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Hacking in a Community

I was frustrated. It was twenty hours into the hackathon, and I was not able to get my app to connect to Facebook. I had a dozen tabs opened in my browser, each describing a different way to connect to Facebook, each suggesting solutions to the errors I had, but nothing I tried worked. I closed all the tabs and gave up. It was the first time I entered a hackathon, a 36-hour event where hackers come together to build an app or a website or whatever "hacks" they thought of. I was taking my second programming course at that time, and I thought it would be easy to use this knowledge to build "real world" stuff. But it turns out that it is not as easy as I thought. After 36 hours, my only accomplishment was a screen with "Hello World!" written on it. After the event, I made a resolution to learn "real world" programming myself. This was how I got involved in the hacker community, a community that I now consider as my discourse community.

First, as some people may be thinking that a hacker is someone who breaks into people's computer and steals passwords, an explanation is in order. Although the term "hacker" may be defined as someone who does malicious attacks on computers, the term is also defined informally as someone who enjoys trying to find new ways to solve problems using computers. Another word that is used interchangeably with "hacker" is "developer." The only difference between the two words is that a hacker has the freedom to develop whatever he or she wants, while a developer is just someone who develops software, either for his or her own purposes, or

for a company. In other words, hackers are a subset of developers. Something that a hacker creates as a solution to a problem, whether it is a software or a hardware, is called a “hack”. A lot of people, including me, make hacking their hobby - they hack just because they love solving problems and creating novel solutions.

The hacker community may not be well known, and may not seem important to people outside of it. Outsiders observing the community may argue that the “hacks” by hackers are insignificant compared to the products launched by large companies with hundreds of developers and millions of users. However, most great products that changed the world actually starts with a hacker trying to solve a problem. For example, Apple II, Apple’s first computer, was Steve Wozniak’s hack - he actually made the computer, which is one of the first commercial PCs, in his garage (Levy 259-267). His ambition was to make computers, which are uncommon at that time, available to everyone. At first, people doubted that Apple II can compete with computers manufactured by large companies like HP or IBM, and called Steve Jobs and Steve Wozniak “two guys in a garage” (Levy 269). But Apple II became the product that launched the PC industry, with more than six million units sold (Isaacson 84). Besides that, Google’s search engine was Larry Page and Sergey Brin’s hack - they created Google because they wanted a search engine that actually knows what people want. It is hackers, and their love for seeking problems and solving them, that made computers what they are today.

Today, with the advent of PCs, smartphones, and tablets, computers are becoming increasingly prevalent in our lives. It is hard to imagine life without Facebook to keep us in touch with friends, or without Google to find information for us. However, although people are becoming more reliant on computers, most people seem to feel that computers are some kind of “magic box” that “just works” - they do not care about how the computer works, or who makes

the computer “work”. I believe that it is important for them to be aware of and understand the people who work hard to solve problems, and make computers “work”. This is why I believe people should understand the hacker community.

On the other hand, a discourse community, according to John Swales, is defined by six characteristics, which are an “agreed set of common public goals”, “mechanisms of intercommunication among members”, “participatory mechanisms”, “one or more genre in its [communication]”, “specific lexis”, and “a threshold number of members” (Swales 471-473). At first glance, the hacker community may not seem to be a discourse community. There seems to be no reason for the hacker community to have any of the characteristics of a discourse community. But as hackers try to solve problems, they often need to consult other, more experienced hackers. Some hackers also find better and easier ways to solve problems, and they need a way to tell other hackers. As the need of communication increases, more standardized genres and media started to develop for discourse, transforming the hacker community into a discourse community. In this essay, I will expound on the hacker community as a discourse community using the six characteristics outlined by Swales. Ultimately, I want readers to better understand the hacker community and appreciate what the community have done to make our lives more comfortable.

Swales defines a discourse community as a community that “has a broadly agreed set of common public goals” (471). Looking at the hacker community as a discourse community, it has a goal of creating “hacks” that solves problems that people encounter. As Steven Levy puts it, “a hacker wants to fix something that (from his point of view) is broken or needs improvement” (28). Hackers are willing to go through frustrations and hardships just to accomplish this goal. For example, as a member of the hacker community, if I know that one of my problems is that I

always miss the bus, I may create an app that can alert me when the bus I want to catch is arriving. To create the app, I will encounter a lot of problems and go through frustrations and headaches. If I had no help or support, I would just give up and stop making the hack. The reason the community exists is to support its members in solving the problems, encourage them to hack, and as a medium for them to share their hacks. Sometimes a small group of two to four hackers will get together in order to solve a common problem they are having. Each of the hackers will work on a specific part of the hack, making it easier to solve the problem. In the end, the greatest reward to a hacker is the sense of accomplishment that one of life's problems is solved.

As I described earlier, hacking is, unfortunately, not as easy or as simple as a university programming course. In a university programming course, the programming problem is usually well defined, and the knowledge to solve the problem is always taught in class. In hacking, problems are never well defined. Going back to my bus app example, if I want to make an app that alerts me about an arriving bus, there are several vague problems I need to solve. How will my app know when a bus is arriving? How will it read a bus schedule? How will the app know if a bus is late? How will it know where all the bus stops are? Answers or hints on solving these problems can never be found in lectures or office hours. It can be found with other hackers, who have encountered and solved similar problems. Thus, it is essential for hacker communities to have "mechanisms of intercommunication among its members" (Swales 471). The most common mechanism of intercommunication that all hackers know and use is an online forum, Stack Overflow. Stack Overflow is a website where developers post questions about their code, or about any problems that they are having with their code, and another, more experienced developer will answer it. Questions and answers are ranked by developers according to their usefulness. Because many hackers use this site, usually, hackers don't even have to post any

questions, because most questions have already been asked and answered. Stack Overflow is the tool used by almost all hackers from around the world to intercommunicate and support other hackers to achieve their common goal. Besides Stack Overflow, local hacker communities also have Facebook groups where hackers can share knowledge and post more specific questions related to that community.

A hacker community also "uses its participatory mechanisms primarily to provide information and feedback" (Swales 472). The participatory mechanisms of a hacker community include tech talks and hackathons. Tech talks are events where a hacker will give a talk about a tool they work with and love, whether it is a programming language or a code library (a set of pre-written code), or the platform they work on, whether it is iPhone, Android, the Web, or anything else. They will usually show the benefits of the tool or platform they use, and show other hackers how to get started using it. The tech talks are also a place where hackers share their hacks with other hackers. Hackathons, on the other hand, are large events hosted by hacker communities where thousands of hackers from all over the country come together to make a hack in 36 hours - with many hackers not sleeping the whole time . The idea behind hackathons, as Facebook's creator, Mark Zuckerberg puts it, is that "you can build something really good in a night" (qtd. in Levy 475). To encourage hackers to do their best, thousands of dollars of prize money is given out to the hacker with the best hack.

Besides that, the hacker community also "utilizes and hence possess one or more genres in the communicative furtherance of its aims" (Swales 472). One of the most important genres that most hackers will be exposed to is the documentation genre. The documentation genre is very important, since it contains information about the tools and platform that the hacker is working with. Thus, a webpage that a hacker will constantly refer to when coding is the

documentation page of the platform he or she is working on - whether it is an iPhone, Android, HTML or any other documentation that the hacker needs. Since documentation usually assumes background knowledge about the platform or tool, outsiders, or someone new to the community, usually have a very hard time understanding it. Besides that, hackers often pick up the code comments genre. Code comments are part of the code that is written in English to tell readers what the code does. Since codes can become confusing very quickly, and since a group of people may work on the same code, it is often useful to explain to readers what the code is doing or what is trying to do. The code comments genre are usually brief and straight to the point, and is only meant to be read by people working with the code . Although outsiders may have problems comprehending the documentation and code comments genre, the ultimate purpose of the genres is to ensure that hackers have clear and concise information about the tools, platforms, and code that they are working on, so that it is easier for them to create their hack.

If you have ever heard a group of hackers talking, or if you have read an essay or an article written by a hacker, you may start to notice familiar words that hackers use in a different context, or some words that you have never heard of at all. These are the specific lexis or words that the hacker community has acquired (Swales 473). A common word in the hacker community that even non-hackers should know about is the word “language.” “Language” in the hacker community often means programming language, the language used by hackers to give instructions to the computer. Because normal languages are too complex, ambiguous, and therefore hard for computers to understand, hackers need to use a programming language, which is clear and easily understood by computers. Similar to normal languages, there are many different programming languages, each with different “words” and “grammar” for giving computers instructions. As an example, to say “and”, we use the symbol “&&” in C++ and Java,

and just the word “and” in Python. Some hackers prefer a certain programming language compared to other languages, and some platform demands a specific language. For example, I prefer using the Python language, and the iOS platform demands the use of the Objective-C language. Although learning to program in many different languages may sound daunting to outsiders, picking up a new programming language is not really difficult if someone already knows one language.

Besides “language,” another very important word in the hacker community is the word “library.” “Library” means a collection of pre-written code that is used to make a hacker’s work easier. To understand the importance of libraries, imagine that libraries do not exist. If a hacker wants to display text on the computer screen, he or she would have to tell the computer the coordinates of each pixel that would need to light up to display the text. If this was the case, even displaying the world “Hello World!” would be a nightmare. Fortunately, other developers have written “libraries” to display text, so as hackers, we only need to use them. Besides “language” and “library”, there are hundreds of other words used by hackers to describe things or concepts used in their code. Some of the words are platform specific - iOS developers have their own set of words - and some are topic specific - hackers talking about security also have their own set of words.

Lastly, although hacker communities try hard to recruit new members, the community “has a threshold level of members with suitable degree of content and discoursal expertise” (Swales 473). Usually, novice members depend on expert members, either directly, by meeting and asking expert members for help, or indirectly, by reading articles or tutorials written by expert members. Some tech talks are also geared towards novices, avoiding hard-to-understand words, and inviting them to dig deeper into hacking. Because novices are mostly dependent on

experts, a “reasonable ratio between novice and experts” must be maintained (Swales 473). If there are too many novices, and too few experts, there would not be enough experts to support, motivate and share their expertise with novices . Similarly, hacker communities will not grow if there are too many experts and too few novices.

Although people often do not realize it, hacker communities have changed our lives in many ways. All the apps we love and use every day, from Google, to Dropbox, to Facebook, are all initially the hacks of a small group of hackers, trying to solve a problem they have. Hackers will continue to find problems, and will continue to try and find solutions to it. We will fail, and nobody will probably use some of our hacks, but we will still continue to make stuff, and break stuff, until we succeed. We have changed the world today, and we will continue to do so tomorrow.

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