The Information Behaviour of Cyclists

Megan Ferguson
University of Toronto, Faculty of Informaton
meg.ferguson@mail.utoronto.com

Abstract

Research for this paper was carried out using Diane Sonnenwald's Information Horizon Interview technique with a graphical elicitation exercise in which participants were asked to draw their information horizons, in order to explore the information seeking behavior of enthusiast level cyclists. Three volunteer cyclists were asked to describe their information seeking strategies when attempting to solve a problem, their preferred and most accessed resources, and to identify their own role in social knowledge sharing network of the cycling community. It was found that the bike shop and group riding events take on the role of information grounds within the community, cyclists are heavy internet users but prefer social means of obtaining the most crucial information, and that cyclists typically go through a long and complex method of information gathering and fact checking that involves numerous sources in the attempt to answer any one question. These findings are compared to Karen Foster's Information Grounds, Marcia Bates' Berry Picking Model and Anders Hektor's Model of information behavior.

INTRODUCTION

The purpose of this paper is to examine the information seeking behaviours of enthusiast level cyclists in order to determine how they address their numerous and varied information needs as they strive to reach goals, train and improve as athletes, and upgrade or repair their equipment.

For the purpose of this study, an information horizon interview paired with a graphical elicitation exercise was carried out with three enthusiast cyclists. My findings from these three interviews indicate that there is a strong social aspect to information behaviour among cyclists, and that there are two distinct information grounds which play a crucial role in these behaviours. I have also found that cyclists like to use the internet but will not do so exclusively, always checking their information against other more trustworthy cyclists. Finally, I have found that cyclists perceive their information behaviours as extremely important and will dedicate many hours and a great deal of energy to information seeking.

I chose this population specifically because it would allow me to explore the concept of information grounds in cycling, since these three cyclists take part in many different aspects of the community. Also, by selecting cyclists who are not only active enthusiasts but may also be seen as authorities or information resources in their own right while not crossing over into the realm of professionals, I am able to compare my findings to the entire spectrum of Hector's Model.

LITERATURE REVIEW

There has not yet been any research into the information behavior of cyclists, however some attention has been given to runners. Tim Gorichanaz examines the information behaviours of long distance runners with regards to race reports (Gorichanaz 2017). These runners can be seen as highly comparable to cyclists as endurance athletes in a sport with a similar type of competitive structure, namely racing events.

Cyclists have not been wholly neglected in the literature of information science at large. Jonathan Dorey and Catherine Guastavino analysed magazines and internet reviews intended for enthusiast cyclists similar to my population in order to better understand cyclists' conceptions of comfort (Dorey and Guastavino 2011). They looked specifically at the language used to describe the ride quality of different bike models and how this language was understood and evaluated by the users of these resources.

Orland Hoeber, Larena Hoeber, Maha El Meseery, Kennth Odoh and Radhika Gopi designed a study which used twitter analytic software to track attitudes and significant events during major bike races, including Le Tour de France, and Giro d'Italia (Hoeber et al, 2016). They collected tweets from pro riders, team managers, race organizers and spectators in order to analyze their language and search for themes in attitudes towards different aspects of these events and reactions to the events.

One study from outside the literature of the information sciene field may also be seen as relevant to my own research as it surveys the perceptions of safety and risk among urban cyclists and the resources upon which they base these perceptions. In her dissertation for her PhD in City and Regional Planning, Rebecca Lauren Sanders used surveys and focus groups in order to learn about cyclists and motorists perceptions about the risk of cycling, and how they

use that perceived information to make decisions about cycling activities. She also examines the relationship between perceived risk and actual risk using crash statistics (Sanders, 2013).

RESEARCH METHODS

Research was carried out using Sonnenwald's Information Horizon Interview technique (Sonnenwald 2001). I arranged half hour interviews and graphical elicitation exercises with three volunteer cyclists who met the criteria for my population in that they were active in group riding and racing, and had experience working in bike shops. I chose current and former bike shop employees on the assumption that their cycling experiences would be information rich, that they would be more comfortable and articulate in talking about their information behavior, and I was interested in the bike shop as an information ground. My interview guide was designed to be flexible in the aspects of cycling the informants wished to speak about. I left room for impromptu questions and planned my questions around one instance of information seeking which I asked them to describe at the beginning of the interview.

Chris described himself as a lifelong and highly skilled cyclist. He had formerly worked in a bike shop as a mechanic but had long since moved on to another career. He enjoys participating and racing in several cycling disciplines. He frequently purchases new bikes and at the time that I spoke to him, was in the process of building a new bike for the spring.

Michael is a relatively young cyclist who very recently started working in sales at a bike shop. He races mountain bikes occasionally and had recently taken up road riding seriously. At the time that I spoke to him he was in the process of buying a new road bike and training for his first road racing season next summer. He invited me to sit in on one of his research sessions in order to better explain what sorts of information he was looking for.

Warren has been working in bike shops for fifteen years. He rides many different disciplines but is mostly active in mountain bike racing. He had difficulty seeing himself as a cyclist with information needs and chose instead to frame his information seeking as searching on behalf of others, such as the merits of different tire brands.

FINDINGS

Shops and Events as Information Grounds

I began my research with an interest in the Bike shop as an information ground as I had noticed them mentioned by Fisher (Fisher 2005). The bike shop did in fact meet Fisher's criteria for an information ground, but I noticed that there is a second, more temporal, type of information ground which figured prominently. I call this second category events, which includes races, workshops, large group events and impromptu group rides. All three cyclists emphasized the bike shop or shop employees as a crucial and highly reliable source of information, and two drew it as the first and most frequently accessed on their maps.

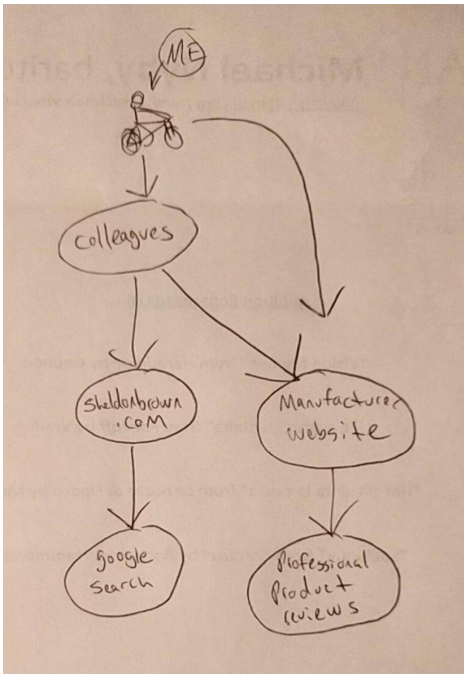

Fig. 1 Warren's Information Horizon map

Warren spoke most frequently of the bike shop as an information ground, and in fact referred to all of his cycling related information behaviour within the context of the bike shop and his work there. This included providing information to customers, dispelling misconceptions caused by customers' trust in what he described unreliable internet reviewers, and soliciting opinions from other cyclists about products he had no personal experience with. His use of the internet was limited to a select handful of resources and often took place on one of the bike shop's computers.

Michael and Chris both spoke at length about information sharing at cycling events. Michael referred the the cycling culture which encourages participants in these events to "all look out for one another all the time." This meant watching out for the safety of others and providing advice and feedback to newer or struggling cyclists, something he says he does frequently. Chris placed himself in a more seeking than providing information role at these events. He said he was constantly aware of what types of bikes and gear other riders were using and would often ask them about it, or look it up online later.

Fact CheckingCycles

During my interviews I had each cyclist talk me through a recent problem they had solved and explain to me the resources and strategies they had used in doing so. For all of these activities the cyclists described a continuous cycle of fact checking. Upon finding a piece of information which addressed the problem, cyclists would then check it against numerous other resources. Through doing so, they discovered a continually growing body of information which prompted them to then repeat this cycle.

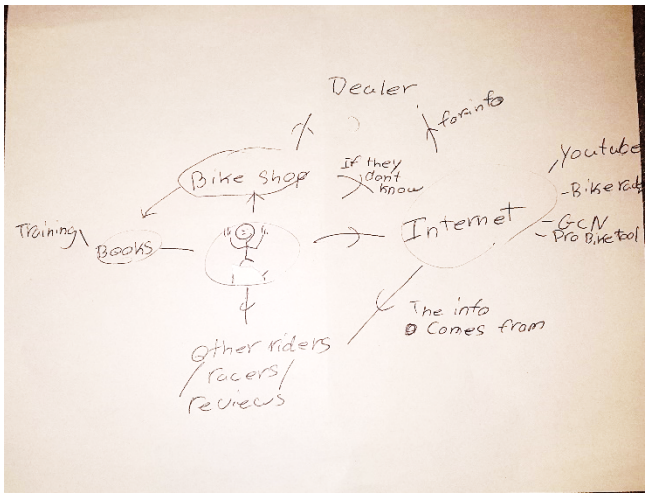

Fig. 2. Michael's Information Horizon Map

Michael began his search for a new bike by talking to a bike shop mechanic who said the bike he was considering was a great bike but not suitable to the type of riding he enjoyed. He then went online to research better choices for preference of riding steep hills and gravel roads at high speeds. Overwhelmed with choices, he created a powerpoint which allowed him to compare appearance, specificationss, weight and price for his options. He then spent several days reading reviews, He then went back to his mechanic and was told that his latest choice had several common problems. He then repeated this whole information gathering cycle again before finally placing an order for the Trek Emonda, although still unsure if he should spend the extra money to upgrade to better wheels.

Consideration of Online and Print Resources

A third major theme I noticed when speaking to all three participants was that they relied heavily on print and online resources, such as manufacturer information and reviews, and expressed a belief that this information was vital because it was easily accessible and covered every conceivable topic, but was overwhelmingly vast and often unreliable. Michael emphasized how valuab le manufacturer websites had been in selecting his new bike, but also expressed frustration with advertising which is sometimes treated as fact on these same websites, making it necessary for him to be critical of everything he read. Chris talked about the need to be discerning with YouTube videos, as many of them contained good information, but far more were annoying, misguided or trying to sell something. Warren listed a very small number of online resources limited to the Sheldon Brown archives, manufacturer websites and professional reviews which he used only as a back up when he could not learn the answer to a question from a colleague. He believes that all other web resources are made by people unqualified to review products or give advice, and stressed that he avoids reading or watching consumer reviews, or looking at any source on the internet that is not published by professionals within the industry.

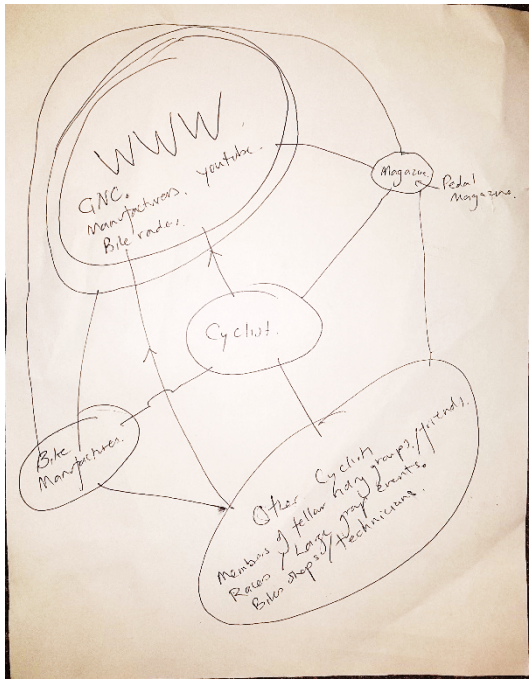

Fig. 3. Chris' Information Horizon Map

DISCUSSION

As mentioned above, I began this research with a special interest in the role of information grounds in the information seeking behaviours of cyclist. I found that both bike shops and group events fit the criteria for information grounds as outlined by Karen E. Foster. The primary purpose of both is not information sharing but rather retail or riding and competition respectively. However, both are recognized by the people who frequent them as good places to get information and even treated as preferred information sources. Bike shops and group cycling events are attended by a range of different types of people, from curious non-cyclists, to beginners, to casual weekend riders, and the more serious enthusiasts such as my interview subjects, occasionally even professionals attend. Each of these groups has an expected role toplay in the flow of information. This flow of information can take place in the form of formal interactions such as Warren advising a customer about the benefits of plus sized tires, or more casual such as Chris asking the next rider in the race line up about his titanium frame, but it is always social, multidirectional and multifaceted (Foster 2005).

Cyclists are most likely to trust, use and re-share information gathered at these information grounds, as the three I interviewed all mentioned a preference for gathering

information this way whenever possible. They also use the information grounds as a place to check and test information gained through other sources. Warren's customer who was uncertain about tire widths had read on the internet that plus tires would always be slower but had felt the need to check at his local bike shop before making a purchase decision. However, this goes the other way as well, as Michael went to the manufacturer websites to search for new options after a mechanic advised him against buying a particular bike. This lengthy and thorough process which enthusiast cyclists use to answer questions, in which they consult numerous sources and often the same one more than once, closely conforms to Marcia Bates' Berry Picking Model. They do not form a single query to represent the problem, and from a single source retrieve a single set of possible matching information. Rather, everytime they access one resource they discover new information which may cause them to reshape their query or develop several new ones and prompt them to access several more resources (Bates 1989).

The information seeking and sharing behaviors described by the cyclists also mirror Hektor's model (Hektor, 2001). They describe browsing their preferred websites for new reviews, technology updates and maintenance tips. All three of them monitor their preferred resources, especially other cyclists for new information. Search and retrieve behaviours figured prominently in all three interviews such as Michael and Chris' searches for specifications and Warren's reliance on the Sheldon Brown web archives for answers to obscure technical questions. They dress the information they have received in order to speak to one another about it, and even to speak to me about it. The cyclists within my population group all instruct other cyclists, especially the less experienced. This was perhaps best described by Michael who described how he had helped other cyclists the same way older cyclists had once helped him. They unfold information in that they participate in lengthy conversations and watch or read online tutorials. However, they also unfold information through riding. Both Michael and Chris described sharing information gained through personal experience but neither thought of experience as an information source. Only Warren was explicit about his personal experience being a valuable source of information that he uses to make decisions and informothers. While none of them actively contribute to youtube or online forums, they still publish in the form of Strava posts. All three of them spoke of their use of Strava and Warren mentioned using his own Strava data to debunk a customer's misconceptions. Despite all of them talking about the value of Strava as a social network and training tool, none of them seemed to think of it as part of their information horizon.

METHODOLOGICAL REFLECTIONS

Using the Information Horizons Interview method allowed the cyclists to describe their own information behaviours clearly and confidently. One draw back with this particular population was that when asked to speak about how they gather information about cycling they seized the opportunity to exhibit their knowledge about cycling and frequently had to be brought back to the subject at hand.

Given how much time and effort these cyclists put into information seeking, I believe there is the potential for more information behaviour research.

CONCLUSION

Through Information Horizon Interviews with three enthusiast cyclists and the maps they drew, it is apparent that success as a cyclist depends upon continuous and intense information seeking behaviour. Cyclists view this as part of the sport and lifestyle, and as the foundation of their community and social lives. Those who eat, sleep and breathe cycling engage in information behaviours which conform both to Bates' Berry Picking Model and to Hektor's Model. While the cyclists often choose to use the internet, there is a sense that the resources available online are overwhelming in size and questionable in validity. Social sources of information are frequently preferred and prioritized. Information grounds play an important role in facilitating this social flow of information within the cycling community, with bike shops and group events usually serving as the space in which this happens. Cyclists put a lot of time and effort into information seeking, and seem to enjoy it almost as much as riding. This is definitely one population where the Principle of Least Effort cannot be said to apply.

REFERENCES

Bates, M. J. (1989). The Design of browsing and berrypicking techniques for the online search interface. *Online Review*, 13(5), 407-424.

Dorey, J., & Guastavino, C. (2011). Moving forward: Conceptualizing comfort in information sources for enthusiast cyclists. *Proceedings of the American Society for Information Science and Technology, 48*(1), 1-9.

Fisher, K. (2005). Information ground. In K. Fisher, S. Erdelez, & L. McKechnie (Eds.), *Theories of information behavior: A researcher's guide* (pp. 185-190). Medford, NJ: Information Today

Gorichanaz, T. (2017). The information of the story: the genre and information activities of ultrarunning race reports. *Aslib Journal of Information Management,69*(4), 460-474.

Hektor, A. (2001). *What's the use: Internet and information behavior in everyday life*. Linkoping: Linkoping University.

Hoeber, O., Hoeber, L., El Meseery, M., Odoh, K., & Gopi, R. (2016). Visual twitter analytics (vista). *Online Information Review, 40*(1), 25-41.

Sanders, R. L. (2013). *Examining the Cycle: How Perceived and Actual Bicycling Risk Influence Cycling Frequency, Roadway Design Preferences, and Support for Cycling Among Bay Area Residents*(Unpublished doctoral dissertation). University of California, Berkeley.

Sonnenwald, D. H (2005). Information horizons. In K. Fisher, S. Erdelez, & L. McKechnie (Eds.), *Theories of information behavior: A researcher's guide* (pp. 191-197). Medford, NJ: Information Today.

Sonnenwald, D. H., Wildemuth, B. M., & Harmon, G. L. (2001). A research method to investigate information seeking using the concept of information horizons: An example from a study of lower socio-economic students' information seeking behavior. *The New Review of Information Behaviour Research*, 2, 65-86

AUTHOR'S BIO

Megan Ferguson is a first-year student in the Masters of Information program at the University of Toronto, Faculty of Information, where she is concentrating her studies on Library and Information Science, as well as Archives and Records Management. She also has an academic background in both Medieval Studies and Celtic Studies. Megan is also an avid, if still somewhat novice road biker, and has made at least one ill fated attempt at mountain biking.

APPENDIX 1:Interview Guide

1. Tell me a bit about how you got into cycling?
2. Could you tell me about some of your cycling goals for the near or distant future?
3. Can you think of a situation that occurred somewhat recently where you needed information about bikes and/or cycling?
    a. What type of information did you need? Why?
    b. What gave rise to this situation?
    c. Which people or resources did you go to in order to answer your questions?
    d. What did you do next?
    e. Was the situation resolved?
    f. If this were to happen again what would you do differently?
    g. (Any other questions that arise naturally)
4. (Next two questions in any order as may work best for the conversation) Can you think of a time when it was particularly easy to find the information you needed? Which types of information do you think are generally hardest to find?
5. Can you think of a time when it was particularly easy to find the information you needed? Which types of information do you think are easiest to find?
6. Tell me about a time when looking for or finding information was particularly satisfying?
7. Tell me about a time when looking for information was particularly dissatisfying or frustrating?

Follow up questions for maps

1. Do you use any other resources?
2. Are there any times when you would use X resource before Y resource?
3. Do any of these sources proactively provide information to you or suggest other sources?
4. Earlier you mentioned X resource? Would you include that on the map? Why/why not?
5. Do you feel like you have ever been an information source for other cyclists? (Can you tell me about a time when that has happened?)
6. In what ways do you contribute to the body of information resources on cycling?

APPENDIX 2: Selected Quotes

Megan: In your experience, types of information that are most difficult to find would be?

Chris: Things that are not on the internet.

Megan: Okay, so anything that's not on the internet.

Chris: Anything that's not on the internet. Now, there are some things that I will come across in a bike magazine, and a bike magazine will have both articles and advertising and I will find something in an ad and then I will look for it online. So that's very common. And there are some sites that just don't pop up on certain search engines but because we network with a bunch of other cyclists especially different disciplinary types of cycling, you know if you're out riding with guys for five, six hours, there is going to be conversation about something about cycling in that time. We're all into it. So, whether we're talking about the bicycles or the technology or the experience, or a place or whatever it might be, you're going to get little glimpses. And the other thing is, the same sort of thing, I go to races. The reason why I found this Canadian bike is I was at a race and the guy next to me had one of those Canadian bikes and I asked him how he liked it, and he works at a store that sells it.

. . .

Megan: And you ask them about it? (Meaning cyclists at races)

Chris: Only if I have a question. Most of the stuff I recognize and have read about already. And there's a few bike shops, and then technicians. Some of those are people that I know personally. They know a ton. So, I've got friends of mine. . .I was once a bike mechanic and I worked under this guy who has opened two trek stores, now he's doing his own store and if I really want an honest opinion I'll ask him.

. . .

Megan: And what do you think makes that information so easy to find?

Michael: Well there's a lot of people out there trying to share that information and they do it for free. Also, cyclists in general,

generally have a very helpful mindset. If we see one of our fellow cyclists at the side of the road, we stop and see if we can help. Most cyclists I know are very caring, even about the environment. They don't litter, they're very. . .They just take care of each other.

. . .

Megan: So just out of curiousity, if the bike shop, the internet and the other riders all tell you conflicting things in answer to a question that you have, what do you do then?

Michael: I would try to make a logical decision in terms of who is. . .like they probably won't conflict with each other or disagree, they'll just have their own opinions about what I'm looking for. I'm not looking for people with the same answer. In that case if they conflict each other that's even better.

Megan: How would that be better?

Michael: Cause they're not just telling me the positives, they're telling me the negatives as well. If you only know the positives of something, you'll find out the negatives the hard way.

. . .

Megan: But say you're not actually even looking for any information? Say you don't have a specific question, and you happen to be around other riders, are they ever just going to give you information without your asking.

Michael: Yeah! We're always looking out for each other. So, let's say someone is riding with me who is always getting a flat tire. All the time. I would then go "hey, maybe you should put a little more pressure in those tires so that won't happen." We're always trying to help each other and we're always talking about gear and training, and you know. If you find someone who's particularly fast on a ride, that person's going to get a lot of questions about riding. Even if you look at the pro riders, they'll occasionally go ride with amateurs and they'll have these huge group riding events and everyone in that ride is going to try to ride beside the pro riders and ask them questions about, you know, how do I get faster, what do you eat, you know those questions. We're always trying to give each other advice. If you see someone doing really badly, you can give them advice, like you should maybe ride more hills. We're always trying to bring each other up, not put each other down, so that's like the atmosphere in cycling.

. . .

Megan: Say you were at the shop and someone came to you with a question you didn't know the answer to. How would you go about finding the answer?

Warren: I would probably ask one of my coworkers if they knew first. That would be the first thing I would do. And if not, if it was a technical related question, I would probably go the Sheldon Brown website, and search the archives.

. . .

Megan: So the other side of that is can you think of a time when looking for information to answer a question was particularly frustrating or dissatisfying?

Warren: I don't know if I can give you any particular examples, but if this helps, I would say what's most frustrating, because there's so many options in the cycling world right now, is that quite often my customers have a difficult time understanding the differences between a lot of things and end up sort of grouping a lot of things together and coming in with a lot of misconceptions. I would say a big source of frustration for me is the fact that there are so many places to go on the internet where just any old schmo can write a review of a product and give their impressions of a product, even if that schmo is absolutely unqualified to publish their opinions and experiences with a product because they don't have anything to compare it to and they're not using it correctly, etc, etc, etc. And I very often, and going right back to that I guy I just had, he came in with the misconception that plus wheels were always going to be slower and they were just for noobs who were just learning how to mountain bike cause that was the only way they were going to get enough traction on the trails. You know, I had to address those misconceptions and explain why a lot of people are saying that about plus tires, because they're either not using plus tires in the right situation, or aren't filling them to the right tire pressure or they're riding with tubes that are too heavy. There are all sorts of variables that go into it. It was his own experience on plus tires that he loved, and my Strava data that was backing that up, which proved that people on the internet were just talking about things that they don't really know about. That's one of many many situations I run into. There's a lot of people that will write things on mountainbikereview.com or roadbikereview.com or in the comments on Pink Bike just ripping into all sorts of products for all the wrong reasons and then customers bring those concerns to me, and I often have to address the same issues again and again and again.

APPENDIX 3: Information Horizon Maps

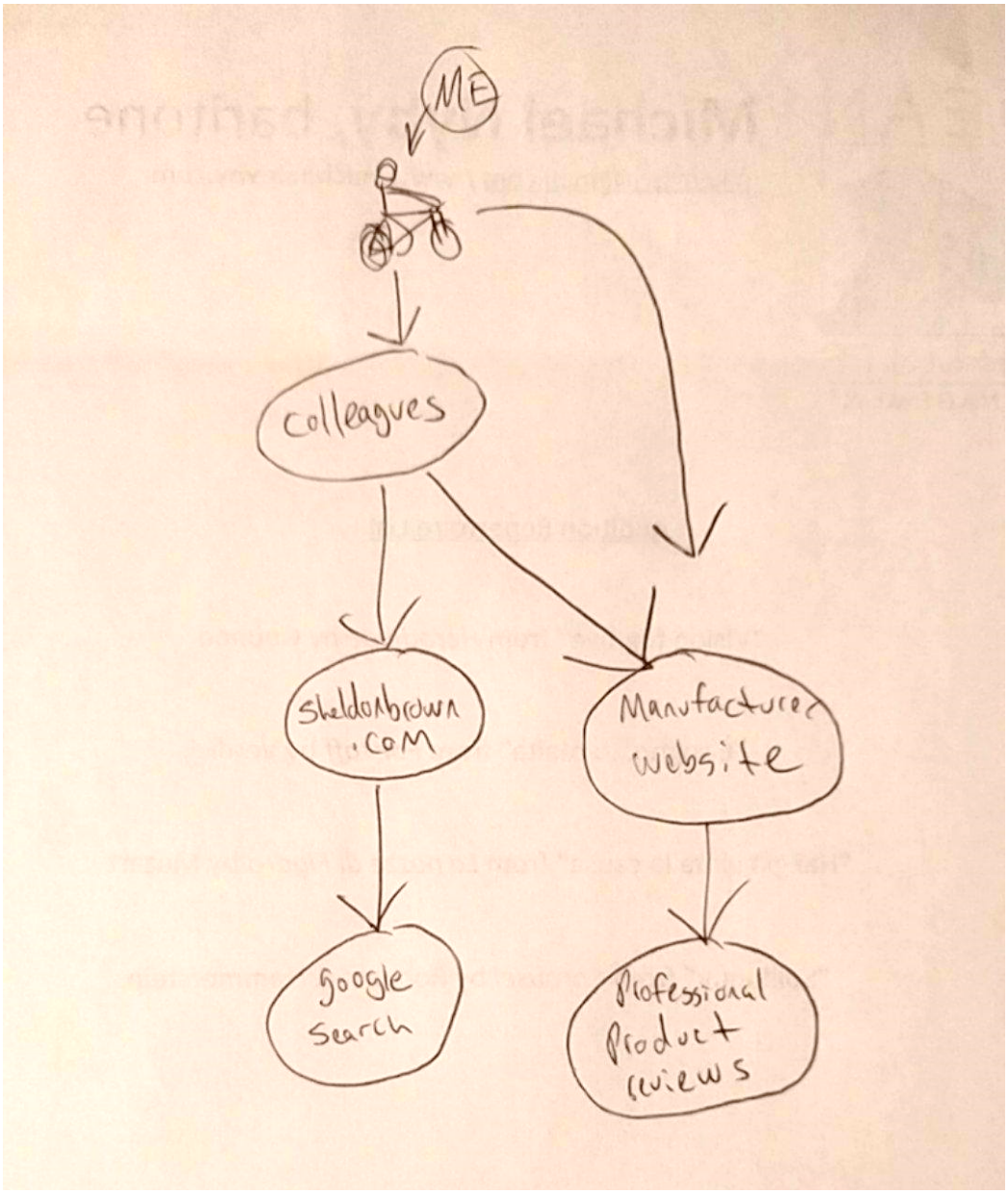

Figure 1. Warren's Information Horizon Map. He indicated that all other resources were secondary to his colleagues at the bike shop. Google searches were only used as a last resort.

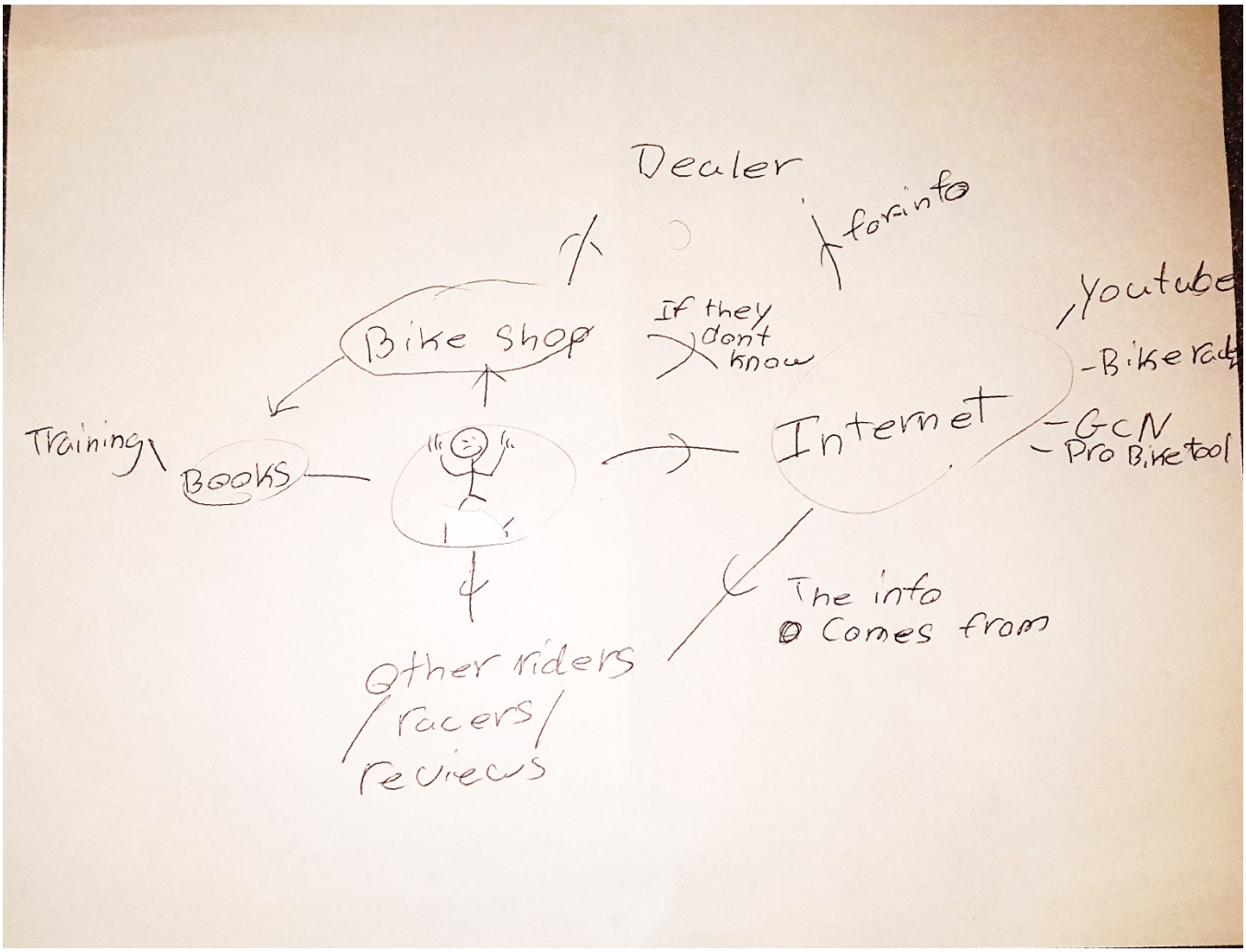

Figure 1. Michael's Information Horizon Map. The arrows are meant to indicate the order in which he accessed resources with Bike Shop as a starting point.

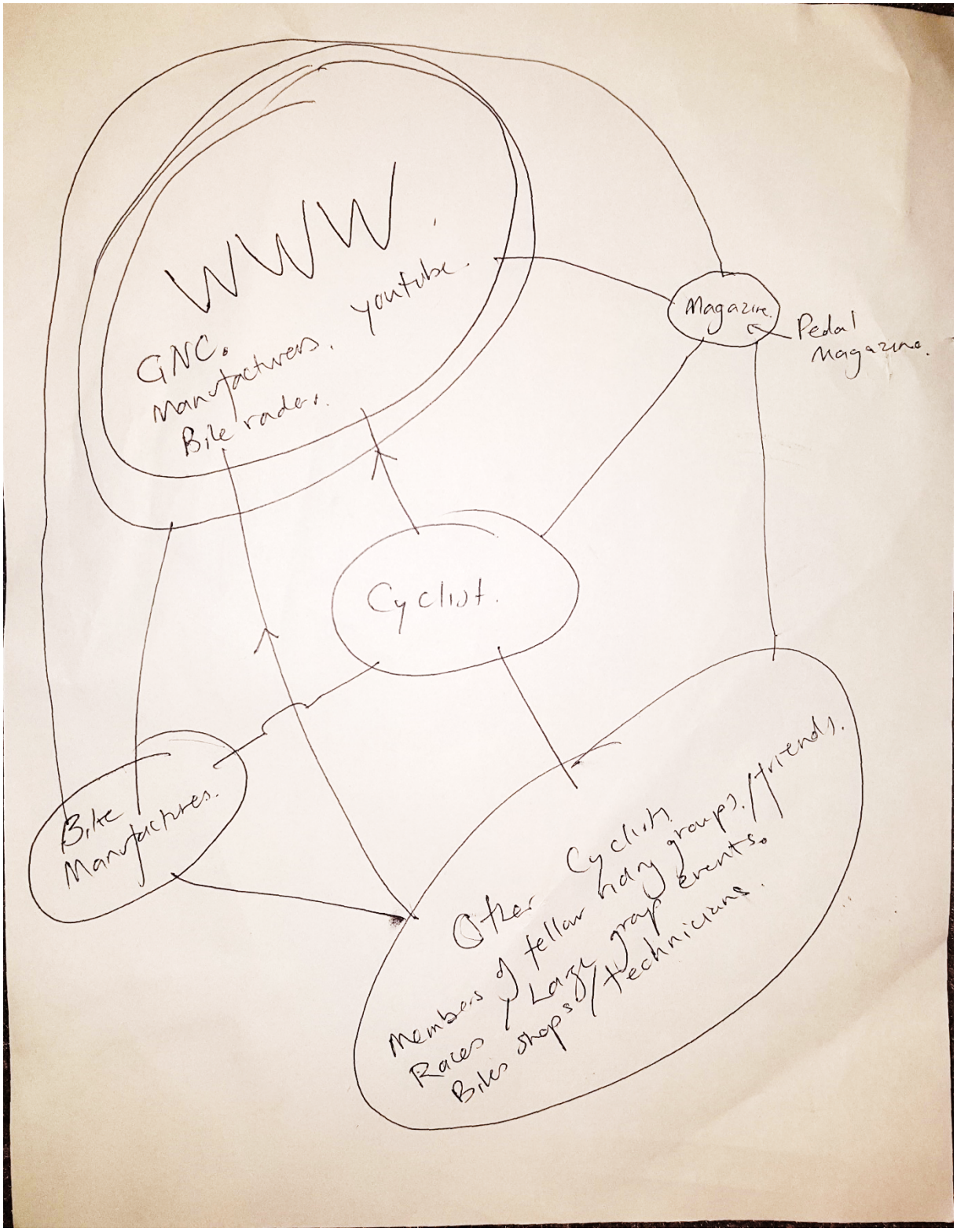

Figure 3. Chris' Information Horizon Map. Cyclist in the centre represents himself. He illustrated the flow of information back and forth between the internet and other cyclists with stops at minor res