Scientific reporting communicates research findings to a more general audience, but this is often at the expense of simplifications and misinterpretations from a journal article. While some omissions from a journal article are expected such as the extensive justification of estimations or the tabulation of all relevant data, the key conclusions and explanations must not be lost. The scholarly article, “Ancient lowland Maya complexity as revealed by airborne laser scanning of northern Guatemala” (Canuto et al. 2018) presents the details, methodologies, and conclusions of the enormous research undertaking that mapped the Maya lowlands using light detection and ranging technology (LiDAR). The newspaper article, “This major discovery upends long-held theories about the Maya civilization” (Guarino 2018) attempts to capture the significance of this research and present the findings to a more general audience. Guarino is successful in communicating the enormous scale of the data collection, but the newspaper article fails to detail why the data supports the new view of a complex Maya civilization. Instead, Guarino only restates the shift in archaeologists’ perspective on Maya civilization and focuses on sensationalizing LiDAR technology to make the article more appealing to a general audience.

The results and conclusions presented in the journal article are the culmination of an extensive and interdisciplinary effort to leverage LiDAR to further understand lowland Maya civilization. Under the Pacunam Lidar Initiative (PLI), the study used LiDAR to map 2144 square kilometers of the Maya Biosphere Reserve (MBR) in Guatemala (Canuto et al. 2018: 1). The data was analyzed in terms of population, agriculture, urbanization, engineering, and infrastructure; estimations made during the data analysis were consistent with and justified by prior literature detailing the lowland Maya region (Canuto et al. 2018: 6). Synthesizing the PLI data, the study definitively concludes that the lowland Maya constructed a complex and diverse civilization consisting of regionally interconnected cities that were densely populated and defended. These cities were sustained by numerous agricultural techniques that optimized land productivity, resource diversity, and sustainability on a significantly larger scale than previously thought (Canuto et al. 2018: 14). These conclusions were drawn after a thorough discussion of how the PLI data supports each of the categories of population, agriculture, urbanization, engineering, and infrastructure as well as the consideration of the relationships between these categories. The journal article goes further by suggesting further exploration that would build upon the PLI data such as, “research that, among many possibilities, (i) quantifies labor investments and land productivity at every scale; (ii) addresses how projects of agricultural intensification were organized and managed, with implications for long-term sustainability…” (Canuto et al. 2018: 14). Overall, the journal article provides in-depth coverage of the methods used for data collection, and it thoroughly discuses why the data supports the interpretation of a more advanced lowland Maya civilization while also providing avenues for further research.

Guarino provides a video that successfully captures the scale of the research study as the visuals pan out from the LiDAR map of Tikal, one of the major archaeological regions that was mapped and has been extensively studied, all the way to the entirety of the MBR (Guarino 2018). The narration of the video summarizes the journal article at a very simple level as it describes that the Pacunam Lidar Initiative covered 2000 square kilometers and gave archaeologists a new view of Maya civilization that highlighted the scale and diversity of ancient settlements (Guarino 2018). The written portion of the article maintains the simplified approach of the video. The article points out many “exciting” numbers detailing the scale of the investigation as well as superlatives describing the significance of the study. For example, Guarino states that the journal article contains a dozen plots covering 830 square miles, an area larger than the island of Maui, and he describes it as the largest such survey of the Maya region. Guarino then quotes an author of the journal article with the preface, “The study authors describe the results as a revelation” (Guarino 2018). Guarino then addresses the shift in perspective regarding the complexity and diversity of lowland Maya civilization when he states that in the past, archaeologists had argued that small, disconnected city-states dotted the Maya lowlands. This description of Maya civilization is losing support as the study shows that the Maya could extensively exploit and manipulate their environment and geography (Guarino 2018). Guarino continues to mark the shift in perspective when he quotes archaeologist Arlen Chase whose prior work had argued that ancient lowland Maya civilization was more advanced (Guarino 2018). However, much of the newspaper article’s focus shifts towards describing and sensationalizing LiDAR as a powerful archaeological tool.

One of the key portions of the journal article is the suggestion of further areas of research to build upon the PLI data. Guarino only acknowledges that 8 percent of the survey area’s LiDAR data had been confirmed by archaeologists before quoting one of the study’s authors, Acuña, who states that there is still much ground work to do (Guarino 2018). Guarino fails to detail the further research areas mentioned in the journal article such as, “[assessing] the extent of economic interdependence within large regions by studying differences between urban and rural populations…[developing] models for the types of warfare implied by defensive features” (Canuto et al. 2018: 14). Simply stating that “more work is needed” sidelines the important question of why the data supports the conclusions drawn and how this leads to further research questions. This simplification is performed to avoid the presentation of social scientific thinking to maintain the attention of the general audience. The journal article states that the PLI lidar survey provides a uniquely large and continuous dataset describing the Maya lowlands, and this dataset has extensive evidence of ancient structures, canals, terraces, causeways, and defensive features (Canuto et al. 2018: 14). Clearly, the conclusions drawn in the article are without much uncertainty given the ample supporting evidence. Guarino succeeds in not over-interpreting the data provided in the journal article, but this may simply be a consequence of Guarino’s focus on eye-catching numbers such as the 2.7 million structures built by the Maya that would have supported 7 million to 11 million people (Guarino 2018). By avoiding the “how” and “why” questions regarding data interpretation, Guarino avoids over-interpretation, and this is aided by the definitiveness of the journal article.

The overall quality of the news coverage is decent, although the article’s shift in focus to promoting LiDAR technology detracts from the overall presentation. The video accompanying the article successfully captures the scale of the research, and Guarino does note some important observations and inferences such as the 60 miles of causeways, roads and canals that connected cities; large maize farms; and, surprisingly, defensive fortifications that suggest the Maya came under attack from the west of Central America. (Guarino 2018). These observations and inferences are presented without all the justification required of a scholarly article. This is appropriate as the skepticism of a general audience is much lower than that of a scientific audience. Unfortunately, the latter half of the article revolves around the ineffective consultation of experts as it merely repeats the notion that lowland Maya civilization is now perceived as more advanced and promotes LiDAR as a powerful technology. When quoting archaeologist Arlen Chase who was not involved in the survey, Guarino focuses on Chase’s argument that, Maya society was more complex than widely accepted as evidenced by elaborate agricultural terraces at the Maya city of Caracol in Belize (Guarino 2018). This consultation of an expert does not advance the notion presented in the video that Maya civilization is more complex than we originally thought, and it only serves to repeat this argument without relating it back to the scholarship. Guarino later dedicates an entire paragraph to explaining and praising LiDAR technology when he states, “Lidar’s principles are similar to radar, except instead of radio waves lidar relies on laser light…Using lidar, you can’t see the forest through the invisible trees. Beneath the thick jungle, ruins appeared. Lots and lots of them” (Guarino 2018). Both the length of this explanation and Guarino’s language laud LiDAR technology, and this is furthered by consultation with expert Sarah Parcak who Guarino prefaces as a “champion” of using satellite data before quoting her superlative that the scale of collected information is unprecedented (Guarino 2018). Once again, Guarino is simply restating an established premise—that LiDAR is a new, powerful archaeological tool. It should be noted that the journal article does acknowledge this development by stating, “lidar technology represents a watershed event in archaeological survey of forested environments” (Canuto et al. 2018: 14), but this does not warrant the level of repetition and re-emphasis provided in the newspaper article. The intended audience of a popular media article has a much shorter attention span than a scientific audience analyzing a scholarly article. Researches are skeptics and want to know the details and methodologies of a study. A more general audience would rather learn about “cool” technology than link data to inferences.

Guarino’s newspaper article successfully captures the scale of the data collection and avoids over-interpretation of the data presented in the journal article. However, it ineffectively uses expert consultations to repeat that Maya civilization is considered more advanced and that LiDAR technology is powerful. The newspaper article does highlight key observations of the PLI data, but its discussion of linking data to inferences and future research questions is lacking. Overall, Guarino’s focus on technology and expert attitude shifts is more appealing to a general audience as it avoids the critical thinking involved in a scientific journal article.

Works Cited

Canuto, Marcello A., et al. “Ancient Lowland Maya Complexity as Revealed by Airborne Laser Scanning of Northern Guatemala.” *Science*, vol. 361, no. 6409, 2018, doi:10.1126/science.aau0137.

Guarino, Ben. “This Major Discovery Upends Long-Held Theories about the Maya Civilization.” *The Washington Post*, 27 Sept. 2018.

Intro:

* Introduce articles
* Thesis statement (critique/praise of scientific reporting with respect to articles)

Paragraph 1a/1b:

* Summary of each article (~4 sentences)
* What is argument, time methods, place ,data
* Who is writing argument

Paragraph 2:

* Overlooked uncertainties (not really as the PLI data was very supportive of the journal article’s conclusions)
* Overlooked implications/future progression of research (LiDAR is just the start is addressed w/one sentence in Washington post article, but why do we need to do further work (see notes (i)-(v))

Paragraph 3:

* Quality of news coverage is OK – Obviously omits gratuitous methodology in paper
* Does a good job in representing unprecedented (large) scale w/regards to data used (lots of #s)
* Does a poor job in terms of talking about connections between data->interpretation: (how/why do we now think the maya are more complex based on the data)
* Too much focus on LiDAR technology, outside expert quotations mostly used to hype up the tech (though the journal article does state that LiDAR is a “watershed event”

Conclusion

* News article isn’t terrible, represents scale of study OK. Briefly mentions some conclusions/key observations
* Too much focus on sensationalizing LiDAR as a technology, poor use of outside experts
* Fails to connect how/why we now think Maya are more complex to the data