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Edutainment, History of
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Alternative Stories in Scenario
Planning presented during the
2nd International Meeting of
'What if?... World History.*

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Abstract. This paper analyzes the points of convergence and combined implications of distinct papers presented by its respective authors at the 2nd International Meeting of ‘What if?’ World History by University of Porto, Portugal. As an innovative division of this alternative meeting, different Oral Presentations were held bringing together live discussions with the researchers scheduled, being the round table number 5 the one presenting these papers’ analysis: ‘Gaming with History: How History of Science can be an alternative source for science communication’, and ‘The value of alternative stories in scenario planning’. Both different types of research are first analyzed throughout its key ideas and outcomes which, subsequently in this paper, are then verified, so to conclude at its final section, the common importance of alternative stories in future planning.

Keywords: Alternative History, Edutainment, History of Science, Gamification, Scenario Planning, Stories

1. Introduction

While alternative histories feature a specific kind of deviation from historical records [1], counterfactual histories deepen the hypothetical events that flow from a certain point of departure [2]. Both approaches were brought together at the 2nd International Meeting of ‘What if?’ World History promoted by the University of Porto on the 26th of November of 2020, dedicated to the importance of alternative history in the world today, by two specialized authors presenting each respective research in regards to time, location and conceptualization of alternative stories.

As chair of this one-hour long oral presentation at the round table #5, scheduled from 16.20h to 17.20h, Greenwich time, at the Casa Comum room and broadcast live on the internet¹, first was introduced Dora Dias, a specialist on Biopharmaceutical Sciences and currently a PhD student at Faculty of Sciences of the University of Porto analyzing the human genome in Portugal, who, alongside with José Ferraz-Caetano, presented their research entitled ‘Gaming with History: How History of Science can be an alternative source for science communication storytelling’.

At the counterpart of this round table, Prof. Cynthia M. Montaudon from UPAEP University, in Mexico, also a specialist at different academic and business fields of expertise, presented the research ‘The value of alternative stories in scenario planning’.

This paper first presents the methodology used, then it presents both distinct researches, highlighting its main characteristics. Following, results are demonstrated, then future perspectives are offered, finishing with the conclusions encountered.

2. Materials and Methods

To accomplish this paper’s goals were taken into

consideration both authors’ respective research abstracts, as well as each fine oral presentation and the following tripartite discussion, which occurred within the scope of round table #5, at the 2nd International Meeting of ‘What if?’ World History promoted by the University of Porto, on the 26th of November of 2020. During this one-hour long debate, each outcome was further detailed and argued by its author, thus providing essential information for this paper.

3. Background

Given the insights presented and each respective background, both pieces of research seemed to be deeply connected with the concepts of gamification and edutainment, despite their differences and applications. While the first idea is generally understood by the use of game design elements in non-game contexts [3], the very idea of edutainment is encountered to be an umbrella term describing various approaches combining education and entertainment [4]. The latter is commonly used to address a form of education that seeks to captivate, instil excitement and evoke emotions. So, the combination of science and entertainment can be introduced as an opportunity for science communication to appeal to a wider audience [5].

3.1. Gaming with History: How History of science can be an alternative source science communication storytelling

This research opens up the idea that gamification can be a useful tool to get students engaged with learning science, in this case, chemistry. So to achieve a valid conclusion, its authors designed and transformed a real-life episode in history into a board game targeted to twelve-year-old students, aiming to understand how would it possibly contribute to communicating science.

1 <https://www.youtube.com/watch?v=fDdqO6RO-CY>

This game was presented 20 times in July 2019 at the Faculty of Science of University of Porto during Universidade Junior summer camp, to 280 students of the 7th and 8th grades, separated into eighty teams of five elements each.

Given that their audience was Portuguese, authors selected a factual historic episode in Portugal, occurred in the year 1819 about a brilliant medical doctor who was accused of poisoning his nephew. According to table 1, this learning experience was based on real historic elements, which were later treated as factual storytelling episodes by introducing innovative and entertaining elements encouraging students to apply knowledge during the investigation and to solve the crime, as part of that same educational game.

This chemistry storytelling class was previously designed to be a hands-on experience including different correlated and consequential activities, as presented in Table 1, such as game reports, kids’ experiments, lab notes, procedures to follow or the act of touching elements which, all combined, addressed to the activity the sense of fun and interactivity.

3.2. The value of alternative stories in scenario planning

The supplementary research presented was rather focused on the adoption of alternative stories in scenario planning, which according to its author is a form of planning done for the long term, related to strategic planning, where the use of alternative stories is considered to create the different future paths, or scenarios, that can be taken. This concept is also considered as a technique for thinking about the future that is employed widely by both business and government organizations [6], to simplify the avalanche of data into a limited number of possible states. [7]

The first notion of scenario planning occurred in 1975 at the US Military, as a cold war type of politics emerging from the prevalent philosophy of suspicion and conspiracy theories prevalent at those time [9].

Scenario planning has gained relevance in uncertain times which seem to be a crescent reality recently, and tend to become more and more complex as we are globally living in continuous changing times. These changes are referred to by the

Table 1. Elements, characteristics and consequences of alternative storytelling in education.

| Elements | Characteristics | Consequences |
|------------|--------------------------|---|
| Read Story | Factual historic episode | a deeper relationship with the audience |
| | age-appropriate | proximity |
| Story | entertaining | characters designed according to the audience |
| | unknown | more interest and attention |
| Board Game | innovative | effective-learning tool - applying knowledge |

Source: Authors based on the oral presentation by Dias (2020) [8].

acronym VUCA, standing for volatile, uncertain, complex and ambiguous times, but also multiple, exponential, explosive, seismic, chaotic, turbulent, and also, more lately, pandemic [9]. To overcome uncertainty and provide societies with the necessary stability to foster human, social, economic, and also political progress, considering and planning multiple possible scenarios in the future seems to be a valuable determination for decision making.

To achieve so, scenario planning tries to answer the following two key questions: ‘What if’ and ‘What then?’, meaning that if ‘X’ happens what has to be done to solve the problems that will emerge. According to the author, a scenario is a story, an image or a map of a possible future, also, an interpretation of the present projected into the future rather focused on key issues and uncertainties facing all types of businesses and sectors, context and times. Therefore, its strategic process contributes to enhancing strategic thinking, learning, and decision making, by following four consequent steps:

1. Forces: consider all the forces in the environment (political, social changes, and more)
2. Uncertainties: blend all forces with the uncertainties of the present
3. Characteristics: describe the consequent elements
4. Alternative stories: development of stories

This procedure is meant to end with four possible general futures: expected, preferred, alternative, and feared. By considering all the possibilities, it is inevitable to have two extreme prospects, the best and the worst-case scenarios, in between eight different plans suggested. Out of the seven real examples presented during the oral session regarding the development of alternative stories for a better preparation towards a future, at table 2 are resumed four that express differences amongst all.

Table 2. Alternative stories real cases.

| Organization | Objective | Date | Years | Areas | Scenarios | Characteristics |
|--------------|---|--------------|-------|--|-------------------------|--|
| Shell | possible future for oil and gas | 2011 | 40 | Economics Geopolitics Social-cultural Energy Environment | Scramble World | people looking for an energy provider regardless of the environment |
| | | | | | Blueprint | environment and productions of energy are aligned |
| South Africa | what will South Africa be like in 2002? | 1991 1992 | 10 | All Areas | Ostrich | a settlement to the crisis is not achieved; the government continues to be non-representative |
| | | | | | Lame Duck | a settlement is achieved; slow and indecisive transition |
| | | | | | Icarus | transition is rapid; unsustainable, populist economic policies |
| | | | | | The Flight of Flamingos | sustainable policies; focus on inclusive growth and democracy |

| Organization | Objective | Date | Years | Areas | Scenarios | Characteristics |
|--------------|------------------------------------|------|----------------|----------------------------------|------------------------------------|--|
| DHL | Delivering tomorrow logistics 2050 | 2012 | 40 | Logistics Economics Social | Untamed economy | impending collapse |
| | | | | | Mega-efficiency in Megacities | E.g., Drones' delivery, etc |
| | | | | | Customized lifestyles | 3d prints at home, producing at home instead of receiving |
| | | | | | Paralyzing protectionism | nationalisms, borders close, deliver only what exists in the country |
| | | | | | Global resilience local adaptation | the most positive |
| IMD | post Covid-19 world | 2020 | Imme- diate | Health | Global marketplace | Short-term virus longevity; global acceptance, digital acceleration |
| | | | | | Back to basics | Long-term virus longevity; global rejection, digital scepticism |
| | | | | | Digital reset | Long-term viral longevity; global acceptance; digital scepticism |
| | | | | | Walled gardens | Short-term virus longevity; global rejection, digital acceleration |

Source: Authors based on the oral presentation by Montaudon (2020) [9].

4. Presented Results

4.1 The Differentiated (or not so much) Results

In regards to Prof. Dora Dias’s research, by introducing real-life facts in the process of learning, later transformed into a storytelling narrative designed to be suitable for its target, authors point out that a closer relationship between science and that academic audience occurred, provoking more attentiveness from the students’ side as the science teaching methodology became more appealing to them.

According to their research results, this revealed to be a valid decision once students drew more attention to this hands-on learning enjoy-

able experience, that had been described by them as fun and relatable.

This close relationship between science and that academic audience initially derived from real-life facts and later transformed into a target storytelling narrative, introducing innovative and entertaining elements and encouraging to apply knowledge during the investigation and solving of the crime.

To prove it, when asked to describe this learning experience in just three words, the ones mostly used by its audience was fun, different, educational, interesting, mysterious and creative [8].

Additionally, the majority of this audience constituted by 143 students, affirmed that what

they have most learnt was chemistry, 44,8 %, while 24,5% of them mentioned investigation. 18,9% mentioned History, 8,4% indicated Positive Attitude, and finally, 6,3 % cited Social Skills as the most representative outcome, whether they are subjects or soft skills, out of that experience. As cleared by table 3, results found state that students matched their scientific performances during the game.

Table 3. N-143

| Outcomes | % | Consequences |
|-------------------|-------|---|
| Chemistry | 44,8% | a deeper relationship with the audience |
| Investigation | 24,5% | more interest and attention |
| History | 18,9% | effective-learning tool |
| Positive Attitude | 8,4% | * |
| Social Skills | 6,3% | * |

Source: Authors based on the oral presentation by Dias (2020) [8].

* No data available.

Consequently, authors agree that history displayed as a storytelling learning narrative was the backbone of their educational activity. And also, that the fact of that story being based on a real one, was an impactful influence on a better outcome. So, it appears to be correct to sustain that a board game is an effective learning tool, especially when addressing a hard topic to a young audience.

On the other hand, considering Prof. Cynthia presentation’s outcomes, the true value of using alternative stories in scenario planning is that they help to plan in a better way once it is always impossible to know in advance which possible scenarios will come true in the future ahead. In addition to that, considering there is not only one possible outlook, as conditions in life change and

themselves alone are the proactive elements of new changes within, minding alternative stories is important to be better prepared for what may in the future arise.

Therefore, it seems to be a true contribution to policy-makers and firms so to anticipate change and the impact of different scenarios, to identify weaknesses, to better prepare responses, and to create more robust strategies. To consider all possibilities and to be able to access different risks, it is crucial to develop a sense of risk awareness and crisis readiness. These both attitudes combined result to be an easier way to have a flexible response towards everchanging uncertain environments, being the proactive behaviour more beneficial rather than simply reacting to events.

As a relevant point highlighted by the author, the reduced number of possible alternative stories selected for each scenario planning. First were defined two extreme cases – the best and the worse possible scenarios –, then added to the list a few more neutral different stories in-between, to sum up together a total of eight possibilities as maximum. From adopting this procedure, again after considering all possibilities, only a short number of stories is taken into consideration by all parts simplifying the entire process. Which to run it smoothly and effectively to all, the habitude of naming each scenario is of additional relevance, once the employment of names with correlated images that stick to all parts involved is a means of deeper connection to their own culture or history, fostering their understanding while having fun. Finally, this amusement element is revealed as an emotional characteristic that strengthens the success of scenario planning.

4.2 Ethics Concerns

Despite both papers presented being based on different sort of games, where winners played the odds, they didn’t have winners, which is a

common initial ethic standard considered by its authors. Additionally, throughout both pieces of research, ethics displayed different ranges of apprehensions considering its targets’ broadness and, consequently, respective possible implementations.

On the gaming research, the ethical issue seemed to be limited to the conflict of interests that may have arisen directly from the practical learning experience, resulting in an inevitable personal moral dilemma of each student that should refrain from copying from one another or accessing the internet during pauses.

From the perspective of scenario planning, ethics was a concern of higher consideration, once it was contemplated throughout the entire process, from its very beginning until the possible end of it. To achieve this level of respect, all forces are suggested to be analyzed first, once positive and negative consequences may occur, and subsequently cause effects, considering the ethics that each different scenario may assume, once not doing so it would determine the possibility of each veracity or existence.

According to table 4, ethics was a more limited consideration at the gamification research, minded exclusively on student’s behalf, while at the scenario planning research ethics was omnipresent.

Finally, it is possible to conclude on both papers that bringing the past is relevant to better foresee the future.

5. Solutions and Recommendations

As the main outcomes of this round table, several solutions towards the future appear to arise from the combination of these two different pieces of research.

As a prior recommendation is a constant notion to consider that what may have happened in the past better prepares the future. Analyzing precedents, as strategies, events or trends clipped for a long period, and occurring in different spaces - global or applied on local settings (regions or industries), is a truly beneficial procedure to look ahead so to better predict what may happen in the future.

Also relevant to consider is the idea that gamification is a definite big trend in the future both in education and in consulting activities. From primary schools to higher education, from small private companies to public organization, the use of games and the overall idea of gaming where gaming activities are performed, provoke participants to encounter a solution. When this task is fulfilled, the feeling of happiness and confidence is built in all players. Building, therefore, an emotional connection. An unforgettable one, that creates bonds not only with the subject but also with the people involved. This human connection is part of the adaptation process in creating a solution. So, to foster this new kind of learning gaming-based activity which is arising and becoming more and more mainstream, different new forms of gratification, whether immediate or after a certain peri-

Table 4. Ethic concerns

| | Broadness | Consequences | Target |
|-------------------|---|---|------------------|
| Gamification | Limited to the conflict of interest | Students’ moral dilemma | Students |
| Scenario Planning | Always considered, from the beginning until the end | Determine the very possibility of the existence of each possible scenario | All stakeholders |

Source: Authors based in both oral presentations [8, 9].

od to be decided, need to be encountered once it is part of the overall conceptual game played when sharing and acquiring knowledge.

Similarly, the idea of flexibility seems to be important to be further studied every time an activity is performed. Given every human occupation tend to have an impact in the future, which despite possible to predict is never under control, flexibility is more and more a key behaviour to achieve different goals. The recent pandemic, for example, has shown the importance of this concept, once all scenarios previously planned were not, after all, a true possibility. Within it, a considerable number of ethical considerations were not planned as well, as it seems to be true with, for example, the previous trending idea of not using plastic as it was pondered to be environmental unfriendly was suddenly questioned when the entire world was forced to think and act in an opposite direction so to deal with the pandemic by using numerous protective gears. So, adaptation, the sense of dynamism and agility should be encouraged throughout different fields as uncertainties are a force certain to exist in the future.

The very idea of digitalization should as well be enhanced in all fields, as each one of them thus gathers a broader audience, and consequently, the same knowledge is shared by a higher number of people. Regarding the first paper, given its success when implemented during Universidade Junior, it is recommended to redesign the experience by minding different alternative stories, with the same level of entertainment applied digitally to implement it again to a larger sample in the future. For the same reasons, as far as the second paper is concerned, not only the final results but all different stages of the research are recommended to become public, democratizing knowledge, and consequently preparing a broader audience for a common future.

When considering all the possibilities, when

all the opportunities are lied down from the beginning, it is possible to access all different risks, allowing one to look ahead more clearly as it becomes easier to have a response. So, future planning is not only a conceptual exercise but rather fact-based reasoning, outcoming better decisions.

Alongside this, edutainment, a perceived combination of entertainment and science, the act of having fun while acquiring knowledge, is a solution for achieving success at a learning activity, as imagining different dimensions and considering parallel realities is community involving, from students to stakeholders.

6. Future Perspectives

Gamification does represent new research possibilities, either on learning and consulting activities.

Fostering a proactive idea towards the future, in opposition to imposing a reactive mindset, will establish an emotional collective field, fertile on knowledge acquisition thus better-preparing people for the future. Our world will always have dropbacks, so the importance of enhancing positive effects on negative scenarios, of conceptualizing a possible realism expecting the best while preparing for the worst seems definite to have relevant constructive consequences.

Considering stories are a truly human dimension, that already exists within us from the early days of our species, which will therefore continue to be part of mankind, should continuously be considered at all human activities.

Finally, the importance of Alternative History as a research tool in the analysis and solutions' encountering in different fields of knowledge seems to be highly relevant. Besides proposing a 'What if?' scenario, thus opening new perspectives towards the future, this tool also deepens multiple possible real implementations of the initial hypothesis.

7. Conclusion

Alternative stories play a decisive role towards the future, as their usage is relevant regarding acquiring knowledge, either in academic, political and social environments.

People love stories. The narrative of each different parallel reality to be considered gains attractiveness by being memorable, which is achieved when based on a real story, as people tend to be more profoundly connected by remembering and acquiring more knowledge from alternative stories, rather than from receiving specific tasks.

The convergence of storytelling-based scientific gamification learning activities and the development of alternative stories are valuable in decision making.

Given the results encountered at both pieces of research, the relevance edutainment has for the audience's expectations seems to be of consideration, as this plays a decisive role in the acquisition of knowledge.

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