

Scientific Writing Automation

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Abstract— In this article we pretend to provide insights into the topic of scientific writing automation, an issue without excessive exploration and with great potential to develop in the near future. It can be said this topic is crucial to the understanding of scientific writing because it involves the automation variable. In that sense, scientific writing is not seen as a half-manual, divergent process any longer but as an activity bordering total automaticity, at least conceptually.

Index Terms— automation, machine, process, product, science, text, writing.

1 INTRODUCTION

IT does not seem a crucial issue in research, however it is. Scientific writing is a major means to convey information of general interest in relation to discoveries, experiments, and insights into new paths of investigation. When combined with automation, scientific writing seems to have the potential to explain to a high degree much of the efforts devoted to science, writing, and their relation to language, most likely in general terms.

2 LITERATURE REVIEW

2.1 Scientific writing

Scientific writing consists of skills that are developed through study and practice (Alley, 2013). It does not seem to be an in-born quality, according to the definition shown.

Scientific writing has also been conceived as a well-defined technique with three basic aspects underneath: thought, structure, and style (Peat et. al., 2013).

2.2 Automation

Traditionally automation is the use of technology or machinery for the performance of tasks previously done by humans (Chikuni & Khan, 2008). We can tweak this definition a little by proposing the use of technology or machinery mentioned is actually the use of “technology” or “machinery” implying in this sense “technology” and “machinery” are part of the same “human” system that can perform tasks automatically. Ergo, humans can perform tasks “automatically” or almost automatically, whether previously done by humans or not.

3 DISCUSSION

In principle, scientific writing automation may seem like a misleading concept, mainly because it does not seem to have the properties required to get at conclusions of any kind. It has to be pointed however, according to current theory on the matter under discussion, this idea might be saved from irrelevance.

To begin with, we can ask a question like, “Can scientific writing be creative?” (Massoudi, 2003). The immediate answer for this is “yes” but after that, a quick clarification is needed. This clarification is, “Scientific writing can be creative but under automation principles” (Massoudi, 2003; Chikuni & Khan, 2008).

But how automatized is the writing of scientific texts? If scientific writing is pure automation with a scientific topic in the mind, then we scientists could be considered as “scientific writing machines” in the sense the processes of thought to text happen with a high degree of automaticity, non dependant on additional technology or machinery to work.

Then it comes the question of what the nature of this process is like. For this we need to see writing as a process (D’Alleva, 2005; Wingersky et. al., 2008), if it is really a process. On the other hand, writing could be seen as a product (Brown, 2012; MacArthur, 2008), or maybe it is a combination of both (Brown, 2012; D’Alleva, 2005; MacArthur, 2008; Wingersky et. al., 2008).

Whatever the answer may be, whether with or without automation, it is certain writing or scientific writing in this case is a set of steps far from linearity, and we know this. Sometimes we may have the whole idea in our minds and we start later sections before previous ones, etc.

Then some interesting and yet puzzling questions arise. One of them is “What about theoretical foundations?” and another as puzzling as the first “How does literature review writing play a role in this whole process of scientific writing automation?”

These are questions worth paying attention to, due to their relevance and the complexity emerging just by stating them. It is certain exploring them here would make us fall in the complexity we mentioned before, with few chances to succeed.

If we go back to the automation aspect we were discussing about scientific writing, we can ask if it is an algorithm of some special nature, with some special properties worth studying.

However the answer for this is similar to the previous literature review questions, in the sense researching on this would create such complexities we may be lost in an ocean of uncertainty, not knowing where to begin and where to end.

And still, there are some practical considerations too, preventing us from looking for algorithmic foundations. An easy one to identify is there is no theoretical foundation (solid) to start such a quest, whether under the principles of automation or not.

Based on what has been presented, there is no doubt at all this topic is interesting and full of mysteries to be solved. Beyond the matters already discussed, some may still be pending.

One of them is the metacognitive factor. In this sense, we go back to the question of whether writing and scientific writing in this case is a process or a product (Brown, 2012; D'Alleva, 2005; MacArthur, 2008; Wingersky et. al., 2008). There is a special momentum in which we do not have certainty on what is really going on.

On one hand all evidence suggests there is a text with a reading on-the-go, whether this reading happens linearly, half-linearly or only pinpointing some parts of it which may seem more relevant to the reader than others.

On the other hand, there is the writer's perspective of writing as a process (D'Alleva, 2005; Wingersky, 2008), in the sense of that momentum of writing that fades once the job is done. Beyond any speculative or nonscientific remark, that consideration is important, we think.

We think an analysis of this nature cannot go on forever. Otherwise we would have to face an "on the loop" problem, with the concept of "scientific writing automation" repeating forever, which is not the purpose of this investigation.

4 CONCLUSION

In this article we proposed the concept of "scientific writing automation" from a human perspective. It was partially found scientists can be considered as "scientific writing machines". However, from this on, many questions and limitations arise.

In any way, there is no doubt this topic has a relevance on its own and links of interest may be established between science, writing, and automation, all working for the topic of scientific writing automation as a whole.

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