that it does not replace analytical thinking. Instead, storytelling supplements analytical thought by providing context and meaning. Abstract analysis is often easier to understand when seen through the lens of a well-chosen story.

For a story to be effective, it must stimulate learning. Effective stories are also context-specific, i.e. they are developed or chosen within a specific context, in this case the context of a research methods course. Effective stories also have drama; they must be capable of grabbing the attention of the listeners (Ready, 2002). In our case, the stories about the Cholera outbreak in London and the puerperal fever in Vienna have such drama. Using Michael Chrichton's novel "State of Fear" to illustrate what science is (and is not) in relation to the issue of global warming certainly grabs the students' interest.

Given that research methods anxiety hampers the willingness of many students to participate in class discussions, the ice must be broken by offering relevant stories, which may interest and entertain the students. Once they have realized that methodological concepts can be interesting and approachable through discussions of relevant and meaningful stories, students are likely to feel relieved, stimulated and more open to the subject (Dilevko, 2000). Moreover, telling stories relating to recent and relevant events will gradually erode the perception of research methodology as a dry academic field.

Students' comments on this Research Methods course emphasize that the use of stories provides "connections to the learner's knowledge that make the transition to new knowledge both safer and more meaningful" (Wilensky, 1997:178). Even if we take into consideration that the sampling procedure used, i.e. self selection, does not create a basis for generalization in a strict statistical manner, the comments offered by the students over the years are so consistent in their positive evaluation of the use of stories that it leaves little doubt as for their positive effect on minimizing anxiety and promoting learning.

Although storytelling cannot replace conventional teaching altogether, it can contribute to "breaking the ice" and thus offering research methods teachers a tool that might improve their

courses to better address student barriers.

If the goal of a research methods course is that students should feel comfortable doing all of the steps of the research process on their own, teachers must take into account what is generally known about students' perceptions of research methods courses. There is ample documentation that many students fear such courses. Reducing that fear is necessary to "pave the way" for learning. The use of storytelling may do just that.

References

- Abrahamson, C.E. (1998): Storytelling as a Pedagogical Tool in Higher Education. *Education*, 118(3), 440-451.
- Barret, H.C. (2005): Paper developed for the Kean University Digital Storytelling Conference, June 2005.
- Bos, A.L. and Schneider, M.C. (2007): Stepping around the Brick Wall: Overcoming Students' Obstacles in Methods Courses. Paper presented at the American Political Science Association, Charlotte, NC, February 9-11.
- Burk, N.M. (1997): Using Personal Narratives as a Pedagogical Tool. Paper presented at the Annual meeting of the National Communication Association, Chicago, Ill.
- Chalmers, A.F. (1982): *What is "This Thing" called Science?* University of Queensland Press.
- Chapman, O. (2008): Tools and processes in Mathematics teachers' Education. In D, Tirosh and T. Wood (eds): *The international handbook of mathematic teachers' education*, Vol 2: 15-38, Dordrecht, The Netherlands, Sense Publishers
- Chricton, M (2006): *State of Fear*. HarperCollins.
- Cook, T.D and Campbell, D.T (1979): *Quasi-Experimentation: Design and Analysis Issues of Field Settings*. Boston: Houghton-Mifflin.
- Denning, S. (2001): The Springboard: How Storytelling Ignites Action in Knowledge-Area Organizations. *Journal of Organizational Change Management*, 14(6), 609-614.
- Dilevko, J (2000): A new approach to teaching Research Methods Courses in Library and Information Science program. Paper presented at ALISE Conference.
- Dooley, K; Skilton, P, and Anderson, J (1998): Process Knowledge Bases: Facilitating Reasoning through Cause and Effect Thinking. *Human Systems Management*, 17(4): 281-298.
- Doxiadis, A, (2003): Embedding mathematics in the soul: Narrative as a force in mathematics education. Opening address to the 3th Mediterranean Conference of Mathematics education, Athens, Greece, January 3. 2003.
- Egan, K (1988): *Teaching as storytelling: An alternative approach to teaching and the curriculum*. London: Routledge.

- Freire, P. (1973): *Pedagogy of the oppressed*. New York: Seabury
- Foote, M.Q, Smith, B.S & Gillert, L.M, (2011): Evolution of (Urban) mathematics teachers' identity. *Journal of Urban Mathematics Education*, 4(2): 67-95
- Hannabuss, S (2000): Narrative Knowledge: Eliciting Organizational Knowledge from Storytelling. *Aslib Proceedings: New Information Perspectives*, 52(10): 402-413.
- Hogg, M (1995): To Huff and Puff: There's More to Storytelling than the Three Little Pigs! Paper presented at the Central States Communication Association Conference, Indianapolis, Indiana.
- Howell, D.D. and Howell, D.K (2003): *Digital Storytelling: Creating an eStory*. Worthington, OH: Linworth Publishing.
- Johnson, S (2006): *The Ghost Map*. New York: Riverhead Books.
- Kierkegaard, S. (1998): *The point of view*. Princeton University Press
- Kuhn, T (1962): *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.
- Kuvås, B. (2006): Performance Appraisal Satisfaction and Employee Outcomes: mediating and moderating roles of Motivation. *International Journal of Human Resource Management*, 17: 504-522.
- Miram, J, Swartz, R and Barell, J. (1988): Strategies to help Teachers Empower At-Risk Students. In B. Presseisen (ed): *At-Risk Students and Thinking: Perspectives from Research*: 138-156. Washington DC: NEA/RBS
- Modi, K. (2012): Story Telling in mathematics. *Voice of research*: 30-31
- Morris, A (2005): Research Methods Teaching in Information Science: UK Experiences. Paper presented at the 71th IFLA General Conference. Oslo, Norway, Aug. 14-18
- Negroponte, N (1995): *Being Digital*. New York: Alfred A. Knopf
- Parasuraman,A, Zeithamel,V, and Berry,L.L (1985): A Conceptual Model of Service Quality and its Implications for Future Research. *Journal of Marketing*, 49 (Fall), 41-50.
- Polanyi, M (1974): *Personal Knowledge. Towards a Post-Critical Philosophy*. Chicago, University of Chicago Press.
- Popper, K (1959): *The Logic of Scientific Discovery*. Hutchinson, London.
- Putnam, J. (1993): *Cooperative Learning and Strategies for Inclusion: Celebrating Diversity in the Classroom*. Baltimore: Paul H. Brooks Publishing.
- Ramsden, P (2004): *Learning to Teach in Higher Education (2nd ed.)*. RoutledgeFalmer.
- Ready, D. A. (2002): How Storytelling Builds Next-Generation Leaders. *MIT Sloan Management Review*, Summer: 63-69.
- Robinson, H. (1994): *The Ethnography of Empowerment* Washington DC: The Falmer Press.
- Salkind, N.J. (2006): *Exploring Research (sixth ed.)*, Pearson International.
- Onwuegbuzie, A.J. (1998): Role of Hope in Predicting Anxiety about Statistics. *Psychological Reports*, 82: 1315-1320.
- Onwuegbuzie, A.J. and Daley, C.E. (1999): Perfectionism and Statistics Anxiety, *Personality and Individual Differences*, 26: 1089-1102.
- Van Manen, M. (1990): *The tact of teaching: The meaning of pedagogical thoughtfulness*. Albany, NY: SUNY Press.

Wilensky, U. (1997): What is Normal anyway? Therapy for Epistemological Anxiety.
Educational Studies in Mathematics, 33: 171-202.

Wood, D. R. (2000): Narrating professional development: Teachers' stories as texts for improving practice. *Anthropology and Education Quarterly*, 31(4): 426-448