

Leadership Letter for Global MIL

Bots, Terrorism, and Media Literacy **02**

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CML was pleased to work with undergraduate journalism students at California State University, Northridge. We've posted a few of their final projects as well as samples of their media literacy assignments.

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Bots, Terrorism, and Media Literacy

In today's world, all institutions and all the systems that support them are undergoing a re-think at all levels, as the information power shift between what is scarce and what is plentiful causes a reevaluation of what we hold near and dear. No longer is it obvious who holds the audience and the power, nor is it obvious what or whom to trust since the realignment of interests is profound and global. Terrorists have exploited this uncertainty to great effect.

Technology is the enabler of this dynamic, as it has always been, but this time with a new twist: artificial intelligence, while still a product of human agency, operates at a scale that goes beyond human comprehension. As with many new technologies, AI has unleashed a wave of fear: a fear of lost control, of jobs, of values and of meaning. Yet, as with waves of technology past, these fears are typically unrealized: in a Nov. 2017 Harvard Business Review article entitled "The Simple Economics of Machine Intelligence," authors Ajay Agrawal, Joshua Gans and Avi Goldfarb state:

"As machine intelligence improves, the value of human prediction skills will decrease because machine prediction will provide a cheaper and better substitute for human prediction, just as machines did for arithmetic. However, this does not spell doom for human jobs, as many experts suggest. That's because the value of human judgment skills will increase. Using the language of economics, judgment is a complement to prediction and therefore when the cost of prediction falls demand for judgment rises. We'll want more human judgment. "

The demand for human judgment bodes well for media literacy education, because the ultimate goal of media literacy, as CML has long stated, is "to make wise choices possible." This need for judgment extends to all subjects, anywhere, anytime; having the information processing skills to make sound judgments, and to manage risk appropriately, is foundational to success for individuals and for society.

In this issue of *Connections*, we explore how terrorism has infiltrated the online world and how technology has been subverted to increase the appeal and the reach of terrorist organizations. We also explore how computational social science focuses on predicting future behavior in regards to terrorism, and how the use of bots undermines trust in our use of social media, even for the most sophisticated users.

Interview Highlights

Interview with Dr. Philip Seib, Professor of Journalism and Public Diplomacy, USC, and Author of *As Terrorism Evolves: Media, Religion, and Governance*



Philip Seib is Professor of Journalism and Public Diplomacy and Professor of International Relations at the University of Southern California. He served from 2009-2013 as director of USC's Center on Public Diplomacy, and as Vice Dean of USC's Annenberg School for Communication and Journalism 2015-2016. He is the author or editor of numerous books. His most recent book, *As Terrorism Evolves: Media, Religion, and Governance*, was published in fall 2017.

CML: The number of US citizens who are killed in terrorist attacks each year is extremely low. While individual risk is far greater in other parts of the world, the amount of coverage terrorism receives in our media keeps it in the forefront of many of our minds. Your book offers an excellent, highly readable overview of the new ways terrorist organizations function today, as well as what counterterrorism professionals are doing about it, what is working, and what is not. Can you first talk a bit about the nature of the new era of terrorism and how it has evolved?

Philip Seib (PS): Of course, there has always been one form of terrorism or another. When we think about the most recent generation of terrorism, we tend to connect it with the 9/11 attacks on the United States. Actually, it predates that by some years because Al Qaeda was very active in the 1990s with bombings in Africa, the attack on the U.S.S. Cole, and the earlier attack on the World Trade Center in 1993. These attacks are a manifestation of criminality that is cloaked in the nobility of religion. That is part of what makes it so difficult to deal with. When you attack terrorism, certain people will say, "You're attacking my religion. You're attacking Islam." And, that's not the case at all. So, what the very clever people in Al Qaeda and Islamic State (IS) have done is wrapped a criminal enterprise in the very glitzy wrapping paper of religion. They say, "We're not criminals. We're defenders of our religion, and we are only acting in self-defense." If you read some of the documents from Al Qaeda, and particularly some from IS, you see that political information is not always presented in straight political terms, but instead in religious terms. On the part of the terrorists' brain trust, the feeling seems to be that this is the way to overcome skepticism on the part of potential recruits and a broader public. When they talk about religion as opposed to just straight-forward political goals or goals of seizing power, they are more likely to find success because, when you touch on religion, people tend to open their hearts. I think that many terrorist organizations recognize that.

CML: What compelled you to write this book?

PS: As the title of my book indicates, terrorism is always changing. Now, it's evolving and becoming more dangerous. The book can help counterterrorism professionals -- and the public in general -- to have a solid understanding of terrorism today. We have come a long way from the days of individuals or very small cells of self-ordained terrorists, to something as sophisticated as IS. Through the book, I hope to offer a snapshot of where we are, as well as a springboard to question: Where is terrorism going in the future? What will post-Islamic State terrorism look like? What can counterterrorism professionals do about it?

CML: One of the major changes in our time is that terrorist groups can use social media and technology to fight a war of ideas, which does not necessarily rely on holding physical territory. With or without conquering land, IS has formed a virtual state by recruiting members worldwide via the internet.

PS: Exactly. When people say, "IS has been defeated," I find it concerning. Yes, IS has lost the physical territory they held for quite a long time, but it is simply not the case that they have been defeated. The other perhaps even more dangerous thing is to say that "Al Qaeda is gone." There was much celebration when Osama bin Laden was killed in 2011. But Al Qaeda is very much resurgent. They have refrained from overseas attacks for a while, but that doesn't mean that they won't pick them up again. They are busy organizing in part by picking up some of the debris left behind by IS. But, I think the overall virtual infrastructure of Al Qaeda is really in pretty good shape, despite the fact that they've taken serious hits on the ground. It's important not to be lured into a false sense of security just because of reports from the battlefield.

If you go back to about the year 2000, or a little before, Al Qaeda was holding out the promise of establishing a caliphate sometime in the indefinite future. Then, IS stole their thunder when, in 2014, they actually did seize territory and proclaimed a physical caliphate. They held that really until --well they still hold little bits of territory -- but they held it for the better part of four years. Who is to say they can't do that again? Not necessarily in Iraq or Syria, but perhaps in a place like Mali or Northeastern Nigeria using Boko Haram as their agents there. So, there are lots of future possibilities that can come from these groups organizing and recruiting through virtual channels, such as social media -- Twitter, YouTube, etc.

CML: Would you say we need to change our paradigm instead of just believing that our traditional weapons of war can fight this? Perhaps strengthening our ability to think critically and remaining nimble in evaluating what's going on now, and making intelligent projections about what may happen in the future?

PS: I think that's right. Terrorism is never going to be totally erased, just like crime is never going to be totally erased. But, it can be reduced to a much more manageable level. I think the key is turning off the recruiting process. As long as the terrorist organizations can replenish their troops in the field -- and you know we're talking about tens of thousands of people who were involved in IS as fighters or support people -- there is a high level of risk. That needs to

be “turned off.” If you limit the terrorist organizations’ supporters to just to the true psychopaths, you can probably combat that number of people on the ground. But, what you need to do is reach people who are actually well-meaning, but lured into the caliphate. They are not supporting IS because they want to kill. They’re looking for something on a personal level -- something that’s missing in their lives. They want to do something noble. If you look at some of the videos that IS uses, they show a doctor walking through a pediatric ward saying, “If you’re a medical professional, come join the Islamic State and help us take care of the children.” They have another one showing a fighter with his son on a playground saying, “This is what we’re trying to build.” It’s very misleading of course. But if you’re Muslim, and you feel that your religion is under siege by much of the world, and you don’t have much going for you personally in terms of a job or a secure environment, that kind of recruiting obviously has significant appeal. That has to be stopped.

CML: So IS and other terrorist organizations have been very clever when it comes to using techniques to speak directly to their particular target audience, in that they are using messaging that speaks right into some very basic human psychology.

PS: That’s right. One of the cases that I cite in the book involves a young woman in the United States who was not Muslim, but she was curious about Islam. She went to an online site and started asking some questions about Islam, and that got picked up by a recruiter for IS. He worked on her month after month after month, until members of her family intervened. She was about to accept a free airplane ticket that they had offered her and make her way to Syria. They’re very psychologically adept, particularly at working with young people who have, in whatever way, lost their path in life. There are numerous people like that around the world.

CML: Media literacy education teaches students to evaluate information and ask very pointed questions about who is producing it and why. In general, do you think that more media literacy education could help counterterrorism efforts by reducing the vulnerability of the “well-meaning” people you referred to?

PS: Absolutely. And, it’s not just a matter of terrorism recruitment. People need to become more resistant to all kinds of ridiculous information that is on the web. There are still people who seem to believe that, if something is on the Internet, somehow that equals a “stamp of legitimacy.” We know that’s not the case. I think media literacy needs to be taught beginning in elementary school, because very young children are growing up now using the web -- using tools like smartphones and tablets. They are at risk if they are not taught to be skeptical -- to look for multiple sources and always challenge, whether they’re hearing something from a school teacher, or from an unknown source on the web. That’s the critical thinking that we need today.

CML: Ideally, young people would be empowered to analyze and evaluate how these groups’ use sophisticated interplay between criminality and messages that speak to all of our humanity. But, many of the people who are recruited by terrorist groups come from countries

that don't offer very robust educational programming. However, in your book, you mention that when they do include curricula that promote critical thinking, it can be successful. The example in your book was when critical thinking curricula were included in Pakistan. That was met with some small-scale success when it comes to pushing back against those who justify violence on religious grounds.

PS: Yes. The problem in many parts of the world is that schools are not schools as we think of them in the West. There is an emphasis on rote learning. And, the students might be receiving 99% of their education in religion and just 1% is devoted to other subjects. So, as students reach their mid-teens and early 20s, they lack basic knowledge and are more susceptible to the kinds of outreach that IS produces. It would help if these schools broadened their curricula. The way to encourage them to do that is NOT to go in and say, "Well, you're teaching potential terrorists and we want you to stop." It's more, -- "You're not giving your students what they need to be successful or even to survive in modern society." The more successful efforts to modify curricula in some of these schools have avoided treading on religious belief. It's really about expanding curricula instead -- teaching religion AND other subjects. That's how some education reform groups have been successful in countries like Pakistan.

CML: And do those education reform efforts specifically focus on critical thinking issues, or are they more aimed at skills like math and reading?

PS: Both. They really go hand in hand, and certainly you want your students to have some basic facility with mathematics and being able to express themselves accurately. But, critical thinking really is at the root of all that.

CML: All over the world today, schools are far from the only place young people receive information. The internet has made information ubiquitous. Even in parts of the world where basic sanitation is scarce, many people have access to the internet in some form. So, when we are talking about sophisticated messaging – messaging that aims to mislead, for example by wrapping criminal activity in the cloak of religion -- how is media amplifying those messages today? How do young people's current relationship with media play into the spread of terrorist recruitment messaging?

PS: Well, one of the things that has given terrorist groups around the world so much clout in recent years is the fact that they can use the internet to reach the public directly. They don't have to worry about getting their videos or their news releases through gatekeepers. They have many outlets online -- Twitter, websites, etc. That said, they also are very skilled in the multidimensional approach to working with the news media, such as putting out news releases. For example, IS has a news agency called Amaq that puts out some of its news releases first in English to reach the global audience. Then, they come back and release the Arabic version later on. So, what you have is basically a very sinister public relations campaign that also uses high tech tools to reach the largest possible public. Their content

successfully makes news. Certainly, if you set off a bomb in an airport terminal or something like that, the media and the public are going to pay attention. IS and other terrorist groups are very adept at making claims that they have perpetrated these acts and painting themselves in a light that encourages their potential supporters to rally with them.

CML: They put out their press releases in English FIRST. That says a lot about who they are most interested in reaching with their messages.

PS: The purpose of a terrorist organization is to terrify, and given that English is the lingua franca for most of the world, it makes sense for them to use it to reach the largest audience. When you blow up part of an airline terminal or something like that, you might kill a few hundred people. But your goal is to terrify a few million people. Media amplifies the message, when terrorist groups want to state, "We did this, and we've got more to come," that strikes home with two different audiences: The general public, which the group terrorizes, and with potential recruits who perceive that the group is working effectively and doing what they say they're going to do.

CML: In many ways, it comes down to being able to evaluate who the content producer is, why they are creating each message and what techniques are being used to get the attention of content consumers. Being aware enough to ask the questions about that are directly tied to critical thinking and a process of inquiry.

PS: The key word is "inquiry." If you encourage people to inquire, encourage them to be curious, encourage them to challenge, a lot of these facile arguments, whether they are advanced by terrorist organizations or political groups or whatever, they're going to be successfully challenged. But, you have to encourage your public to take on that role of being curious. Whether we're talking about young people in schools or adults who've become intellectually lazy, this is really an important part of societal development. Forget about terrorism for a moment, and look just at the so-called news products we have. People are too credulous. They just absorb and -- just like terrorist groups use this to their advantage -- all kinds of political individuals and political organizations use it. Certainly, it weakens democracy and civil society more broadly.

CML: How do you think that it weakens democracy?

PS: Democracy has to be built, at least in part, on good faith and truth. If democratic processes -- such as the election process -- are given no value then the whole system is going to crumble. It's built on air. There has to be value attached to truth, and the public -- the individual really -- has to enforce that value. The way you enforce it is by being curious, being demanding, being challenging. You enforce it by interrogating the sources of your information.

CML: The flip side of this is developing content and strategies to counter the messaging of terrorist groups. Who is best prepared to do that, and who has the most credibility?

PS: Credibility is absolutely crucial. That's why, for a number of years after 9/11, the United States really did not do a very good job with counterterrorism. The messaging that was created by the U.S government was clearly labeled as coming from the U.S government. Therefore, it didn't have very much credibility in many parts of the world. Really, as much as possible, counter messaging should be indigenous. In other words, if you want to create content online to reach a young Arab audience, you should recruit young Arab filmmakers to it -- not somebody at the U.S. State Department. Enough studies have been done over the past 15 years or so to develop a sense of what the psychology is of the potential recruiter or supporter of terrorist organizations. If you put that into the hands of a good filmmaker or youth organization, they should be able to come up with convincing counter messages.

CML: Yes, that takes into consideration who they're speaking to, and what's going to make an impact.

PS: That's right, because credibility is what's important. If you're not credible, there's not much reason to even get into the game. This extends beyond strictly anti-violence and anti-radicalization messaging. It's also relevant in entertainment media and popular culture. To cite an American example, in the television series "24," the villains are Arabs. They get tortured by the white guys, and it reinforces the argument that's being made by the terrorist organizations. So, there has to be a certain sensitivity to that. Even with a show like "24", which was originally made for an American audience. Well, there's no such thing as an American audience anymore! Everything becomes global and, when you show all these episodes, from "24" and other programs, this vilification of Arabs and Muslims -- it reaches a global audience and has a global effect.

CML: So, basically does a show like 24, without intending to, confirm an existing belief in some parts of the world that "white guys in America see all Arabs as villains and are out to destroy them?"

PS: That's right. I don't think that the people who created that television show had any evil intent, but it certainly didn't have a very positive effect in terms of trying to tamp-down extremism. Instead, it actually reinforced it. "24" began running soon after the 9/11 attacks. The post-9/11 psychic shock in the United States, and in parts of the West more broadly, knocked a lot of things askew in terms of strategizing how to best undermine terrorist organizations. It took a number of years to take a more rational approach to what needed to be done – in other words – to start thinking more critically.

And, it's not just entertainment media that fall prey to that. News organizations do too. Like politicians, news executives read the polls. They shape their products in ways that will draw the most audience, because that is their business model. In 2002 and 2003, that audience was very intent on getting revenge for 9/11. So, they shaped their product around that. A good example from a slightly different angle is that the Bush administration was able to sell its war against Iraq in part by playing on the fears and anger that were rooted in 9/11.

CML: You mentioned before that nothing is really local anymore, everything is global. So, when you think about news organizations that have advertisers to satisfy, and they want to deliver what their local audience is looking for -- maybe they're not paying enough attention to the fact that this is not only going to the local audience -- that audiences around the world will see this, and there could be very, very different outcomes based upon that.

PS: Right. With any sort of extreme content -- even if that extreme content is popular in some circles -- it is going to have different impact on other circles. In an era of global media, that has to be kept in mind not only by the purveyors of the media product itself, but also by policymakers who have to deal with these larger issues.

CML: So, with that in mind, what do you think is the best way to counter violent extremism -- to encourage people not to engage with violent terrorist groups and take more productive paths in life?

PS: We see public diplomacy being used to offset extremism in various places in the world, but it takes years to see results and measure them. That is in part because what you're trying to do, in effect, is measure a negative; measure how people RESIST the call to join extremist organizations. So, part of the difficulty is you don't really know precisely what is working. You can do it through public opinion surveys and other measures, such as audience size for media products. And that knowledge base is gradually being structured -- about what drives people to radical violent actions. There are groups sponsored by governments, private foundations and other sources around the world that have spent the past decade really trying to understand things like online radicalization. That's a very important task. But, there's no sign that they're finding a solution, and that's important to keep in mind. There's not going to be one solution, there are going to be many small pieces that come together to create a something better. And, we must start assembling those pieces as best we can.

CML: What should we be evaluating to cobble together that solution?

PS: We can look at examples like Tunisia, which was sort of the bright light coming out of the 2011 Arab uprisings. Well, that country has sent more fighters to IS than any other. Why is that? In part, if you have a lot of dissatisfied young men, many of whom have college degrees but no way to use them, and they're standing on the street corner in Tunis or someplace when they hear talk about, "Why don't we go fight for Islam? Why don't we go help build the Caliphate?" There've got nothing better to do, and they're very unhappy with their situation as it stands. So that's something that has to be dealt with, and it's a huge challenge that far transcends counterterrorism. That's a big societal challenge that governments have always faced, but now, perhaps, that comes with greater urgency.

CML: How are US policy makers doing in regard to fighting and countering violent extremism? Specifically, the Center Media Literacy uses an empowerment spiral, which includes the concepts of Awareness, Analysis, Reflection and Action. Are policy makers using these kinds

of concepts to inform their policies and actions?

PS: I think reflection among policy makers is quite rare, especially among elected officials. I don't mean to be unduly cynical, but a lot of decisions seem to be made based more on partisanship rather than reflection or even awareness or the other concepts you mentioned. That's unfortunate. I believe you can find a lot of people who feel that the political system in the United States (and in some other Western democracies) is in great disrepair in part because there are factors other than those you mentioned driving policy makers' decisions. It's easier to contemplate the next election than it is to contemplate long-term fixes for various serious problems. A microcosmic example is gun control. Nobody seems to be looking at the long-term ramifications. It's all kind of a panic response to the latest incident. Some reflection, as you cited, would be very helpful.

CML: I want to talk a little bit about Islam, public perception of terrorism being so closely linked to Islam and how that increases islamophobia. What are your thoughts on that?

PS: I think the general public, news organizations, politicians, etc. are always looking for villains. "Us against Them." During the Cold War, the villain was the Soviet Union. Now, it seems to be the Al Qaeda/Islamic State types. It's very simplistic to say, "If you're Arab and you're Muslim, you must be a terrorist." In fact, I think if you went out on the street and did a word association test with people in the United States and said, "Muslim," I think you'd get, "terrorist," as a response from all too many people. The truth is there are 1.7 billion Muslims in the world, and by the year 2070, Islam is going to be the largest religion on earth. So the idea that Islam is something that can be contained or controlled is A: dehumanizing to come from that approach in the first place, and B: it just isn't going to work because the growth rates of Muslim populations are greater than those of other religions.

Also, people seem to automatically connect Islam only with Arab populations. The most populous Muslim countries are NOT Arab countries. They are Indonesia, India, Pakistan, Nigeria... So once again, we have a problem. I think the popular media, and to some extent the news media, contribute to this to where we have a gross oversimplification and a demonization of Muslims. The media just need to knock it off. That's the simplest way to put it. They have to treat Islam with the same kind of respect they treat other religions. Sure there are bad Muslims, sure there are Muslim terrorists. But look at some of the terrorist or violent incidents that have happened in the United States – the recent shootings in Florida and Las Vegas, Dylan Roof in that church in Charleston, South Carolina. There is plenty of violence that has nothing to do with Islam. But, we tend to focus on Islam as a force for evil. When you talk about critical thinking, that's a case right there where it's important that the public be given a broader education about some basic religious principles. People need to understand Islam just as they understand Christianity, Judaism and some other religions.

The other thing to keep in mind is we get so focused on the Middle East we forget that there is a tremendous amount of terrorist activity in places like Somalia and in countries around the

Chad Basin in Central Africa. There's now an Al Qaeda in the Indian subcontinent, which has the potential to stir a lot of conflict between Hindus and Muslims. So, our focus on the Arab world really needs to broaden. There is also a tendency to focus too much on the battlefield and not look at the economic structure behind some of these terrorist groups. There is evidence that groups such as Al Qaeda and IS have also been active in Latin America, tapping into the drug trafficking business as a way to finance their operations elsewhere in the world. It's extremely important to look at terrorism as a global problem, not as an Arab world problem.

Interview with Adam Badawy, Computational Social Scientist Studying Malicious Activities on Social Media



Adam Badawy is a computational social scientist who uses network analysis, natural language processing, and machine learning to study and measure malicious activities and political behavior on online social networks. He is a PhD student in the School of Science at the University of Southern California (USC), and works in the [Information Sciences Institute](#). He is also part of the [MINDS Lab](#).

CML: Welcome Adam. You are a “computational social scientist.” That is a very interesting title! Please, tell us about the kind of work you do.

Adam Badawy (AB): Sure, as a computational social scientist at the USC School of Science and the Information Sciences Institute, my main work is to describe and predict malicious acts and malicious activities on social media. It's mostly concerned with identifying misinformation campaigns and terrorist activity.

CML: And, what exactly is a “computational social scientist? How would you describe that discipline?

AB: It's interesting that you ask that. We examine data that's coming from social media and other big data sources--online and offline—in order to understand how humans interact with each other and how social systems function. It's called computational social scientist because it focuses mainly on social data to predict future behavior.

CML: How do you predict such things? It seems to me that we are living in a world where things happen every day that, just a few years ago, nobody could have predicted.

AB: Well, to put it as simply as possible, we predict future actions by identifying users' features and patterns of behavior. We can label certain types of content and say, “Okay this kind of looks like malicious activity. So, let's see who is engaging with that. Let's see what describes them and use our knowledge of what is a good predictor of future behavior.

CML: And what are those patterns of behavior that you see?

AB: For example, it could be following known terrorist recruitment pages or websites. Or we see rumors spreading – like how a terrorism-related message starts spreading among certain groups. This happens with malicious activities the same way it does with marketing products

and services – someone influential posts something, and then it spreads beyond their network on to others who have similar interests.

CML: What kinds of things are you discovering about the spread of what you are calling malicious content?

AB: Well, it differs from one activity to another. But overall, when it comes down to misinformation, it's very easy to create something that looks real, and people will actually retweet or share it, and it will spread throughout a network – even when it is not true. It's becoming harder and harder to distinguish between truth and non-truth. Particularly with technological advancement, especially automated accounts or bots that have become better at writing in very natural language. It's becoming much easier for malicious actors to spread content on a massive scale, and much harder for people – even highly educated people –to distinguish between truth and non-truth.

CML: Media literacy education provides a basic framework and teaches students a process of inquiry to evaluate and analyze messages. Do you believe media literacy education can help people better navigate the information as it is delivered today and tomorrow? Can we become less vulnerable to misinformation and malicious actors?

AB: Media literacy education and critical thinking provide a strong foundation and help a lot. I also believe other skills and knowledge are needed. With news in particular, when in doubt, it's a good idea to check and see if a story is covered by multiple sources, and to check the credibility of those sources. I have a data set that shows a lot of false or malicious actors that were creating websites and links that looks like real news. (For example, ABC News). They use the real ABC network logos and just change things a little bit. When you click on it, it looks a lot like the real ABC website. But, you check out the stories there (false stories), you see that they haven't been covered by other news organizations. It's not a perfect system, but it's another way to minimize risk. I understand that, from the users' perspective, this is not always easy to do. There are also ways, although imperfect, to identify bots on Twitter. If you see an account that follows many people, but is not followed by anybody, that is suspicious. Also, accounts that overproduce content are often bots.

CML: Yes. Determining who is creating a message is and always has been a pillar of media literacy. Bots and artificial intelligence can make that more difficult.

AB: Yes – that doesn't make it any less important to adhere to that pillar. It just means that is it important for people to understand what has changed.

CML: Can you talk to us a little about the USC MINDS program and what it does?

AB: Yeah, MINDS stands for Machine Intelligence and Data Science Research Group. It is part of USC's Information Sciences Institute. It is a lab where scholars and professors work on

research related to machine learning and computational social science. Groups are creating model machines to make sense of big data and identifying the sources of information. Other researchers at MINDS are working more on computational social science. For example, understanding how bullying works on online platforms, how malicious activities work through psychological cues, and how people are influenced by the ways things are positioned online.

CML: What projects is MINDS working on now?

AB: For example, we are forecasting machine learning in mathematical models, and running simulated interactions between people and machines. We gather data and run simulations based on data help us to understand and the forecast.

CML: We really are in a new era of machine learning. Automated intelligence is here, and we are hearing a lot about it in the news these days. Most people know the basics about what bots can do, and encounter them in their daily lives, whether they know it or not. Can you go into a bit more depth about bots -- what they can do and what they are doing in terms of messaging and information?

AB: Basically, bots are automated software or automated accounts that can share what you share and write short messages in natural language like a person would write. They can even interact with people, in limited ways. The thing is, bots are very often hard to distinguish by the human eye. It takes a holistic overview to be able to distinguish bots. A lot of factors need to be considered –content, but not content alone. Interaction with other accounts, information about users, where they are located, how many “friends” they have on social media, when are they interacting. For example, real people do not normally interact on social media 24 hours a day – if an account is tweeting round the clock, that’s a clue that the account holder is not human. Through this type of holistic overview, we can identify signs of bots or automated accounts. With that said, it’s kind of a continuous race. Because once you figure out that bots are doing X, Y or Z, they move along and they get better and harder to distinguish from real accounts.

CML: What bots are capable of now is not necessarily what they are going to be capable of in the future. So, it seems that the best thing we can do is to be aware of that – to approach information we see and hear online with curiosity and a healthy skepticism. It’s important to understand that bots, as well as other forms of automation, will always be getting smarter, so we must too. But, some care should be taken when looking at bots and automation. Lately, we are hearing so much about the negative side of this technology. The truth is, bots have some very positive capabilities that make our lives better. There are pros and cons to bots, just like everything else.

AB: Recently I’ve talked a lot about this. Bots can be used for good or bad.

CML: Just like people.

AB: Yes. Bots have a very negative connotation right now, but they are useful. They can serve to answer important questions on websites, like in a frequently asked questions section for customers or medical patients. They can help you get your message to a wider audience. When you encounter them, you just have to ask, “Who created this bot, and why?” Yeah, basically it's really about people, not bots. Bots are really just a tool. People do not realize that they interact with bots all the time. In the media, right now bots are being covered in a negative light -- malicious activities, Russian interference campaigns, etc. In that regard, there are humans involved in malicious activities who use bots to further their actions. There are also humans who use bots in the context of positive activities.

CML: Can you give an example of how a bot might be used in a positive way – say, in the medical field?

AB: Well, a bot can look up huge amounts of data. So, if you have diabetes, you can ask about what your diet look like -- what foods to avoid. A bot can help you analyze your risk for diabetes, what type of lifestyle changes are recommended, etc. A bot can also tell you when you would be better off asking your doctor directly.

CML: So, is it possible that someone who is asking questions in a chat on a diabetes resource website may believe that they are interacting with a human, when really, a bot is responding to their questions?

AB: Sure. Bots can and do spread positive health-related information the same way that they can share destructive information. It's the intentions of the humans behind them that matter. Most of my work is on understanding and preventing the negative actors. Bots are helping to spread discontent, hate towards certain groups, often with political objectives. In that regard, malicious activities and propaganda that can be spread by humans can also be spread by bots. Anything from bullying to spreading false propaganda.

CML: So, bots can do what humans do, but they can spread messages more quickly and efficiently because they are automated. Would you say that is true?

AB: Scale -- I do agree with you that the scale is different. That makes a difference because five people in an office using bots can spread misinformation or disinformation over the internet in ways that would otherwise require a huge number of real people. Their objective may be the same, but scale, and ultimately their effectiveness, is going to be much different. Bots amplify human messages. But we need to look at bots in terms of quality, as well as quantity. A lot of the bots that I've looked at basically retweet fake news. So, for now anyway, there is a difference between human beings capable of writing longer text, and bots that can only write short text or just post a link alone. And usually, the number of people who actually click on links is much higher when there is substantial text, versus just the link itself. But definitely, as we move forward and the intelligence of bots increases, it will be harder and harder to know the difference. I'm already seeing this with online reviews – like on Amazon,

for example. There are companies that will provide a service to businesses – for a fee, both humans and bots write and post fake reviews.

CML: Bots are actually doing that now?

AB: Bots are doing that. And it's a big problem for trust. When I am looking to buy a product on Amazon, or looking at Yahoo reviews or whatever, I personally depend on reading reviews -- do people like this product or service, or not? If more and more often, sellers' products can just purchase a service and a lot of bot accounts will write positive reviews -- it's problematic. Also, there was an expose in the New York Times about celebrities purchasing Twitter followers, probably mostly bots, to make it seem like they are reaching more people. Of course, they want their tweets retweeted, and bots can do that, too. That increases their ability to gain ad revenue, etc. – it's a whole cycle. And these people only care about the numbers.

CML: Well, there's power in that because, right now anyway, we place value on things like positive online reviews. And, when we see that something has been retweeted 400 times, or something like that, human beings interpret that as valuable because we believe it means others have endorsed the product, service, celebrity, or idea in some way. But when we reach a point where we don't know if those endorsements are coming from real people, or if they come from a service purchased by the content creator, we really are facing a problem with trust.

AB: I definitely agree with you. But, we do not want to become overwhelmed by that and forget that there are positive uses of bots. For example, one programmer created a bot that responds to people who write racist messages on Twitter. I'm not saying this to point out what is positive and what is negative. My point is that, you can amplify anything with bots. They're definitely gaining more and more power to scale human efforts, regardless of whether they are positive or negative.

CML: Another thing that I want to talk about with regard to bots is transparency. You said that, for now, there are things people can do to evaluate whether an account is run by a bot, but it is getting more difficult as bots learn to write in natural human language, etc. Do you believe people have a right to know where these types of messages are coming from?

AB: Of course, I think that's true. Recently, I was looking at false images that were created and shared through automation. It's getting harder for me to tell that they were created artificially, and I am a researcher in the field. Of course, people have the right to transparency, but most people involved in malicious activity do not care about those rights. So basically, legitimate users can be transparent by stating "this account is also managed by bots." I believe that whoever uses bots should reveal that. But my main research is malicious activities. In those cases, you can ask for transparency, but you're not going to get it. These actors will continue to use bots to further their messages, and it's going to get harder to catch. We are working on ways to catch it. To be frank, it's a race.

Nevertheless, I caution against the default of disbelieving everything you see. When people don't believe anything that's coming out of the government or the news, they start losing confidence and belief in institutions in general. You don't want everybody disbelieving anything that's coming out of anybody. That's definitely problematic for a democratic system. On the other hand, you don't want people to believe everything that they see online. It's somewhere in between where we have to employ critical thinking. When you are trained as an academic, you are always doing this. Kind of saying, "I see what you're saying. Now, I need to look at the evidence." But not everyone is a trained academic, and many people are not used to looking at information that way.

CML: It truly is a balance. That is where media literacy education – learning a set of skills to look at information as you describe – is a good foundation to navigate the information landscape. Of course, it is not a panacea. But having those skills sets people up to better minimize their risks. That really comes into play now, when everyone is not only a content consumer, but also a content creator.

AB: Having basic media literacy skills and being personally responsible for checking things out is the best way to approach information today. And, keeping in mind that we are living in a time when things are changing rapidly.

CML: So, in conclusion, your work no doubt entails evaluation of a huge amounts of data. As a computational social scientist, do you have your own process of inquiry? For example, when you are doing your own research in your field and you are evaluating another scholars' work, what do you look for? How are you determining credibility, accuracy, etc.?

AB: Well, I think the thing with research – it's important to look for multiple studies -- multiple data sets that find the same conclusions. So, it goes with my previous comments regarding news that has been covered by multiple sources. If it's just one author, that is not enough. When you start seeing a series of evidence patterns, then you know you may have the real thing. I always consider findings to be assumptions as I move forward in my research. I actually consider something to be evidence once I see a set of data confirming the same things.

CML: Thank you so much for providing this insight into how bots and automated accounts are changing our information landscape. Critical thinking and a willingness to ask questions and research information more thoroughly is more important than ever – as is staying informed about how technology is changing.

AB: Yes. We cannot eliminate the risks that technology can bring, but we can minimize them. It was my pleasure to speak with you.

Commit2MediaLit!

CONSORTIUM
for **MEDIA LITERACY**

Uniting for Development

Community Engagement/Service Learning

CML was pleased to work with Dr. Bobbie Eisenstock's undergraduate journalism/diversity students at California State University, Northridge in fall 2017. At post-test, 78% of these students reported that they didn't learn about media literacy until their college class, revealing how little practice with media literacy students had in their K-12 experience. The students created service learning projects as part of their classwork and we share a few here along with assignments completed during the semester:

<http://www.medialit.org/student-made-media>

About Us...

The Consortium for Media Literacy addresses the role of global media through the advocacy, research and design of media literacy education for youth, educators and parents.

The Consortium focuses on K-12 grade youth and their parents and communities. The research efforts include nutrition and health education, body image/sexuality, safety and responsibility in media by consumers and creators of products. The Consortium is building a body of research, interventions and communication that demonstrate scientifically that media literacy is an effective intervention strategy in addressing critical issues for youth.

<http://www.consortiumformedialiteracy.org>

Resources for Media Literacy

Bots, Terrorism, and Media Literacy Resources

[As Terrorism Evolves: Media, Religion, and Governance](#) by Dr. Philip Seib, Cambridge University Press, 2017. Seib discusses how some of the world's most lethal terrorist organizations have become media-centric enterprises, while also hijacking a major world religion, holding large swathes of physical territory, and governing their own virtual states.

[Most Links to Popular Sites on Twitter Come from Bots](#) by Issie Lapowsky, Wired, April 9, 2018.

[What Artificial Intelligence Can and Can't Do Right Now](#) by Andrew Ng, Harvard Business Review, Nov. 2016.

[The Simple Economics of Machine Intelligence](#) by Ajay Agrawal, Joshua Gans and Avi Goldfarb, Harvard Business Review, Nov. 2017.

[Youth Radicalization in Cyberspace: Enlisting Media and Information Literacy in the Battle for Hearts and Minds](#) by Tessa Jolls and Carolyn Wilson, MILID Yearbook, 2016.

MediaLit Moments

Personal Information is...?

The definition of personal information is not so straightforward, especially to young people. Many students, even those who seem tech savvy, might not know how to define the term *personal information*, and therefore cannot heed the warning “do not divulge personal information online.” Per Dr. Mary Ann Sund, educator and founding partner of Lersun Development, “I asked the students about personal information. To a person, the students knew they were not allowed to share personal information online -- that doing so was a bad idea. Then as I drilled down, I realized very quickly that the students had no idea what personal information was and they had no idea of what a stranger was online. They didn’t know their home address was personal information; they didn’t know their telephone number was personal information... And they thought that if they had chatted with somebody online two or three times, that person was no longer a stranger. (Connections March 2018).

Together as a class, write and display a definition of personal information to use as a guideline for online activity.

AHA! I have more personal information than I thought!

Grade Level: 5-7

Materials: White board for brainstorming, computer/printer or poster board for final product.

Key Question #1: Who created this message?

Core Concept #1: All media messages are constructed.

Key Question #5: Why is this message being sent?

Core Concept #5: Most media messages are organized to gain profit and/or power

Activity: Prepare to teach this activity by searching for definitions of personal information, you will likely find a variety of answers. The point is to explore this topic with your students and to help them realize and create their own definition.

Ask students to call out their ideas of what personal information includes and make a list for all to see. For example: full name, address, phone number, birthdate, photos, social security number, bank account, etc. Write your own definition as a class called Personal Information is... Then review the Key Questions/Core Concepts and discuss how requests are made for online information. Why are these requests made? What is their purpose? Explain that advertisers target users based on personal information (profit), and sometimes people with bad intentions use the information for harmful purposes (profit/power).

Resources: Check out [Data Defenders](#) from MediaSmarts in Canada. If your students are older, the report on Teen Identity Theft from [FOSI](#) contains information and statistics on what teens share online.

The Five Core Concepts and Five Key Questions of media literacy were developed as part of the Center for Media Literacy's MediaLit Kit™ and Questions/TIPS (Q/TIPS)™ framework. Used with permission, © 2002-2018, Center for Media Literacy.