**Metrication in the United States: Did Communication Fail in this Technosocial Change?**

By Carolyn Harvey

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The American economist Tyler Cowen summed up the timeless reluctance of Americans to change with the succinct observation in a *Harvard Business Review* article: "Look at a classic 20th-century notion of progress: how quickly can you move through physical space. That hasn't gotten faster in a long time." In the 1970s, when metrication--the adoption of the metric system as the official system of weights and measures, overtaking the traditional imperial system--was touted as the next big initiative for the United States, this concept must have been on Americans' minds.

The first moonwalk had just been made, depositing four American astronauts on the lunar surface in July 1969. ATMs were now available to the public, and for the first time, one did not need to wait for a teller to withdraw cash--or beat the inconvenient banker's hours to do so. UPC symbols read by lasers sped up grocery store transactions, and individually placed price tags slowly went away. The future was now. And it was all done in imperial.

The push to go metric fomented slowly but surely, based in advisement of government leaders by academics and scientists concerned with the country's stubborn stance on remaining imperial. In postwar years, there was a fear amongst globalists that the United States was slipping behind the rest of the world in math and science, and not switching to metric punctuated that sentiment for many. The National Defense Education Act of 1958 attempted to get ahead of Soviet engineers with federal money for schools to teach science in a more robust manner (Marciano 232). Ultimately, according to metric historian and author John Bemelmans Marciano,



carolynstoverharvey@yahoo.com

the economic downturn of the late 1960s led to the looming threat of utter financial apocalypse if the United States didn't get its metric act together (235).

Opponents of metric at this time dismissed metrication as a subdued transition into communism, with an expensive price tag to convert (Marciano 235). Unions, protective of their machinery and trade secrets, opposed the effort for fear of losing jobs overseas; if all forms of measurement were the same, their reasoning went, then there would be no advantage to using American manufacturing. Further, many "regular" people thought, the country seemed to be doing just fine with the status quo; why would a conversion to metric be necessary?

While a few lauded American statesmen tried previously to convince the government to convert to metric, including Thomas Jefferson and James Madison, the effort never gained much traction beyond sporadic bouts of impassioned interest from intellectuals with their eye to the future. After a 1971 "Metric Study" advised conversion to metric, American leaders started to put legislative muscle behind the idea. In 1975, President Gerald Ford signed into law the Metric Conversion Act (albeit without deadlines or a mandatory conversion) and the Metric Board was established, comprised of experts in many fields to advise the president and guide the country's expansion into metrication (Marciano 241). Yet in just a few short years, President Ronald Reagan would dissolve the Metric Board, ending the government's official involvement in going metric.

The United States was, and remains, one of the few countries that has not officially embraced the metric system. Metrication was a push for technological social change that didn't quite entirely take in the United States. Today, we still measure gasoline by the gallon and land by the acre, but we also measure car engines in liters, and medication in milligrams. Whether it's



carolynstoverharvey@yahoo.com

Yankee stubbornness, general apathy to change, or ineffective communication methods to persuade people, metric has never entirely measured up to win the hearts and minds of the American people.

In this paper, I will explore two major communication methods by which social change was to be affected with their respective constituencies. The communication methods evaluated in this paper are public school curriculums to teach the metric system, and public service communications about the metric system. In this analysis, I will explore why the communication methods worked (or didn't work), how communication methods can influence social change, and whether the communication methods for a government-backed push for social change are always considered propaganda. I will also investigate what role, if any, the modern communication method of social media might play in an effort for metrication in our contemporary times.

**Metric in Schools**

Public schoolchildren were one of the primary audiences for education in metrication. In this section, I will review how metrication was presented in American schools, and what impact that had on the metrication effort.

Educator Katherine A. Grzesiak, in her article "America and the Metric System: Present Perspectives," noted in January 1976:

> When Public Law 93-380 passed in August, 1974, it included a reference to metric education. The law noted that the metric system is in general use in industrially developed nations and that its use is increasing...Finally, it noted that there is no federal program designed to teach children to use the metric system: such a program, the law



carolynstoverharvey@yahoo.com

> declared, is necessary if the American people are to adapt to the use of the metric system of weights and measures (196).

Grzesiak noted that both the governments of Great Britain and Canada, who underwent metrication in the 1960s and 1970s, had centrally planned lessons to teach children the new measures. (Britain also made the change around the same time from the traditional £-s-d[1] currency system to the new decimal currency system, so a lot was at stake for children to be able to not only, say, shop for 500 grams of candy at the corner shop, but also pay for it correctly.) Alongside the goal of turning the United States metric, the Metric Conversion Act

> called for programs for educating the public for the meaning and applicability of metric terms and measures in daily life for assuming that the metric system of measurement becomes a part of the curriculum of the nation's educational institutions, and that teachers be appropriately trained to teach the metric system (Hallerberg 254).

In the United States, mathematics and science instructors took on the challenge of teaching metric alongside imperial units in the 1970s, and it seemed that public schools were one of the biggest learning labs for metrication. In a 1975 article in *TIME Magazine,* it was reported that 25 states and the District of Columbia were set to teach children the metric system, and "Beginning in the fall of 1976, Illinois schoolchildren from kindergarten through Grade 6 will be taught both the standard English and the metric systems. In Grade 7 and above, the metric system will be used exclusively." Learning metric wasn't confined to the classroom. The same *TIME* article reported that "Children at Denver's Harrington Elementary School took part in the first

[1] Pound, shilling, pence--the old money system in Great Britain.



carolynstoverharvey@yahoo.com

city-organized metric track meet, a 91-meter dash," perhaps a trial run to consider framing itself as the "1.6 kilometer-high city."

**Schools as the Pipeline to Change**

Many societies value education as an essential part of human and social development, especially as it relates to the ability of a society to produce labor. In the 1970s, economist Martin Carnoy may have had metrication on his mind when he wrote about how education can produce social change. Although he was writing primarily from an economic perspective, his observations are germane to the social movement of metrication because metrication was touted as, depending on the source, either an economic boon or villain.

In his seminal article, "The Role of Education in A Strategy for Social Change," Carnoy acknowledged that, "The human being is formed in the total society, and schooling contributes to that formation in terms largely consistent with the society's economic, social, and political structure" (394). He posited that because schools serve as the State's "principal mechanism through which the mass of people is controlled during the development process," schools are ideal laboratories for social change. He borrowed social philosopher Andre Gorz's "encroachment strategy" to affect change in schools, albeit to dismantle capitalism--not to introduce metrication and implement it in society in general. But the idea by that change is accomplished in schools by enrolling not only the teachers and the students, to essentially overthrow the system, seems to have merit. Carnoy believed an "anti-management organization" must be established to speak for the teachers and students, against the powers that be (ultimately, capitalism) (398). In many ways, this encroachment model is change from the inside out, as Carnoy acknowledged, "The short-term objective of the encroachment strategy, then, would be



carolynstoverharvey@yahoo.com

to win increasing control over what goes on in the classroom *and what is included in the educational curriculum*" (400, emphasis mine).

Given the context of American education in the 1960s and 1970s, it is easy to see why metrication education flourished in the classroom, but failed to take hold in greater society. Until 1979, there was no United States Department of Education; it was established by President Jimmy Carter, only after defeating pushback from Republicans who believed there was no constitutional basis for such an office. At that time, almost every decision to do with primary education was made at a state or local school board level, and the federal government usually stepped in only in cases of federal interest, such as segregation bussing orders. Contrast this with the centrally planned metrication lessons in Great Britain and Canada, where the messaging was coming from the top down--and metrication was successfully implemented.

Independent scholarly literature from the era about how to teach metric, best practices to teach metric, and how metric can be applied to any number of subjects abound. It was clearly a point of interest in contemporary pedagogy. It is apparent that the educators of the time, working with economic and industry leaders, were aligned to the goal of matriculating students equipped with the knowledge they would need to be successful in the new global metric landscape.

Today, metric remains an essential part of American education. The National Council of Teachers of Mathematics, an advocacy group for mathematics instruction in the United States, even has a position statement on the importance of teaching the metric system of measurement: "To participate in integrated science, technology, engineering, and mathematics (STEM) fields, students need to be fluent in applying the metric system."



carolynstoverharvey@yahoo.com

Despite its prevalence in education, metrication still didn't achieve full encroachment status, and our educational system (and society at large) weren't overthrown and retooled for metric. There are likely several reasons for this. One is the creation of the Department of Education. With the dictates for educational objectives now coming (at least in part) from the federal government, and not local educators, there was less autonomy in the classroom and more bureaucracy for educators as another layer of red tape was added. Another reason is the eventual abolishment by President Reagan of the metrication initiative; if the head of the executive branch of the federal government says metrication isn't an educational priority, and schools derive their directives from the federal government (whether explicitly or implicitly), metrication will not be a priority. And lastly, the impact of children's voices must be examined. In the American version of democracy, rights aren't afforded to people until the age of majority is reached--usually 18 years old. Until that age, young people cannot vote or enter into military service[2]. Because there is no currency to their voice, children are often ignored in any form of social change, unless something really dramatic happens. In recent history, the global climate change protests, where students of all ages were urged to protest in their community against global warming, attracted some attention, with *The New York Times* reporting that, "While it was impossible to determine exactly how many people protested worldwide, a preliminary analysis by *The Times* found several cities had turnouts in the range of 100,000 and many more in the tens of thousands." Expert analysis on why so many children are moved to participate in climate change protest centers on one theory: Because the children of today will inherit the planet, scars and all, and they want to ensure their future is sustainable. Contrast this with the effort to go metric;

[2] An exception is that with parental consent, a 17-year-old may join the armed forces.



carolynstoverharvey@yahoo.com

large-scale devastation has never happened due to the metric system. It's relatively small potatoes when placed against the protests of the 1970s (which, incidentally, also centered around clean energy and lessening dependence on fossil fuels). The students of metrication never found it a life-changing cause to herald--only another mathematics unit to pass.

**Consumer Persuasion and Sentiment**

On the commercial side, proponents of metrication had a far larger audience to reach than educators did with schoolchildren. Anyone who viewed network television, listened to radio broadcasts, or read newspapers or magazines were potential targets of the metrication campaign. In this analysis, I will focus specifically on public service announcements (PSAs) promoting metrication.

A PSA is a short, informational piece broadcast over television or radio that is meant to spread awareness or promote a cause that is in the public interest. These spots are aired without charge and typically support a non-profit organization, government office, or public-private partnership. PSAs have been wildly successful, becoming staples in American culture, with some becoming indelible in the American cultural memory (such as Smokey the Bear, McGruff the Crime Dog, "The Crying Indian" 1971 Earth Day ad, among many others). Because they support causes for the public good, they are often produced with professional resources such as Madison Avenue advertising executives, with top-notch content and a clear call to action. Above all else, they are seen as advertisements, and are treated as such by their creators; their non-profit status does not belittle their message.

Several television and radio metrication PSAs were produced. The "Metric Marvels" was an animated shorts series first shown on the fall 1978 Saturday morning NBC lineup. The



carolynstoverharvey@yahoo.com

intended audience was children already viewing their favorite Saturday morning cartoons. The "Metric Marvels" team was introduced in a superhero fashion, "fighting to stamp out metric ignorance, and introduce the system that rules the world." Created and produced by the same studio that created the immensely popular "Schoolhouse Rock!" series, the "Metric Marvels" portrayed the metric system in song and dance, delivered by animated characters including "Meter Man, Wonder Gram, Liter Leader, and Super Celsius" (Perlmutter 387).

Not all attention was focused on youth. At least one radio PSA, 60 seconds in length, was produced by the consumer-oriented Better Business Bureau in 1975. It sternly promised metric-hesitant listeners "Only a few words need to be learned for everyday use." Another television PSA presented by Sandra Kenney, a member of the United States Metric Board, featured Kenney with a 1970s-era station wagon at a gas pump, explaining how gas is dispensed in liters and offering help to "figure your car's mileage using liters" by writing to the Metric Board in Washington, D.C. According to information published on the US Metric Association's website,

> As of mid-1981, USMB had also produced 27 radio PSAs, aired under the title 'Metric Magazine.' They were narrated by Johnny Holliday and provided a general outline of USMB activities, Board member views, and reasons for switching to SI[3], with comments from the public.
>
> ...there had been previous metric PSAs. In 1977 the US Office of Education of the Department of Health, Education, and Welfare commissioned a series of PSAs. Taurus Productions of Colorado Springs produced a series of four, 60-second and four,

[3] Abbreviation for the International System of Units, taken from the French "*Système international (d'unités)*," the official modern name for the metric system.



carolynstoverharvey@yahoo.com

30-second TV PSAs as well as five, 60-second and five, 30-second radio PSAs featuring metric songs or jingles.

While an entire movement's success cannot hinge on one communication method or message's performance alone, it does appear that the metrication PSAs were not that successful. They are not hallowed as great examples of PSA work. Although the spots were creative, they were so didactic in nature that they do not linger in the collective memory of society. It also seems like they might have had the opposite effect: If the system is so complicated that the average American has to write for information on how to figure their car's mileage--which should be a simple task--why would they have a positive impression of the metric system? The metrication PSAs certainly did not have the mass appeal that other PSAs of their time held.

Mass communications scholar Harold Mendelsohn wrote, in his 1973 piece "Some Reasons Why Information Campaigns Can Succeed," about the frameworks necessary to affect public opinion via "information campaigns" or PSAs. His arguments that audience segmentation must be considered, and that the pieces cannot be ideated, written, produced, and evaluated in a vacuum, are crystallized by his ultimate question: "What if information campaigns were designed to reflect empirically grounded mass communications orientations and principles?" (2) Mendelsohn described a cross-functional team, with writers, editors, producers, social scientists, and evaluators working together from the start to design a complete information campaign. This method, he says, will overcome the silos that dominate the creation of these campaigns, and will provide better results.

Mendelsohn also touched on the approach needed. When analyzing the plan to target "bad drivers" for a 1960s traffic safety campaign, he noted that about 80% of drivers consider



carolynstoverharvey@yahoo.com

themselves to be good drivers, and that research showed that most people ignored traffic safety education overall. Thus, a creative approach--rather than a didactic approach--had to be taken to address the issue at hand and to ultimately affect the goal of reducing roadway accidents. The multi-disciplinary team worked together to create "The CBS National Drivers Test" in 1965. The test was printed in over 50 million newspapers and other periodicals, and was also available at gas stations. Drivers were invited to take the test, watch a program on CBS, and evaluate for themselves if they were driving as safely as they could be. According to research, over 30 million people viewed the program, with a great number of people subsequently enrolled in driver education courses after self-identifying as bad drivers. The campaign was lauded as an immense success.

In analysis, Mendelsohn stated, "The lessons learned from this exercise suggest that innovative information-giving formats, abetted by strong prior promotion, can overcome preexisting so-called public apathy to a great degree" (5-6). If we consider the same conditions applied to the metrication PSAs, the "formula" for success could have worked. One difference between the metrication PSAs and the "National Driver's Test" was the level of interaction involved. Metrication PSAs were largely focused on teaching people the metric system and how to make equivalencies to imperial; they were generally low-effort, didactic messages, giving information as generic as the day's weather report, albeit with contemporary styling and catchy music and lyrics. They were passive, with no response solicited or call to action urged. On the other hand, the "National Driver's Test" was interactive. It was a true campaign, with a beginning (the distribution of the test), a middle (taking the test and watching the television program) and an end (urging action if needed).



carolynstoverharvey@yahoo.com

The fact that the metrication PSAs were incomplete and lacked a call to action is just one major reason that the entire movement never caught on. But there was another, more essential reason it failed: There was never a mandatory movement to metric like there was in Great Britain or Canada. There was no sense of urgency associated with metric, because there was no self-imposed deadline. Contemporary thought leader and metrication proponent Stewart Brand wrote in 1980 in *New Scientist* that one of the main reasons metrication was failing in the United States was that it was a voluntary move: "It was stuck in the bill at the last minute by legislators who realised it would not otherwise pass...it has unhinged all the efforts of metricators since, because it forced metric to grow on its merits rather than decree" (Brand). It was not a movement that started of the citizenry, an organic movement that came from grassroots action and had real-life consequences. Brand, again, offers pithy commentary, writing, "We never had any organised [sic] anti-metric movement in the US because the whole scheme was never taken seriously."

**Metrication as Propaganda**

Because metrication was (for a time) a government-backed effort, it could be characterized as propaganda. This form of biased public communication, which espouses a particular point of view or attempts to change the viewer's mind on a topic, has a long history of use by governments. Propaganda can be positive, such as public health campaign urging people to stop smoking (much like a PSA) or negative, such as the fear-promoting posters created during World War II to warn Americans that "loose lips sink ships." Ever since its formal introduction by Edward Creel into American culture around World War I with the Committee on Public Information, propaganda has been seen as a very powerful communication method. Creel



carolynstoverharvey@yahoo.com

meticulously designed campaigns for not only internal communications for American citizens, but also public information campaigns for distribution internationally. He also built teams that took advantage of every medium available of the time and ensured only the best resources were used, including celebrities and noted authors and illustrators (Cull). He was America's PR man.

It is difficult to find published materials that provide the communications strategy for the metrication effort. Typically, government-backed initiatives that are not security-restricted will be fairly transparent with plans and spending, because these initiatives are taxpayer-funded. While this omission may be by design, it's likely because there was no plan in place, other than a directive from the executive branch to "make it so." Internal government resources would have hired outside agencies to develop and create marketing materials (such as the PSAs), but a cohesive, overall communications strategy plan cannot be found in one document. Instead, scholars must perform a forensic recreation of the communication strategies used in the metrication effort, and can only evaluate for efficacy based on this very limited information[4].

Because the information is so difficult to obtain, this lends credence to the thought that metrication could not be considered a true propaganda campaign. The stereotypical propaganda campaigns seen in the governments that heavily utilized propaganda, such as the Soviet Union, were prolific and far-reaching. The campaigns infiltrated every aspect of life. If metrication were a case of government-backed propaganda, we would see tee-shirts, posters, and other merchandise for sale today as ironic kitschy throwbacks popular with hipsters, as contemporary people would want to make a statement about their support of the metric system in a nostalgic way.

[4] I acknowledge that more documentation may exist that is not publicly available. I welcome the opportunity to evaluate and analyze this material.



carolynstoverharvey@yahoo.com

On the other hand, as mentioned previously, this omission of an overall strategic communications plan may have been by design. If metrication was to be more of an organic movement, it may have been thought that the merits of metrication would alone convince millions to abandon their current system of measurement. If this were the case, the powers behind metrication in the United States clearly underestimated the power of the comfort of the status quo to the American people. While metrication supporters and detractors did organize and hold gatherings that could be characterized as protests, one must admit that in the grand scheme of things, the switch to the metric system would have been quite low on the average person's priority list. In the late 1970s, which was prime metrication effort time, the American economy was in turmoil, with energy shortages (including designated days and long lines to buy gasoline) and stagflation. Simply put, there were bigger things for the average American to worry about other than whether they would measure their potatoes in kilograms or pounds at the supermarket.

This may also be why the metrication effort primarily focused on children. If there was a strategy in place, it may have been to go through the schoolchildren, in a "trickle up" fashion, where children would bring the concept home and start using it, which would influence the adults in the household to use it as well. If this was the plan, it too failed; children of any age are not regarded as having any sort of power in the United States. This may also be because organizing children around any type of government-backed cause is one of the hallmarks of a socialist or communist government; a common anti-metric rallying cry was that metrication will lead to globalization and thus communism (Marciano 244).

The distinction between what I am calling the "global thinkers" and the "present-tensers" cannot be ignored in this discussion. The global thinkers--the intellectuals, politicians, statesmen,



carolynstoverharvey@yahoo.com

economists, educators, scientists, writers, and philosophers who supported metrication--saw the value of metrication for the future of the United States above all else. To the global thinkers, metrication was the key to economic growth and freedom. The imperial system represented an obsolete way to think. The global thinkers preferred a deadline because they wanted a plan in place that would yield a final result. But to present-tensers, who lived and thought in the moment, a move as monumental as metrication could not even be entertained. It was far too much to do, would cost too much, and involved way too many moving parts. Ultimately, the present-tensers won, and the United States remained officially as one of the very few countries left that has not made the conversion to metric. But that doesn't mean metric isn't used in the United States today.

**Metrication in the Age of Social Media**

There is no official measurement system in the United States, just like there is no official language of the United States. But with the vast number of industries that have chosen to work in metric alone (with pharmacy, medicine, and science leading the pack), most Americans can be said to be at least somewhat "bilingual" in systems of measurement. And because many manufactured items, especially food and beverage, prepared for domestic use are also sent abroad, we have slowly seen metric creep into daily life via Coca-Cola bottles in liters and candy bars in grams. However, distances on highway signs are still written in miles, and gasoline is still measured in gallons. Steaks and bananas are sold by the pound, not by the kilo. This hasn't changed significantly since the 1970s.

What has changed, though, is how we communicate. In the 1970s, the world read news on broadsheet, listened to broadcasts on AM radio, and watched nightly newscasts on black and



carolynstoverharvey@yahoo.com

white TV. Aside from joining local and national affinity groups--and perhaps a letter to the editor--there was no real way to interact with the metrication movement and let one's voice be heard on the matter.

Today, social media infiltrates every corner of life. Social media users on social networking sites like Facebook, Snapchat, Twitter, and Instagram can publish their thoughts on virtually any topic, and, on some platforms, organize their thoughts by using a hashtag. Interaction is key, and the more interaction garnered on a post--via likes or re-posts--the more "viral" and popular a message is deemed to be. Interaction with a movement is instant and global. With today's communication dominated by social media, and government use of social media at an all-time high, what would happen if the metrication movement had social media as a communication channel?

Political scientists Pablo Barberá and Thomas Zeitzoff, in their article "The New Public Address System: Why Do World Leaders Adopt Social Media?" observed that

> Leaders adopt, use, and exercise control of mass media strategically...The advent of social media, and its ability to bypass traditional communication channels, has led some scholars and commentators to refer to it as a 'liberation technology'. Proponents of this view argues that social networking sites disrupt the top-down (from elites to masses) political communication of traditional media. Social media thus represents a valuable new tool to protestors and challengers of the regime; it puts world leaders in a disadvantaged position.

The authors argue that the social media disruption of traditional mass communication--the press, so to speak, now being in the hands of the many instead of the few--weakens the position of



carolynstoverharvey@yahoo.com

governments. One way it is weakened is by sheer volume. There is one government with thousands of offices and departments that could speak to metrication in the United States, but there are millions of social media users.

The government's message could also be weakened because of the medium used to transmit the message. Just because a message is on social media does not guarantee that it will resonate with social media users. And, a widely disseminated social media message does not equal a successful message. A prime example of this is the Occupy Wall Street movement, which is largely regarded as a failed enterprise, despite using the Internet--Twitter in particular--in novel ways to organize and communicate (Roberts).

The 20th century top-down transformational model has been replaced, according to social change thinker Leslie R. Crutchfield, by the 21st century bottom-up model. This system for social change relies on networks for success, with clearly defined shared values and relationships. Change comes out of groups working together, rather than the old model of direction coming from a central point. Crutchfield shares Mendelsohn's opinion (and Creel's practice) that it takes a well-defined, robust team of experts to properly communicate a cause; only then is success even a remote reality (18).

These modern tenets of social change need transparency in order to achieve goals (18). Social media is especially good for transparency because it is designed to facilitate open communication. Transparency of government is also expected in our democratic society. Many large organizations, including government offices, routinely utilize social media channels for promotion and information dissemination. Barberá and Zeitzoff reported that "By the end of 2014, more than 76 percent of world leaders had an active Twitter or Facebook account" that are

used to "...document important diplomatic events" or offer opinions and critique on the day's happenings, sometimes instantaneously (such as President Donald Trump's well-used Twitter account) (122).

If social media as it is used today were available during the metrication efforts of the 1970s, it is very possible that a different outcome would have been achieved. Even if the same communication plan were used, flawed as it was, the tools would have been different, and the way people would have responded would also be different. I imagine that social media could facilitate a meaningful conversation between parties, directly connecting the global thinkers with the present-tensers. This conversation could work to go beyond the debate of inches vs. centimeters, but to focus in on the larger issues at hand: globalization, the American economy, and the importance of science, medicine, and technology to everyday life. The use of social media technology could very well have affected a real change in America.

**Conclusion**

It is interesting to realize that the issue of why the United States did not officially embrace metrication in the 1970s is related to how people think and view the world, rather than their preference of which system of measurement to follow. The global thinkers lost out to the present-tensers for several reasons, most notably for a lack of a deadline and a cohesive plan for transition. The appeal that global thinkers saw to metric--that it would align the United States with all other developed countries on a very important shared language--was lost on present-tensers because they could not prove their argument. The attempts to reach the public through schoolchildren and PSAs also fizzled out because the communication tools were inconsistent and targeted at the wrong audiences.



carolynstoverharvey@yahoo.com

Social media affords communicators many advantages that were not present in the 1970s. A fully developed, well executed PSA campaign--with a deadline for transition--would be a great fit for social media, because it would connect the global thinkers with the present-tensers. This audience would be greater than any other audience ever targeted in the metrication campaigns. As social media continues to evolve, the future may hold even more innovative options to drive social change movements like metrication.

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carolynstoverharvey@yahoo.com

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carolynstoverharvey@yahoo.com

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carolynstoverharvey@yahoo.com