

Creating Accessible Data Journalism: Communicating Social Issues Effectively
Using Numbers

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ABSTRACT

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Much existing data journalism literature chooses to focus on *how* to create data journalism; comparatively little research has examined how audiences react to elements of data journalism. In examining this subject, this research aims to determine specific elements of data journalism that can be applied to general news production. By creating a scale of numerical complexity, creating pieces of test journalism along this scale, and presenting the resulting articles in focus group discussions, this research found that data plays the specific role of corroborating a human experience, but cannot replace it in a traditional story structure. However, focus group participants viewed the inclusion of numerical information as essential evidence in an article. In short, this research finds that accessible data journalism must include (1) a central character through which the story can be followed, (2) sufficient numerical information to corroborate the account presented by the main character, and (3) a visual element that offers some level of interpretation of the information to the reader, rather than solely a “data-dump.” The findings of this research can serve as a foundation for attempting to create pieces of data journalism suitable for traditional news media and general news audiences.

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1. Introduction

a. Why data journalism?

Data journalism has increased significantly in both popularity and importance in recent years. As Nikki Usher (2016) writes: “There are now vastly greater amounts of data being produced than at any time in the past. The infrastructure and experience of information delivery has evolved to seemingly erase time and space boundaries” (p.2). Canada and Quebec are no exception to this trend. Data journalism has grown significantly more popular in Quebec in the past 10 years, with 98 individuals, including 64 journalists, creating data journalism projects between 2011 and 2013 (Tabary et al., 2016, p.80). Despite a general decline of journalism jobs in Canada, the number of those working within data journalism has likely grown considerably since calculated in 2016, as technological advances and the ubiquity of open data have made the practice more accessible. Both the Radio Television Digital News Association of Canada (RTDNA) and the Canadian Association of Journalists (CAJ) hand out annual awards for data-driven storytelling. As recently as 2021, David McKie and Fred Vallance-Jones, two pioneers of computer-assisted reporting in Canada, were awarded the Charles Bury Award by the CAJ for their exceptional contributions to Canadian journalism. Also in 2021, *The Globe and Mail* released “The Power Gap” (Doolittle & Wang, 2021) a year-long series of investigations that examined the gender imbalance in positions of power in corporations and government organizations. *The Globe*, in an analysis of hundreds of public sector salary records, found that women are outnumbered and out-earned by men in high-ranking positions (Doolittle & Wang, 2021). The articles using the data gathered by *The Globe* stretched from the initial feature in January 2021, all the way until Dec. 31, 2021, and demonstrated a significant commitment from

the outlet. The series, which includes data visualization and interactivity, won the award for data journalism at the CAJ Awards in 2022.

News organizations in Canada have shifted to digital formats, and data journalism has become a key component of this shift. In 2017, Hermida and Young published their study of the hybridity of digital news in Canada. One of their participants, a journalist from a legacy print organization, said “that his firm got ‘on board with the concept of data journalism’ because ‘they thought it was a good digital first strategy and ... a uniquely digital sort of form of storytelling’ and a way of the future” (Hermida & Young, 2017, p.169).

A commonly cited reason for the increased popularity of data journalism is the notion of approaching ‘objectivity’ through relying on numbers and following the scientific method. Philip Meyer first presented this notion in *Precision Journalism* in 1973: “journalists who adapt the tools of the scientific method to their own trade can be in a position to make useful evaluations with the more powerful objectivity of science” (Meyer, 2002, p.10). Anderson (2018) offers similar evaluations of the field: “true to what Meyer’s notion of what good journalism ought to be, data journalism used data, filtered through social scientific practices, to craft traditional news narratives, combined with a more professional, robust notion of what ‘objectivity’ was (a bias toward reporting ‘the truth’ rather than giving all sides a hearing)” (p. 174).

However, while recent scholarly work has investigated how journalists apply data-driven methods (e.g., Hermida & Young, 2017; Vallance-Jones & McKie, 2017; Hahn & Stalph, 2018), research on data journalism has often discounted the audience. Questions about why certain readers gravitate towards data journalism projects remain largely unanswered. Data journalism typically attracts a certain type of readership more drawn to quantitative research methods and

active involvement in the data collected for a news story (Hahn & Stalph, 2018). Many practitioners believe that “the most important thing you can do with your data is share it as widely and openly as possible. Enabling your readers to check your work, find your mistakes, and pick out things that you might have missed will make both your journalism, and the experience for your reader, infinitely better” (Gray et al., 2018). Yet, this level of interaction is certainly reserved for those who are passionate about the subject matter or social science methods more broadly, and not necessarily the general reader. Mair et al. (2013) note:

“[Data journalism] provides transparency and allows readers to personalize the story by filtering content down to the local level, but it has the potential to sacrifice the story in order to do so — after all, the relationship between data journalist and audience is such that the journalist is there to tell the audience why this data’s interesting, and which parts are worth looking at (and, equally, not worth looking at)” (p.79).

Not every reader will desire this level of interaction and effort in their news consumption. By ‘sacrificing’ narrative information in a story in favour of emphasizing data transparency, it can be argued a reader more interested in personal narratives is unlikely to consume the resulting data journalism project. This prompts the question of how data journalism can be made more accessible; in other words, what aspects of data journalism can appeal to wider audiences, beyond those interested in interacting with the minutia of data. Bounegru and Gray (2021) argue that data journalism is unique in that “the ‘story’ depends upon the user as much as it does on the journalism” (p. 372). As opposed to narrative or traditional journalism, “data journalism tends to focus on individual audience members as the potential unit for change, providing audiences with credible information so that they may become more knowledgeable and, by extension, make

more informed decisions” (Bounegru & Gray, 2021, p. 373). This is a marked difference from some traditional journalism methods, which tend to think of the audience as an abstract whole, rather than a collection of individuals. “A case study of local education reporters in New York City suggests that while journalists are open to engaging with readers, the ways in which they form audience perceptions remain largely unchanged despite the rise of audience metrics and analytics. These journalists still find it difficult to determine whether their work is actually resonating with the readers they seek” (Robinson, 2019). Data journalism’s emphasis on the individual has that resonance as a key goal of the practice: key tenets like sharing raw data and interactivity are included with the goal of inspiring the reader to make informed decisions.

Beyond the sacrifice of narrative information, many have difficulty connecting to data journalism due to an aversion to numbers. Joel Best argues that this aversion is twofold: both journalists and the general public they serve can fall victim to innumeracy. “Innumeracy — widespread confusion about basic mathematical ideas — means that many statistical claims about social problems don't get the critical attention they deserve” (Best, 2012). Best (2012) advises to “never overestimate the understanding of an innumerate public.” However, the issue doesn’t stop with the general public being innumerate. Many journalists themselves are uncomfortable dealing with numerical information (Best, 2012). If a journalist comes across a bold statistical claim, many can be tempted simply to repeat it, rather than think critically about who collected the data and how. “A new social problem is a fresh topic, and it may affect lots of people, pose dramatic threats, and lead to proposals to change the lives of those involved. Media coverage, especially sympathetic coverage, can make millions of people aware of and concerned about a social problem.” (Best, 2012, p.15). This innumeracy from journalists, as Mair et al. (2013) note, has the potential to be extremely harmful:

“First, their inability to handle numbers means they miss stories or are unable to identify the magnitude of a story, either carrying stories that are not in fact very newsworthy as though they are or failing to identify that the event is a potential news story because they have failed to see its significance. This makes them easy game for unscrupulous PR practitioners and spin doctors able to use figures to present a case or cover up a story. The second problem is that even if the journalist does serve his or her audience properly and identify a story, they may not have the arithmetical skill to present it accurately” (Mair et al., 2013, p.169).

This inability for many journalists to understand basic statistical principles is one that I believe is worth exploring. The reliance on traditional narrative storytelling methods, in my view, can be partly explained by the fact that many journalists simply don’t have the skillset to depart from it. Anderson (2018) prescribes “that a facility with data, government records, and basic quantitative skills should be a part of the toolbox of *every* journalist, not simply those working on investigative news stories” (p.127).

Data visualization is an integral part of data journalism. In many definitions of the practice, there is reference to transmitting information visually, rather than simply through text (Usher, 2016; Vallance-Jones & McKie, 2017; Wong, 2010). Creating visual presentations of data is a distinguishing factor in data journalism: “[t]his claim to special knowledge implies that journalists know something that others do not: how to manipulate data or to render information in a visually meaningful and easily understood way, or how to create something entertaining and informative that ordinary people cannot” (Usher, 2016, p.35).

Data visualization offers readers the opportunity to interact with a story in ways unavailable in more traditional methods. Hahn and Stalph (2018) list a number of features offered by data visualizations:

- “Inspect: get details about something specific, for example, hover or click on an element to get more information,
- Connect: show related items, for example, by clicking on one element to highlight similar ones for comparison,
- Select: highlight element to keep track of it, for example, in an animated graph,
- Filter: show something conditionally, for example, select one country from a drop-down menu,
- Abstract/elaborate: show more or less detail by zooming in or out,
- Explore: input a query to see ‘something else’, [and]
- Narrate: for example, a stepper-button that guides the reader to next part of the story” (p. 125).

These varying levels of interaction offer readers different avenues of gaining knowledge on the subject matter. The information arrives to the reader in a way that allows them to digest it in a way that matches their preference. Visualizing information as a part of an article provides the audience with more opportunities for participation and involvement in their own knowledge gathering.

However, data visualization can be a risky proposition for journalists. Beyond the issue of misunderstanding numerical concepts (Best, 2012), which would immediately hinder any attempt at visualizing data, journalists with a lack of formal training in visualization may not

have the necessary skills to accurately portray an issue, among other potential concerns. As Hahn and Stalph (2018) note: “1. There is a lack of knowledge about the principles of information visualization, of how to effectively represent data and/or 2. There is a lack of time/people/experience to create customised solutions, so that freely available tools and platforms become shaping factors” (p.128). When journalists are forced to rely on “out-of-the-box” tools, they are greatly limited in their visualization options. Programs like Tableau and Datawrapper that take in a dataset uploaded by the user and churn out a visualization with limited customizations are certainly useful for simple graphics but make more nuanced visuals very difficult. Reliance on this software, coupled with a lack of numerical comprehension, can result in data visualization that does little to inform the reader, and risks inaccurately communicating the data.

While data journalism has become more popular in recent years, it has remained relatively niche, especially in the Canadian context. This research focuses on investigating how to create data journalism that is more accessible to general news audiences. Through original story creation centred on housing issues in Montreal and through focus groups with audience members, this research seeks to determine what aspects of data journalism connect with readers, and which aspects can be confusing or superfluous. This research reveals that while many focus group participants find high amounts of numerical information to be confusing in a news story, there is a positive correlation between the amount of data in a story and the amount of information it offers to the reader about the subject matter. Though stories rich in numerical information can be difficult for audiences to digest, focus group participants reported having a more comprehensive view of the issue thanks to the inclusion of data.

b. Why focus groups?

The decision to use focus groups in my research is rooted in the desire to gain first-hand perspectives from student-journalists. Using a focus group method provided me with an opportunity to directly observe groups discussing my topic of interest, and collect qualitative data from these discussions (Morgan, 1997). I obtained first-hand perspectives into what student-journalists think when they consume a story with and without data journalism elements. Student-journalists offer a unique perspective on this topic (see Chapter 3c and Chapter 6b), as they are simultaneously very familiar with traditional news structure, but underexposed to more complex data journalism elements (Heravi, 2018). Through these group interactions, I gained insight into how participants view this subspecialty of journalism. “From the researcher's point of view, this process of sharing and comparing provides the rare opportunity to collect direct evidence on how the participants themselves understand their similarities and differences. This actual observation of consensus and diversity is something that can happen quite powerfully through group interaction” (Morgan, 1997). In my discussions with the students, I was able to observe this process of agreement and disagreement. There were several instances where the group appeared to reach a consensus about a strength or weakness in a certain article, and others where the students debated the inclusion of certain elements. This debate encouraged the students to think critically about small parts of the articles that I had not considered to be the central part of my research.

c. Why housing?

The articles that focus group participants read for this project all dealt with the same issue: increased housing costs in Montreal. Rents rose by nearly four per cent in Montreal in

2021; it was the second-largest such increase since 2003, lower only than the rise in 2020 of 4.2 per cent. However, a more pressing issue is the vacancy rates on the island. While vacancy rates in general have gone up across Montreal due to a variety of pandemic-related factors, availability of low-income housing has become scarce. Community advocates say that this creates a precarious situation for a lot of tenants, and gives landlords an inordinate amount of power to discriminate.

The reason for the focus on housing is two-fold. (1) There is a significant amount of publicly available housing data in Canada, and (2) stories about housing can easily be presented quantitatively (both through geographic and economic information presented on maps, charts, and graphs) and narratively. They are rife with personal and emotional information, tenets of traditional storytelling, while also containing the elements necessary for data journalism.

By keeping the subject consistent across the three articles tested in this research, I was able to examine how data journalism methods contribute to the content and presentation of an article. I wanted to compare the different elements that quantitative information brings to the story with the qualitative elements of a traditional news story. In order to do so, these articles were created following a scale of data journalism and numerical complexity based on the existing literature. The articles all deal with housing issues in Montreal, though their presentation varies greatly based on the amount of data included in the story. This was done with the aim of isolating the impact that data journalism elements have on the articles.

I believe that data journalism and data visualization act, as Edward Tufte (2007) describes, as a *better* way to communicate an issue, as opposed to simple text or other multimedia methods. I believe that many news outlets operate under the assumption that

traditional news structures are the most effective at communicating and connecting with their audiences, without ever questioning them. My project seeks to clarify how these structures can be improved through the inclusion of data journalism elements.

Thus, my research is driven by the following three research questions:

RQ1: How can existing literature inform criteria for effective data journalism?

RQ2: How can these criteria be applied to the production of data journalism?

RQ3: How do audiences react to data journalism stories produced using the theoretically-informed criteria mobilized in this research?

This research aims to provide some context for the growing popularity and influence of data journalism in Canada and Quebec. By examining the aspects of data journalism that make it effective in communication, my research attempts to establish a baseline for impactful data journalism that provides the necessary context of a particular issue, as well as potentially inspiring a reader to act against it.

2. Literature Review

The intersection of quantitative methods and journalism has seen intermittent periods of popularity and scarcity. “[Journalists in the early 20th century] preferred to largely dismiss the availability of contextual quantitative information and continue to focus on chronicling the myriad of ‘incidents’ that created the fabric and texture of American life” (Anderson, 2018, p.18). Anderson (2018) credits the Men and Religion Forward movement of the early 20th century for introducing the application of social science methods—specifically surveys—to a broader audience. The group joined the fields of sociology and journalism, which had not had a consistent relationship prior to that point.

With the introduction of computer-assisted reporting (CAR) and the “precision journalism” championed by Meyer, data journalism became more prevalent in the 1970s. Meyer was an advocate for the application of the scientific method to the practice of journalism. “Scientific method is still the one good way invented by humankind to cope with its prejudices, wishful thinking, and perceptual blinders” (Meyer, 2002, p. viii). Meyer believed that relying on information, anecdotal or otherwise, collected by other people, was not compatible with journalism’s goals of pursuing ‘truth’. Precision journalism stipulates that journalists should gather their own data using surveys, and use data-analysis software like SPSS. While far less advanced in technological innovation than current iterations of data journalism that rely heavily on computer programming, CAR was an important technological innovation at the time. In line with previous trends, its arrival was met with mixed reactions.

Zelizer notes that this mixed reaction “suggests a somewhat reactionary character to the act of technological adaptation — in that technology appears to take hold despite the fact that its

practitioners have not thought fully about what it means, what it implies, or how it affects the surrounding standards of practice” (Zelizer, 1995, p. 88). This reactionary character still defines journalism’s relationship with technology, despite the evidence that “technological change does not occur in isolation nor does it predetermine outcomes. Nor is technology either neutral or revolutionary. Rather, it is historically and culturally situated, contingent on the systems within which it is deployed” (Hermida & Young, 2019, p. 70). Meyer warned against the hesitancy that many journalists felt with regards to this shift. “When a quantitative change reaches a certain magnitude, however, it becomes a qualitative change. Some current objections to precision journalism are based on the assumption that a change in magnitude is taking place or is likely to take place in the future” (Meyer, 2002, p. 232).

The prevalence of data journalism has become even more stark with the digitization of news. Digital news ecosystems invite a new breed of journalists to participate in news-gathering. Despite journalism’s hesitance towards technological change, newsrooms have been forced to become accustomed to new digital realities (Usher, 2016). “We saw that there were changes in staffing—new people with new technical chops who were treated with great respect and authority in the newsroom, amid the hopeful industry discourse about what these journalists might bring” (Usher, 2016, p.x). Many modern newsrooms view data journalism as an essential factor in their news coverage; skills in a digital ecosystem often go hand-in-hand with data journalism.

This shift in newsroom dynamics has caused a similar change in data journalism scholarship. While Meyer’s influential text acted as an attempt to convince practitioners of the values that would eventually inspire data journalism, including the application of the scientific method and an emphasis on reliability, modern scholarship about the field is very different.

Ausserhofer et al. (2020) note that before 2010, only a small number of isolated research publications dealt with the topic of data and journalism; now, several major journalism-focused academic journals publish articles about data journalism regularly. While no academic articles about data journalism included in their corpus were published from 2001 to 2009, and only two data journalism articles were published in 2010, the number rose to 11 in 2014 and 12 in 2015 (Ausserhofer et al., 2020). A search of Concordia University Library's database for peer-reviewed articles about data journalism returns 218 results published since 2012.

An important aspect of current data journalism scholarship is interviews with practitioners. As Ausserhofer et al. (2020) note: "Qualitative interviews were by far the most common method (25 publications) used within the examined literature corpus. Many of them were in-depth interviews that followed semi-structured guidelines and were conducted with practitioners and/or experts" (p. 960). These interviews offer insight into the workflows and common practices of data journalists. As these practices differ widely between publications, the case study approach to data journalism research can also be very illuminating. Hearing from an *Al Jazeera English* data journalist in Nikki Usher's *Interactive Journalism* (2016) or student-journalists working with artificial intelligence (Anderson, 2018) offers perspectives into how the field is evolving on a practical level.

Despite slightly varying definitions of the practice¹, both Usher (2016) and Anderson (2018) believe that data journalists play an important role within their newsrooms, as well as in

¹ In the context of their book, Usher (2016) defines a data journalist in relation to programmer journalists and hacker journalists. Compared to those two, who Usher defines as having at least an intermediate level of coding skills, the data journalist is more akin to the traditional computer-assisted reporter introduced by Meyer (2002) in 1973. They use digital methods to analyze data to complement traditional news stories. Anderson's (2018) definition of data journalist is centered on the journalist's usage of social science methods in the pursuit of the truth. In short, Usher's definition hones in on the tools deployed by the reporter, while Anderson's is more concerned with the theoretical framework chosen to inch closer to objectivity.

the goal of truth-telling generally. This skillset affords this type of journalist both a renewed sense of authority, as well as clout within their own organizations (Usher, 2016). Practitioners, both historically (Anderson, 2018) and more recently (Usher, 2016), bring innovative methods and an experimental “see-for-yourself” approach that other subspecialties in journalism don't offer. Usher defines interactive journalism as “a visual presentation of storytelling through code for multilayered, tactile user control for the purpose of news and information” (2016, p. 3) and adds that practitioners “challenge how traditional journalism does its work and introduce ideas about openness, self-discovery, making, narrative, and the personal that have not existed before” (p. 208). Data journalism is constantly evolving by nature; the practice’s links with technology mean that it does not remain stagnant.

The Data Journalism Handbook (Gray et al., 2018) is another important example of literature that combines the analysis of data journalism pieces and interviews with practitioners. By examining specific examples of this type of work, this resource demonstrates the required aspects of data journalism, and how best to achieve them. With sections called “Why is data journalism important?” and “Why journalists should use data,” the handbook advocates for the inclusion of data in journalism. “In an era of narrowly-focused media that is often tailored towards audiences with a particular point of view, data vis – and data journalism in general – offers the tantalising opportunity for storytelling that is above all driven by facts, not fanaticism” (Gray et al., 2018). The handbook encourages readers to think critically about data, as well as the potential for public involvement in data practices.

Much of the literature in this field specifically related to data visualization is practical in nature and has focused on how to accurately present information in the form of charts or information graphics. *The Wall Street journal guide to information graphics* (Wong, 2010),

Visualize this: the flowingdata guide to design, visualization, and statistics (Yau, 2011) and *The functional art: an introduction to information graphics and visualization* (Cairo, 2013) all provide practical advice for how to design charts suitable for a journalistic audience. “Charting is a powerful tool that puts a series of numbers in close proximity to each other. The numbers in a chart convey information to the reader both visually and narratively. The same set of numbers looks more concrete and precise when charted than when presented in a story or a caption” (Wong, 2010, p. 22). Texts of this nature instruct readers on the necessary steps to create an accurate visualization, while arguing that visualizing information allows readers to connect with information more efficiently than through text exclusively.

In the past few years, numerous handbooks and textbooks covering the practical elements of data journalism have been published. Whether they are concerned with research methods (Vallance-Jones & McKie, 2017; Houston, 2019), or best practices for visualization (Cairo, 2013; Wong, 2010; Yau, 2011), these data journalism texts are often written with the goal of instructing the reader to become a stronger practitioner. Comparatively few texts analyse the impact that data journalism methods have on the communication of social issues and ideas.

My research differs from existing research in several key aspects. *Visual Explanations* (2007) by Edward Tufte, which details several key aspects of effective information design and visualization, is an important reference point for my research. However, while Tufte offers advice on how to communicate effectively in a general sense, my focus remains specific to works of journalism. My research applies the methods discussed in Tufte’s work to data journalism practices. *Visual Explanations* examines the most effective ways to present information. Tufte (2007) argues that though one may be correct in their premise, the inability to present their information in a convincing and understandable fashion can negate the validity of

their point. My research extends this premise to the presentation of information in a journalistic context. If information is published without giving the manner of presentation proper reflection, it risks being easily misinterpreted.

Nikki Usher's *Interactive Journalism* (2016) is also relevant to the overall problem, as it places an emphasis on the audience. Through their definitions of interactivity, Usher examines journalism projects both through the lens of the producer and the audience. They attempt to examine why readers are drawn to interactive journalism, and what exactly constitutes interactivity. My research emphasizes the importance of data and visualization as a method of communication, rather than examining newsroom dynamics impacted by data journalism as Usher does in *Interactive Journalism*.

Meredith Broussard's *Artificial Unintelligence* (2018) explores the limitations of technology and innovation. Technology and data are created by humans, meaning they often contain the same biases that humans do. Overreliance on technology, in turn, reinforces social inequities rather than working to solve them. To believe the opposite is what Broussard calls technochauvinism: the belief that technology can fix anything and everything (as well as that any new technology is better than a previous iteration). In my own research, I lean on Broussard's warnings against technochauvinism. To view data and the scientific method as objectively superior to other methods lacks the nuance required to produce strong journalism. While I am partial to data journalism methods, *Artificial Unintelligence* stresses the near-sightedness of relying exclusively on technology.

Precision Journalism by Philip Meyer (2002) examines the role of social sciences in journalism, taking a particularly detailed look at quantitative methods in the practice. He

embraces the broad application of the scientific method to journalistic projects. My research examines the use of these methods in a practical journalistic context. I attempt to discover if the application of the scientific method, or social science methods more generally, indeed make reporting more accurate as Meyer purports, or confuses the audience by relying too heavily on numbers, which can be a problem for audiences with generally low data literacy and numeracy levels (Best, 2012).

Much of the existing data journalism literature often serves one of two purposes: acting as a practical guide to journalists who may want to incorporate data into their work, while simultaneously trying to convince the reader of the benefits of data, or examining the dynamics of the interactions between data journalism and more traditional forms in the modern newsroom. The literature generally treats data journalism as beneficial for the journalist, as a method of wielding authority and objectivity (Meyer, 2002; Anderson, 2018). While I believe this to be true, the more important perspective is that of the reader. In what ways is data journalism beneficial for the audiences who consume it? Is there a way to bring data journalism to a more general news audience that leans on those benefits?

My research aims to explore the benefits and drawbacks of data journalism from the perspective of the reader, with the aim of making the practice more accessible, rather than simply assuming data journalism's effectiveness. In my analysis of data journalism, I play with levels of numerical complexity, presence of the human element, as well as the presence of a visual element in a news article, to determine what aspects of data journalism, and indirectly, traditional journalism, are most effective to the goal of making data journalism more accessible.

3. Theory and Method

This research was conducted in three main steps: (1) creating a scale of numerical complexity in a journalistic context based on the existing literature, (2) creating pieces of journalism that correspond to the scale defined in step 1, and (3) testing these stories with audience members using focus groups. The following section will outline the theory and reasoning for approaching the topic using these methods.

a. Scale creation



Figure 1: Scale of numerical complexity and corresponding article components

Using the texts outlined in the Literature Review section, I created three distinct categories of numerical complexity in a journalistic context. In each category, data sources and human sources are assigned varying importance. As such, the three categories are ordered along a scale, with complete reliance on human sources on one end, and complete reliance on data sources at the other. While the literature cited in this thesis does not advocate for the extremes I have presented here, such as a total reliance or complete exclusion of human sources, I am taking an exaggerated approach to the notions of data and objectivity for the purpose of this research. The different parts of the scale deal with the individual components of an article very differently. The following section will outline these components and their treatment on the scale based on the existing literature.

Angle

The three portions of the scale will deal with the issue of the housing crisis from slightly different angles. The narrative-heavy side of the scale relies primarily on an appeal to emotion. As the information contained in the narrative-heavy story is more focused on a human source's personal experience with the issue, the story naturally takes an angle that leans more heavily on emotional appeal.

The number-heavy side of the scale uses a much more measured approach in its appeal to the audience. Rather than calling on an emotional connection, this side of the scale relies on a purely informational approach. As this side of the scale completely eliminates the presence of human characters, the angle it takes is centered on giving the audience the large-scale view of the issue from a perspective that relies on defining the issue at hand and explaining its scope, rather than providing an example of the issue in a personal context.

The story at the mid-point of scale combines the elements of these two extreme approaches. It will contain portions of the emotional angle, relying on the presence of characters to explain their own positions and experiences with regards to the housing crisis. It will also contain elements of the informational angle, using data to explain how rent has increased significantly in Montreal since 2016. The angle of this story is explanatory: it will seek to explain the scale of the housing crisis through a mix of narrative and numerical elements.

Authoritative sources

The narrative heavy side of the scale considers Broussard's warning against viewing data as objective and authoritative: "[w]e assume that because there is data, the data must be true. Note the first principle of this book: data is socially constructed. Please let go of any notion that data is made by anything except people" (Broussard, 2018, p.18). Perhaps more importantly to my research, Broussard stresses the importance of relying on sources outside of data to form ideas: "because social decisions are about more than just calculations, problems will always ensue if we use data alone to make decisions that involve social and value judgments" (Broussard, 2018, p.119).

Beyond the drawbacks of relying on data as a lone source for information, this portion of the scale hones in on the human element of social problems.

"People use statistics to support particular points of view, and it is naïve simply to accept numbers as accurate, without examining who is using them and why.

We tend to think of social problems as harsh realities, like gravity or earthquakes, that exist completely independent of human action. But the very term reveals that this is incorrect: social problems are products of what people do" (Best, 2012, pp. 13-14).

Best, here, echoes the sentiment introduced in this research by Broussard (2018): data is a social construct. With this in mind, it's important to think critically about its origins, and avoid accepting it as 'objectively' true. The narrative-heavy category offers the lowest level of numerical complexity on the scale, and creates pieces of journalism that rely exclusively on human sources.

The number-heavy side of the scale is based on Meyer's *Precision Journalism*, and as such, values scientific sources as authoritative. Meyer is a fervent believer in applying the scientific method to practices of journalism. He posits that a reliance on data and science offers journalists a claim at objectivity that simply isn't available through other methods, going as far to say that using traditional methods to reach objectivity assumes that all voices have an equal claim to the truth (Meyer, 2002). The solution to this, Meyer outlines, is to rely on the same methods of science in order to provide authority to reporting. In my application of this part of Meyer's work, this category offers the highest level of numerical complexity on the scale, and creates pieces of journalism that rely exclusively on numerical (data) sources.

Everyday/lay sources

The three points on the scale will deal with everyday or “non-expert” sources very differently. The narrative-heavy side of the scale views these sources as essential to an article:

“Sometimes, the temptation is to proclaim ‘mission accomplished’ once you have acquired what you think —or hope—is a killer dataset. But this is a mistake. There is a lot of work that goes into showing the impact of your story, which begins with the need for traditional legwork; shoe leather, as the old saying goes. Showing the impact also means explaining how your data affects people” (McKie & Vallance-Jones, 2017, p. 246-247).

Key pieces of data journalism literature, like McKie and Vallance-Jones's *The Data Journalist* (2017) dictate that traditional reporting techniques, namely making every effort to talk to people and how they are impacted by the issue, are non-negotiable. Narrative elements

gathered through traditional reporting techniques must be included in any piece of journalism, including data journalism, to demonstrate the importance of the issue to the audience.

By several definitions (Usher, 2016; Anderson, 2018; Meyer, 2002), data journalism is viewed as a combination of traditional narrative elements, with added technical and mathematical components:

“To make this new story a reality, the old skills of a narrative journalist were combined with new storytelling abilities that relied on knowledge of code and a deft understanding of how to think about creating content for the new capacities of the Web” (Usher, 2016, p.1).

This places a strong emphasis on the importance of the human element in a piece of journalism—even one with important data and numerical elements. It implies that storytelling is a required tenet of journalism; an article cannot exist without the traditional human element. Data journalism practitioners are forced to reckon with the idea of injecting more traditional narrative elements into their work in order to make it more relatable for general news audiences and gain necessary readership. As traditional journalism methods still dwarf data journalism in popularity and influence, the latter must conform to the former:

“As we have seen, though, literature about subgroups in professions suggests that the subgroup will ultimately be forced to take on the dominant group’s norms. In some ways, we can see this happening through interactive journalism’s insistence on narrative: every interactive, though not traditionally linear, must have some sort of story embedded in it” (Usher, 2016, p.181).

Usher here points to the notion that journalism reliant exclusively on data and numerical elements is a rarity. Data journalists insist on the inclusion of these traditional narrative elements, keeping the structure and form of their work recognizable and digestible in traditional spheres. The narrative-heavy point on the scale acknowledges the norms of traditional journalism, which acts as the dominant group over data journalism.

The number-heavy point on the scale does not treat traditional journalism methods, notably the inclusion of lay sources, with the same reverence. Choosing to give a story a treatment that leans more heavily on data implies that the journalist believes the treatment to be more appropriate than relying on anecdotal information:

“Journalism, as a profession, dedicated to the formulation of public knowledge, could not simply content itself with the chronicling of individual events or public utterances without any regard for what those utterances and events meant or how they fit into a larger schema of social facts” (Anderson, 2018, p.113).

This definition of journalism by Anderson places narrative information and data at opposing ends on a spectrum of factual information. It implies that data offers the context in which these individual events occur; to focus on the individual events rather than the larger scheme is to fundamentally misunderstand the role that journalists play in the formulation of public knowledge. Rather than seeing the data journalist as someone who must bend to the norms of traditional storytelling, Meyer and Anderson believe that journalists must reassess the way they think about the type of information they publish. Anderson’s research places an emphasis on the comparison between the social scientist and the journalist. The Russell Sage Foundation, which offered Meyer a stipend to write the manuscript that eventually became

Precision Journalism, examined this relationship greatly. James Byrne, a fellow of the foundation, wrote that “a reporter is in deep sympathy with the social science researcher. Both want to understand man in society and communicate their findings to a receptive audience. It is an unimaginative reporter, indeed, who chases fire trucks and does not wonder if fire protection can be improved” (James Byrne to the Russell Sage Foundation, 1970). Here, the literature states outright that to rely only on narrative information is extremely limiting. To exist on the narrative-heavy extreme of the scale misses the fundamental goal of journalism: to formulate public knowledge. Anecdotal information does not bring the reader closer to a state of *knowing* an issue, by this definition. This notion is the basis for both the existence of the narrative-heavy extreme on my scale.

The third category acts as a balance between those two extremes. It recognizes the appeal and authority of numerical sources (Meyer, 2002; Anderson, 2018) while also acknowledging the importance of human contributions and opinions (Broussard, 2018). It is based primarily on the practical guides and current data journalism textbooks (Vallance-Jones & McKie, 2017; Houston, 2019; Cairo, 2013). Rather than completely reshaping the traditional journalism model, this category on the scale adds a component of data to a traditional news structure, whether that be a visualization or slightly more complex integration of numbers. McKie and Vallance-Jones stress the importance of data *components* becoming more commonplace: “I dream of a day when the term ‘data journalist’ will sound as silly and redundant as ‘interview journalist’, ‘storytelling journalist’, or ‘fact journalist’. Data is — or at least should be — a standard part of the toolkit of every journalist, not something to be handled only by an elite corps of stats geeks and computer-assisted reporters” (Vallance-Jones & McKie, 2017, p. x). This point on the scale purports that

“[in] other words, the data tells you what, and people tell you why” (Vallance-Jones & McKie, 2017, p.249). This category offers a balance of human and numerical (data) sources.

Visual element

The three points on the scale use different visual elements to complement their articles. The narrative-heavy story, true to its compliance with traditional journalism methods, will use a generic image as its visual component. This image will imitate a common practice in news media: using a generic image when finding a more fitting one is impossible on a deadline. The image will attempt to make the narrative-heavy article more recognizable as a traditional news article to the readers.

The number-heavy article, much in line with its general angle, will seek to offer more information to the reader through its visual component. The goal of the visual at this point of the scale is to present a large amount of information on the housing situation in Montreal, and allow the reader to identify their own situation in that information. While not interactive in the programming/digital news sense, this visual element will allow the reader to explore the data on a micro-level. With that said, a piece of journalism on the number-heavy side of the scale, while upping the numerical complexity in comparison to more traditional narrative styles, should not be so complex as to confuse the reader. It does not attempt to oversimplify complex topics by distilling them down to a single anecdote, but at the same time, tries to remain accessible. To do so, pieces of journalism on this side of the scale can offer elements of interactivity: a piece of data that the reader can apply to their own life. “Interactivity can have a positive effect on ‘reducing political misperceptions.’ It can help in understanding a topic more accurately and

inspire more thoughts (Geidner et al., 2015). Interactivity could lead to ‘more favourable attitudes towards an article for users low in involvement’” (Hahn & Stalph, 2018, p.126). While the reader is not offered a character as an avenue of connection, they are given the chance to find their own situation in the data being presented. There is a level of involvement offered by the number-heavy story, in this scenario.

The data journalism point on the scale offers a visual element that offers more information than the image included in the narrative-heavy story, without the interactivity offered by the number-heavy story. It is a static data visualization: a bar chart showing the rent increases in Montreal over a five-year period. At a glance, a reader will be able to see a steady increase in the cost of housing in Montreal, offering them a brief explanation of the issue. The visual element in this story serves to explain the situation to the reader in an instant, rather than offering an in-depth interaction.

Purpose

With all of this in mind, the three points on the scale have different goals in what they intend to provide to the reader. The narrative-heavy story intends to call the reader to action. Due to the fact that the article relays the story of a central character experiencing misfortune in the housing market in Montreal, the reader may feel compelled to act from a feeling of empathy. This point on the scale uses an appeal to emotion as its central angle, with the ultimate goal of inspiring readers to act.

The number-heavy point in the scale has the primary purpose of informing the reader. Rather than focusing on characters or emotions, this point of the scale prioritizes quantitative

information. The goal for this point on the scale is to provide the reader with as much information as possible; what they choose to do with that information, or how they choose to interpret it, is left to the reader themselves. This point on the scale aims to give the reader as much context on the issue as possible in a short article.

The data journalism point on the scale aims to explain the issue to the reader at a glance, as well as offer some kind of relatable aspect to inspire the reader to act. The numerical information in this story is simple, and rather than offering the reader a chance to situate themselves in the data, the data in this story will explain a simple key concept of the issue, without investigating details. The goal of this point of the scale is to provide readers an understanding of the issue quickly, both through the contents of the article which are centered on a broad understanding of the issue rather than emotion, as well as in the visualization.

Other thoughts on scale creation

When attempting to create a scale of numerical complexity in a journalistic context, I treat narrative information and numerical information as opposite extremes on the same spectrum. In a traditional news setting, stories often can't be longer than a set word limit. While that limit can fluctuate depending on the context and subject matter of the article, editorial decisions are made to determine what to include and what to exclude. Since an important aspect of journalism is capturing and holding the attention of an audience, journalists are not afforded the luxury of unlimited word counts. In essence, a journalist needs to make decisions on what sources they deem to be authoritative and qualified enough to transmit the information they want to transmit. In making such decisions, some information will be sacrificed. Logically, if one

wants to include numerical information in their story, this comes at the cost of sacrificing narrative information, by simple constraints of space (Mair et al., 2013).

This reliance on narrative is something I find tiresome. I believe there are instances when data journalism can be effective without the injection of a narrative element. With the speed at which data can be gathered and analysed, I believe it to be reasonable to assume that many in the perceived general news audience would be partial to a news article structured on data rather than on narrative.

The profession of journalism is dedicated to the formulation of public knowledge (Anderson, 2018). The path to do that is not as formulaic as chronicling individual events. Data journalism, in theory, offers a pathway to combine individual events with a larger context:

“One of the greatest differences here from traditional journalism is the ability to get the personalized snapshot and the large picture in one place. With traditional journalism, the attempt to create a relatable voice could be offered through a feature story, anecdote, or a quote. But the ability to search for personal experience specific to the individual is a unique result of this new near data capacity enabled through interactive journalism” (Usher, 2016, p.165).

Data journalism offers the ability to place isolated incidents within a larger context. While traditional journalism can offer relatability to the reader, data journalism can offer true interaction: the reader can find themselves in the story through personalization, rather than through empathy. Both methods attempt to engage audiences in dramatically different ways.

By this logic, it seems appropriate to put a reliance on narrative and a reliance on data on the same spectrum, at opposite ends. The prevailing sense in canonical data journalism literature is that data journalism can truly thrive somewhere in the middle of this spectrum: containing elements of narrative journalism, with some data elements sprinkled in.

However, it is my belief in creating this scale that while there is certainly room for narrative elements in some pieces of data journalism, to insist on including them as a rule seems counterintuitive. There are situations when to exist on the number-heavy side of the scale can be a more accurate and useful treatment when it comes to informing the reader of the existence of an issue, as well as the scope of that issue. Despite this, it is extremely rare, if not completely unseen, to read a story without any human element in a traditional journalistic context. My research attempts to demonstrate what each extreme of the scale might look like in practice, rather than continue to operate under the assumption that current traditional methods are intuitively superior. In short, the creation of this scale was founded on the principles of Meyer and Anderson, in that there is a way of portraying and diffusing necessary information to the general public other than relying on narrative information. With this in mind, in order to make data journalism more accessible in general contexts, journalists can draw from select elements at different spots on this scale.

Of course, different portions of this scale ask different things of the readers who consume the content. Reading a story filled with numbers requires that the reader have a certain level of numerical literacy (Best, 2012). If the reader is unable to understand the concepts in the story they're reading, then Anderson's (2018) notion of the formulation of public knowledge is not achieved regardless of the departure from traditional narrative reliance. In developing the scale,

it was important to maintain traditional journalism goals, such as the pursuit of the truth and accuracy, in mind, even if somewhat neglecting the common means to those ends. All portions of the scale, while in theory assuming different skill sets of their readers, attempt to communicate a message to a general audience on their subject matter.

b. Story production

The goal of the story production stage of this research was to put the different elements of the scale into practice. I wanted to make it possible for readers to see what the scale of numerical complexity results in when applied to journalism production. This phase addressed such questions as: What does a narrative-heavy story look like in practice? What does a number-heavy story look like in a journalistic context? What would a balance of these two extremes look like?

The simplest way to put this into practice was to create three separate articles, with each one placed at a different spot on the previously established scale of numerical complexity; one is completely reliant on human sources and narrative information, while another is completely reliant on non-human data sources. The third article blends some data journalism elements, like basic statistics and visualization, with a traditional news format. This story is at the centre of the scale.

My research aims to clarify what specific aspects of data journalism are appealing to audiences, including what parts of data journalism encourage efficient communication *of the relevance/importance of social issues*. My research seeks to determine how readers become aware of the existence of an issue, and whether or not quantitative methods are more or less

effective than traditional reporting methods in this regard. Rather than operate under the assumption that data journalism brings practitioners closer to objectivity (Anderson, 2018), my research aims to demonstrate the effectiveness of the practice: do readers grasp the issue at hand when presented quantitative methods through data journalism? As a method of communicating an issue, how does data journalism compare to more traditional methods? Observing data journalism as the intersection of narrative and visual learning (Wong, 2010), my research seeks to gain a deeper understanding of the practices that encourage understanding new information easily, and what aspects of data journalism can inspire the reader to further action.

For each story, I included specific aspects that I believed audiences may find useful for furthering their knowledge of the subject, but also some that I thought may distract readers from that aim. These include the length of the articles, the focus, and the visual elements, among others. As explored in the subsequent section, each of the three articles have deliberate strengths and weaknesses in the sources used and visual components in their attempt at efficient communication of the relevance/importance of social issues. This research attempts to determine the impact of considerations like the sources used in the stories, as well as the length of each story. There were subtle differences in these elements that distinguished the stories, other than simply their numerical complexity. These subtle differences were included as a way to place the emphasis on the numerical complexity in each story.

Narrative-heavy article (See Appendix A, Story 3)

In the narrative-heavy story, only human sources are used. There is no statistical information included whatsoever. The story is carried forward by characters, and their relation to or experience with the issue of housing in Montreal. There is conflict in the story: between a

landlord and tenant, as well as between activist housing groups and landlord associations more generally. Through the stories of these characters, and the underlying conflict between them, the reader learns about the housing crisis in the city. The quotes from the characters are the only thing that drive the story forward. There is the main character who explains their own situation, and broader “experts” included to speak to the issue as a whole.

The quotes included are what offer the emotional appeal of the story, and it is that emotional appeal that may lead the reader towards understanding the sense of importance of the social issue addressed. With that in mind, I wanted the quotes to be a bit longer in this story and therefore allow this story to be longer than the others. This story is the longest of the three, at about 700 words. Had this story been only 350 words, the understanding of the main character’s situation would have been greatly limited, and the comparison with the other stories would have been unfair. This story being slightly longer is an acknowledgement that when relying on traditional narrative forms, there is a bit more space required to gain a fuller understanding of the topic at hand. While data can inform the reader with fewer column inches and less explanation, allowing a character to explain an issue “in their own words” can be lengthier.

The main anticipated positive element of this story is that it is full of human connection. A reader will be able to see the manifestation of the social issue directly through both the main character who provides anecdotes about their personal situation and the expert sources who provide contextual information about the social issue more generally. Rather than having to wonder what the problem actually looks like based on a statistical description, the reader will be able to see how the problem manifests in everyday life. The story, if effective, will be able to establish an emotional connection with the reader.

Apart from this emotional connection, the story is easy to understand. It doesn't contain any complex jargon. Omitting statistical information in this story eliminates the risk of misunderstanding the nature of the social issue, at least as experienced by the story's main character, due to innumeracy. It presents a recognizable "he said, she said" narrative. The reader can decide which side they align with, but both major viewpoints in this argument around housing are presented for the reader. "Telling stories is how we understand the world. There aren't easy answers. We need a public conversation, a conversation that includes diverse voices, to resolve these questions in a democratic manner" (Broussard, 2018, p.187). The goal of this article is for the reader to gain an understanding, and potentially act against the housing crisis, as a result of the emotional and narrative content of this article.

There are potential drawbacks with this story, though. While easy to understand, this article lacks any substantiating evidence of any type other than interview subjects. This story is the emblem of the aforementioned "unimaginative reporter" cited by Anderson (2018), who relies solely on individual happenings, without thinking of the larger systems that cause the issues. While the narrative-heavy story is easy to understand and connect to, it's possible that a reader may find it too anecdotal. They may end up taking away a view of the issue that is far too general, or inaccurate, based solely on the main character's experience. Without any additional proof to point to the scale of the housing crisis in Montreal, a reader may read the main character's story and ask "so what?" Presenting the housing crisis as a conflict between landlords and tenants, as opposed to really diving into the rental system and its flaws, can create a false sense of balance:

“Journalists’ attempts to be objective actually force them into a relativist stance that demands the unlikely assumption that all voices have an equal claim to the truth. Journalists who adapt the tools of the scientific method to their own trade can be in a position to make useful evaluations with the more powerful objectivity of science” (Meyer, 2002, p.10).

Relying on data as a source of information brings a journalist closer to ‘objectivity’ championed by Meyer. Beyond that, it allows readers to evaluate the issue with a more complete view, rather than relying on a sole anecdote, which can lead to misinterpretation of the scale of a social issue.

The visual element of the narrative-heavy story is simply a picture of an “apartment for rent” sign. This image is included as a method of making the story more recognizable as a traditional news article. The image does not add any numerical information to the story. It is simply included to recreate the standard practice of relying on a stock image to complement a news article.

The narrative heavy story will attempt to inform the reader through conflict and emotional connection, though it may suffer from a lack of more “objective” information that can point to a larger issue. It aims to be easy to understand for the reader, but may present a false sense of balance, which may make a reader complacent about an issue, rather than inspire the reader to act.

Number-heavy article

In the number-heavy article (see Appendix A, Story 1), there is a complete exclusion of human sources and a total reliance on data to relay the information. The text doesn't act so much as a narrative in the traditional sense, as presenting relevant data to the reader about the housing crisis in Montreal and telling the reader how that data was collected. The data is placed at the centre of the story; through the brief dissection of this data and the methodology of the reports included in the article, the goal of this article is to bring the full scope of the issue to the attention of the reader by offering tangible evidence of the existence of the issue. There is no narrative thread to bring the reader from beginning to end; the contents of the text attempt to explain the housing crisis in Montreal in purely numerical terms.

This article was the shortest of the three, at about 350 words. Contrary to the narrative-heavy story, which advanced the narrative through quotes and emotional appeal, the number-heavy story has no story to advance. The goal of this article is purely to transmit information in a manner that is as close to "objective" as possible. Due to the fact that there are no characters to introduce, or narrative threads to follow from beginning to end, this story is significantly shorter than the other two. As this story was truly meant to be placed on the number-heavy extreme of the scale, there is very little information in this article that isn't explicitly numerical. For not wanting to include any kind of narrative element in this article, it ended up being much shorter than the other two.

Despite its brevity, this story should appeal to those who want to glean as much quantitative information as they can on the housing crisis in Montreal in a short article. I believe that despite the fact that it is the shortest of the three, this article provides important context, and examines the issue at a larger scale than the other two are capable of. By a purely literal

definition, one could argue that this story provides the most “information”² to the reader. After having read it, they may have a deeper understanding of the issue through a quantitative lens, as opposed to having an in-depth understanding of one character’s situation. Best (2012) notes that despite some valid critiques of the reliance on statistics, “at the same time, we need statistics; we depend upon them to summarize and clarify the nature of our complex society” (p.6). The purpose of this story was to avoid inflating it with appeals to emotion or conflict, and simply stimulate the reader through the information. It assumes the reader is interested in the subject matter, and does not need to be “drawn in” with a character or conflict.

However, it is entirely possible that this story is so unengaging that the reader does not take in any information. This is emblematic of many of the aforementioned principles of data journalism common in the existing literature (McKie & Vallance-Jones, 2017; Broussard, 2018): humans must remain at the centre of the story. Without the human connection, many readers may be completely uninterested in the article. There may also be complaints about these statistics being slanted. As Best (2012) notes:

“But, beginning in the nineteenth century and continuing through today, social statistics have had two purposes, one public, the other often hidden. Their public purpose is to give an accurate, true description of society. But people also use statistics to support particular views about social problems. Numbers are created and repeated because they supply ammunition for political struggles, and this political purpose is often hidden behind assertions that numbers, simply because

² For the purpose of this research, information is defined as any knowledge that brings the reader closer to a greater understanding of the issue.

they are numbers, must be correct. People use statistics to support particular points of view, and it is naive simply to accept numbers as accurate, without examining who is using them and why. We tend to think of social problems as harsh realities, like gravity or earthquakes, that exist completely independent of human action. But the very term reveals that this is incorrect: social problems are products of what people do” (p.13).

Statistics, as stressed by Best (2012) and Broussard (2018), are created by humans, and can have the same biases that humans do. Many readers will rightfully discount a statistic if the source that gathered the data is questionable. To assume that a reader will view a piece of data journalism as unquestionably objective is to ignore the human elements of data collection and analysis.

The lack of a character in the story, coupled with the fact that the statistics themselves may not be as “objective” as they appear, may render this article useless with regard to informing its audience about the existence of a social issue. Readers may remain unaware about how the issue can affect them, and be incapable of applying the information they’ve gleaned.

Another potential issue with this article is the risk of information being lost due to innumeracy. Best (2012) instructs to “never overestimate the understanding of an innumerate public.” While the mathematical concepts in this article (e.g., rate increases, percentages) are still relatively simple, there are a lot more numbers involved than in the other two stories. The article attempts to explain the concepts in the statistics through a brief overview of the methodologies of the two reports cited in the article, but that may not be sufficient for every reader. If the reader is unable to understand the concepts being presented to them, then it would be impossible to regard

this article as an effective piece of journalism.

The visual element in this article is a table, comparing household income with the vacancy rate for apartments that would be considered affordable for that income. For the purpose of this research, a table has been considered a visual element for the following reasons: firstly, its border offers a degree of visual separation from the rest of the text. Secondly, the table can be consumed either in-sequence or out-of-sequence by the reader; it stands on its own, much the way the image does in the narrative-heavy story does, or the chart in the data journalism story described below. For these reasons, despite not being a “visual element” in the traditional sense, the table has been treated as such in this research. For this number-heavy story, a table was included as it contains information that is “personalizable;” a reader could find their household income, see what apartments are considered affordable to them by the Canadian Mortgage and Housing Corporation (CMHC)³, and verify the vacancy rate for those apartments in Montreal. This means that the article can provide a large-scale portrait of the issue, while still allowing readers to “zoom in” on specific information relevant to them. Usher’s (2016) definition of interactive journalism argues that finding a specific personal experience in a data set is a key differentiating factor compared to traditional journalism.

This article intends to provide the reader with as much information as possible in a short space. It assumes that the reader can handle the numerical complexity and tries not to offer any

³ The Canadian Mortgage and Housing Corporation (CMHC) is Canada’s national housing agency. It is a Crown corporation that has the goal of making housing more affordable for Canadians, and is heavily involved in the country’s federal housing policy. The CMHC regularly gathers data on trends in the housing market in major Canadian cities, and releases detailed reports on the forecasts of these markets across Canada.

information that may be considered superfluous towards the goal of informing the reader about the existence of a social issue, such as the personal experience of a non-expert source, or the corroboration of an expert human source. However, the lack of a human connection may render it unengaging and difficult to understand for many readers.

Data journalism article (See Appendix A, Story 2)

The third and final story sits at the centre of the scale of numerical complexity. It will rely on both interviews and data sources to inform the reader. The goal of this story is to use the combination of different kinds of sources to provide both the anecdotal perspective as well as the context necessary for the reader to see the larger issue. The text introduces the issue through a main character, much like the narrative-heavy story, but also includes a few statistics about the housing crisis in Montreal more generally to contextualize the rising rents in the city. Rather than focus on an appeal to emotion or conflict, this story focuses on explaining the situation through the combination of quotes and data.

This article is about 500 words long; it doesn't go into as deep an analysis of the character's story as the narrative-heavy article does and does not rely on data as exclusively as the number-heavy article. It serves primarily to attempt to explain the situation that the main character finds themselves in, as well as provide some surface-level details about the larger context of the issue. As it relies on narrative, though to a much lesser extent than the narrative-heavy story, this story is a bit longer than the number-heavy story. However, the inclusion of data on some level and choosing not to rely on conflict and appeal to emotion allows this story to remain fairly short.

The main appeal of this article is that it provides a middle ground of numerical complexity, as opposed to the two other stories, which operate on the extremes of the scale. This is the only story of the three that has both human characters and data sources. It offers a human connection as an entry point to the larger issue, which is then contextualized through the brief inclusion of simple statistics. In theory, this article offers the “best of both worlds”—the ability to draw the reader in with the presence of a character to drive the story, as well as the legitimacy and “objectivity” offered by including some level of numerical information.

This story is the stereotypical version of data journalism championed by many (Vallance-Jones & McKie, 2017; Usher, 2018). This article uses data to construct a traditional news narrative to reach a more robust notion of objectivity (Anderson, 2018) and to determine “the truth” about the housing crisis in Montreal. It reports on uniquely that side of the issue rather than presenting both sides of the story, as the narrative-heavy story does.

The potential drawbacks of this story are more limited than the other two, due to its more balanced approach. It is possible that the reader may have difficulty understanding and digesting the numerical information in this story, though it isn’t very likely, as the statistics involve simple percentage increases in rental prices. It is equally possible that a reader is left feeling uninformed by the story, as the character’s situation may not provide a complete overview of the housing crisis in Montreal, but the inclusion of some numerical information should help compensate.

The visual component of this article is a data visualization of the rising rental prices for apartments in Montreal since 2014. It is a bar chart that demonstrates the steady increase in the price of a 3.5-room apartment in the city each year. The chart is very basic and was designed to

be understood intuitively without needing to read deeply into the data. This chart was included to offer the “high-level” information that can complement the personal story brought forward by the character in this story.

The goal of this article is to provide a middle ground for readers who may feel alienated by the extremes of the other two articles. The number-heavy and narrative-heavy stories are both exaggerated in their applications of the scale of numerical complexity. I anticipate that some readers may find this less “aggressive” approach to the subject matter to be enjoyable, as it doesn’t require heavy involvement of either the numerical or narrative elements. However, readers who have a preference for either the numerical or narrative approach may find this article to be too indecisive in its approach to the housing crisis, rendering it an ineffective source of information.

c. Focus groups

The subsequent phase of the research involved presenting the articles outlined in the previous section to focus groups. Focus groups were chosen as a way to capture real-life data in an interactive setting. Focus groups “bring together attitudes, opinions, and experiences in an effort to find out not only what participants think about an issue but also how they think about it and why they think the way they do” (Morgan, 1997). Given the time constraints of this research, focus groups were determined to be the best method to gain the perspective of the participants who read the three articles.

All focus group participants were journalism school students, either at the undergraduate or at the graduate level. Three separate focus group discussions took place on Mar. 29, Mar. 31,

and Apr. 1, 2022. The number of participants in each group ranged from three participants in one, to nine in another. The discussions lasted between 35 minutes and one hour. All participants were between the ages of 18 and 30.

Focus Group	Number of Participants	Male	Female	Undergraduate	Graduate
A	3	3	0	2	1
B	9	5	4	7	2
C	7	2	5	4	3
TOTAL	19	10	9	13	6

Table 1: Demographic stratification of the focus group participants.

These participants were primarily recruited by word of mouth, as well as by a flyer that was distributed through my social and personal networks. In my role as a teaching assistant within the Journalism department at Concordia, I asked students in my classes if they would be willing to participate in my research. I told them that it would require no more than two hours of their time to read the articles and participate in the group discussion, making it clear that their decision to participate or abstain had no impact on their result in the class for which I acted as a teaching assistant. This part of the research was approved by Concordia’s Research Ethics Board. Each participant gave their written consent before their scheduled focus group discussion.

Each participant was sent the three articles by email upon their agreement to participate in the project. In the document they received, the stories were presented in decreasing order of numerical complexity: participants started with the number-heavy story, then the data journalism story, and finally the narrative-heavy story.

The focus groups took place over Zoom, and lasted no more than an hour. The groups were held by video conference due to pandemic safety concerns, as well as convenience. They were recorded through Zoom, and I later transcribed the audio of the discussions. The line of questioning (see Appendix B) aimed to determine which of the three articles the students preferred, as well as if they found any of them to be difficult to understand.

After reading through each of the transcripts several times, several recurring themes connected to the criteria used to develop the story scale emerged from the participant responses (see Chapter 4). After identifying these general themes, the subsequent analysis aimed to determine the “patterns in the data that are important or interesting, and use these themes to address the research or say something about [the] issue” (Maguire & Delahunt, 2017, p. 3353).

Journalism students were a useful population to focus on for the purpose of my research, as they are not only familiar with traditional journalism methods, but are also in a position to think critically about these methods and how they can be improved. Thus, participants played a dual role: they acted as the audience in my research, while also engaging with the test articles through the lens of a journalist. They wondered what parts of the story they felt would be effective to other audiences, rather than simply pointing out parts that they did or did not like personally.

However, many journalism students don't have significant training in data journalism. Heravi (2018) notes that “as a general observation, journalists and journalism graduates lack sufficient data skills” (p. 364). While Heravi's research indicates that there is a genuine interest on the part of journalism students to learn these skills when they are offered by their institutions, there appears to be a significant disconnect between this interest and the curricula offered in

Canadian universities. This lack of data journalism education makes the journalism students participating in my research somewhat on-par with a general news audience when it comes to their opinions on matters concerning the use of data journalism elements. While more qualified than the “average” reader to discuss traditional news structures, the focus group participants do not possess a significant knowledge of data journalism techniques, or even consume data journalism on a regular basis, making them a more uninitiated audience for the purpose of my research.

The goal of these discussions was to determine what the journalism students enjoyed and disliked about each story. As some of the articles written based on my scale differ significantly from traditional news structures, which these students were very familiar with, these focus groups offered an opportunity for students to voice their opinions on how traditional storytelling methods can be improved, whether through data journalism or otherwise. I wanted to determine if these students found any aspects of the stories to be confusing or oversimplified.

There were significant benefits and drawbacks of using student journalists as my focus group participants. As I know several of the students through my personal experience in the department, both as a student and as a teaching assistant, the main method of recruitment was simply asking students while they were in class if they were willing to participate. This, of course, made it very convenient for me to gain participants for my research. Rather than widen the scope of my recruitment to the general population, I chose to limit it simply to within the journalism department. It was made clear to the students that their decision to participate in the research was entirely separate from their participation and assessment in their class, and that their participation in my research would have no impact on their academic standing.

Students in journalism school offered a unique perspective when it came to their responses to the articles. The vast majority of them said that they had little experience with data journalism, and that they very rarely consumed any content that they would describe as numbers-centered, though a handful responded that they enjoyed reading financial and economic news, which often relies on numerical information. Some of the students said that in light of the COVID-19 pandemic, they have become more accustomed to reading stories about case counts and hospitalizations, as well as reading charts that visualize the virus and infection rates over time. However, for the most part, the students reported that they were fairly unfamiliar with data journalism methods, let alone more complex statistical ones.

On the other hand, the participants noted they were very familiar with traditional news gathering techniques, as well as the ingredients that go into a typical news story. Much of the discussion by the students was centered on the choices for sources, as well as their qualifications to talk about certain aspects of the issue.

The major themes that emerged out of the three focus group discussions are described in the next chapter.

4. Findings

The following section examines the major findings of this research, both in the production of the articles using the scale discussed in the previous section, as well as the focus group discussions about those articles.

a. Stories

To produce the three stories based on this scale and its different points of numeric complexity, I intended to put the theory behind the creation of the scale into practical journalistic application. The main consideration in distinguishing the stories on the scale was the source used to drive each story forward. The position on the scale dictated what information was included and what was sacrificed in the process of story production. The sources gathered for these stories were as follows:

Human sources:

- *Jay Collado, tenant*

Collado is a 49-year-old man who immigrated to Montreal from the Philippines in 2002. He has lived in the same Côte-des-Neiges apartment for more than 17 years, but claims his apartment is riddled with defects. He says that his landlord does nothing to repair the apartment, yet insists that raising the rent is justified. Collado brought his case to the Tribunal administratif du logement (TAL), the provincial housing authority, in order to fight the rent increases. Collado sought assistance from Project Genesis, a housing advocacy group based in Côte-des-Neiges-Notre-Dame-de-Grâce.

- *Darby MacDonald, Project Genesis*

MacDonald is a community organizer at Project Genesis. She helps tenants in their cases at the TAL, as well as assists those who may not speak English or French with the rental applications. She has observed the impacts of the housing crisis on low-income and minority communities, and can speak first-hand to the low vacancy rates in low-income housing. MacDonald believes some landlords are willing to use any tactic necessary, legal or not, to evict tenants and increase rents.

- *Marion Duval, Regroupement des comités logement et associations de locataires du Québec*

Duval is a spokesperson for the Regroupement des comités logement et associations de locataires du Québec (RCLALQ), a housing advocacy group in the province. The group released a study in 2021, which found that new listings for rent in Montreal are much more expensive than data from the Canada Mortgage and Housing Corporation (CMHC) estimates. The RCLALQ's study examined rental listings on Kijiji, rather than units already being rented, which the group believes provides a more accurate representation of the market for tenants looking for housing right now. Duval believes that the housing crisis has given landlords an inordinate amount of power to discriminate against tenants.

- *Annie Lapointe, Quebec Landlords Association*

Lapointe is a spokesperson for the Quebec Landlords Association (QLA). The group's position is that the rent increases in Montreal right now are a course correction for years of tenants paying rents below market value. Many landlords are simply trying to recoup losses on their properties, because tenants often refuse rent increases despite their rent still being low after the increase. Lapointe acknowledges that there are certainly landlords

that raise rents too high, but argues that the majority are at the other end of the spectrum, simply trying to bring their rent to a more reasonable price point.

Data sources

- *Canada Mortgage and Housing Corporation (CMHC)*

Every year, the CMHC releases [rental reports in many of the major cities in Canada](#). It tracks average rental prices for units of each size, and offers insights into the general state of the market. The report found that while there was a decrease in the availability of affordable housing in Montreal, prices remained reasonably low compared to other Canadian cities. The report found that the average price for a rental unit in Montreal was below \$900 in 2020, despite the second-largest yearly increase in rent since 2003. In general, the CMHC report found that while rental prices have increased significantly in Montreal, they have remained moderately low, and the greater threats to the Quebec housing market are in the increased suburban prices.

- *Regroupement des comités logement et associations de locataires du Québec (RCLALQ)*

[The RCLALQ report](#) released in 2021 examined Kijiji listings in order to get a better sense of the rental market in Montreal, and it shows a harsher reality. As opposed to the CMHC report, which was created using a random sample of apartments in Montreal and relies on landlords and owners self-reporting their rental prices and vacancy rates, the RCLALQ report analysed rent prices by obtaining prices directly from nearly 58,000 Kijiji ads between Jan. 30 and May 13, 2021. While the CMHC report found the average rental price in Montreal was \$891 in 2020, the RCLALQ found a significantly higher value of \$1,302 on average. In fact, the RCLALQ found rent prices to be nearly 50 per cent higher on Kijiji than those reported by the CMHC. Per their report, this difference

can be explained by CMHC data including available and rented properties, while the RCLALQ focuses only on vacant units, which are more likely to have been renovated for the purpose of renting for a higher monthly price.

The balance between these different sources was different for the production of each of the three test stories, depending on which point of the scale each story was meant to represent.

Narrative-heavy article

In the narrative-heavy article (see Appendix A, Story 3), Jay Collado's story was brought to the fore. The quotes used in this story, gathered from several interviews with Collado, are centered on his emotions; his anxiety around the uncertainty of his housing situation, as well as his frustration with his landlord, are emphasized in this article. The quotes act as an emotional appeal to the reader, to draw attention to the precarity of Collado's situation, as well as to the conflict between him and his landlord. "It's annoying, all the lies he tells" (Appendix A, Story 3) Collado says, as well as "we stayed here for one month without any stove and fridge. We had to buy milk every day. We had to keep bothering the landlord until he gave us a fridge and a stove. We couldn't cook" (Appendix A, Story 3). The quotes help to illuminate the issue through emotion and conflict. The quotes don't necessarily get to the root of the problem that Collado is experiencing, but they draw the reader in, making them more sympathetic to his plight.

There is an additional conflict included in the sources of the narrative heavy story. Marion Duval is a spokesperson for the RCLALQ, an activist group for tenant's rights. In my interview with her, Duval took a hard stance against landlords. She was adamant that many, if not most, landlords actively discriminate in order to rent to tenants they view as desirable. Any

tenant who will likely accept a rent increase is seen as more likely to be accepted by a landlord.

Duval is adamant that rent increases are driven by greed:

““One of the problems is the cost of dwellings, and the other problem, because people can’t find apartments at a reasonable price, is discrimination,”” says

Marion Duval, a spokesperson for the RCLALQ. ‘Landlords have all the choice of who to rent to. There’s a lot of discrimination.’

Duval says landlords use this power to find a tenant most likely to be open to rent increases. ‘There’s a lot of discrimination, on a lot of factors, that owners prefer having someone like this,’ she says. ‘In general, it’s someone between 28 and 35 years old, single, with a stable job’” (Appendix A, Story 3).

On the other hand, Annie Lapointe, the spokesperson for the Quebec Landlords Association, views the rent increases as a necessary course correction. In my interview with her, she attempted to justify rent increases. Her quotes acknowledged the negative perception of landlords, but maintained that most are simply trying to earn a living, rather than gouge prices.

““We have, in some situations, some dwellings that are very, very low, where the tenants always refuse the increases,’ she says. ‘So it’s very difficult for these [landlords]. We know that there are dwellings that are very high for their rent, but we also have the opposite. And it’s difficult for the landlords to go through that, because the law prevents them from catching up’” (Appendix A, Story 3).

In this 700-word article, there are two major sources of emotional conflict. The story puts the initial spotlight on the conflict between Collado and his landlord on a small scale, before zooming out into the larger scale conflict between tenants and landlords more generally,

represented by Duval and Lapointe. Collado's conflict is seen as a point of entry; a reader could potentially relate to his situation based on their own renting experience in Montreal. The more subtle conflict between Duval and Lapointe provides the context needed to make proclamations about the housing crisis in the city as a whole, rather than relying simply on Collado's anecdote. They are the "expert" voices included in the story.

However, this story does not include a single statistic. There is no data included to corroborate the position of either the tenant or the landlord. All three sources included in this article are human sources who offer largely anecdotal information: the details are transmitted to the reader through quotes, imagery, and emotional appeal. There is no "objective" evidence offered to the reader of this story. It is only Collado's testimony on which the reader has to make a decision on what they believe the scale and prevalence of this issue really is:

“‘The landlord should cooperate if there's a problem with a tenant,’ he says. He would be open to a rent increase if his landlord made any attempt to improve the state of the apartment. As it stands, he says any increase to his monthly payment feels like exploitation.

The TAL has scheduled another hearing for Collado's case, as insufficient progress was made in the latest three-hour meeting. Regardless of the result, Collado just wants the affair to be settled. ‘I want this to finish already,’ he says. ‘Whatever the decision is. It's hard, it's annoying. If you're in my situation, I don't know what to do’” (Appendix A, Story 3).



Figure 2: The image used in the narrative-heavy story

The visual element included in this story was simply a picture of a sign that reads “Apartment For Rent.” This was done mainly to provide the story a similar aesthetic on screen to a traditional news article. The image, while not directly related to any of the characters involved in the story, was included to make the format recognizable to the reader, rather than solely text on a page. Its inclusion is akin to a news organization using a simple stock photo to represent a general issue or situation.

Number-heavy article

The number-heavy story (see Appendix A, Story 1) takes the opposite approach with regard to sourcing. The only two sources used are the CMHC data and the RCLALQ data. The

story outlines the key findings of each report, and then compares and contrasts them. The reader is told that rents rose by nearly four per cent in Montreal in 2021, and that it was the second-largest such increase since 2003, lower only than the rise in 2020 of 4.2 per cent. The reader also learns that while vacancy rates have gone up across Montreal, the rate on affordable housing has decreased drastically.

The conflict in this story is between the validity of the two datasets. The RCLALQ data questions the legitimacy of the CMHC data, primarily because it is collected by surveying landlords, who may not be fully truthful about the rents they charge and their vacancy rates. It also questions the method of including apartments already occupied in Montreal as a part of the analysis. The RCLALQ argues that since many tenants are able to fend off rent increases, the housing crisis is much more clearly visible when examining the prices of available units. The group believes that these available units—the ones that tenants can be evicted from for the purpose of renovation and increased rent—are a more accurate representation of the rental crisis happening in Montreal, with many people being priced out of affordable units. The article touches on this conflict only by explaining the differences in the methods used by each report, and presenting each of their findings:

“While the CMHC report found the average rental price in Montreal was \$891 in 2020, the RCLALQ found a significantly higher value of \$1,302 on average, an eight per cent increase from last year. In fact, the RCLALQ found rent prices to be nearly 50 per cent higher on Kijiji than those reported by the CMHC. Per their report, this difference can be explained by CMHC data including available and rented properties, while the RCLALQ focuses only on vacant units, which are

more likely to have been renovated for the purpose of renting for a higher monthly price” (Appendix A, Story 1).

This story included no human sources, meaning there were no quotes in the article. There was nobody to corroborate the existence of the issues outlined in the statistics, and no appeal to the emotions of the reader. The goal of this story was purely to relay the statistics to the reader, as well as have the reader think critically about the methods of each report. This story is only 350 words long. I chose to make this one shorter as it is my belief that this story contains the most information about the housing crisis in the city. There is no need to inflate the story with quotes or anecdotal information; this article simply presents the necessary information and leaves it to the reader to fully understand the issue.

The visual element in this story is a table⁴ that shows the CMHC data about vacancy rates for each income bracket. The table demonstrates that while luxury housing has very high vacancy rates, the apartments aimed at the more common income ranges have very low vacancy rates. The information in this table is not “digested” in any particular way; it is up to the reader to sift through the table to find any information they deem important or interesting. When comparing a table to other forms of visualization, the simplicity of the table can be appealing to readers compared to a data visualization, which can range from simple to very complex:

⁴ As noted in the previous chapter, a table has been considered a visual element in this research for two main reasons. Firstly, its border offers a degree of visual separation from the rest of the text. Secondly, the table can be consumed either in-sequence or out-of-sequence by the reader; it stands on its own, much the way the image does in the narrative-heavy story does, or the chart in the data journalism story. For these reasons, despite not being a “visual element” in the traditional sense, the table has been treated as such in this research.

“There will often be some tension between presenting enough data to tell the story and presenting additional data that some readers might want. If it is important to include the data within the paper itself, a supplemental table in the text or as an appendix could be a more straightforward method of presentation” (Schwabish, 2014, pp. 215).

The table included in this story aims to provide the most straightforward presentation of the data it communicates.

Household Income	Affordable Monthly Rent Range (\$)	Number of Rental Apartments in Each Rent Range	Vacancy Rate (%)
Under \$25,000	Under \$625	78,874	3.5
\$25,000 to \$36,000	\$625 to \$899	289,626	2.2
\$36,000 to \$53,000	\$900 to \$1,324	167,680	3.0
\$53,000 to \$81,000	\$1,325 to \$2,024	57,738	4.8
\$81,000 or more	\$2,025 or more	8,745	4.8

Source: CMHC

Table 2: The visual element in the number-heavy story

Data journalism article

The final story (see Appendix A, Story 2), in the middle of the scale between narrative-heavy and number-heavy, uses a mixture of these sources. Once again, Jay Collado serves as a point of introduction to the issue at hand. His quotes in this story, however, serve to explain the issue to the reader, as opposed to making an emotional appeal.

“‘He’s asking for a \$35 or \$30 increase, I told him I couldn’t give him that, but I could negotiate with him,’ he says. ‘If you fix this problem, I will give you that increase. He doesn’t want to. He brought me to the TAL (Tribunal administratif du logement, the branch of the provincial government responsible for resolving rental housing disputes)’” (Appendix A, Story 2).

This kind of quote, while not particularly jarring or emotional, gives the reader the gist of the issue at hand. Collado’s situation is still given to the reader as an entry point. The other sources in this article make it slightly different from the narrative-heavy story, though. Darby MacDonald, the community organizer at Project Genesis, is included in this story as the human corroboration of Collado’s story. She attests to the problems in Montreal’s rental market, and has seen an increase in the number of people who require the services that Project Genesis offers with regards to housing assistance. MacDonald is not in conflict with Collado’s position, but gives it more weight.

This story also uses data from the RCLALQ and the CMHC to help prove Collado’s point. Rather than relying on human voices exclusively as the narrative-heavy story does, or on

data sources exclusively as the number-heavy story does, this article combines human and data sources with the goal of using numbers to add weight to a human argument.

Average rents in Montreal region

The average rent for a 3.5 room apartment in the Montreal region has increased steadily every year since 2015.

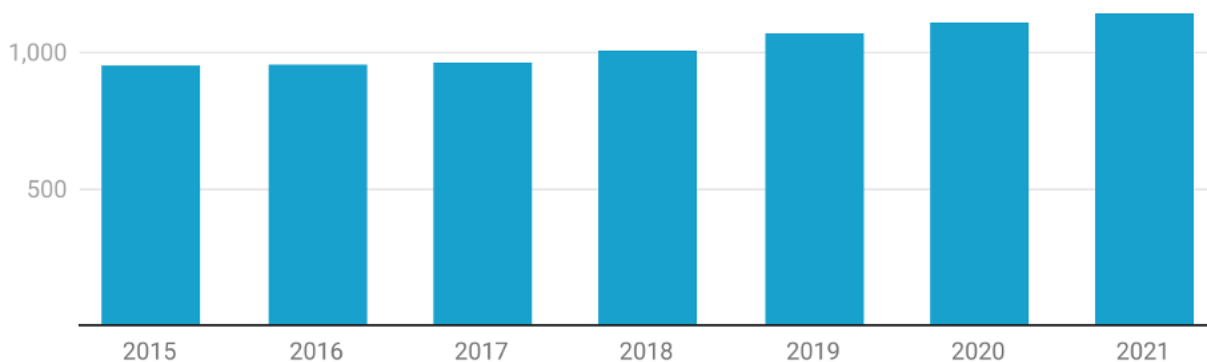


Chart: Ben Language • Source: CMHC • Created with Datawrapper

Figure 3: The visual element in the data journalism story

The visual element in this story is a more traditional data visualization, unlike the other two stories. It is a bar chart that demonstrates how the average rental price for a 2.5 room apartment in Montreal has increased each year since 2015. This graph takes simple statistics and presents them in a way that is easily interpretable for the reader at a glance. It does not require the reader to dig deeply into every aspect of the visualization; even the caption underneath the title offers the reader everything they need to know about its contents.

b. Focus groups

The following section will examine the major opinions that emerged in the focus group discussions, including excerpts from the conversations from the participants. Any information

identifying the participants has been removed. The common themes from these discussions were grouped according to the five criteria used to develop the scale of numerical complexity, namely: (1) angle, (2) authoritative sources, (3) everyday/lay sources, (4) visual element, and (5) purpose.

Angle

“I’m not gonna lie, I think the first article took me like three or four different takes to actually read it. I started it, closed my computer, came back to it, went back and forth. It was pretty heavy” (Participant A2).

As was expected, many participants found that the number-heavy story was difficult to read, citing the numerical angle chosen for the story. Several noted that there were too many numbers, which made the story distracting and hard to follow. While noting the differences between the CMHC data and the RCLALQ study was interesting in theory, many of the participants found that the article simply presented information without any context of what to do with it. Several participants found the table at the bottom of the story to be confusing, with too much information in it to have an easily condensed summary. They noted that without the human element, the goal of the article was hard to determine.

Participants cited the numerical complexity of this story as a reason for having trouble retaining the information in the article. By solely relying on numbers as the source of information, the context for the statistics is lacking. This makes it difficult for the reader to parse the information:

“I think the [number-heavy article] was by far the worst. I had to reread sentences several times. And even after having read it, I didn't retain anything. And because there were fewer numbers in the [data journalism article], I was able to kind of remember, ‘okay, they said this, they said this.’ As opposed to reading things in numbers, I think I'd rather read about the cause and effect that those numbers have, rather than just numerical data” (Participant C7).

This inability to retain the information was linked closely with a sense of inaction. Readers who didn't grasp onto any information in the number-heavy story were unsure of what to make of all the numbers; there was no significant takeaway. The statistics, rather than provide the reader with a large-scale view of the issue to bring them closer to truly understanding the prevalence of the housing crisis in Montreal, only left the reader unsure of what to make of them:

“But what I think is the most difficult to process in [the number-heavy] article is there is a complete lack of leading the reader into the information. There's no pacing, and the structure is very difficult to process. Because there seems to be a certain angle about income, but then it doesn't show me, it's just telling me a lot of things, and it's not showing me any information, any relevance to why income is important. It almost feels like it was missing a thesis. And also, there was no storytelling effort whatsoever to have the reader be led into why it's important to focus on this angle about income” (Participant C6).

“I think my biggest problem with [the number-heavy article] is that again, it highlights two different numbers that are supposed to be the exact same thing that are like 50% apart. So with only these two numbers, are we just throwing numbers

here? Have we done some research? Do we know what I should trust about this? What is the actual story? So whenever you have two reports that are really conflicting, and you're only presenting them, I think it really makes the whole story not worthy" (Participant C2).

It's clear from this participant that relying on numerical information exclusively does not provide significant context to the reader, finding the story too one-dimensional. Another participant was more critical of the text, going as far to say that this informational rather than explanatory angle is a sign of laziness on the part of the journalist:

"I feel like there's a lot to unpack here, but the journalist just said, 'oh, I'll let the reader do that.' Because I feel like the first two columns [of the table], to me that's really interesting. Someone looking at that seeing like, 'oh, what's my income? What is the affordable monthly rent I should pay?' I think the 30% is included in the piece, but it's not explained. And I think most readers won't know. Where does that come from? After that, you know, the proportion of apartments in each range. To me that's also really relevant. And finally, the vacancy rate, that's the crux of the story, that vacancy rates are a lot higher in apartments that are much, much more expensive. So, I think a single table won't be able to highlight these different key points effectively, and would probably need multiple paragraphs, a different way of telling this information. And the journalist just didn't do that" (Participant C4).

While this participant sees some positive elements in the number-heavy story, which will be further examined in a later component, they say that it's part of the journalist's role in "sense-

making” to provide the context necessary for the reader to understand the information in the story, regardless of numerical complexity. The number-heavy story fails to do that; it simply presents the information without comment or interpretation. Several participants felt that leaving that work for the reader to do is ineffective and would never work in a traditional journalistic setting.

Another main critique of the number-heavy article included that it felt like a chore to read. The lack of structure, coupled with lots of numbers, demanded a lot of focus on the part of the reader in order to complete it. Several participants noted that if they were reading it in a context outside of this study, they would almost certainly give up on reading it. This confirmed an expectation I had as a major drawback for this article: it becomes impossible to provide the reader with a true understanding of a social issue if they find the story difficult to understand and engage with. The reader is completely uninspired to mobilize for a social issue if they are unsure what the goal of the article is. This inability to understand the contents of the article, or to assume that a general audience would not understand it, is a significant roadblock for the number-heavy side of the scale seeing success in traditional news spheres. Despite this, the number-heavy article demonstrated significant positives with focus group participants, to be discussed later in this chapter.

However, many found the angle chosen in the narrative-heavy story to be equally “lazy.” With the information in the narrative-heavy story being perceived as at least somewhat unique to the character in the story, many participants found the story to be too long, considering its one-dimensionality:

“I feel like the [narrative-heavy] one doesn't have very much information in the sense that it focuses a lot on one story. And it's all about this person's history, which it does provide... It makes it easier to understand the situation. But in terms of the quantity of information, it's not very much. You could sum up everything in that article in half its length, or even a quarter of its length. When Participant B3 said the [number-heavy] article is one type of information, it's true. But this one is also one type of information. And it is very much a specific scenario” (Participant B5).

Overall, many participants found that the narrative-heavy story was easier to read and understand, but was lacking in substance. Several participants said that a piece of journalism can't rely solely on people's voices as sources of information, and that the narrative-heavy story could have benefited greatly from any kind of quantitative data.

Participants appreciated the more balanced angle taken up by the data journalism story. As the only story of the three that included both data and human sources, some participants found this story to be the easiest to read:

“The thing I liked the most about the [data journalism] article was it was the easiest to read. It really integrated the figures well, and the charts with the information. It was a good balance between quotes and data. You had a central character who you turned the story through, so it made it easier to follow and relate to personally. But you also had the facts and figures, so it was well-balanced.” (Participant 2A)

Other participants noted that this story had an angle that leaned towards activism. Both of the characters included in the data journalism story are pro-tenant, as a deliberate decision; both Collado and MacDonald are on the same side of the issue. This, as well as that the data journalism article relied on general information about the housing crisis, including the basic statistics, made it feel less time-sensitive than the other story containing narrative information:

“I feel like the [narrative-heavy] one works best as a standalone article. It's more of a news story. Whereas the [data journalism] one goes more towards campaign journalism in which it is talking about a subject, like a global issue that's been going on for a while and that's not just the news story of that day. If the same article was repeated over time that would work best to talk about the subject as a whole” (Participant B8).

As opposed to this angle being seen primarily as explanatory, participants who enjoyed this story saw the more “one-sided” approach taken by this story to be an asset.

Authoritative sources

The debate around which sources provided authority and legitimacy to the articles was centered more on the qualifications of the human sources than around the strength of the data sources. These opinions may indicate more about the participants' view of the housing crisis and its coverage more generally, as opposed to the methods of story production in this research.

For example, in focus group B, one participant mentioned disliking the inclusion of the landlord association in the narrative-heavy story, which led them to prefer the data journalism

story, which included only pro-tenant sources (the main character, and Project Genesis, an advocacy group):

“The main reason why I enjoy the [data journalism article] in particular is that you're not platforming the landlord, as is done in the [narrative-heavy article], which, if you're focusing on tenant rights, I don't know why you pass the mic to the landlord association. But at least here you get the actual housing group who's telling you the issue, that's really a citizen-focused effort. So I appreciated it a lot more” (Participant B6).

However, there were other participants who appreciated the inclusion of the landlord association, saying that it gave the story more legitimacy:

“It's not like the entire story was focused on the landlord association. You had the tenants saying all of his grievances and whatnot. And it was just one quote from the landlord association to see the other side. It balanced the story a little bit, and even from the quote, you could see that...Because from what the person said from the landlord association, they say, ‘they take the opportunity, put it back as it should be’ and it shows that it's a very subjective thing. And it's ‘as it should be’, according to the landlord. I'm reading that it's not as it should be. I guess it allows the person reading it to think more and see that what the landlord is saying is not reasonable, but at least it shows that you're looking at both sides” (Participant B5).

“I think including the landlord association made it seem a bit more impartial just because maybe the second one seems slightly advocating towards an end to this inflation. But I think the [narrative-heavy] story seems slightly more objective.

And I know it doesn't always have to be objective, but it does seem like there was more of an effort to present both sides” (Participant B4).

Resorting to conversations about objectivity and impartiality was not altogether unexpected, given their frequency in discussions about journalism more generally. Students were more comfortable discussing objectivity in the context of balancing human sources against one another than viewing human sources and data sources as contrasting elements to be weighed similarly. I imagine this is due to the fact that in their own experience writing stories, either in an academic or professional setting, they have needed to decide which human sources they feel best represent the message they are trying to present.

While these conversations were certainly illuminating to the goals of the research, there was a significant drawback in having all focus group participants be journalism students. Rather than gaining the perspective of a more general audience, as was originally proposed as a goal for the research, journalism students provide a specific and somewhat niche perspective about pieces of journalism. Many, if not all respondents, answered questions from the perspective of a journalist wondering whether something could be applied to a general news audience, rather than from a lay-perspective:

“I just want to bring up a separate point. Who's the audience for the [number-heavy] article primarily? Is it mainly meant to be a mass consumption document, like a regular journalistic piece would be?” (Participant B3).

BL: A mass consumption document.

“Okay, so then in my viewpoint, obviously, it doesn't work. I think the biggest problem is, we just kind of know this from just talking and working in broadcast as opposed to print, [it has] just too many numbers, too many things for people to sort of gravitate and get lost towards. So, I think it needs to centralize what the focus of that story is. And if it's just a data dump, then there's really not much to improve on this point.” (Participant B3).

This portion of the conversation paints an interesting picture. A focus group participant who is not a journalism student would likely not think to ask about the target audience for a piece of media, they would assume that they are the target audience, as they had in fact read the article. In this excerpt, the respondent assumes that they are not a part of the audience; they are reading the focus group articles from the perspective of a journalist, and answering my questions based on what they perceive a general news audience enjoys and does not enjoy.

This poses some problems with regards to the initial goals of the research. While I initially wanted to gain insight into what news audiences think about data journalism methods in order to make the practice more accessible on a large scale, my participants could not offer me this insight. Instead, however, I was able to learn what student journalists think is effective and ineffective with regards to data journalism methods, as well as *why* they believe the methods would or wouldn't connect with audiences on a larger scale.

Participants implied that it is the human sources that provide the authoritative large-scale view of the issue more effectively than data. Many questioned the effectiveness of data-reliant methods, as many minority communities can be underrepresented in government data, like that

of the CMHC. They said that without the on the ground reporting, the scale of the issue can be lost:

“But for example, you know, when I speak to people of racialized minorities who have language barriers, they will not be in the systems where they will be included in the data. The people in Park Ex⁵ who don't speak English or French, the elderly, the undocumented, the single women, the refugees, people living under the poverty line, they will not be counted, generally, in census data, or even data that FRAPRU or CAPE⁶ are collecting, because those people are white, they do not have people who will speak Hindi, and that is a very big gap in data gathering, I think, which starts at the very source. And until we don't go outside and talk to actual people and try to fill the gaps with real personal in-person reporting, I don't think the scale of how big the housing crisis is will actually be written about factually” (Participant C6).

Everyday/lay sources

“[The number-heavy story was hard to understand] because there was no central character. A character is always a portal through which you can relate to the

⁵ Park Extension (Park Ex) is a neighbourhood in the Villeray–Saint-Michel–Parc-Extension borough of Montreal. The area is a low-income neighbourhood, and has the highest percentage of immigrant and visible minority populations of any Montreal neighbourhood (Centraide, 2021).

⁶ Front d'action populaire en réaménagement urbain (FRAPRU) and Comité d'action de Parc-Extension (CAPE) are two housing organizations in Montreal that seek to help tenants secure safe housing, and assist in cases that end up at the TAL.

story, or through which you experience the story. The lack of a central character eliminates that” (Participant A2).

Participants stressed the importance of having a relatable human element in pieces of journalism. They noted that having a person in the story helps them remember the information in an article more easily. It demonstrates the cause and effect of situations rather than simply listing numbers. One participant said this need for a human presence in a story is even stronger in stories about housing:

“I also think for housing, everyone is involved in this, it's something that affects literally everybody. So, it's kind of hard to not have humans as a central element to your story there. I think there needs to be a humanistic element in this particular story. Maybe in a certain field where the majority of the population is not at all involved in this, or has very limited knowledge of what's going on in that domain. But this, it's pretty important, I think, to have people be your central focus of the story” (Participant B4).

To present a story about housing without a tenant as the central focus misses the point of the story, according to many participants. Without this character added to the story, there is nothing to drive it forward. For this reason, many of the participants tended to appreciate the narrative-heavy story as well as the more balanced data journalism story over the number-heavy one, simply because there was a more accessible point of entry into the subject matter:

“I feel like for me, [the stories] got exponentially more humanitarian-based⁷. They talked a little bit more about the people involved in the issue. So, it felt a little bit less about the statistics and more about ‘Okay, this is a human issue at heart’ and I guess that's what I bought more rather than the [number-heavy] article, for example” (Participant B7).

Another aspect mentioned several times was the importance of the human element as far as feeling informed on the issue as a whole. While in previous sections I refer to statistics as an effective method of providing the readers the tools to be well-informed on a topic, some participants felt that the human connection established in two of the three articles helped them understand the topic as a whole much more effectively than the numbers:

“In terms of feeling informed as a reader, I feel like the [narrative-heavy] article gives a lot of nuance. [Other stories] tell me the statistics, but actually, with this article, I understand the impact of what's happening. So, I get to see inside the apartment, I get to witness the effects of this crisis on people. I feel better informed with the [narrative-heavy article], just because by the end of it, I'm like, ‘okay, yeah, there's a housing crisis. But did you know that, you know, people who are living in these shitty apartments? I don't know, they don't have a fridge? Or sometimes they don't have a stove? Or all those things?’ I feel like that informs me better” (Participant B7).

⁷ The stories were presented to the participants in the following order: number-heavy story, data journalism story, narrative-heavy story.

While many participants enjoyed the narrative-heavy story for its human element, several participants found it to be too reliant on lay sources. They said that the story was anecdotal, unbalanced, and lacked data. There was no evidence to corroborate the accounts of any of the characters, and the story was equally one-dimensional as the number-heavy story:

“I think the third article does a really good job of showing the struggle and the personal element of how difficult it is to live in these conditions. But I don’t know if it really gives the reader enough of an understanding of what the rental crisis actually is. We’re seeing more the effect of the rental crisis, an explanation of the rental crisis and what its effects are on Montreal’s market. They appeal to different readers, but if we’re strictly trying to show the story of what is the rental crisis in Montreal to somebody who’s not familiar, like Participant C6 said, I hate to say it, but I think it might be [the number-heavy] story.” (Participant C2).

There was a prevailing sentiment among many of the participants that the narrative-heavy story, as well as the data journalism story to a lesser extent, were too reliant on Collado’s testimony:

“In [the narrative-heavy story], I love his personal perspective. I love the struggles that he goes through. That’s really voiced well, but there is a lack of data to substantiate it in a way. And that’s sad to say that it’s necessary, but then you’re left like, ‘okay, he struggles. Now he’s gonna go to court, good luck, Collado.’ What’s going on? Why is this a big problem? Why is this something that needs to be done now?” (Participant C3)

Overall, participants felt that the number-heavy story lacked any significant human connection. Without that human presence, it becomes tedious for the reader to become invested in the story, as there is nothing that drives it forward. Beyond that, the human presence allows the reader to see what the struggles associated with the social problem actually look like in practice, rather than having to theorize based on statistics. However, participants noted that the other side of the scale was too reliant on lay sources, and lacked corroborating evidence.

Visual element

With regards to the visual element in each story, participants had divided opinions. For the number-heavy story, many found that the table was too repetitive of information that was already outlined in the article:

“My main issue with the table was, I mean, aside from the fact that as soon as I saw it, it made me want to read the article less because there's a lot of numbers, was that I just noticed, in the first paragraph, you're actually getting a lot of repetition. If you actually look at the table, and you read what they're talking about at the beginning. The first paragraph is just kind of like translating the table into words, which is what I want from an article, but then I don't see the point of keeping the table there, if I already knew the numbers, because they're telling me. So, it's either, tell me in text, or keep the table and take out the numbers from the text” (Participant B7).

Others acknowledged this same redundancy, but struggled to find a better visual alternative to the table, considering all of the information it contained:

“[The table] just becomes redundant, the first paragraph puts it all into words. And if I had to choose between, like, some sort of visual representation and putting it into words, I definitely lean towards the former. But it's just not a table; it would have to be some sort of better representation of it. But yeah, I don't know. It is a lot of numbers. So, I don't know what type of visual would work but definitely not words” (Participant B1).

A significant number of participants noted that the bar chart in the data journalism story did not offer a lot of information, and could have been replaced by a single sentence:

“I would say, visually, obviously, seeing bars I think is a bit easier to understand. Maybe that's just for me, because I'm a visual person. I like seeing things. And I think that to me is easier to understand. But at the same time, it doesn't say a lot. It's very surface level. We see an increase in which, like mentioned before, could have been said within a sentence. And did we really need a graph to represent the increase? Maybe not. And maybe if you wanted to include a graph, maybe something other than just rent increase could have worked also for that” (Participant C1).

Many of them noted that in order to make the rent increase appear sharper, the y-axis should be adjusted. This would make the increase obvious and striking to the reader:

“The chart, I feel, doesn't show much of a difference through the progression, it's just very small increases. Maybe it's because of the scaling of the chart; it goes like \$500, \$1000. Maybe if it was smaller increments on the y-axis then it would

have been more visible and you could see the difference. But as it stands now, it doesn't give much” (Participant B5).

Participants stressed that because the increase appeared slight in the chart, the danger posed by the housing crisis becomes minimized. Many argued a more effective visual would place more emphasis on the increase in rental prices in the city, to make it clearer for the reader: “I would have messed around with the y-axis a little bit to make it clearer. And to make it more pressing that this is an actual issue, because you can barely see a change” (Participant B6).

It is important to note that adjusting the y-axis on a simple bar chart of this nature could easily misrepresent the scale of the issue (Wong, 2010; Cairo, 2013; Tufte, 2007). That many of the participants were so quick to recommend this alteration could be an indication of low levels of data literacy among the participants. This sentiment, which will be further explored in the Discussion section, points towards the fact that participants believed the visuals included must capture the attention of the audience through striking or surprising details.

The same could be said about the photo used in the narrative-heavy story. Participants felt that it didn't add anything to the story, and would have preferred seeing the inside of the character's apartment:

“If you're going to talk about your garbage apartment, I think I would like to see your garbage apartment. I wanted to get a visual of everything. Show me the door that doesn't lock, show me all the nasties, show that kind of visual aspect that people can really get hooked on. The only picture we have here is an ‘à louer’ sign on the front lawn. That, to me, conveys no information: pretty boring. Having those visual elements to kind of show ‘Oh, this is a crumbling unit from the early

2000s that hasn't been touched in 15 years. Here's the consequence of that”

(Participant B6).

As the visual element did not add anything to the story, participants felt there were more effective alternatives to the generic image.

Purpose

“I’m a normal reader, I just want to read something in the news. Every day I read something. [The number-heavy story] won’t be the first one I want to read, because it’s not smooth. If I’m interested in this, if I’m looking to buy an apartment in a few years or a few months, maybe I will like this article, because it’s more related to what I like” (Participant A1).

Participants found that the number-heavy story is useful for a potential buyer or renter, or someone specifically interested in the housing market as a personal interest, but not for traditional news. Participants saw the appeal of the information in the article and table in the number-heavy story, continuing the previous theme of the story having the most amount of practical information, but did not think that the story would be successful with a general news audience:

“If you’re casually reading this article, I don’t think you’re going to want to sit and take the time to understand the table. If you’re really interested in what the article has to say, it is a pretty interesting table, in terms of the numbers it has to show” (Participant A2).

Another prevailing sentiment was that despite its faults, many of the participants said they thought the number-heavy story offered readers the most information about the housing crisis in Montreal. Many felt that although the story was difficult to connect with and to digest, it offered readers important information about the issue as a whole:

“I really hate to say this. It hurts me physically to say this, but I might choose [the number-heavy story as the one with the most information], only because the other two are not situating me in a context that I feel accurately shows me the scope. What I have the biggest beef with in [the data journalism article] is that it's telling me the most important information at the very end: two graphs about the vacancy rates hovering above 3%. And it's giving me important information about inflation and the affordability, but it's not nestled within its nut graph here, and then the bar graph is taking up so much space. So, I don't like to say it, but I guess [the number-heavy story], if I really have to” (Participant C6).

A participant in another group echoed this sentiment:

“For the [number-heavy] one, what I liked a lot was that it had a lot of information. I think it was the most information-heavy one. If you really take the time to read it, you can get the most out of this article” (Participant A2).

Some found this story more useful than a traditional news article, as it allowed them to use their own knowledge of the topic and apply it:

“What I like in the table, we have a lot of content. If my income is \$50,000, I can check what I can afford. It’s a real database. I can use this data for me, for my own purpose” (Participant A1).

This kind of interactivity, often cited as a core tenet of data journalism, made it that a few participants found the table in the number-heavy story to be very useful in a practical and personal sense. It didn’t oversimplify the information as much as the other visual elements did, as a later section will examine.

The goal of each of the three articles, as explained by many participants, can be dependent on the preferences of the person reading it. When asked which story they would recommend to a friend or family member to get them up to speed with the housing situation in Montreal, many participants said that their answer would depend on the person they were talking to. If they felt their friend was comfortable handling numerical information, they would suggest the number-heavy story; if not, they would recommend one of the other two stories:

“Are you saying that as a journalist who likes data, who wants to see everything and you know that your friends can process it? Because I feel like my friends, yes [would want to read the number-heavy story], but then my family, like my mom, she wouldn’t be able to read [the number-heavy] story. I mean she would, she could understand it, but she’d be like ‘okay, that was boring’” (Participant C3).

“Yeah, that’s what I was going to say too. I have people in my life that I know connect more to the human aspect of certain stories, and other people are very number-focused, and more right-brained, if you want to call it that. My friend, who’s an accountant, who’s very into numbers, stats, and all of that, I would show

her [the number-heavy story]. But someone who I know doesn't really understand numbers, and just wants to see 'well, are there people struggling? Is there someone out there who is really struggling?' I would show them [the narrative-heavy article], which almost has no data in it, but I know they would relate to that more. It almost depends on who your audience is" (Participant C1).

I found this portion of the discussion to be interesting for several reasons. Firstly, this implies that for those who can understand the numerical complexity, the number-heavy article has benefits over the other two. However, it calls into question its effectiveness for a general news audience. If there is a significant portion of the population that would be uninterested in reading a story of this nature, is its publication worthwhile, regardless of its informational benefits?

The subsequent section will synthesize the results of the focus group discussions, and elaborate on the key takeaways based on these results.

5. Discussion

The following section will outline the major findings of this research. These findings are subsequently used to propose aspects of data journalism that can be applied to traditional journalism to make the practice more accessible. These suggestions are informed by the scale creation, story production, and focus group results discussed in previous chapters.

The three articles presented to the focus groups used numerical and human sources in different capacities. The number-heavy story relied solely on data sources for information; the narrative-heavy story relied exclusively on human sources and characters; and the data journalism article blended the two approaches, offering simple statistics to complement the human sources interviewed for the article.

Based on the focus group results, it is clear that each point on the scale and its corresponding article had both positive and negative elements. Participants generally found the number-heavy story to be difficult to read, and mostly unengaging. However, they appreciated that the number-heavy story contained a lot of information; many participants noted that this story could be a useful source of information for readers with strong data literacy and numeracy skills. Participants highlighted the importance of a story containing a human element, both for the aim of keeping the attention of the reader, as well as offering the reader a more accurate understanding of the issue due to the inclusion of the real-world impacts of the housing crisis. Despite the general preference for the narrative-heavy article, many participants found the story to be too reliant on individual testimony, and lacking in any substantiating evidence. With this in mind, many participants enjoyed the balance offered by the data journalism story. As it offered

some substantiating evidence for the claims presented by the main character, participants largely reported feeling more informed on the scale of the issue.

The subsequent paragraphs will examine how the findings of this research answered the research questions as stated in the introduction (see Chapter 1).

a. RQ1: How can existing literature inform criteria for effective data journalism?

The existing literature informs criteria for effective data journalism both by offering a practical guide for journalists wishing to incorporate data into their work, as well as examining how data journalism interacts with traditional news models. My research demonstrates that some aspects of these practical guides resonate with readers more than others. The main aspects of the existing literature that were confirmed during my focus groups are as follows.

Importance of human element

As outlined in the literature review section of this research, much of the current landscape of journalism scholarship and practical texts focuses on blending data journalism methods with more traditional reporting practices, such as interviewing lay and expert sources. As Houston (2019) notes: “CAR is not meant to be a separate endeavour, but rather an integral part of the news gathering process—interviews, observations, and documents. This ever-increasing part of journalism offers techniques to use, improve and enhance your current reporting, not necessarily take centre stage” (p. 179). The most evident way this is practised is through the inclusion of a central character, a factor that many focus group participants noted was essential for their enjoyment and understanding of the article. In both the data journalism and narrative-heavy

stories, the readers are introduced to Jay Collado, a tenant who is fighting against rent increases at his Côte-des-Neiges apartment. He feels that since his landlord has done nothing to improve his quality of life, including neglecting to fix the many elements of the apartment that need repairs, a rent increase is unjustifiable.

Focus group participants noted that the two stories that included Collado's testimony were easier to follow than the number-heavy story, which did not include a central human character. Participants cited the presence of a character through which they could visualize the housing crisis in practice as a key reason for greater understanding of the issue. In their critique of the number-heavy story, several participants pointed towards the lack of a central character as a barrier to making the story effective in a general news context. Without a character to relate to, participants felt too many people would be simply uninterested in reading the story. Participants noted the stories that included the central character made it clear this is a human issue at heart, similar to the recurring theme in the existing literature of maintaining *people* as the focus of an article, even if using data journalism as a reporting method (McKie & Vallance-Jones, 2017; Broussard, 2018; Houston, 2019).

Logic, statistics = closer to the truth

Despite the general opinion that the narrative-heavy and data journalism stories were easy to read, several participants noted that the number-heavy story offered the most “information” to the reader. This creates questions around the value of quantitative information in comparison with qualitative information. While many participants stressed that they appreciated the emotional connection in the narrative-heavy story offered through qualitative

information, they noted that the number-heavy story had the most “information” to offer the reader. This implies that while the qualitative information provided by Collado’s anecdote was certainly of use to the readers, the quantitative information provided by the data offered readers greater understanding. “Information” is defined here as any knowledge that brings the reader closer to a greater understanding of the issue. Some participants said that given the choice, they would pick the number-heavy story as one to show a friend in order to present them with the most context about the housing crisis in Montreal. This notion is aligned directly with Anderson’s (2018) definition of journalism as the formulation of public knowledge: the only method that brings the reader closer to *knowing* an issue is through quantitative methods, rather than honing in on individual events. Beyond Anderson, the existing literature equates data journalism methods—and social science methods (Meyer, 2002)—with getting nearer to some concept of the truth:

“Unless you’re a pathological liar or a very particular kind of journalist or strategic communicator, whenever you create a model, you want it to be as close to the truth as possible. How can we make this model move further to the [absolute truth]? By applying rigorous thinking tools such as logic, statistics, experiments, and so on. More and better information begets better models. A model solidly grounded on these methods is likely to be closer to being true than to being false. I say “likely” because in this little mental exercise I’m assuming that we don’t know what “absolutely true” really means. We can’t. We are humans, remember?” (Cairo, 2016).

Cairo (2016) defines models as “an abstraction that describes, explains, or predicts something about the workings of nature.” Journalism attempts to move away from abstractions

and into practicalities, while still maintaining the goal of describing and explaining social problems. Cairo argues that the best way to do this, even when working in the practical realm of journalism, is through quantitative methods.

As the narrative-heavy story did not have any data journalism elements included, many participants noted that the story was too reliant on Collado's testimony. It lacked substantiating evidence, forcing the reader to question the prevalence of his personal issue.

Data is not necessarily 'objective'

Many participants echoed an idea often presented in the existing literature: to view data as "objective" is incorrect. Meredith Broussard explores this issue at length in *Artificial Unintelligence* (2018). She warns against viewing data as infallibly true and objective, as it is socially constructed, stressing that problems will ensue if decisions about social issues are made using data alone (Broussard, 2018). She extends this logic to algorithms:

"It's rarely intentional — but this doesn't mean we should let data scientists off the hook. It means we should be critical about and vigilant for the things we know can go wrong. If we assume discrimination is the default, then we can design systems that work towards notions of equality" (Broussard, 2018, p.150).

Focus group participants noted that the data collection methods for housing information can often exclude linguistic minorities, rendering the data not only inaccurate, but biased towards the majority francophone population in Montreal. Participants equally noted that as the number-heavy story analysed the data collection methods of the two surveys it cites, it only highlighted

the fact that they didn't know which to trust. The story relies exclusively on data, but simultaneously points out that the data collected by the CMHC may not be entirely reflective of the housing crisis in the city. This can leave the reader unsure of what the takeaway is.

Joel Best (2012) is equally critical of treating statistics as undeniably true in *Damned lies and statistics: untangling numbers from the media, politicians, and activists*, noting that “public attitudes towards most social issues are too complex to be classified in simple pros and cons, or to be measured by a single survey question” (pp.44-45). Several focus group participants noted that the one-dimensionality of this story led them to question its legitimacy, rather than accept it as objective solely because it relies on data.

Importance of visual element

A significant portion of data journalism literature examines the importance of information visualization as a method of communicating a message to a reader. Existing literature examines data visualization specifically (Cairo, 2013; Yau, 2011; Wong, 2010) as well as the theory behind strong visual presentation more generally (Tufte, 2007).

The majority of focus group participants reported appreciating the presence of a visual element, especially in the data journalism story. They felt that the bar chart, though simple, added the ability to grasp the crux of the story at a glance. While there were criticisms of the bar chart that will be discussed in the next subsection, the focus group participants generally felt that the bar chart helped them contextualize the issue quickly. This was especially clear in contrast

with the stock image used by the narrative-heavy story, which offered very little practical information to the reader about the contents of the article.

This is in tune with a lot of the existing scholarly literature and practical texts about data visualization. Wong (2010) argues that “when a chart is presented properly, information just flows to the viewer in the clearest and most efficient way. There are no extra layers of colours, no enhancements to distract us from the clarity of the information” (p. 13). Both the chart in the data journalism story, as well as the table in the number-heavy story, attempt to display information in a “no frills” manner. However, the two visual elements received starkly different reactions.

The table in the number-heavy story was critiqued by many participants, as it provided the information to the reader in a completely “undigested” format. Many readers were unsure of what to make of the information included in the table, even after slowly scanning through each column and row. This echoes what Yau (2011) has said about storytelling and design in data visualization: “When you explore your own data, you don’t need to do much in terms of storytelling. You are, after all, the storyteller. However, the moment you use your graphic to present information—whether it’s to one person, several thousand, or millions—a standalone chart is no longer good enough.

Sure, you want others to interpret results and perhaps form their own stories, but it’s hard for readers to know what questions to ask when they don’t know anything about the data in front of them. It’s your job and responsibility to set the stage. How you design your graphics affects how readers interpret the underlying data” (Yau, 2011).

Both the table in the number-heavy story, which presented information to the reader without any interpretation or analysis, as well as the image in the narrative-heavy story, added little towards the goal of informing participants of the issue. The visualization in the data journalism story is the only one of the three that participants found to work towards that goal.

Data journalism education is lacking

However, despite its relative success compared to the visual elements in the other stories, many participants were adamant that the visualization in the data journalism story (see Figure 2) could have been improved significantly. Participants noted that the scale chosen on the y-axis of the chart made the increase in rent from year to year appear small. Several participants suggested making the scale on the y-axis smaller, in order to make the annual increases appear starker to attract the attention of the reader. They argued that even though the chart was the best visual of the three, the slight increases displayed by the bar chart would not accurately communicate the urgency of the issue to the reader.

This, of course, would be problematic for several reasons. There are countless examples in the existing data journalism literature (Tufte, 2007; Yau, 2011; Cairo, 2013, 2019; Wong, 2010, Gray et al., 2018) that demonstrate how altering the scale of a data visual in the manner suggested by the focus group participants can be inaccurate, if not unethical. While I certainly understand the intention behind wanting to make the increase appear sharper in the visualization than the scale I chose, it appears that the participants' main consideration was capturing the attention of the audience, rather than avoiding the risk of misrepresenting the issue.

That so many of the participants made this remark about the y-axis can point to the lack of data journalism education, and a related lack of data literacy levels in the student-journalists who participated in this research. This backs up the recurrent claim found in the literature that journalists are under-trained in formal settings about data journalism methods:

“While journalists interested in data are highly educated in journalism or closely related fields, they do not have a strong level of education in the more technical areas of data journalism, such as data analysis, coding and data visualisation. Education in the field does not have a strong academic underpinning, and while many courses are emerging in this area, there are not enough academically trained instructors to lead and/or teach such interdisciplinary programmes in the higher education sector” (Heravi, 2019, pp. 349).

Beyond the more technical aspects of the practice of data journalism, that many participants neglected the ethical aspects involved in data visualization is certainly concerning in relation to making data journalism more accessible. To alter a visualization in this way can completely misrepresent an issue. If the visualization had adjusted the scale of the y-axis, “the audience is then left with the impression that the difference is much greater than in reality. To avoid this, one should always start the y-axis at 0 to make sure the relative areas are accurate” (Haferl, 2019). In order to incorporate more data journalism elements in traditional news settings, as will be explored in the subsequent section, journalists require a more thorough formal training in elements of statistical analysis and ethical data visualization. Without it, attempts to enhance traditional work with data risk misrepresenting the issues they discuss. Many of the findings of the focus group discussions point to journalists viewing general news audiences as innumerate, and yet many of the participants in the discussions lacked these skills themselves. I

believe it is fair to wonder if disqualifying the number-heavy article on the grounds of an innumerate public holds less weight considering the lack of data literacy skills displayed by participants in other elements of the discussions.

b. RQ2: How can these criteria be applied to the production of data journalism?

The following section will examine how the above observations about the focus group discussions might contribute to the creation of a more accessible piece of data journalism. In short, accessible data journalism must include:

- a central character through which the story can be followed,
- sufficient numerical information to corroborate the account presented by the main character, and
- a visual element that offers some level of interpretation of the information to the reader, rather than solely a “data-dump.”

Importance of human element

Based on the focus group conversations around the presence of a central character in the data journalism and narrative-heavy stories, it is clear that readers appreciate the presence of a human source of information as a method of relating to the story and keeping their attention. A significant complaint about the number-heavy story was that it was difficult to follow, and a major cause of this was the lack of a relatable entry point into the subject matter.

The focus group discussions examined the importance of choosing an appropriate character, and this merits reflection. In the test stories about the housing crisis, some participants questioned whether Jay Collado's story was reflective of the overall issue, for several reasons. Firstly, participants noted that Collado's relative luck in staying in the same apartment for so long is increasingly rare in Montreal's rental housing market. Secondly, participants stressed that both Collado's ability to attempt to negotiate with his landlord, as well as bring his case to the TAL, point to his relatively strong knowledge of his own housing rights in Quebec. Many others, including immigrants, in Montreal may not be as well-versed in these rights, or be as capable of negotiating with a landlord due to a language barrier, or fear of losing their apartment.

While I fully believe that Collado's situation was worthy of being explored in the context of examining the housing crisis in the city, it is worth noting that readers will think critically about this character selection. If the reader uses the presence of the central character to improve their understanding of an issue, as was demonstrated in the focus group discussions, it is essential that the character's experience does not deviate too far from the common repercussions of the issue, which could end up sensationalizing or underplaying the actual impacts of the issue. It becomes the journalist's task to ensure that their character's experience is the personification of the data they cite, and not an exceptional case.

In practice, a journalist looking to incorporate data journalism methods into their work must maintain the traditional human element as a manner of introducing the story to the reader. Without it, readers may be distracted or uninterested.

Logic, statistics = closer to the truth

Additionally, the focus group discussions demonstrated the role of statistics and numerical information in an accessible data journalism article. While focus group participants emphasized the importance of the human element in a story, they stressed that human elements without corroborating data are ineffective. To present a singular personal experience as proof of a social problem is insufficient to readers; there needs to be the inclusion of data to corroborate and contextualize the problems experienced by the main character. In the construction of an article, the character acts as an access point to introduce an issue, while the data journalism elements attempt to bring your article closer to the “absolute truth” (Cairo, 2016). It is widely accepted that an “absolute truth” is unattainable; “[these methods] never give us a perfect understanding of reality but, based on their inherent self-correcting nature (good theories are inevitably killed by *better* theories), they do give us a series of better *approximations*” (Cairo, 2016).

The focus group results show that the story on the narrative-heavy extreme of the scale failed to offer an appropriate level of evidence required for a news story. Readers, when presented with this anecdotal information, could simply ask ‘so, what?’ With that in mind, the presence of numerical information is essential to guiding the reader closer to understanding the issue.

This means that a journalist can bring their work closer to some notion of “the truth” using data journalism methods, however an overreliance on those methods may be distracting to the reader. In practice, a journalist looking to incorporate data journalism methods into their work must determine what that level of data reliance should be, given the subject matter.

The focus group discussions provided several cues for effectively integrating data in a news article. In the number-heavy article, participants noted that discussing the data collection methods of the surveys referenced in the articles was not helpful to their understanding, and instead made the readers confused about the legitimacy of each data source. The analysis of the data collection methods effectively rendered the data to be a character in the number-heavy article, something the focus group participants noted was not an adequate replacement for a human source. With that in mind, an analysis of data collection methods is not necessary to include in a traditional news article.

Furthermore, participants appreciated the definitions of the essential concepts related to the data in the articles. Several participants noted that they would have liked more details included in the number-heavy story about vacancy rate: what it means, how it is calculated, why certain percentages are more critical than others. Since the article leaned so heavily on data, it would be useful for the reader to include definitions of some of the key terms, to ensure they are understood clearly.

In summary, participants stressed the importance of including data in a news article. It offers strength and authority that is not replicable through other methods. However, data can only be included in a story insofar that it does not become the central element that carries the story forward. Readers appreciate the human element primarily, and the data as a necessary corroborating element.

Importance of visual element

Another key takeaway from the focus group discussions is about the role of visualization. Participants were adamant that the visual element should be able to capture the attention of the reader and transmit essential information quickly. Participants critiqued the visual elements in each of the three stories (see Appendix A) included in this research for a variety of reasons, offering guidelines for more effective visual elements, as follows.

Many participants disliked the visual element of the table in the number-heavy story. They noted that the visual did not grab their attention at all. There was no element of the black-and-white table that captured their attention, or made them want to read it. This, from the start, made the entire article more tedious to read. Participants who read the table found it lengthy to read. Having to scan each individual column and row forced readers to spend a lot of time with the visual, rather than getting the takeaway at a glance. On top of that, participants were unsure of what the takeaway of the table even was. They felt that it presented a lot of information without guiding the reader sufficiently as to what the information meant in a practical sense. This table lacked the element of storytelling prescribed by Yau; readers cannot simply be presented a visual with no contextualization. Readers felt unsure of what to make of the information in the table: where does the problem lie? What does it mean for them?

A minority of the participants appreciated the table, as it gave them context for an affordable rent in their income bracket. Because the information was presented without analysis, some participants enjoyed being able to situate themselves in the small dataset.

With all of this in mind, it is essential for the visual element in a story to grasp the attention of the reader. Either through the contents of the graphic, or through colours and

positioning, the visual element of the story should serve as a method to capture the attention of the reader.

The complaints discussed in the previous section about the visualization in the data journalism article—namely the belief that the chosen scale for the y-axis did not adequately display the severity of the issue—are, in my view, inaccurate. However, the participants made several observations about the data visualization that I believe are pertinent in making data journalism more accessible. Participants appreciated the caption in the visualization, as well as the clear steady increase displayed by the bars, as both point towards a clear understanding of the issue very quickly. They found the visualization to be efficient with regards to grasping the heart of the issue quickly. The caption, as well as the obvious trend displayed by the data, made the general summary of the article immediately clear to the reader. While not all data will have such a clear trend, this topic was still noteworthy as something to be brought forward to traditional news practices.

Another critique of the data visualization was that the information it provided was too “surface-level.” While it offered a general idea of what was going on, it didn’t offer enough detail to inform the reader of anything beyond a general trend. Many participants noted that they would have appreciated *more* data in the data visualization, as simply tracking the rent increase across the city didn’t provide any information that wasn’t already obvious to them through their own lived experience in the city.

The main practical takeaway from the focus group reaction to the visual element in the narrative-heavy story is that the image did not add anything to the story. It was clear to the student-journalists participating in the discussion that using the general image seemed like a lazy

solution that one would make for a lack of time or resources. They noted that they would have preferred to see the inside of Collado's apartment, rather than the general image. In practice, it's essential to ensure the visual element in the story contributes to understanding the issue of the story, rather than just to fill space. An image that fails to add anything to the reader's knowledge of the issue will fail to hold their attention.

Summary

In summation, the three key practical takeaways for producing accessible journalism based on this research are as follows:

1. Even in a story that relies on data and statistics, maintaining a human element as a primary focus is essential for maintaining audience attention, and enhancing audience understanding.
2. Including data elements is hugely important for offering authority and evidence to a news report. Numbers add context and proof for the existence of social issues, and allow the journalist to extend beyond the anecdotal, which limits the risk of misrepresenting the issue.
3. The visual element in a story should aim to offer information to the reader, as well as capture their attention. The visual element should offer accurate insight into the story, without exaggerating or oversimplifying.

c. RQ3: How do audiences react to data journalism stories produced using the theoretically-informed criteria mobilized in this research?

Overview of findings

While there was certainly a preference for the narrative-heavy and data journalism stories (see Chapter 4), the focus group participants had strong reactions to all three of the stories created as a part of this research.

The participants found the number-heavy story to be difficult to read. Many reported having to restart their reading several times before getting to the end, and failing to retain any of the information. Participants noted that having so many numbers in the story, as well as some they deemed to be unnecessary to the message delivered by the story such as the number of Kijiji ads analyzed in the RCLALQ study, made the story confusing. Beyond making it difficult to retain information, the lack of a human presence in this story made it uninteresting for many participants. However, some participants noted that this story was very useful for a reader looking to gain the most insight on the housing market in Montreal. Several participants said that of the three stories, the number-heavy article offered the most comprehensive view of the housing crisis to its readers.

The narrative-heavy story was appreciated by many of the participants for its human component. The audience had a positive reaction to reading about Jay Collado's experience in his own words. The character allowed readers to see what the housing crisis looks like in practice, rather than have to imagine based on statistics. Some participants noted that their understanding of the housing crisis was maximized by this story, as they were captivated by Collado's story. However, many participants noted that this story was too reliant on Collado's

personal experience, and did not offer enough evidence to prove the existence of a social issue to the reader. While they were empathetic to his situation, participants were prompted to ask “so, what?” Without the data to corroborate his story, the article did not offer enough authoritative evidence to focus group participants.

Participants appreciated the balance of human element and data offered by the data journalism story. Many noted that while it still led with Collado’s story, the article brought some data to the table to demonstrate the scale of the housing crisis. However, many participants were critical of the data visualization included in the story, saying that the bar chart did not present the issue in a way that would capture the attention of the reader. Participants suggested either using different data, or changing the y-axis on the chart to make the increase in average rent more apparent, in order to create a more captivating visualization.

Other important notes

This disparity of participant opinions, especially regarding the number-heavy and narrative-heavy stories, is interesting in relation to my goal of creating more accessible data journalism. A primary mission of this research was to further understand what aspects of data journalism could be broadly applied in traditional news media. Many of the key aspects that comprised the scale, such as the number of human and data sources in a story, the complexity of the numerical information, and the information given by the visualization, all proved to be divisive in my focus group discussions. What was effective for some readers was disliked by others, even in the small scale of these discussions. While my research aims to improve on the models of traditional journalism, such as an overreliance on narrative information, it is clear that

any such attempted improvement will not be unanimous. This diversity of preference, in my view, is all the more reason to attempt to improve on traditional storytelling methods through innovation, rather than simply accepting the status quo.

One common theme that appeared in the focus group discussions was the disconnect between the story that offered the most information, and the story that the student-journalists largely believed to be most successful with general news audiences. Several participants, when asked which story contained the most information, were quick to choose the number-heavy story, saying that as it had the most data in it, it provided the reader the most “information.” However, many of these same participants said they would choose either the data journalism story or narrative-heavy story to show a friend a comprehensive view of the housing crisis in Montreal. In my view, this disconnect happens in one of two scenarios:

1. The participant understood the number-heavy story, but assumes that their reader would not be capable of understanding the data included in the story, or
2. The participant understood the number-heavy story, thinks that their reader would understand the data in the story, but believes their reader would be uninterested or uncertain of what to make of the data.

I believe that both of these mentalities reflect poorly on a journalist’s view of their audience. Given both the goals of journalism presented by the literature (Anderson, 2018), as well as the issues with data literacy brought to the fore in the focus group discussions, it seems like a strange conclusion to eliminate the number-heavy story for reasons of incomprehension. I certainly understand the argument that readers appreciate a human presence in an article—an attitude certainly confirmed in the focus group discussions. However, to assume that readers will

remain indifferent to an issue simply because there is no human element is a position I find to be cynical. I believe it undermines both the basic data literacy of many readers in a general news audience, as well as their capacity for empathy. To say that a human character is required in order for a reader to feel inspired to act against an issue is to imply that readers are unable to sympathize with the real people who, while abstracted, are represented in the data and statistics. I believe that if a reader can understand the data they consume, they will be able to visualize how the social issue impacts people, and feel compelled to act.

6. Conclusion

a. Importance of research

This research can serve as a guide for journalists looking to implement data journalism methods into their more traditional work. The scale created in this research isolates specific elements of an article, the story creation demonstrates the differences in those elements in practice, and the focus group discussions show what was effective with audiences and what wasn't. The findings of this research can serve as a foundation for attempting to create pieces of data journalism suitable for traditional news media and general news audiences. Knowing precisely what aspects of data journalism are appealing to audiences, including the reliance on data to corroborate human experiences as well as data visualization to present an issue at a glance, among others, can go a long way to bringing the practice further into mainstream journalistic settings.

This research also demonstrates the importance of data journalism education, as well as numeracy and data literacy more generally. The findings point towards the strength that numbers afford a piece of journalism when they can be understood. This means that journalists who are able to communicate pieces of numerical information clearly and accurately can add significant strength and authority to their work. Bolstering formal data journalism education in journalism schools is essential to meeting this goal. While discussing numeracy more broadly is certainly outside the scope of this research, the same principle would apply generally: if more people become comfortable with numerical information, the more accurately we can discuss the scope of social issues. I don't believe it is an exaggeration to say that grasping statistics like vacancy rates is an essential step in fighting the housing crisis.

However, beyond the data literacy of journalists, an important and initially unexpected finding of this research is how student-journalists view their audience. I believe it is important for a journalist to treat their readers with respect, and not with the belief that they will not be able to understand the information they might publish. This, of course, is not licence to publish information that is needlessly complex. But to deny numerical information to readers on the assumption that they might not understand it, when the journalist themselves believes the information to be useful, seems counterintuitive to the practice. To some extent, this research shed light on this important disconnect.

Finally, rather than focusing solely on offering instructions on how to produce data journalism, as much of the existing literature (McKie & Vallance-Jones, 2017; Houston, 2019; Wong, 2010) does, this research identifies *why* data journalism can be useful in traditional contexts. This research does not operate under the assumption that data journalism is “superior” by nature, but attempts to gain audience perspectives on which parts of data journalism can be brought to traditional news spheres. To my knowledge, this research is unique in its focus on audience perspectives of data journalism, rather than on its practical elements alone.

b. Strengths and limitations

Before concluding, it is important to note the strengths and limitations of this research project.

Limitations

A significant limitation of this research is my own personal bias towards data journalism elements. While the scale used by this research was developed based on commonly-cited pieces of data journalism literature, it was additionally informed by my own preference for the incorporation of statistics into the practice of journalism. The script developed to guide the focus group discussions (see Appendix B) was intended simply to gain the perspective of journalism school students on the articles (see Appendix C). Any slant in these questions was unintentional, but the data obtained from the focus groups should be looked at with a consideration of my background in data journalism, and the findings and discussion section of this research interpreted in kind. Secondly, my research was limited by the fact that all focus group participants were journalism school students. As discussed previously, journalism students offered a familiarity with traditional journalism methods that was certainly useful for this research. However, many of the conversations drifted away from their own personal opinions about the articles, and closer towards what they believed would be effective for a general news audience. Rather than discussing the stories as if *they* were a part of the audience, they discussed them as journalism producers. This slightly shifted the focus away from personal preference, and closer to what journalists believe to be effective strategies for general news communication. It is impossible for this research to make prescriptions based on audience suggestions, as participants did not serve simply as readers and are not an accurate measure for general news audiences. That all the focus group participants were journalism-school students was certainly beneficial in some respects, as will be explored in the following section; nevertheless, it was limiting in the sense that it somewhat detracted from the initial goal of this research: to gain *audience* perspectives.

Relatedly, the focus group participants are all students who I know personally to some degree through my experience as a teaching assistant in Concordia's journalism department. Despite the fact that I told participants on multiple occasions that their participation would have no impact on their academic standing, it is possible that responses may have been impacted by them knowing that my research was focused on data journalism. The group discussions were also limited by the disparity in the number of participants in each group (see Table 1), as well as the small sample size generally.

Another key limitation in my research was the practical application of the scale of numerical complexity. As I only created three stories along the scale, two of the three stories were somewhat exaggerated in their applications of certain elements of the scale. This was a planned feature of the research, both for convenience as well as making it simpler to isolate the aspects of each story that were appealing to readers. However, this extreme approach to some of the stories may have been too distracting to participants, making the goals of the research too evident to the participants. The stories were presented to the focus group participants in decreasing order of numerical complexity: they started with the number-heavy story, then the data journalism story, and finally the narrative-heavy story. It is possible that a participant could essentially recreate the scale designed as part of this research intuitively, which could have had an impact on responses. Future research could use a randomized order to present the stories in order to alleviate this risk.

Strengths

As stated previously, having focus group discussions composed solely of journalism-school students offered significant advantages in my findings (see Chapter 4). The aforementioned tendency to talk about the audience as separate from themselves, while distracting from the initial goal of the research, was beneficial in that it offered insight into what other *journalists* would believe to be effective to a general news audience. On top of gaining first-hand perspectives on what a reader likes and does not like, this brought an additional layer of what participants believed to be best to publish, something that would have been impossible with a broader sample demographic. This added layer was particularly interesting when what a participant personally enjoyed did not align completely with what they thought was best to publish in traditional media. Analysing this disconnect, while not an initial goal of the research, provided insight on how journalists perceive their audiences, and what they believe to be effective strategies for communicating social issues like the housing crisis.

Another strength of this research was its ability to isolate specific aspects of an article using the combination of the scale and the story production. Using the theoretically-informed scale to produce stories and a focus group script made it easy for focus group participants to identify parts of the stories that they enjoyed. While the extremes of the scale were certainly exaggerated, this facilitated the analysis of the articles in the group discussions.

c. Suggestions for future research

In order to create more accessible data journalism, future research can expand on the scale and methods used here in a few key aspects.

Firstly, future research could use a larger and broader sample of focus group participants. While not possible in the scope of this project, future research could hold more focus groups in an attempt to replicate a general news audience. This would be useful in working towards an initial goal of this research of gauging a general news audience's opinion on specific data journalism elements.

Alternatively, future research could isolate focus group participants with a high level of numeracy, perhaps by honing in on students in sciences or mathematics. Rather than examine general news audiences, an interesting comparison would be with readers who are comfortable with numerical information. This would lessen the risk of readers misunderstanding a number-heavy story for reasons of innumeracy, and create a potentially interesting discussion of the merits of the stories.

Secondly, future research could offer more to participants as far as practical elements of the scale of numerical complexity. Rather than focus on the extremes and the centre of the scale, future research could examine the scale with more nuance. This, in turn, would allow participants to view less exaggerated versions of these stories, potentially opening new avenues for discussion.

Relatedly, future research could rely on building a more nuanced model for numerical complexity in journalism, and then asking professional journalists to create stories based on these models. This would offer an additional insight into the interpretations of the model from an outside perspective, which would be especially useful if testing the stories with the general population.

Finally, future research could experiment more with the formats of the stories presented to readers. This research focused on print stories, with static visual elements, which was certainly a limitation given that interactive visualizations, driven by computer programming, are a quintessential part of data journalism. While creating interactive visual elements of this style was outside the scope of this project, future research could examine the reactions to more complex forms of visualization.

d. Concluding remarks

This thesis project attempted to create guidelines for accessible data journalism by investigating the aspects of the practice that readers find effective. To achieve this, I created a scale of numerical complexity based on the existing literature (see Chapter 3), wrote pieces of journalism based on this scale (see Appendix A), and held focus group discussions about the reaction to the contents of these articles (see Appendix C). The findings of these discussions were used to create guidelines for accessible data journalism (see Chapter 5). In short, this research finds that accessible data journalism must include (1) a central character through which the story can be followed, (2) sufficient numerical information to corroborate the account presented by the main character, and (3) a visual element that offers some level of interpretation of the information to the reader, rather than solely a “data-dump.” These guidelines, while preliminary, aim to offer a pathway to creating more accessible data journalism, as well as to improve the quality of traditional journalism.

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Appendix A: Focus group articles

a. Story #1: Rents continue to rise in Montreal

Per a recent report by the Canadian Mortgage and Housing Corporation (CMHC), rents rose by nearly four per cent in Montreal in 2021. It was the second-largest such increase since 2003, lower only than the rise in 2020 of 4.2 per cent. The report also indicates a decrease in affordable housing. While vacancy rates in general have gone up across the island due to a variety of pandemic-related factors, vacancy on low-income housing has become scarce. Apartments with a monthly rent between \$625 and \$899, the range which comprises nearly half of the apartments included in the report and is the range considered affordable by households with an annual income of \$25,000 to \$36,000, had a vacancy rate of only 2.2 per cent in 2021, up from just 1.6 per cent in 2020. Apartments in the affordable monthly rent range of \$1,325 to \$2,024, in contrast, have a vacancy rate of almost five per cent. Per Statistics Canada, more than a third of Quebecers spend more than 30 per cent of their monthly income on rent.

A survey by the Regroupement des comités logement et associations de locataires du Québec (RCLALQ) shows an even harsher reality. As opposed to the CMHC report, which was created using a random sample of apartments in Montreal and relies on landlords and owners self-reporting their rental prices and vacancy rates, the RCLALQ report analysed rent prices by obtaining prices directly from nearly 58,000 Kijiji ads between Jan. 30 and May 13, 2021.

While the CMHC report found the average rental price in Montreal was \$891 in 2020, the RCLALQ found a significantly higher value of \$1,302 on average, an eight per cent increase from last year. In fact, the RCLALQ found rent prices to be nearly 50 per cent higher on Kijiji than those reported by the CMHC. Per their report, this difference can be explained by CMHC data including available and rented properties, while the RCLALQ focuses only on vacant units, which are more likely to have been renovated for the purpose of renting for a higher monthly price.

Household Income	Affordable Monthly Rent Range (\$)	Number of Rental Apartments in Each Rent Range	Vacancy Rate (%)
Under \$25,000	Under \$625	78,874	3.5
\$25,000 to \$36,000	\$625 to \$899	289,626	2.2
\$36,000 to \$53,000	\$900 to \$1,324	167,680	3.0
\$53,000 to \$81,000	\$1,325 to \$2,024	57,738	4.8

\$81,000 or more	\$2,025 or more	8,745	4.8
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Source: CMHC

b. Story #2: “Between a rock and a hard place”: long-time tenant faced with tough decision

Jay Collado has lived in the same Côte-des-Neiges apartment since 2005, a few years after he moved to Canada from the Philippines. And yet, he’s far from happy with the work his landlord has done.

“When you come, it’s a lot of promises that they’re going to fix this, they’re going to fix that,” he says. “It’s been 17 years, and he hasn’t done anything.”

So when his landlord continued to increase his rent, Collado decided enough was enough.

“He’s asking for a \$35 or \$30 increase, I told him I couldn’t give him that, but I could negotiate with him,” he says. “If you fix this problem, I will give you that increase. He doesn’t want to. He brought me to the TAL (Tribunal administratif du logement, the branch of the provincial government responsible for resolving rental housing disputes).”

Collado’s story isn’t unique. According to research done by the Regroupement des comités logement et associations de locataires du Québec (RCLALQ), available apartment listings in the administrative region that Côte-des-Neiges is in have an average rent of more than \$1,000 per month for a 3.5 room unit. Collado’s rent is more than \$350 below that average, by virtue of living in the same building for so long. Landlords seeking to capitalise on low vacancy rates often attempt to raise their rents to keep up with the market.

Average rents in Montreal region

The average rent for a 3.5 room apartment in the Montreal region has increased steadily every year since 2015.

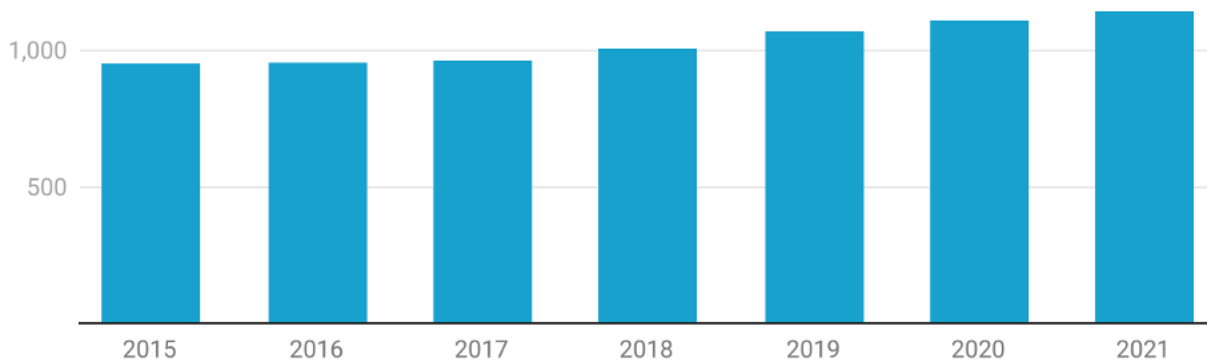


Chart: Ben Languay • Source: CMHC • Created with Datawrapper

Project Genesis, a non-profit organisation based in Côte-des-Neiges—Notre-Dame-de-Grâce, has seen an increase in requests for housing assistance.

“We’ve seen landlords become more and more aggressive in attempting to increase rents, and in particular to get rid of tenants — tenants who have lived somewhere for a very very long time and have relatively low rents,” says Darby MacDonald, a community organiser at Project Genesis. “[Landlords will] use whatever kind of tools they can possibly think of, legal or not, to evict tenants to increase rents.”

Collado is faced with an unpleasant decision: continuing to live in a building with significant defects, or taking a chance on finding a new apartment, where he’s unlikely to find something in his price range. “It’s actually good and difficult,” Collado says, referring to his relative luck in staying in one place for so long. “The problem is, finding an apartment is a little bit difficult right now.”

The vacancy rate in Montreal currently hovers around three per cent — a number that in isolation does not reflect a housing crisis. However, experts believe that in practice, the vacancy rate is not reflective of the market.

“What we’re seeing is the vacant apartments are the more expensive ones,” MacDonald says. “The rent might be relatively low compared to other major cities, but if you look at new postings of rents, all of them are significantly inflated compared to what the market rate in Montreal was even three years ago. If you have an apartment that’s affordable and you’ve managed to stay in it, great; but otherwise you’re between a rock and a hard place to find somewhere affordable.”

c. Story #3: Housing crisis: landlords hold the power



A sign for an apartment for rent in Notre-Dame-de-Grâce.

“It’s annoying, all the lies he tells.”

Jay Collado, a day after his hearing at the Tribunal administratif du logement (TAL), can hardly contain his frustration. The 49-year-old, who has lived in his Côte-des-Neiges apartment since 2005 claims his landlord has not made any repairs in the past 17 years. Despite having stayed for so long, Collado says the problems started early.

“When I signed the contract for this apartment, the contract said the appliances, heating and hot water were included,” he says. “But when we got here, we stayed here for one month without any stove and fridge. We had to buy milk every day. We had to keep bothering the landlord until he gave us a fridge and a stove. We couldn’t cook.”

Collado claims the apartment building is riddled with defects: the front door of the building does not close shut, allowing anyone to enter without a key. He says despite several robberies in the building, his landlord has not added any lights or security measures.

Collado says he has started to feel unsafe in his apartment. “Our front door has been broken since 2017, even the neighbours are complaining,” he says. “Before we went to the court, I took a picture of the main door, how it isn’t locking. Every time he’s around he’s saying he doesn’t have time.”

Collado is faced with an unpleasant decision: continue to live in a building with significant defects, or take a chance on finding a new apartment, where he’s unlikely to find something in his price range. “It’s actually good and difficult,” Collado says, referring to his relative luck in staying in one place for so long. “The problem is, finding an apartment is a little bit difficult right now.”

The difficulty of finding a new apartment is not unique to Collado, with Montreal in the midst of a housing crisis, according to the Regroupement des comités logement et associations de locataires du Québec (RCLALQ). The city’s lack of available affordable housing has given landlords an inordinate amount of power.

“One of the problems is the cost of dwellings, and the other problem, because people can’t find apartments at a reasonable price, is discrimination,” says Marion Duval, a spokesperson for the RCLALQ. “Landlords have all the choice of who to rent to. There’s a lot of discrimination.”

Duval says landlords use this power to find a tenant most likely to be open to rent increases. “There’s a lot of discrimination, on a lot of factors, that owners prefer having someone *like this*,” she says. “In general, it’s someone between 28 and 35 years old, single, with a stable job.”

The Quebec Landlords Association views the increased rents across the city as a necessary course correction. “We have to know that there are a lot of landlords that have apartments that are under the market price,” says Annie Lapointe, a spokesperson for the association. “They take this opportunity to put it back at the price it should be.”

Lapointe believes the majority of cases like Collado’s are simply a landlord attempting to recoup some money on what would still be a low rent after the increase. “We have, in some situations, some dwellings that are very, very low, where the tenants always refuse the increases,” she says. “So it’s very difficult for these people. We know that there are dwellings that are very high for their rent, but we also have the opposite. And it’s difficult for the landlords to go through that, because the law prevents them from catching up.”

This is little solace to Collado. “The landlord should cooperate if there’s a problem with a tenant,” he says. He would be open to a rent increase if his landlord made any attempt to improve the state of the apartment. As it stands, he says any increase to his monthly payment feels like exploitation.

The TAL has scheduled another hearing for Collado’s case, as insufficient progress was made in the latest three-hour meeting. Regardless of the result, Collado just wants the affair to be settled. “I want this to finish already,” he says. “Whatever the decision is. It’s hard, it’s annoying. If you’re in my situation, I don’t know what to do.”

Appendix B: Focus group script

Start by introducing myself.

The goal of this focus group is to determine your experiences reading these three articles. I want to see what worked well and what didn't. I am looking forward to what you all have to say!

1. What experience do you have with data journalism currently?

Probe: Do you read any journalism that is very number-heavy? Why or why not?

2. Before participating in this focus group, what did you already know about the housing situation in Montreal?

Probe: What sources do you get your information about housing issues in Montreal from normally?

3. Which article do you find the easiest to understand? Why?

Probe: Which article do you find to be the clearest?

4. Which story do you feel best informed you about the housing situation in Montreal?
Why?

Probe: Which article do you think offers you the most information?

5. Which story do you feel most accurately portrayed the housing crisis in Montreal? Why?

Probe: All the articles are about housing — which of the three of them makes the presence of a housing crisis most obvious?

6. Did you have any difficulties understanding any of the articles? If so, which one(s) and why?

Probe: Were any of the articles particularly confusing?

7. What would you have liked to see in any of the articles that wasn't there?

Probe: Is there anything any of the articles need to help you understand the situation better?

What would you like to see journalism do better to provide better reporting on the housing situation in Montreal?

8. Conclusion: Does anyone have anything they would like to add?

9. Wrapping up: Thank you everyone for your time. If you'd like further information about the research and my thesis, please let me know.

Appendix C: Focus group transcriptions

a. Focus Group A – Mar. 29, 2022

[0:00 - 15:30] Zoom meeting started, waiting for participants.

[15:31 - 15:50] Introductions

[15:51]

BL: This project is about creating accessible data journalism. The focus of my research is about making the process of data journalism more accessible. In order to do that, I wanted to hear what you all had to say about these three different treatments of one story, just to see what works and what doesn't work. There are no right or wrong answers, you don't need to share anything you don't want to share, you can talk about anything you want to talk about. If you don't want to talk about data at all, that's also fine. The takeaway is what you think is strong in these articles, and what you think isn't strong in these articles. People you think we should have talked to, people you think we shouldn't have talked to, anything along those lines. Before we get into the nitty gritty of that kind of stuff though, I wanted to ask you guys what experience you have with data journalism currently. Do any of you read any journalism that you would describe as number-heavy? Why or why not?

1: When you mean numbers, what do you mean?

BL: Journalism that has charts in it, or a lot of statistics, anything like that. The answer can be no if the answer is no. Go ahead.

1: Actually, I like financial stuff. I'm reading a lot of Bloomberg stuff. It's one of the ones I read often. So Bloomberg is the main one for me. Also the Financial Times, but the problem with that is you need to pay for more than three or four articles I think. So that's a problem.

BL: So most of your experience with numbers-related journalism is financial stuff.

1: Financial stuff definitely, 100%.

2: Me, it's kind of similar, financial stuff. You know in the Apple News app they have an agglomeration of all different news articles. Wall Street Journal, Globe and Mail, National Post, those kinds of things. Just following the stock market. But then, in terms of experience with that, 3 and I were in the IJ two years ago, so that was a lot of data stuff, a lot of numbers we were crunching. And then, at a magazine I worked at once, they used to do a lot of stuff about the mergers and acquisitions between different companies. There was a lot of numbers, money transferred between the two companies, or in terms of mines what's the output of each mine. So I guess I have some experience with numbers, but I wouldn't say that I'm super experienced. To be fair, I don't read statistical stuff for fun, it's more because I need to. If I didn't have to do it, I don't think I really would.

BL: What's a context where you think you need to?

2: As I was saying, for stocks for example, following the stock market. But that's just for investments and that kind of stuff.

3: I appreciate a good bouquet of data. I love what Human Rights Watch does. They always go with a calm little 'we spoke to this number of LGBTQ Iraqis that were beaten...' This is terrible,

I don't know if they spoke to people who were beaten, but I know that I always appreciate Human Rights Watch's work. I feel like the PBS Newshour comes in with these random polling folks that probably make no profit at all. 2 and I had the IJJ stuff, where I just encountered random reports. If you go to the newsrooms for science places, and you're like 'show me the data', they have so many things. I feel like I'm not answering the question.

BL: Do you consume any journalism that you would describe as number-heavy or numbers centered?

3: Maybe on the science vibe or biology vibe, but not too much finance. I should get more into that, invest into flour. Have you guys heard about flour? I'm going on a tangent here. No, I do read it. Human Rights Watch, I like.

BL: Kind of on that note, before reading these articles, what would you describe as your main source of information for housing issues? When you think of learning about housing issues, what kind of sources do you think of?

1: Maybe I'll go with the Association des Locataires du Quebec. I'd go with that first, or some kind of government source. Instead of that, actually, in Montreal, instead of Statistics Canada and everything related to rent, or government housing, that would be my answer.

BL: So you rely more on official government sources more than journalistic sources.

1: Yeah. If I want to buy an apartment, I'll check Statistics Canada first, check the rents, how it's been higher, what's happening right now in the world, what economic issues we have right now, and what's the problems here in Montreal. After that, I'll check for someone to help me buy a house of an apartment. The last thing, first I'll check government things, and then I'll check

journalism things, but less than normally, because I think I can know more than them, than what I see on their article.

BL: Can you elaborate on that?

1: You know the media in Montreal, everyone knows each other. I know that if someone has written an article, I know I can know more than them. I can check *more* than them, just to make sure if I want to put my money in it. I will do the research.

3: Because it's not unfortunately niche, this article, it's not something I have necessarily researched but felt. My source is hating my landlord and looking for another crib, and seeing that since I moved into my crib it's been four years, and it's just 'where....is....', well I guess it's out of my budget to get out of this landlord. I guess for this I don't have a clear answer, but I smell it in the people we speak with and I smell it in myself.

BL: So you see this kind of article as a kind of traditional news article?

3: I guess, unfortunately, about housing, I don't see it that much in the stream. Maybe I'm just not looking in the right place, or I could be doing more to keep up with news, lately. It's not something that I've really looked into, or opened. I don't think I'm a good sample for this specific topic.

2: If I'm looking to rent an apartment, normally I'd just go onto the internet and look on Kijiji or Facebook Marketplace. Other than that, if I'm looking for information generally...If it's specific information pertaining to me and my situation, I'll call the regie du logement, if not, I'll just read it in The Gazette or something online. I don't actively seek housing information. If I do come across an interesting article about rent increases or something, I'll take a quick read.

BL: So it's just more by chance, in a traditional kind of media source.

2: If it's in terms of media, yeah. As I said, if it's specific to me, then I'll call to find out more.

BL: That makes sense! Now we can talk about the specific articles. To refer to them, they're numbered at the top, story 1, 2 and 3. You can refer to them as that, or any other way that makes sense. Which article do you find the easiest to understand? Which one do you think is the clearest?

2: Story 2, for me, was the clearest.

BL: Why do you think that?

2: It was the easiest read. In terms of how long it took me to read each article, I'm not gonna lie, I think the first article it took like three or four different takes to actually read it. I started it, closed my computer, came back to it, went back and forth. It was pretty heavy. The second one was an easy read, I read it in one go, in probably a couple minutes. The third one was pretty easy as well, I think it was a bit longer, marginally. The second one was the quickest and easiest to read.

3: I think that story 2 and story 3 both have a lead of a human, who gets us into the human flow, and then we get into a lede of the rent aspect. I would say story 2 and story 3 are more likely to be easier to read. And then story 1, I think we just have an aversion to data, but I actually wrote down "konkenhaus", because I was thinking about Elyse when I opened this, and I remember her saying she's thinking in German, and then I learned the word for German hospital this week, konkenhaus, which I thought was so fun, like, I wanna go there! Why am I talking about this? Because 1 is so data heavy, that 1 could throw in a stereotype of efficiency and intelligence, this

is like konkenhaus, there is so much data, like we are in the konkenhaus here. This must be so camp. 2 and 3 for me are more likely to be metabolized.

BL: Do you find one clearer than the other? Is one easier to understand than the other?

3: There are subtle idiosyncrasies. For 2, there's almost more spacing. I might be messed up here, because I expected each to have the same theme, and I realized, no wait, 3 is slightly different.

BL: How would you describe the differences in the themes? I think that's interesting. How would you describe the themes being different?

3: First one it seems like there's the theme of the biggest rent increase since 2003, and then it's vacancy of low-income housing. The second one I think is similar to the problems with quality of life and rent being expensive. And then the third one, I feel like the lede wasn't about the grander issue of the city suffering, I guess it was a story of one man having a terrible home. There wasn't enough data for it to seem like it was about the biggest rent hike since 2003. Anyway, sorry for rambling.

1: I think, for me, the second story, I like it the most. You're putting your mind to someone. What happened to *this* guy in CDN. I'm French, and it's more difficult for me to understand everything, so for me the second story is way better. I like putting our mind with one person and seeing what's happening with him, what the rent is, what's happening, what increase he had. I think my second favourite story would be the first one, but why I don't like it that much. I love numbers, and I love money, because, that's another topic. What I like in the first story, there's good content. We know what's happening, we know we have numbers, we have some rates. The

problem is, it's harder to read it fluently. There's many numbers, and also the table. Maybe they show a little bit too many things on the top. For example, for a normal reader. I'm a normal reader, I just want to read something on the news. Every day I read something. That won't be the first one I want to read, because it's not fluent. If I'm interested in this, if I'm looking to buy an apartment in a few years or a few months, maybe I will like this article, because it's more related to what I like.

BL: That makes a lot of sense, thank you. You brought up the table, and I think it might be a good time to talk about it. What did you all think of the table?

3: I wish that if I presented this to a professor or someone, and said 'this is a table I want to include', that they wouldn't slap me and say 'no one is going to deal with all these numbers'. But I think it's a great table! I think it's a great value. But will people actually look at those numbers? Or just squint their eyes and look away? I guess it depends on your readership. But I think it's a great table, and an editor of a certain publication could say 'we need to unfortunately make it easier to comprehend'. But this is a very good, not skewed table, from what I see.

BL: When you read that table, this is a follow-up question, what do you think is a takeaway from that table? When you see that table, what do you think is the biggest takeaway from those numbers?

3: I guess it's the vacancy rate being a couple points lower for the lower incomes. And I guess something to illustrate that would be good. But you also see a shift in the number of rental apartments, which is fascinating.

BL: Do you think a general news audience would be able to get to that? Or are they too averse to it?

3: I think, I don't know. I hope that they would, but maybe there could be a caption that says 'the data shows...'. Or maybe if we just did household income and then vacancy rates. I think rental apartments gives some insight into how it could skew, because yes there's a lower vacancy rate there, but you also have thrice as many apartments in that range.

1: I don't really understand the vacancy rate. What does that mean? The percentage of rent adjusted for inflation or something like that?

BL: That's a great question. The vacancy rate, basically means an apartment that's available. For example, in the table, for apartments that have a monthly rent of under \$625, 3.5 per cent of those are available.

1: Ohhhhhh. Okay.

BL: For apartments that have a monthly rent of \$2025 or more, 4.8 per cent are available. Empty, waiting to be rented.

2: I thought the numbers in the table were really interesting. It took a while to sit down and actually understand everything, but I wanted to actually conceptualize it in my head. I think data visualization would definitely make it easier for readers to read. If you're casually reading this article, I don't think you're going to want to sit and take the time to understand the table. If you're really interested in what the article has to say, it is a pretty interesting table, in terms of the numbers it has to show. In terms of comprehensibility, I think data visualization would help here.

BL: Let's move it along. This is a purposely vague question, but what story do you think offers the most information?

2: The first one. The first one had the most information, it was the most data-heavy. The second and third were more centered around a central character, which does make it easier to read, but more information was given in the first one. I think the second and third ones give you information in the form of the human element. When he was saying things like he had to buy milk every day, because he didn't have a fridge, that's something I wouldn't have thought would be a problem, but then I'm like wow okay, this is actually...it makes the situation more real. That in itself, is information. To answer your question, if the information you're asking for is usable information, I would say it's the first one.

1: For me, I think I'm also the first one, the heaviest in terms of numbers. What I like about the story 2, is the storytelling. We are in the mind of someone. The third one is a little feature, with more quotes, more like a feature. To answer your question, I'd go with the first story.

3: The first one probably gives the most intel in terms of the numbers and stuff, quantitatively yes. But then you could argue that maybe story 2 and story 3 offer the real world application. Where someone could like, you know when you read something without actually reading what it is about. Where the human element is where we see the people affected. I would love for some WASPy person to read this and be like 'Oh my! They have to struggle with their landlords? I just *own* my apartment!' but yes story 1 I think would lead, but I think for that sheltered WASP story 2 and story 3 presents them with the intel of a lifetime. 'That poor Jay Collado!'

BL: Is there anything you would have liked to see in the articles that wasn't there? Do you think any of them offer any kind of coverage that is comprehensive of the issue?

1: I saw, I don't know when. I think it was in the Journal de Montréal. I saw a map, it was a map with all the metro stations, and their housing prices. Maybe we could have a map to see what's happening in Montreal in general.

BL: You think that would help you understand the situation better?

1: Yeah, and understand the situation about where you want to live. If you want to live downtown, or if you want to live in Mont-Royal, where you want to go. This map could help you to find where you want to live.

2: I think maps are a great idea, I always love maps. What could have helped as well was more images that were pertinent to the article. I saw the third article had an image, for example, but the image didn't add much to the article, it was just a sign saying 'for rent'. Whereas if there was an image of something related to the interviewees quotes, like the defects in his house, it would have been easier to connect to. Yeah, I would just say images in my case. In the second article, the fact that you used a mix of quotes and data, I think that was the only one that incorporated the two, the second article did that well. The third article lacked a little bit of data, it was just quotes really. A little more data in the third one and pictures that are more relevant.

3: I would love to take a metaphorical scissor and take an element from this, and incorporate the human elements or the lede 'It's crazy all the lies he tells'. And put that in story 2. It would be cool to have had, the bar graph in article 2, I feel like we don't want to skew data, necessarily, but if only those changes seemed more dramatic, or there was some tweaking of the x-axis #ethics #what. Maybe a bar graph, maybe using the vacancy rate, and maybe putting the x-axis at 0.2 per cent, so you get that dramatic difference. I do think more ways to make the data edible. A photo could be nice, it's always good to have multimedia in this digital age. Instant gratification.

1: What I like in the table, we have a lot of content. If my income is \$50,000, I can check what I can afford. It's a real database. I can use this data for me, for my own purpose. The other one, it's okay, but average rent for a 3.5, I don't know where it is, it's maybe in Pointe-aux-Trembles, or maybe its downtown. For me a 3.5 it's way more than this. It's more general, and when it's more general, people don't really relate to that data. For me, the table is way better than the chart.

2: In terms of data visualization, I like visual things, so I gravitate more towards the chart. As 3 said, maybe if we could change the x-axis, we could see the change more clearly. The points are very close together. I did like the chart, you could easily see the increment, as compared to the table, where it's just numbers plastered on the paper. I guess they each have their strengths, the table has a lot more information, it is more personable. You can pick out something that relates to you. Whereas the chart is more general, but just in terms of readability, the chart was easier to consume.

[ZOOM MEETING 1 ENDS]

[00:00 - 1:00] RE-INTRODUCTIONS

BL: So, we were just talking about the graph vs. the chart. What do you think about that?

3: I think I might have already given a vibe earlier, before, I think you're giving me a chance to speak twice. I was talking about the x-axis. Maybe you could do vacancy rate, or do rent increase but have a second bar for inflation or data on salary on people going up. Maybe you could have multiple. Something to give context of the greater economic scheme.

2: I think a chart with the number of rental apartments vs. the vacancy rate would have been good as well. That's the main data you're trying to portray in the table. A chart putting those two numbers together would have been useful.

BL: That makes a lot of sense. The last thing I want to do, the concluding question, is in a sentence what's the thing that you liked the most and disliked the most about each article? I know that's kind of a lot and a hard thing to condense, but in a sentence, what did you like the most and the least in each of three?

1: Story 1, what I liked the most is actually 100 per cent the table. Now that I know what a vacancy rate is, it's very clear for me. I like it the most. What I like the least is that there is too many numbers for "a normal person". Too many numbers. For story 2, what I liked the most was the storytelling. I like it, it's even more related to me, because it's someone from outside of Canada. I like the storytelling in that. What I like the least would be the end of the story, after the chart, we have a lot of quotes, and maybe we can cut some of those. For the third one, I'll be honest, for me it's just a bunch of...how can I say that? For me it's like you just wrote something and boom, you put it there. Maybe you can have a chart, a table, a map. We can include something. Maybe the storytelling is interesting, it's like a feature. But it seems like you just copy-pasted something, you can add something, you can do many things to make it more interesting.

BL: That's a great answer, thank you!

2: For the first one, what I liked a lot was that it had a lot of information. I think it was the most information-heavy one. If you really take the time to read it, you can get the most out of this article. What I didn't like about it was the readability. It was pretty hard to read through. It had

some words with long acronyms, like the RCLALQ, my eyes kind of glazed over when I was reading that. So yeah, the readability was a bit hard, it took a while to get through it. The thing I liked the most about the second article was it was the easiest to read. It really integrated well the figures and the charts with the information. It was a good balance between quotes and data. You had a central character who you turned the story through, so it made it easier to follow and relate to personally. But you also had the facts and figures, so it was well-balanced. What I liked the least about it, was that it was too short. I think you could have gone on a bit longer. But overall, it was my favourite. The third article, what I liked the most, was it got really into detail into the person's situation. Talking about all the problems he was facing. In terms of storytelling, I think it followed the character the most. It had the most potential out of the three to be a feature-style thing. I did like that about it. The thing that I liked the least, I would probably say it wasn't as balanced as the second article. It didn't have as much stats and figures. If you're looking at the three articles, in terms of data, the first has the most, followed by the second one, and then the third. If you look at the three articles looking at personification or looking at a central character, the third one did that the best, and then the second one, and then the first. I think that's why the second one was placed in the middle, it had the most balance out of the three.

BL: That was a great answer, thank you!

3: Whatever I could say, I think it might align with what 2 or 1 had to say. That first one is this konkenhaus, efficiency realness. It's giving the scientific tea, but it could be more human. The last one has this fabulous human form for six paragraphs until you get to the sort of lede, or a possible bigger picture. It's too individualistic at times. And for 2, it's not too konkenhaus, and it's not too Jay Collado alone. It's enough of the bigger picture. The thing about 2 that I liked the most, I loved the writing and the weaving, but I guess you have the opportunity for a graph to do

something that helps illustrate the picture, or prove another point, but for here, the graph unfortunately doesn't have enough of a dramatic incline, or we could use different intel from the story to make it a dramatic incline. I think the graph would be my least favourite part, I was like was more of an oomph. Even if it was red, humans just love red for some reason. I'm kidding, I don't think people would be swayed by the colour red. But two was my favourite. One, love the data but maybe too konkenhaus, and then three has five paragraphs before there's a lede. I guess I appreciate that there's a photo of a rental thing? I don't know.

BL: You appreciate the photo?

3: I appreciate the photo, but my inner media instructor is telling me to create a more dramatic juxtaposition. I'm playing. I appreciate the photo, but I feel like for number 3 since we're following Jay Collado, we should see inside his crib, or maybe he's showing all the robbers of Montreal 'my door does indeed not lock' or 'here's my milk carton collection'. You could have a great graph and then that visual gives the human element.

BL: Okay, last question, and this is a bit of a backtrack. Why would you say that the first one is difficult to understand?

1: Maybe it's not that difficult. There's not enough storytelling. It's just a huge paragraph. Maybe you can add some spacing. Personally, I would have started with some storytelling, like the start of the second story. You can put an example and then say 'now, let's talk the real shit. Let's get to the real stuff'. You can add some fantasy before entering into the real stuff.

BL: That's a great answer. I think that's all I wanted to talk about, unless you had anything to add.

2: What was the question again?

BL: Why do you find the first story confusing? Why don't you think it would hit with an average reader?

2: Because there was no central character. A character is always a portal through which you can relate to the story, or through which you experience the story. The lack of a central character eliminates that.

3: There could be a greater philosophical question here, where it's like 'does society need more education on being able to read and extrapolate from this type of heavy math?' Because our brains just see this math and just say 'nope, I have survived this long without having to do this, so I'm good'. I think the statistic mind just might be ****gagging****.

BL: Okay, I won't keep you any longer! Thank you for doing this! If you have any questions about anything we talked about, or anything about my research, send me an email or talk to me in person. I really appreciate your time, have a great day.

b. Focus Group B – Mar. 31, 2022

[0:00 - 2:30] Zoom meeting started, waiting for participants.

BL: So I think we are good to start. Thank you all for coming. I'm Ben. You guys know me. But I am Ben. Essentially, what this project is about is about creating accessible forms of journalism. So when we talk about all the articles, it's really just about what you like, what you don't like. If you want to talk about data, you can talk about data, if you don't want to talk about data at all, that's also fine. Really, we can talk about whatever you think is effective, and what you don't

think is effective in these three short articles. But thank you so much for coming again. The way I want to start, just kind of set the table a little bit, it's talking about what experience you have with data journalism currently. So for any question, if you don't want to answer you don't have to answer. It really is meant to be kind of a discussion more so than just like, take your turn each person answering each question. But I really wanted to know if any of you read any journalism right now that you would consider it to be number-heavy or number centric. If anyone has any thoughts on that, please jump in.

1: I guess I could start. Ben probably already knows this. But I'm a big sports guy. And so for me, I guess I would consider the sports journalism I read to be not data heavy. But there are definitely numbers. But I think it's pretty light. I think that's safe to say that's why I can consume it. And but if it was too data-heavy, because I think I would consider the first story in these three sample ones to be pretty data heavy. Like if they were all like that. I don't know how consumable they'd be for me. I can't say it's objectively bad. But yeah, for sports anyways, like there's, I guess there's a lot of data, but it comes across as pretty light to me.

BL: Very interesting, thank you. Does anybody else have anything to say about that? Does anyone think that they consume any journalism with a lot of charts? Is that something anyone here finds interesting or uninteresting? Like is that something that is part of your regular kind of news consumption?

2: Me personally, with my internship we have to COVID numbers. And there are a lot of charts and stats to kind of have to reference and go through and understand. So that's basically been my daily task, I guess. But like Liam was kind of saying that's not really something that I enjoy or

necessarily am understanding super well, it kind of took a while for me to understand what I was looking at at first.

3: Uh, so I guess I deal with a lot more numbers than most people. But I read the finance section pretty much every day. And I try to make sense of it. But I'm probably pretty silly. What I do see a lot more data, heavy stuff, especially in tech journalism, for example, there's a lot of emphasis on specifications and their constant creep of technology. So you'll see a lot of that. Same with Liam, I see a lot of sports journalism as well. And most of it kind of reforms around the same kind of sets of charting and display that you would usually see when it comes to that kind of data journalism work. Although, I will say there is one outlet that you turned me on to, which was The Pudding, which does a lot of visual essay work. And it's a great way to sort of engage with these kinds of numbers, as opposed to some of the other more traditional forms of just reporting the numbers and just feel like you're reading a report.

4: Yeah, I'm just gonna, I'm gonna echo what 2 said. If it's COVID, I can deal with the charts and stuff. I think then I'm a bit more receptive to reading numbers and charts and a lot of figures just because I think we've all had to learn to keep up with that kind of stuff. But other than that, I don't think I'm one to consume a lot of data journalism.

BL: That makes a lot of sense. Does anyone have anything else to add about that? Or can we move on? Let's move on. So now I want to talk about housing. What kind of sources do you refer to for information about housing? Do you rely on more official sources? Social media, how do you balance that with regards to housing information? Because obviously, there's a lot going on in housing in the city right now. So how do you kind of go about looking for that kind of stuff?

5: I would say more official, I guess like one of the ones you referred to, the CMHC. And also, housing groups, like community organizations, I think are an important place to look for that kind of information.

6: I would say a lot of the information I get on housing and the current state of the housing crisis relies on watchdog groups and activists, as what 5 explained. I think they're able to get a pretty good look at what's happening on the ground, that maybe a set of government data may not cover in the full extent and actually capture people's stories, getting that raw information from people struggling with their landlords, that is where I get that usually on social media, on their official websites, places like that.

BL: That's a great answer. And I think that's a good way to transition to the first question about the articles. So the three articles are numbered at the top, there's story one, two, and three. You can refer to them in any way that you think is easiest. I guess my first question is which article do you find to be the clearest? Which one do you find the easiest to understand?

4: I think in terms of getting the point across I found the third one was probably the most transparent about what the issue was that this particular person is having. An issue with their landlord because the landlord wants to increase the rent. Yeah, and then the first one was probably I think for me the least I'm engaging just because it is very numbers heavy.

7: I would agree with 4's sentiment. I feel like for me, they got exponentially more humanitarian based. They talked a little bit more about the people involved in the issue. So it felt a little bit less about the statistics and more about 'Okay, this is a human issue at heart' and I guess that's what I bought more rather than the first article, for example.

2: Like 7 and 4 said, I agree with the more humanitarian, the more human connection to the third one, but I kind of like the graph in the second one and the more visual component. So I would argue that personally, I like being able to see a timeline or visually be able to see something that clarifies the information, especially if it's numbers.

BL: Yeah, I was gonna ask about that. How do you feel about the use of the chart? In the second one, what do you think that adds?

5: I think for the second one, the chart, I feel because it doesn't show much of a difference through the progression, it's just very small increases, maybe it's because of the scaling of the chart, it goes like \$500, \$1000, maybe if it was smaller increments on the y-axis that it would have been more visible and you could see the difference. But as it stands now, it doesn't give much.

3: I 100% agree with 5. I think that's actually the biggest problem with it. Because out of the three pieces, I gravitate towards the second, just because it's kind of the more journalistic of the three. But the problem is that you can barely see the increase, because again, the range that's used between the x and y axis doesn't really make sense for this story. Personal opinion, of course.

1: Yeah. So I agree with everyone. But basically, the scaling is a problem, but I like the choice of a bar chart versus just a normal table in the first story. But yeah, I agree with 3. The second one is definitely more journalistic in a sense, whereas the first one almost reads like a textbook. It's really theoretical, I guess. But I don't know, again, how consumable it is. And in the third story, the visual, it's nice, but it doesn't...it's just a picture. You know, it's good, but it's just a picture at the end of the day.

5: One thing I want to say about the first one that I liked is the amount of information but obviously, it wasn't in a consumable... it's hard to read. Even me, I was looking at it. And I was taking it bit by bit. Because I was doing this *for this*, I was focusing more, but if I was reading this in passing, I don't think I would have stuck on it too long. So if one way could have been better presented is with DataViz, or even just those run on sentences, like very long sentences and it's all in one paragraph. So maybe splitting that up better and adding the human touch as well.

BL: That's a great answer. And I think kind of related to that is, and something I'm kind of curious about is what you guys think about this is how do you differentiate the second article from the third article? What would you describe as the differences between those two?

6: I think I really was a fan of the third one, but the main reason why I enjoy the second one in particular is that you're not platforming the landlord, as is done in the third one, which, you know, if you're focusing on tenant rights, I don't know why you pass the mic to the landlord association. But at least here you get the actual housing group who's telling you the issue, that's really a citizen-focused effort. So I appreciated it a lot more. And with regards to the data, I felt like having the chart there was a good indicator. As everyone else mentioned, I would have messed around with the y-axis a little bit to make it clearer. And to make it more like pressing that this is an actual issue because you can barely see a change. Other than that, I really like the third one. But then again, where you're getting those quotes, those sources of information matters a lot and it'll show your intentions to your reader.

BL: That's a really good point. I thank you for bringing that up.

8: Yeah, I feel like the third one works best as a standalone article. It's more of a news story. Whereas the second one goes more towards campaign journalism in which it is talking about a subject, like a global issue that's been going on for a while and that's just like, not the news story of that day. And so like if the same article was repeated over time that would work best to talk about the subject as a whole.

5: I'm going to say that I slightly disagree with 6, when they said that it wasn't a good idea to have the landlord association there. Because it's not like the entire story was focused on the landlord association. You had like the tenants saying all of his grievances and whatnot. And it was just one quote from the landlord association to see like, the other side. It balanced the story a little bit, and even from the quote, you could see that...Because from what the person said from the landlord association, they say 'they take the opportunity, put it back as it should be' and it shows that it's a very subjective thing. And it's as it should be, according to the landlord, like I'm reading that it's not as it should be. I guess it allows the person reading it to think more and see that what the landlord is saying is not reasonable, but at least it shows that you're looking at both sides, I guess.

BL: I'm super happy to hear you guys talking about the sources. I'm really, really happy with this. Go ahead.

4: I think I'm kind of inclined to agree with 5. I think including the landlord association kind of made it seem a bit more impartial just because maybe the second one just seems slightly advocating towards an end to this inflation. But I think the third one seems slightly more objective. And I know it doesn't always have to be objective, but it does seem like there was more of an effort to present both sides.

BL: Okay, so I want to talk a little bit about the first article. Several of you have mentioned that it's a little bit confusing and kind of hard to digest. What can we do to make it better? What do you think? How do you think we can improve it? And what do you think it does well? Does it do anything well?

9: So the first thing I thought worked very well, was all the information that was packed in a very concise manner. In general, I felt like I could understand very well, even though I was reading it in the bus with noise around me. So very concise, very understandable. My only issue was the table. Yeah, I think it may be a bar graphic or something in that sort will be more comprehensible. I just saw 20 different numbers. And I was trying to understand that. So yeah, a little bit more difficult to understand if you're not putting all your concentration in.

3: I just want to bring up a separate point. Who's the audience for the first article primarily, is it for like other business leaders, other finance sort of people, people who are more interested in like Non Farm Payroll, or those kinds of really big financial events? Or is it mainly meant to be a mass consumption document, like a regular journalistic piece would be?

BL: A mass consumption document.

3: Okay, so then in my viewpoint, like, obviously, it doesn't work. And I would agree with 9 100%. I think the biggest problem is, we just kind of know this from just talking and working in broadcast as opposed to print, just too many numbers, too many things for people to sort of gravitate and get lost towards. So I think it needs to centralize what the focus of that story is. And if it's just a data dump, then there's really not much to improve on this point.

BL: What do you guys think of the table at the bottom of the first story? Does it when you look at that table? Are you able to kind of take anything away from it? What is the actual real world takeaway from that table? As in, like, what do the numbers actually mean in it?

8: Well, it doesn't have its place in a news article. It's great in a textbook. There should never be a table in an article, because that's the thing, I read the table and the data is accurate, interesting, but I don't take anything away from it. I haven't learned anything from the table.

4: This to me strikes me as an article that you would skim more than actually read intently. And it's not really a graphic that you can just look at for a second and then understand what it's trying to convey. You really have to read each individual table. I find it takes a bit too long to transmit really basic information. Whereas the other one in the second story, you know, you don't even have to read the numbers. You know what it's telling you, it's implied. So I think that's a little bit more efficient, because this isn't really like... It's not a feature, I think it's more something that you're supposed to skim.

7: My main issue with the table was, I mean, aside from the fact that as soon as I saw it, it made me want to read the article less, because there's a lot of numbers, was that I just noticed, in the first paragraph, you're actually getting a lot of repetition. If you actually look at the table, and you read what they're talking about at the beginning. The first paragraph is just kind of like translating the table into words, which is what I want from an article, but then I don't see the point of keeping the table there, if I already knew the numbers, because they're telling me. So it's either tell me in text, or keep the table and take out the numbers from the text.

5: That's actually a pretty good point, I hadn't thought of that. And even like for the table, too, I think it would have been more useful because the table is just dry data. And when you're reading

a new story, you want the context. So if they had put some contextual information as in where does the average person fall? and maybe highlighted the rows of the table where the average person falls, which gives a bit more information. That would have been more useful. Or, like Gabriela said, just remove the table altogether with the context in the text at the top.

1: Yeah, I was just gonna say what 7 said I couldn't word it any better. It just becomes redundant. I guess the table, the first paragraph puts it all into words. And if I had to choose between, like, some sort of visual representation and putting it into words, I definitely lean towards the former. But it's just not a table, it would have to be some sort of better representation of it. But yeah, I don't know. It is a lot of numbers. So I don't know what type of visual would work but definitely not words.

BL: Okay, this next question is intentionally vague. Which story do you think offered you the most information? Which do you think you read it, you feel the most informed about the housing situation in Montreal, if that helps.

3: The third story for me, the impartiality event actually reaching out to landlords, we've talked about this a little bit before, but it does make a difference in the completion of information. The numbers heavy story at the beginning, has a lot of really interesting facts, but they're all centered in one concentrate of knowledge sources. And as opposed to the other ones, where you're actually getting perspectives, which is a lot more valuable, at least to me, for information.

BL: Do you find that a universal rule where human sources are more valuable than the potential data source? Or is specific to this situation?

3: I mean, I'm biased. I like human beings. But I think that there's just a reality that some stories do deserve more data or heavy approaches. And some don't. And I feel like, especially when there's an oversaturation of these kinds of stories in the market, talking about housing, and they're usually told from the perspective of developers and finance people, it's much more beneficial to give a complete picture, which involves the different parties and what their particular objectives are in the situation.

4: Yeah, I also think housing, everyone is involved in this, it's something that affects literally everybody. So it's kind of hard to not have humans as a central element to your story there. I think there kind of needs to be a humanistic element in this particular story. Maybe in a certain field where the majority of the population is not at all involved in this, or has very limited knowledge to what's going on in that domain. But this, it's pretty important, I think, to have people be your central focus to the story.

6: I definitely agree with 4, and 3 as well. Having that people-centered approach is really, really helpful and engaging for an audience. It really brings you into the story. I do want to come back to something that 5 said earlier because I really do agree with it a lot, which is there's almost no sense of scale. Especially that first table, you don't understand how big each section is and how much of a problem it really is population-wise. So having a clear understanding of which household income bracket is suffering the most based on how many units are available in a more accessible way. If there was more info around that graph, maybe adding more numbers to the third one would kind of balance out your story and then your data, so you can learn even more, but also have it be focused on people's experiences.

5: Going back to your question about like, in the one in the most information, I would have to say that it would be more like, I feel like the third one doesn't have very much information in the sense that it focuses a lot on one story. And it's all about this person's history, which it does provide... It makes it easier to understand the situation. But in terms of the quantity of information, it's not very much. You could sum up everything in that article in half its length, or even a quarter of its length. When 3 said the first article is like one type of information, it's true. But this one is also kind of one type of information. And it is like, a lot very much like a specific scenario. Although there is other information, you got a bit more contextualizing information, whereas the first one is very just data driven.

7: I kind of have to agree with 5. I feel like even though I tilt towards the last one, I feel like maybe the first article, to try to answer the question, has the literal most amount of information. But in terms of feeling informed as a reader, I feel like the last article gives a lot of nuance in terms of, you can tell me the statistics, but actually, with this article, I understand the impact of what's happening. So I get to see inside the apartment, I get to witness the effects of this crisis on people. I feel better informed with the last one, just because by the end of it, I'm like, 'okay, yeah, there's a housing crisis. But did you know that, you know, people who are living in these shitty apartments? I don't know, they don't have a fridge? Or sometimes they don't have a stove? Or all those things?' I feel like that informs me better. Because it's just more about like, the socioeconomic situation, kind of.

BL: That's a great point, thank you. Is there anything that any of you would have liked to see in the articles that wasn't in any of them? Is there anything when you're talking about reporting on housing, is there anything that journalism that you feel that you consume can do better at representing the situation, just in general, with regards to these articles, or just in general?

3: What I would say is, for my end is just we need a more of an urban planning perspective on some of these stories. Because we kind of hear, obviously, tenants, we hear homeowners that we hear that crowd, we hear also the developers and the real estate people that crowd as well, hear the finance people and what they have to say about it. But ultimately, we're in a controlled environment. So I'm interested to hear what the housing authorities actually have to say, and that actually manage the cities themselves. Or if it's not the city, and then maybe the township districts as well, because that kind of perspective gives us an idea of what legislation is being pushed through what kind of angle to sort of looking towards for the future, and whether those developments will actually see the light of day. So I think that's the kind of the bigger piece. And I think, just from a journalistic perspective, I think that's harder to get, which is why those kinds of sources are usually omitted, because they take too long to actually get back to the reporters in the first place. Personal experiences in there.

6: If you're going to talk about your garbage apartment, I think I would like to see your garbage apartment. I wanted to get a visual of everything. Show me the door that doesn't lock, show me all the nasties, show that kind of visual aspect that people can really get hooked on. The only picture we have here is an 'a louer' sign on the front lawn. That, to me, conveys no information: pretty boring. Although you do have that strength from the headline that kind of ropes you in a little bit, having those visual elements to kind of show 'Oh, this is what a crumbling unit from the early 2000s That hasn't been touched in 15 years. Here's the consequence of that.'

2: I would say just to add to what 6 was saying, I fully agree, maybe even a video component, like a small clip that shows a real person being like, 'hey, look, this is what I go through on a daily basis. This is the crap that I'... you know. And they even cut to if you could, like he was

saying, have a government official or even someone who manages, the area. So just to kind of have like a video element that ties everything together.

3: Another thing I would say, as we're all suggesting these different kinds of storytelling, I think one of the really good ways is to use an interactive component. Like a web app, where you could see in real time, you're spending this much, you see this much, and in real time it kind of animates itself. Obviously there's a lot of coding and design language that has to go into that. I think that's an easier way sometimes to communicate this kind of information. First of all, you're involving the audience in the story because they have to type in the numbers, they have to click on certain things. And then more importantly, you can visually show, here's what it cost ten years ago, here's what it cost today. You can see those visually a lot more, and you can connect with the data a little bit more easily than in a spreadsheet.

7: I agree with 3 in that I'd like to see more solutions journalism, either from the association, or from landlords, or from somebody to tell me how we could solve the problem better. If that has to be a government official, that would be an interesting perspective too, because that wasn't there. In terms of visually looking at this, I don't know who brought up the video component, but I think that's a great idea. I was thinking even a walkthrough of the apartment, but you had a side by side, so you had this is what he's getting, and here's what people are paying to get a nice apartment. And you do a walkthrough of those two shots, and you can see the difference. That might annoy a viewer, not only because they get to see the nice luxurious apartment, but also because you're getting to see how most of us really live, and it's kind of shitty.

BL: That's a great point, thank you! That's pretty much all I had to ask, is there anything that anyone wanted to add about any of the articles, anything you liked or didn't like that we didn't

get a chance to touch on? Thank you for coming! I really appreciate it. Enjoy the rest of your day.

c. Focus Group C – Apr. 1, 2022

[0:00 - 1:50] Zoom meeting started, waiting for participants.

BL: The focus of my research is making the practice of data journalism, and journalism more generally, more accessible to traditional news audiences, and rethinking how we think, kind of the traditional news story. To do that, I sent you three articles, and we'll talk about them in just a minute. But before that, I guess I wanted to ask you what experience you have with data journalism currently. Do you read any journalism that you would describe as being very numbers heavy, or numbers-centered? And before we get into the answers to that, if you don't want to answer a question, you don't have to answer a question. Really, this is meant to be a free flowing dialog kind of thing. If you feel like you don't have much to say or anything to say about data or anything at all, you don't have to. And if you don't want to talk about data, but want to talk about sources or structure or anything like that, that is all fair game. We're here to just talk about the articles generally. The first question is, do you consume any data journalism? Do you consume anything that's very numbers heavy or visualization-heavy? Is that something that interests you?

1: Personally, no. The only experience I have was last semester in Elyse's class, we did like a bit on data journalism. And we had to write an article on baby names, and the popularity of baby names, something like that. And that's kind of it for me.

2: I visit a website almost every day called Visual Capitalists. So it's very much about infographics, numbers, condensing a lot of data-driven information with visualizations to make it

easier to understand. I find it a really good way to get a lot of information very quickly. But that would probably be the most I consume, that would be the most common way I consume, would be through infographic type of data journalism.

3: Yeah, right now I'm in the IIIJ. So we're working with data. I have to say that I used to read a lot more and now I'm just trying to focus on finishing the classes. But I do also like infographics and I'm experimenting a lot more with downloading government data and working through it. But I've taken a break in this final stretch for the last few weeks of the semester.

BL: I think everyone needs a break. I think that's totally fair. Anybody else?

4: I often read The Economist. So they include a lot of data that presents the global like the larger story, I think it's a great use of it.

BL: Yeah, that's something I've heard a lot about about financial stories, often it's hard to present financial stories without that data angle. I personally do not like financial stories at all. But that is something I've heard a lot. Something that these stories are about is housing and the housing situation in Montreal. So I wanted to ask you all what sources you normally rely on for housing information, whether that be in your own personal decisions, or a more news angle. Whether it be social media, traditional news sources, where do you look for info on housing?

5: I think surprisingly enough, Project Genesis is a source that I've used before for housing. But yeah, the grassroots projects about housing are a very good place to have that more supportive angle. But it's also fair game to look at the data provided by the ville de Montreal. And some larger organizations or corporations that take care of housing developments.

BL: How do you balance that kind of activist sources with the more city related ones, do you think there's a balance there?

5: I mean, they're both in two different sides of the spectrum, right? They're not homogenous at all. So I couldn't say really how I would balance these, just present the two and let the interpretation of the reader take care of it.

4: I reported quite a bit on FRAPRU and what they're proposing. And what I found is that, when it comes to the actual problem, they're very fact based. So they rely on official sources and everything. It's more on your approaches to solve the issue that they're more activist. So to me, they're not complete opposite.

6: I find that, you know, data and numbers based information, quantitative data, is often a very colonial and Western way to legitimize and look at things. And what I've heard from racialized people and EDI sources, is that, especially people who work in equity, that qualitative data is as important as quantitative data. But obviously, in journalism, we have a tendency and a desire to latch on to numbers, and that's very, very important. But for example, you know, when I speak to people of racialized minorities who have language barriers, they will not be in the systems where they will be included in the data. The people in Parc Ex who don't speak English or French, the elderly, the undocumented, the single women, the refugees, people living under the poverty line, they will not be counted, generally, in census data, or even data that FRAPRU or CAPE are collecting, because those people are white, they do not have people who will speak Hindi, and that is a very big gap in data gathering, I think, which starts at the very source. And so I still obviously have a tendency that if I'm reporting on something like that, I want to stray towards data and I want to grab on to something concrete, but there needs to be a recognition that

a lot of the data, whether or not it's from the government, whether or not it's from reporting, or from activists, when you look at the spaces that hold that data or gather that data, we have to recognize it. In general, just gathering that data, there is a big gap. And until we don't go outside and talk to actual people and try to fill the gaps with real personal in-person reporting, I don't think the scale of how big the housing crisis is will actually be written about, factually.

BL: That's a really excellent point. I think it is a good time to start talking about the stories themselves. The stories are numbered one, two and three, so you can refer to them as that, if that's easy for you. Which one do you find the easiest to understand?

2: I personally found the second story the easiest to understand. I liked the graph, how it split it up. But I think it was a good balance of anecdotal quotes with both quantitative and qualitative information. And I think it was the most well rounded of the three.

1: I personally thought that the third one was not necessarily the easiest to understand, but I thought it made the most sense for me. Like, if I were an editor, and I had to choose one, I think that that's the one that is well-written, because it has a mix of interview and information, but it's also the way it's structured, it makes more sense to me, the order in which the information comes is a bit better for a story, especially since at the end, there's there's a conclusion at the end that says 'oh, he's scheduled for another hearing in his case,' and all of that. And to me, that's how a story should end. Whereas the second one ends on a quote or something. But yeah, I think the third one for me.

7: I think the second one, also, I think that was the best. But I think the first one was by far the worst. I had to reread sentences several times. And even after having read it, I didn't retain anything. And because there were fewer numbers in the second one, I was able to kind of

remember, 'okay, they said this, they said this'. But yeah, similar to I forgot who said it, but as opposed to reading things in numbers, I think I'd rather read about the cause and effect that those numbers have, rather than just numerical data.

BL: Thank you.

6: I really want to echo what 7 said, about leaning towards 2, but also wishing that there was a more qualitative angle to it. Because seeing the graph, you know, I liked the visual of the graph. But this to me felt like it wasn't giving me new information. Okay, it's a steady increase of rent, where's that not happening in the world? What data are you giving me to support and validate Jay Collado's story, right? I'm not seeing the connection, the human connection, and to understand how it's manifesting in someone's actual life. This bar graph, frankly, it just gives me, okay, so we know that rents are increasing, but what does that mean for someone who's actually living there? And it does give me some sense of it. But not enough for me to see the scope of it on a wider scale to people similar to him. And so the connection isn't there. And I wish there was a mix between 2 and 3, I guess.

5: Yeah. To me, the second story felt a bit like a run of the mill journal story that has to go out in the morning. Like the editor was like, 'okay, get a couple of quotes, and try to build something off of that.' And that's what the journalist came up with. There seems to be a disconnect between what's going on and the journalist because he just didn't have time to do it. So that's how I felt with number two, I'd say.

BL: What do you think you would have added to story number two with more time?

5: What would I have added? Well, it would probably turn a bit into this number three, to be honest. Because if you'd get a bit more of a sense of Jay Collado's story, and probably sprinkled the data a bit more, like spread out throughout the story instead of having paragraphs of data. And yeah, Collado's story would be the main thing and probably have Project Genesis understand what Collado's story is and talk about Collado's story, specifically, for everything to tie together, things like that.

4: Maybe just a quick comment about the graph in story two. I feel like the graph can be summed up in a single sentence, maybe a single number. You know, average rent increases whatever percentage between 2015 and 2021. I don't feel like the graph provides much more information. I feel like the table in story one has some very interesting information, interesting numbers that might speak a little bit more about the personal story that is told in both story three and story two, and that was missing.

2: I feel like information that might have been more helpful in that graph in number two would have been the rates between rental costs between vacancies, like available rental units and occupied rental units. And I feel like that would illustrate more of the point rather than just basically the graph. I don't know, it just seems like a visual. And while it helps break up the text, it is kind of just redundant to what's already been said about rental increases.

BL: This is great. Thank you. I guess I want to talk a little bit about anything you found confusing, did you find any of the articles to be confusing or hard to read?

1: The first one for sure.

5: The first one. To me, the first one was like I turned into academic reading mode, which is not a good thing. I turned into reading diagonally and only getting a few sentences in and ignoring the rest, completely ignoring the rest. And yeah, that's not a good thing.

BL: It's not!

1: It's just that it was number-packed. And also I get that we're talking about rent. So of course, there's gonna be a lot of numbers. But even sometimes there are other numbers thrown in there that if you're trying to read a news story, and you have to include numbers, I find that you want to make sure you include only the numbers that you want the reader to remember. For example, when it says 'obtaining prices directly from nearly 58,000 Kijiji ads between January and May' all of that, again, this to me, the 58,000, if I read this article really quickly, in the morning, where I'm really tired, and then after that, someone would ask me, 'oh, you know, they talked about annual income, what was the annual income?' I might say, 'oh, well, I remember seeing 58,000.' But it's not actually what you talked about. This is just a number of ads, which maybe in an academic paper is really important to mention, how many ads you look through. But for an article, I don't think it's necessary. I think it's just confusing to read or even more, because it's an unnecessary number to put.

6: For me, I actually think that the graph was one of the most important things I learned, which was that I learned that the CMHC reports are not unreliable, but they are certainly gathered from a specific angle. But I agree, maybe you know, the presentation of it is a little bit difficult to process. In that instance, I would have only mentioned the 58,000 Kijiji ads, if I know that sampling, that the CMHC gathered as well to get a sense of scope and a comparison of why that 58,000 ads is even mentioned. But what I think is the most difficult to process in this article is

there is a complete lack of leading the reader into the information. There's no pacing, and the structure is very difficult to process. Because there seems to be a certain angle about income, but then it doesn't show me, it's just telling me a lot of things, and it's not showing me any information, any relevance to why the income is important. It almost feels like it was missing a thesis. And also, there was no storytelling effort whatsoever to have the reader be led into why it's important to focus on this angle about income.

2: I think my biggest problem with story 1 is that again, it highlights two different numbers that are supposed to be the exact same thing that are like 50% apart. So with only these two numbers, are we just throwing numbers here? Have we done some research? Do we know what I should trust about this? What is the actual story? So whenever you have two reports that are really conflicting, and you're only presenting them, I think it really makes the whole story not worthy.

BL: So how do you think that would be solved? By presenting which one is correct? Or closer to being correct?

2: Well, you probably wouldn't be able to do that. In the article, it says there's an explanation for it. But again, you don't really know what to do with it. That's kind of my point.

6: Just to echo 2's point, I think this sentence was the most important sentence in the whole article, in graph two, 'as opposed to the CMHC report, which was created using a random sample of apartments in Montreal, and relies on landlords and owners self reporting their rental prices and vacancy rates, The RCLALQ report analyzed rent prices by obtaining prices directly from nearly 58,000 Kijiji ads between January 30 and May 13'. I can see what the author is trying to imply, or trying to say, in terms of why there's a 50% gap between the prices in the last graph, but I'm not seeing substantiating information, such as a comparison. Well, what's the

sample of this CMHC? How many of them are landlords? How many of them are owners? Were any? Are they self-reported prices? Or were they based on a random extraction of listings? On what sites? I guess the lack of comparison really draws a blank and you're like, 'okay, so there's a 50% gap? I don't know what that means.'

BL: That makes a lot of sense. Thank you both. I guess I want to talk a little bit about the table at the end of story one. How would you compare this table to the chart in story number two? Is there one that you prefer? How would you compare the two of them?

1: I would say, visually, obviously, seeing bars, I think is a bit easier to understand. Maybe that's just for me, because I'm a visual person. I like seeing things. And I think that to me is easier to understand. But at the same time, it doesn't say a lot. It's very surface level. We see an increase in which, like mentioned before, could have been said within a sentence. And did we really need a graph to represent the increase, maybe not. And maybe if you wanted to include a graph, maybe something other than just rent increase could have worked also for that. But then again, the table for story number one gives us a lot of information. That obviously cannot be just in a sentence, because I think that information put in a sentence would be even harder to understand. And yes, putting in a table like that does break it down a bit. But visually, it's still very... you have to look at each column and really read what it means and process the information to understand what the author is trying to show here. Whereas if it was put in some sort of linear graph or something, maybe then it'd be easier for the reader to sort of just look at it and understand immediately what the author's trying to convey.

3: Yeah, I agree with 1. I think that it's unclear, that they just leave the reader to find what is the purpose of that graph. And you have to go back and forth from the article to the graph to find out

why this graph is being used. What am I looking for here? And while it's obvious to most people, when you look at it right off the bat, it even will lead people to maybe not read the story, because what is the purpose of all the numbers? I just find it not only uninteresting, but it's almost as if the journalist didn't put in the work to draw people into the story and to make a convincing point.

4: Yeah, I feel the same way. I feel like there's a lot to unpack here, but the journalist just said, 'oh, I'll let the reader do that.' Because I feel like the first two columns, to me that's really interesting. Someone looking at that seeing like, 'oh, what's my income? What is the affordable monthly rent I should pay?' I think the 30% is included in the piece, but it's not explained. And I think most readers won't know. Where does that come from? After that, you know, the proportion of apartments in each range. To me that's also really relevant. And finally, the vacancy rate, that's the crux of the story, that vacancy rates are a lot higher in apartments that are much, much more expensive. So I think a single table won't be able to highlight these different key points effectively, and would probably need multiple paragraphs, a different way of telling this information. And the journalist just didn't do that.

6: Also, I thought it was an interesting choice that the author did so much work to say the RCLALQ did this thing. And then there's this gap, and then they choose only the CMHC data. So it almost is as if, what is your thesis? What is your nut graf here? It feels like a giant textbook of nut graphs. Because like 4 has said, they're drawing something about the vacancy rate, I was looking at something about the price differences. Like if I'm below the poverty line, if I'm reading this as a citizen who needs to find a house, and I need to know what the average price is, that's the most important to me, which is column two. But then if you're, I don't know, another journalist, maybe you care more about the vacancy rate. So, what is the focus of the story? And

why did the journalist just choose CMHC data, versus when they brought in another data set in the article?

BL: That's a really great point, thank you for bringing that up. Last thing about story number one, then we can move on from it. What do you think is the main thing that prevents it from being broadcast for a traditional news audience? What's the main thing that prevents it? How do we get there?

5: The human angle, obviously. There are lacks a character. And we need someone to drive the story forward.

BL: Okay, cool, then let's move on. Which story do you feel most accurately portrayed the housing crisis in Montreal? And why?

3: That's a hard question. Because between story number two and three, they portray it... I mean, 'accurately' itself is a difficult thing to define. Because in story number three, I love his personal perspective. I love the struggles that he goes through. That's really voiced well, but there is a lack of data to substantiate it in a way. And that's sad to say that it's necessary, but then you're left like, 'okay, he struggles. Now he's gonna go to court, good luck, Collado' What's going on? Why is this a big problem? Why is this something that needs to be done now? And on story number two, I feel like they lean into that data more, but I didn't feel Collado's struggles as much. And there was a lot going on in his life that could have been shared there to make it... I think it's like what we said before, if it was a mix of the two and three, it would be more powerful. And now I forgot your question. But 'accurately', it's difficult. I think that that's something that's difficult to define. Because they're both accurate in their own way.

BL: I guess another way to phrase that question is, if you wanted to show someone, whether it be a friend or just someone you know, that there was a housing crisis in Montreal, which of these three sources do you think does the best job of portraying that?

6: I really hate to say this. It hurts me physically to say this, but I might choose 1, only because the other two are not situating me in a context that I feel accurately shows me the scope. What I have the biggest beef with in number two is that it's telling me the most important information at the very end two graphs about the vacancy rates hovering above 3%. And it's giving me important information about inflation and the affordability, and it's not nestled within it's not woven into this whole nut graph here, and then the bar graph is taking up so much space. So I don't like to say it, but I guess number one, if I really have to.

3: Can I ask a question? Are you saying that as a journalist who likes data, who wants to see everything and you know that your friends can process it? Because I feel like my friends, yes, but then my family, like my mom, she wouldn't be able to read story one. I mean she would, she could understand it, but she'd be like 'okay, that was boring.'

1: Yeah, that's what I was going to say too. I have people in my life that I know connect more to the human aspect of certain stories, and other people are very number-focused, and more right-brained, if you want to call it that. My friend, who's an accountant, who's very into numbers, stats, and all of that, I would show her story number one. But, someone who I know doesn't really understand numbers, and just wants to see 'well, are there people struggling? Is there someone out there who is really struggling?' I would show them story number 3, which almost has no data in it, but I know they would relate to that more. It almost depends on who your audience is.

4: Maybe as a follow-up to that, I think I'm personally more attracted to numbers in general, but for someone who doesn't know what these numbers mean. Vacancy rate is just a rate. You don't explain why one percent is the line between a crisis and not a crisis. You need to explain that. If someone just comes with this number, 'oh, it's a number. But I don't understand it.' I think adding a personal story really emphasizes why I should care about this. I think there's a line here and I think none of the articles really blend all these things together.

2: I think the third article does a really good job of showing the struggle and the personal element of how difficult it is to live in these conditions. But I don't know if it really gives the reader enough of an understanding of what the rental crisis actually is. We're seeing more the effect of the rental crisis, an explanation of the rental crisis and what its effects are on Montreal's market. They appeal to different readers, but if we're strictly trying to show the story of what is the rental crisis in Montreal to somebody who's not familiar. Like 6 said, I hate to say it, but I think it might be story 1.

6: I want to answer 3's question. Absolutely true. I would totally show, only number 1 because I'm a journalist, but also, because I feel like it covers enough context. That's what sucks, is we're talking about the housing crisis, versus the rental crisis. You are either already in an apartment, or you're looking for an apartment, or you're being evicted from an apartment. There's so many different issues. And I feel like story 1 does something to my ADHD brain that's shoving enough of all the crises with the low income, and the vacancy rates, and all that. It's painting a picture. But no one that I personally know will try to understand this article, absolutely not.

BL: I'm sorry to have caused you guys physical pain. That was not the point of this exercise, I'm really sorry about that. The last question, to wrap up: was there anything that wasn't in any of the articles that you would have liked to see in journalism about housing? Is there anything that you think needs to be there for it to be comprehensive that wasn't in any of them?

2: I think, and I did a bunch of rental stories, so I feel like I might be a bit partial here, but the scope of how much Montreal is a renter's market, and I feel like that really sets the scene. If I remember correctly, when I did this a couple of months ago, I think it was around 66%, compared to, I'm from Toronto, and that's definitely not the case, it's not a renter's market, it's a buyers market, or right now a seller's market. But, the fact being that if you say this affects the majority of people living in the city, it pushes the reader to question 'ok, well why isn't more being done? Why are the root causes not being addressed, when obviously talking about these ideas of rent subsidies and affordable housing are obviously not working as well as they need to?'. I think showing the scope of how widespread the problem is and how many people it affects would help the reader ask the questions you want them to.

BL: That's a great point, thank you. Does anyone have anything to add about any of the articles that we didn't talk about? Anything that you feel is important to think about with regards to any of these?

6: I have a question about this picture in number 3.

BL: Let's hear it!

6: Why was this random picture there? It didn't feel like it had anything to do with the personal story, it didn't have a graph of data, it felt like not a good use of, economically speaking, on page.

5: I think, talking about 6's much earlier point, which is about the people that are not counted in these statistics, I would have liked to see the journalist take on the task that statistics don't take on, which is to talk to the people that are not counted in these statistics, find the outliers, find these groups that are in between a rock and a hard place. Because of these data collections, and all of that. I would have liked to see that part be shown.

4: Maybe a question: if you were to report on this, how would you decide if Collado's story is the right one to tell for this story?

6: That's a good question, because I do not believe that his story ties to the rental crisis directly, to be honest. I think he has a rent problem, with the landlords, but I don't know that his...Because he says he's able to pay that \$30, \$35 increase, there's people who can't. There are refugees who are being...I spoke to somebody this morning in an interview who said refugees who don't speak English are being taken advantage of, and the prices are actually being driven up, because the refugees are desperate and they have no other...it's either that or they face homelessness. It's a mix of what 5 and 4 are saying. There could be better use of an expository first person narrative that could be better thought out, because Jay is facing a particular problem that he could pay for, but it's a matter of principle, but there are people that could be otherwise affected that could speak to the scale of who's being evicted, who's being forced out, who's being priced out.

1: Yeah, and I think the fact that he can go to court with that and bring his experience to court and fight for it shows that he's not in the same boat as other people, who maybe don't speak French or English, who don't understand how the court system works here, and how they have the right to go after their landlords. Some people don't think they have that right. Some people are just afraid that they'll get evicted. In that aspect it shows how his situation is a bit unique, and does not speak to all readers.

3: Just one thing that I wanted to add is that there's really a big difference between a story that you need to get done today or tomorrow...there's less than a minute left, do you want to wrap up?

BL: Oh! There is less than a minute left. I am sorry! Thank you all for coming, I really appreciate it so much. If you have any questions, please send me an email. But this has been really great, thank you all for coming.

3 (by email): I just wanted to add that there is an issue with journalism stories faced with a time crunch, that Jay was probably chosen because they had to find someone for that story in the immediate future, and that's all they got. Likewise, I didn't see journalism presenting the true issues at hand, such other perspectives on how this could be solved or what can be done about this. While I don't think the stories should be aggressively curated, there was no sense of solution, or end to the renting crisis in Montreal, so the stories kind of ended as in, so what? Do I just have to feel sad now about it? The reader is not given the information they need to make an informed decision in the issue because it's so superficially presented. That is an issue in the story itself, but also the popular mechanical narrative of journalism now, which should be better addressed and "fixed" so to speak.