The Non-neutrality of Technology

Christine G. van Burken

Pitfalls of Network-Enabled Operations

"Light'em all up!" was the headline on the front page of a prestigious Dutch newspaper. A still from leaked video footage taken from a U.S. attack helicopter in Iraq accompanied the story.[1] These sorts of newspaper headlines appear after tragic incidents, particularly those involving civilian victims.

In another illustrative case, a commander is quoted as saying, "Yes, those pax are an imminent threat." The chief of a provincial reconstruction team (PRT) camp in Kunduz, Afghanistan, made the judgment after he saw black dots (thermal images of persons) on his computer screen.[2] He turned out to be tragically wrong.

These newspaper quotations emphasize what can go wrong with imagery interpretation during military operations, and they are not isolated cases.[3] The first quotation is about an incident that took place in 2007, involving a group of journalists with their cameras mistaken for insurgents with weapons. Two of the news reporters did not survive the air strike that followed. The second quotation is about an air strike on two hijacked fuel trucks in Kunduz, Afghanistan, in September 2009. After the incident several reports came out deciphering the strike in terms of who was to blame for the scores of victims.[4]

A common factor in such incidents is the use of technological assets that allow several military officers to see the objective simultaneously, i.e., a network of observers and decision makers observing the same incident with the intention of gaining a military advantage.

In earlier issues of *Military Review*, several authors focused on the difficulties in decision making, accountability, and responsibilities in these complex military missions.[5] In this article, I take these difficulties very seriously to elucidate an often overlooked factor, the role of technology in decision making. I will discuss the pitfalls that can occur when making decisions in a network environment, specifically the sharing of live video images originating from manned or unmanned systems. This article's central theme relates to the interaction between man and technology during network-enabled operations.

Christine G. van Burken, a Royal Netherlands Army reserve soldier and a Ph.D. candidate in ethics and military technology, is a researcher in "Moral Fitness of Military Personnel in a Networked Operation Environment" for the Netherlands Organization for Scientific Research. She holds a B.S. from The Hague University of Professional Education, a B.S. from the Eindhoven, Fontys University of Professional Education, and an M.A. from Amsterdam Vrije Universiteit.

PHOTO: U.S. soldiers with the 145th Mobile Public Affairs Detachment record images and video of U.S. soldiers with 3rd Striker Brigade Combat Team, 2nd Infantry Division, as they calibrate an M777 howitzer at Forward Operating Base Warhorse, Diyala Province, Iraq, 8 December 2009. (U.S. Navy, MCS01 Class Eileen Kelly Fors)

Terminology

The term "network-enabled capabilities" requires some explanation. The term means the use of network technologies and information technology assets to facilitate cooperation and information sharing. This can lead to a build-up of complex and ad hoc multinational environments, referred to as network-enabled capabilities or network enabled operations. Network enabled capabilities have the potential for increasing military effects through improved use of information technology systems.

The underlying vision for establishing these complex, ad hoc multinational environments is the linking up of decision makers via information technology and communication networks to enable improved, synchronized decision making. The idea is that people with authorized access to the network, wherever they may be in physical or hierarchal terms, can log in, coordinate operations, and retrieve and submit relevant information.[6] Frans Osinga has already added a critical note to the high expectations of network-enabled capabilities.[7] In "Netwerkend de oorlog in?" (*Militaire Spectator*), he addresses the practical and moral complexities of high technology from a philosophical perspective.[8]

In this contribution, I discuss the routine practice of the networking soldier and examine a number of problems inherently connected to the use of technology. I present these problems as possible pitfalls and use the case of the Kunduz airstrike to illustrate these pitfalls in daily military practice.

Three Pitfalls

Although I could discuss several other pitfalls, I will limit myself to three:

- The danger of developing a so-called "Predator view."
- The misinterpretation of visual data.
- The prevention of streamlined communication.

The use of a technological network is not a neutral activity but a hidden dimension that is almost completely ignored and may lie at the heart of many problems that rise to the surface. The insights discussed come from a technological-philosophical approach to network-enabled capabilities.[9] I endeavour to clarify the underlying problems by use of the concept of *practice*, as developed by a number of philosophers. I conclude with a suggestion to alert users to potential pitfalls at an early stage. This may contribute to a more responsible use of network-enabled capabilities.

Case Study: The Kunduz Air Strike

The Kunduz air strike was requested based on information about insurgents hijacking two military vehicles carrying fuel for troops of the International Security Assistance Force (ISAF). Information had surfaced to the effect that the trucks would perform a suicide attack on the nearby German PRT camp.

The information reached the commander through an Afghan informant, who had spoken to an intelligence officer by telephone. That night, the commander received images of the trucks via video footage transmitted from an aircraft flying over the location. These images were projected onto a screen in the tactical operations center.[10]

In reality, not everyone in the vicinity of the fuel trucks was an insurgent. Most of those close to the trucks were civilians from a nearby village. The trucks had become bogged down in the riverbed, and the insurgents had asked the civilians to tap some of the fuel in order to lighten the trucks' loads.[11] The final result was that the majority of the victims of the airstrike were civilians.

This news was painful in view of the fact that ISAF commander General McChrystal had drawn up a new tactical directive shortly before aimed at preventing civilian casualties. The new directive also tightened up the rules regarding air support. The incident led to fierce debates, particularly in political circles in Germany. Various investigative reports, pointing fingers at the guilty party, were also published.[12] However, the focus here is on the role of technology in decision making and not on who was responsible for the tragedy.

In this incident, the remotely operated video-enhanced receiver (ROVER) device played an important role. Manned or unmanned aircraft use the ROVER to capture video images and

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(U.S. Air Force, SSgt Angelita Lawrence)

U.S. Army GEN Stanley McCrystal, commander of the International Security Assistance Force, meets with members of the Provincial Reconstruction Team Zabul and provincial governor Muhammad Ashraf Naseri in Zabul, Afghanistan, 26 October 2009.

immediately transmit them to ground locations. One can see these live images on a screen, such as on a conventional laptop computer, making real-time information on the situation on the ground available to the Joint Tactical Air Controller (JTAC) and third parties on the network. In the case of the Kunduz air strike, the ROVER images were available to both the JTAC and the PRT commander.

Two U.S. F-15 pilots were involved in the air strike. After arriving at the location, the JTAC requested that they prepare two 500-pound bombs for release. However, the pilots wanted to have more certainty on the situation before launching an air strike and were continuously searching for alternatives. For example, they made a request to carry out a show of force first, i.e., make a low-level pass and let people possibly run for cover, before launching an attack.[13]

The PRT commander had a different interpretation of the situation and was not convinced that further delays would benefit matters. The pilots wanted to consult senior commanders from the U.S. Combined Air Operations Center in Qatar. A 45-minute discussion between the pilots, JTAC, and the PRT commander ensued. What should be done and who should be involved?[14] Finally, the JTAC and the PRT commander managed to allay the pilots' concerns by designating the trucks as an imminent threat.[15]

First Pitfall: The "Predator View"

The first pitfall in network-enabled operations is the development of a "Predator view." Steve Call in *Danger Close* (2007) describes this term as having two aspects.[16] First, observers can get so caught up in what they are seeing on the screen that they lose sight of what is happening elsewhere. Second, at any given moment, they have a powerful tendency to mistake the view through the camera lens for the "big picture." The real time images show only a specific part of an area, yet these images are screen-filling, implicitly suggesting that there is nothing more going on other than what the screen shows.

What may have happened in the Kunduz air strike incident is that the PRT commander in Kunduz had mentally adopted the "Predator view." Perhaps he was caught up in what he saw and mistook it for the "big picture." Rear Admiral Gregory J. Smith, a senior member of the U.S. assessment team for the Kunduz incident, states, "When you're sitting at a command center, it may look like you're seeing nothing but insurgents, but the reality can be pretty complex."[17] This statement appears to allude to the Predator view phenomenon. Call describes the consequences:

> When the two problems combine—when people in headquarters get sucked into the Predator's tiny view of the unfolding action and insist they have a real lock on the battle and try to influence events based on that view—it can lead to some unfortunate, even unprofessional, confrontations as different observers argue over what needs to be done, where, and when.[18]

Bad consequences can come from decisions made based on limited images. We clearly see the interaction between man and technology in the Predator view. The associated pitfall of the Predator view relates to knowledge and experience. In this example, the JTAC completed intensive and ongoing training in the interpretation of maps, aerial photographs, and the use of the ROVER system.

From March 2009, the JTAC commander had directed between 40 and 50 air strikes.[19] Based on his training and experience, he was the so-called "qualified observer" and the "release authority." A local commander can request an air strike, but he or she has no authority as to where, when, and how to release a bomb. These are not part of the "rules" connected to his position. Likewise, during close air support, the pilot is not authorised to eliminate a target without permission from the JTAC. Guaranteeing the safety of friendly forces, civilians, and infrastructure during air strikes inextricably links to the position of the JTAC. The ROVER system serves to *support* the JTAC in this process; the JTAC has also trained to interpret the images. In contrast, the local commander (in this case the PRT commander) must keep a clear overview of the situation and guarantee the tactical direction.

It seems in this case that the PRT commander was less engaged in keeping a clear view of the situation and more on focusing on the details shown on the screen (i.e., the purview of the JTAC). Thus, we can say that technology is not a neutral thing. It has a tendency to distract or persuade people in a certain direction. The local commander's task is to keep a clear view of the overall operation, respect the rules of engagement for the mission, and adhere to standing operating procedures (SOP), in this particular case, SOP #311 regarding close air support.[20]

Second Pitfall: Misinterpretation

The second pitfall of the Predator view concerns the misinterpretation of video images. The commander had the opportunity to watch the ROVER images on the screen, which are initially meant to guide the JTAC, guiding the air support from the tactical operations center.[21] However, these images are projections of temperatures within a certain range, and result in grainy, gray images with imprecise black dots.[22] It was possible to distinguish the trucks stuck in the river bed and the people around them, but not whether these people were carrying weapons. In interpreting the ROVER images, it seems that the PRT commander acted solely on his own insight and made decisions without accepting the views of others on the network.

For example, the F-15 pilots suggested consulting ISAF Headquarters in Kabul and the U.S. Combined Air Operations Center in Qatar.[23] However, the commander did not want to lose his window of opportunity of eliminating actual terrorist threats. Given the information he had, he thought the situation was threatening and this belief colored his interpretation of the images on the screen.

Tragically, he misinterpreted the persons on the screen for insurgents, partly owing to the information relayed to him by an Afghan informer.[24] This fragmentary information led him to believe an attack was forthcoming.[25] However, it was hard for him to tell whether some of the black dots on the screen might be villagers coming to take free fuel from the trucks.[26]

Although information technology and network technologies can even out the differences in information available to the various partners, they cannot bridge the differences between partners in knowledge of "rules of the game" to deal responsibly with network information. This may lead to people taking matters into their own hands and assuming authority without actually being formally authorized to do so.

The 2007 Apache incident in Iraq described at the beginning of this article is a similar case of U.S. airmen misinterpreting video images. The helicopter crew was convinced that the men they were following on-screen were carrying weapons and a rocket launcher. In reality, the crew was observing a team of news reporters carrying cameras. Two reporters died in the ensuing attack because the aircrew and the military on the ground mistook their cameras for weapons.[27]

The way in which we interpret information depends on the situation of the observer, his expertise, and the way the information is presented. Technology plays a vital role in presenting information. Therefore, pointing fingers at certain persons involved is only a partial, one-sided assessment of the situation. When we assess incidents, we must take the role of technology into account as well.

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Third Pitfall: Prevention of Streamlined Communication

The third pitfall relates to communication between the various partners on the network. Missions such as the one in Afghanistan will generate more tension owing to conflicting rules between coalition partners. There are sometimes also differences in the interests of the various allies' headquarters.

These tensions are especially noticeable at lower levels, where soldiers have to act rapidly in dealing with situations: One frustrated observer notes that, "It used to be, the ground commander requested a bomb, and a bomb he got. Now, the ground commander requests a bomb, and the joint terminal attack controller, the aircrew, and the ground commander talk about it."[28] The multinational character of network-enabled capabilities amplifies such discussions. For example, rules of engagement may differ. The aim or the direction is clear: namely, to find a better solution than the release of a bomb. However, sometimes these discussions only complicate a situation, as we saw in the Kunduz air strike.

The third pitfall is that the prevention of streamlined communication during an operation attenuates clarity. It took 45 minutes of arduous debate between the German commander, the JTAC, and the U.S. pilots to get clarity on how best to act.[29] The commander did not want to request support from Qatar, because of the emergency of the situation. He believed the involvement of more partners in the network would further delay and block a fast interpretation, which was necessary in his view.[30] This made things even worse.

Technology is not Neutral

Why do such pitfalls develop? Let us look at the problem from two perspectives. The first perspective employs an insight from the philosophy of technology, that technology is not neutral. We often assume information technology and network technology are neutral, in the sense that these technologies merely facilitate information exchange, nothing more. Douglas Pryer in an earlier 2012 issue of this journal noted, "Many still do not understand that the most profound impact of information technology on warfare can be seen in the rising importance of war's moral dimension."[31] A number of philosophers of technology have shown that technology is actually far from neutral and influences human behavior and actions.[32]

Peter Paul Verbeek has used the term "technology mediation" to describe the phenomenon. Technology stands between the user and the real world, so we can say it mediates between the user and reality. Verbeek partly explains his views by referring to the field of ultrasonography. New dimensions exist in medical practice because of the availability of the so-called ultrasound scan's technology-mediated images of the fetus. However, as a technology, the ultrasound scan is not neutral. It creates new dilemmas for users. For example, the question may arise as to whether an unborn child that the ultrasound scan shows as having medical defects should be born.[33]

In other words, the technology-mediated image influences the decision-making behavior of the medical practitioners and the parents involved. The same is apparent in the case of ROVER. However refined ROVER's graphic images may be, they only suggest that you are looking at events on the ground. In reality, you are looking at a technology-mediated image of those events.

U.S. Air Force SrA Sean Almond, tactical air control party with the 147th Air Support Operations Squadron, Texas Air National Guard, uses a ROVER 5 handheld portable transceiver device to view targeting data while performing close air support training at the Townsend Bombing Range during exercise Global Guardian, McIntosh County, GA, 16 February 2012. (U.S. Air Force, SSgt Jorge Intriago)

This technology provides a mediated image of reality by sending real-time video or thermal images from a manned or unmanned aircraft to a laptop computer screen. The dots on the screen do not show the reality the onlooker sees, but interpretations of reality, in this case, through thermal images. Much like the ultrasound scan, the ROVER images can help gather information where this was once impossible. However, we have to be careful when working with these technologies.

Several factors influence the way these images are used. One of them relates to the choices designers of technological interfaces have made as to underlying scripts, colors, icons, positions of buttons, etc., all of which influence what the user thinks is important from his perspective. ("If a red light starts flashing, it must be important.")

This technology also changes people's behavior. In the case of the Kunduz incident, the ROVER images influenced the commander's perception of reality and possibly changed his decision-making. The insight that technology provides a mediated view and is not neutral can help us better understand the first two pitfalls, the Predator view and the misinterpretation of images.

The Concept of Practice

The second perspective examines the concept of "practices." Several philosophers use the concept of (normative) practice to suggest there is a relationship between right or correct actions and the context in which these actions are carried out.[34] The concept of practice asserts among other things that actions take place in a specific context with specific standards, in the sense of "rules of the game" for the practice.[35]

Those rules of the game even define a practice to some extent. For example, the rules of soccer or chess not only define their respective games, they make them possible. Further, defense doctrine determines military actions, and rules of engagement allow military personnel to carry out military actions. In the case of the rules of engagement, these rules may change during a mission.

Structure and direction. One should distinguish between structure and direction with respect to the concept of practice.[36] Rules, procedures, and standards that ground a practice's actions and competencies also characterize its structure. In this regard, the term "rules" means the "rules of the game" or standards which constitute the practice.[37]

Think again of soccer, where the rule stating that no use may be made of the hand defines the game. This rule makes the game of soccer possible, making it clear that it is not rugby. Manuals, codes of conduct, and guidelines often document a practice's structure.

Various rules played roles in the case of the Kunduz air strike—the rules for command and control in the hierarchical structure between the commander and the pilot; a directive from General McChrystal; the rules of engagement applicable to the operation; rules for requesting air strikes in specific situations; standards for communication between informants and the command center; and procedures for releasing bombs. These rules make sense only in the military context.

Direction refers to the underlying convictions that drive people to perform their tasks in their various practices. These are one's deepest convictions regarding the actions that he performs. The convictions are also the ethos of the profession. Direction relates to cultural background and worldview.[38] It influences the way rules work in a practice and the way we interpret rules in specific situations.[39]

Members of the military involved in the Kunduz incident had a conviction regarding what their work was ultimately about. ISAF commander McChrystal's first concern was for the security of Afghan civilians. The German commander's top concern was to protect his own people against insurgents.

Technology connects practices. We cannot understand technology's role in military practice without referring to the specific social context in which we use the technology.

How does the concept of practice work in the framework of network-enabled capabilities? We currently refer to actors in a network-enabled operation as nodes. This term relies on a mechanistic view of how military personnel work in network-enabled operations. Thinking that their technologies are neutral, developers and users of technologies assume that connecting different military nodes by means of technology is a neutral activity.

However, in the case of the Kunduz air strike, we have seen that as soon as we introduced technology, the technology not only merely connected nodes in the network, it connected practices that previously operated more or less separately (such as the pilot-practice, the JTAC practice, and the commander-practice). The use of the ROVER system, intended to *support* the JTAC, also linked the pilot with the PRT commander, thus "blurring" the structure and direction of two separate practices. This blurring can lead to the pitfalls mentioned at the beginning of this article, as well as misinterpretation of information. Procedural errors ensue as the direct consequences of it.

The concept of practice allows for the view that a soldier is not only a node in a network, a button pusher directed by rules, a goal-driven agent, but also someone with convictions about how to perform his task in the right way. This conviction also relates to the rules of the game in various practices. A pilot who does a good job does so in a different way than an engineer who does a good job in the field. In a network environment, practices connect to each other with unprecedented speed.

Hierarchy versus network. A critical reader might note that a great deal of cooperation has always existed among the practices within the

(U.S. Air Force photo by SSgt Lakisha Croley)

From left, U.S. Air Force A1C Vincent Yocco, A1C Amn Sergio Barcena-Turner, and SSgt Jason Sandoval, tactical air control party members with the 3rd Air Support Operations Squadron, conduct joint terminal attack controller training with U.S. Army personnel at Donnelly Training Area, AK, 14 June 2011.

military setting. That is certainly true, but hierarchical means of communication traditionally connected the practices, and traditional means of communication, such as radio, served to confirm this hierarchical structure, enabling vertical information exchange via lines of command.

What is different today is that network technologies connect all these various practices. These supposedly "neutral" technologies can cause clashes between the different "structures" that apply to these various practices. It has suddenly become unclear which practice's rule should prevail and which role ones practice plays. An example is drone pilots that execute both the task of fighter pilots and reconnaissance personnel.

This problem did not previously arise because of the hierarchical nature of the military practice: if clashes did occur, the hierarchy prescribed the solution. However, with the advent of network technology, the number of interactions have increased and become multidimensional. As a result, the likelihood of clashing rules and guidelines has increased.

The introduction of network technology can also lead to clashes in the directions of the various practices, especially if users of the technology are not aware that their own practice may easily infringe upon the boundaries of another area of practice. In the Kunduz case, the *direction* of the pilots and the PRT commander clashed: the pilots wanted to carry out the air strike as safely as possible with regard to harming civilians and the infrastructure, but the PRT commander believed he had to protect his own people from an attack by insurgents.

We can therefore draw the conclusion that a technology presumed to be neutral can and does link up practices that were previously unconnected. Moreover, even if the practices did interact in the past, it was along clear lines; namely, via one commander communicating with another commander.

If we take a close look at the various practices upon which individuals made decisions and acted, we conclude that network-enabling technologies may in fact have been partially to blame for the tragedy in Kunduz. We assumed that it was clear which set of rules should prevail, while in reality, there was no such clarity.[40]

Dynamic Communication

One of the assumptions related to network-enabled operations is that they will improve communication and decision making. This does not always prove to be the case. Sometimes, the opposite may even be true, as I have demonstrated by referring to the Kunduz air strike.

In dynamic communication in network-enabled operations, a clear view is often missing of who is the relevant expert in the field and who is authorized to make decisions. Military personnel working in a network environment may therefore encounter a number of pitfalls:

- The first is the danger of developing a "Predator view."
- The second is misinterpretation of on-screen images.
- The third is the prevention of streamlined communication and information exchange at critical moments.

To clarify the underlying causes of these pitfalls of network-enabled operations, I have demonstrated that technology is not neutral. The visual information that it presents gives a mediated view of reality.

I also introduced the concept of "practice" to demonstrate that tensions can arise during network-enabled operations due to a blurring of the structures and directions of different practices of users on the network. In the Kunduz air strike case, the differing "rules" of the JTAC, the pilots, and the PRT commander clashed.

We must introduce new measures to avoid such clashes in the future. Training in how to deal with clashes is required. For example, during a network enabled operation, users can ask themselves whether their particular area of practice requires them to interpret visual information as technical, tactical, or strategic information. In the case of the ROVER images, it appears that the commander used visual images intended to serve the JTAC to make a decision that had far-reaching consequences.

Underlying tensions do not surface as long as circumstances are predictable. Visionaries in the area of network-enabled operations tend to forget about military practice, the social context in which these military operations take place. Inherent to military practice is the fact that circumstances are not always predictable. Only when stressful and nebulous situations occur (such as the hijacking of a fuel truck)

does it become apparent that these technologies are not neutral and that they have persuasive, behavior-shaping aspects.

To avoid further incidents such as those described in this article, military personnel must understand that technology is not neutral and that it can lead to an imperceptible blurring of practices. Importantly, military personnel have to to identify the structure and direction of their own areas of practice, including associated responsibilities and rules. This does not mean that all users should be aware of each practice's internal structure. However, setting it forth can help determine when to deploy it or when other practices may be better suited.

It may be interesting to examine the relationship between different practices more closely to establish whether good cooperation is possible. A case in point is the relationship between the JTAC and a pilot, where there is excellent cooperation.

Tension cannot always be resolved, because it may reside at a deeper level, i.e., within the practice itself. Tension may even mean that cooperation is not desirable. If the directions of two practices clash or the differences in structure are incompatible (the rules, procedures, and mandates are at odds with each other), it may be more prudent to work alongside a partner rather than with him. ***MR***

NOTES

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3. John Goetz, Konstantin von Hammerstein, and Holger Stark, "NATO's Secret Findings—Kunduz Affair Report Puts German Defense Minister Under Pressure," *Spiegel Online*, 19 January 2010, <http://www.spiegel.de/international/germany/nato-s-secret-findings-kunduz-affair-report-puts-german-defense-minister-under-pressure-a-672468.html> (26 June 2012).
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5. For example, Joe Doty and Chuck Doty, "Command Responsibility and Accountability," *Military Review* (January-February 2012): 25-38; Douglas Pryer, "Steering America's Warship Toward Moral Communication (and Real Success) in the 21st Century," *Military Review* (January-February 2012): 24-34; A. Edward Major, "Law and Ethics in Command Decision Making." *Military Review* (May-June 2012): 61-74.
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8. Frans Osinga, "Netwerkend de oorlog in?" *Militaire Spectator*, 173 (2004): 5-24.
9. Philosophers of technology focus on how technology can best be understood by making use of concepts from the field of philosophy.
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14. John Goetz, Konstantin von Hammerstein, and Holger Stark, "NATO's Secret Findings Kunduz Affair Report Puts German Defense Minister Under Pressure," *Spiegel Online*, 19 January 2010, <http://www.spiegel.de/international/germany/0,1518,672468,00.html> (28 April 2010).
15. Ibid.
16. Steve Call, *Danger Close: Tactical Air Controllers in Afghanistan and Iraq* (College Station: Texas A&M University, 2007). This refers to the addictive quality of footage captured and sent back by the Predator, the most frequently used UAV in Afghanistan.
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18. Call, 72.
19. Goetz, von Hammerstein, and Stark.
20. Spiegel staff, "German Airstrike has changed everything," *Spiegel Online*, 14 September 2009, <http://www.spiegel.de/international/world/0, 1518,648925, 00.html> (5 July 2010).
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29. Goetz, Von Hammerstein, and Stark.
30. Ibid.
31. Pryer, 32.
32. See for example Don Ihde "Bodies in Technology," *Electronic Mediations*, vol. 5 (Minnesota: University of Minneapolis Press, 2002); and Peter Paul Verbeek and A.F.L. Slob, eds., *User Behavior and Technology Development: Shaping Sustainable Relations Between Consumers and Technologies* (Dordrecht: Springer Verlag, 2006).
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34. The most well known is Alasdair MacIntyre. See Alasdair MacIntyre, *After Virtue: A Study in Moral Theory* (London: Duckworth, 1981).
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36. This distinction is made by Jochemsen, Hoogland, and Glas (1997).
37. The analogy with a game of chess can make this clearer: the rules of the game make the game of chess possible; they constitute the game. A player can learn the rules of the game by heart in order to be able to play, but this "know-how" is not enough to become an excellent chess player. Players must actively become involved in chess playing in order to know how best to apply the rules in specific situations. Hoogland and Jochemsen state, "[knowing how] is an intuitive awareness of rules, consisting in the ability to act according to a rule and to evaluate the correctness of its application." Jan Hoogland and Henk Jochemsen, "Professional autonomy and the normative structure of medical practice," *Theoretical Medicine and Bioethics* 21 (2000): 457-75.
38. Hoogland and Jochemsen, 466.
39. In the case of the game of chess, direction is the strategy that a player uses in playing the game. Normativity also comes into play here, since we can speak of good or bad strategies. The rules of a game do not determine the course of the game, but how to play the game correctly.
40. Matthias Gebauer and John Goetz, "Deadly Bombing in Kunduz-German Army Withheld Information from U.S. Pilots," *Spiegel Online*, 21 February 2010, <http://www.spiegel.de/international/germany/0,1518,675229,00.html> (5 July 2010).