

Barriers Between Scientists and Journalists: Myth or Reality?

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ATPS SPECIAL PAPER SERIES No. 35

Published by the African Technology Policy Studies Network, P.O. Box 10081, 00100
General Post Office, Nairobi, Kenya.

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PUBLISHED BY ATPS COMMUNICATIONS DEPARTMENT

Printed by Newtec Concepts
P.O. Box 00800, Westlands
14180 Nairobi, Kenya
Tel: 4449849, Fax: 4450399
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ISBN: 9966-916-36-9

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ATPS is supported by a growing number of donors including the International Development Research Centre (IDRC), the Carnegie Corporation of New York, the Rockefeller Foundation, the World Bank, the OPEC Fund, Ford Foundation, Coca-Cola Eastern Africa, the African Development Bank, *InfoDev*, European Union and the Royal Dutch Government.

Acronyms

AAAS	American Association for the Advancement of Sciences
BBC	British Broadcasting Corporation
SIRC	Social Issues Research Centre

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1. Introduction

This paper discusses barriers between scientists and journalists. The purpose is to increase understanding about the inherent differences between scientists and journalists that separate them and inhibit the dissemination of scientific information to the public. The topic of the paper is actually a question: *Barriers between scientists and journalists: Myth or reality?* This question makes an assumption that there are barriers between scientists and journalists. The barriers are either imagined or real. The questions that this paper will address are:

- a) What are the inherent differences between scientists and journalists that separate them?
- b) What are the causes, manifestations and consequences of these barriers?
- c) What interventions can be put in place to bridge the gap between scientists and journalists?

This paper attests to the reality of the barriers between scientists and journalists by providing evidence to that effect, explains why the barriers exist, their impacts on scientists, journalists and society as a whole. The paper will also make suggestions on what can be done to remove the barriers.

It is true that barriers exist between scientists and journalists because of the inherent differences between them. "Scientists see science as a cumulative, cooperative enterprise; journalists like to write about individual scientists who have made a revolutionary breakthrough. Journalists like controversy; scientists thrive on consensus. Journalists like new, even tentative results with exciting potential; scientists prefer their results to go through the slow process of peer review and settle into a quiet, moderate niche in the scientific literature - by which time journalists are no longer interested. Scientists think that accuracy means giving one authoritative account; journalists feel that differing views add up to a more complete picture. Journalists' work has to fit the space available; scientists' academic papers can be of any length. Scientists work at the pace imposed by the nature of the research; journalists are in a hurry to meet a deadline. Scientists must qualify and reference their work; journalists have to get to the point" (Shortland and Gregory, 1991).

2. Conceptual and Theoretical Frameworks

2.1 Conceptual framework

Concepts such as barriers, scientist, journalist, myths, reality, and communication will be used repeatedly in this paper. It is appropriate to provide working definitions and context upfront.

Communication as used here refers to an interaction or the exchange of information, ideas or messages between the scientist and journalist or other audiences such as the public. Barriers in communication refer to things that inhibit effective communication. These factors may be psychological, social, cultural, political, linguistic or semantic and environmental. A scientist is one who is educated in the application of scientific methods in pursuit of knowledge such as in pure, applied and social sciences. A journalist is one who collects, packages and disseminates newsworthy information to the general public to enable them make informed decisions. The paper will not debate whether a journalist is a scientist or artist. Myths will be used to refer to misconceptions that are not founded in fact. Reality will refer to verifiable occurrences that exist or occur around us.

Scientists and journalists in their various ways are engaged in activities that champion the common good. As such barriers that exist between them compromise the realization and enjoyment of the common good. This paper will make suggestions on how the inherent differences between the scientists and the journalists may be reduced or removed all together.

2.2 Theoretical framework

There are several communication theories that attempt to explain the barriers of communication among people. However, the paper will use the uncertainty reduction theory as proposed by Charles Berger. This is a theory of interpersonal relationship which makes it relevant to the study of the relationship between scientists and journalists. A lot of times, scientists encounter journalists as individuals hence the need to use an interpersonal communication theory.

The theory asserts that when strangers meet, their primary concern is to reduce uncertainty about the other person and their relationship. It also asserts that uncertainty is culturally dependent as the barriers between scientists and journalists are culturally based. This paper will show that there are scientists and journalists experience high uncertainty about one another. According to the uncertainty reduction theory, individuals are self aware, both objectively and subjectively; this affects the way they relate to others. This theory makes distinction between high self monitor and low self monitors where high self monitors guard what they say and are sensitive to feedback and low self monitors are

less sensitive to feedback. In this case, we are dealing with scientists and journalists who are both high self monitors. The theory can be appropriately applied to this paper as it discusses information passive, active and interactive seeking strategies. Both scientists and journalists are well versed in these strategies of investigation and interaction. This theory can be used to resolve the problems between scientists and journalists as it argues that uncertainty is high when strangers meet but it goes down as verbal output, nonverbal warmth, self-disclosure, similarity, and shared communication networks increase.

3. Manifestations of Cultural Barriers

It is common knowledge that there are cultural barriers between scientists and journalists. Each of them has prejudices and stereotypical images of one another. It is these stereotypical images that form a wall between scientists and journalists. The barriers are culturally ingrained in the mindset of scientists and journalists. These barriers lead to miscommunication and strained working relationship between scientists and journalists. These barriers manifest themselves in the perceptions and actions of both scientists and journalists.

3.1 Scientists' image of journalists

Scientists generally have a fear or suspicion of the media¹, especially if they have had little experience with the media. On the other hand, journalists are suspicious that scientists want to control their independence.

Scientists are particularly fearful of misrepresentation, inaccuracy, and loss of control. They often view journalists as exploitative and manipulative (Gascoigne and Metcalfe, 1997).

When asked to state what their perceptions of journalists were, a group of scientists said that journalists were unhelpful, unreliable, unconcerned, unprincipled, untrustworthy, rough, lazy and superficial in their treatment of science². According to many scientists journalists often distort and sensationalize stories and, trivialize serious issues.

3.2 Journalists' image of scientists

On the other hand, Journalists are suspicious that scientists want to control the media. Pallab Ghosh, a science correspondent of the BBC and Chairman of the Association of British Science Writers once said of scientists "Trying to change the media is like a mosquito trying to stop an express train. You're not going to change it, nor should you really want to." Ghosh's statement summarizes the misunderstanding between scientists and journalists.

¹ Jenni Metcalfe and Toss Gascoigne. *Media Skills Workshops: Breaking down the barriers between scientists and journalists.*
<http://www.pantaneto.co.uk/issue3/Metcalfe.htm>

² Jenni Metcalfe and Toss Gascoigne. <http://www.pantaneto.co.uk/issue3/Metcalfe.htm>

In the mind of a journalist, scientists are poor communicators. In fact, journalists often complain that scientists don't speak like "normal people." Scientists have difficulty of breaking complex issues into something palatable and picture-friendly. Journalists, who are either gifted or trained story tellers, agree that scientists neither knows how to translate their body of research into easily understandable sound bites nor know how to tell stories in an interesting and captivating manner.

3.3 The roots of the barriers

Society is at the root of the barriers between scientists and journalists. Society is the origin of the stereotypical imagery that scientists and journalists have of each other. In the real world, the picture ordinary people have of scientists is that of boring men in white coats in a world of their own, people whose actions and motives are to be regarded with suspicion or distaste (Gascoigne and Metcalfe, 1997). On the other hand, ordinary people also view journalists as untrustworthy and jack of all trades. The problems scientists and journalists have with one another is merely an extension of the problems the wider society has with each of them.

Scientific culture and journalistic tradition is also at the heart of the differences between scientists and journalists. Scientists and journalists are mutually suspicious of each other because they come from two different worlds. One side is characterised by a methodical and precise assessment of data from close analysis over an extended time period. The other side wants simple, direct and speedy answers uncluttered by qualifying statements.

A brief summary of both is necessary for us to understand the motivations behind scientific and journalistic behavior.

4. Understanding Scientific Culture and Journalistic Tradition

Science is a methodical process which seeks to determine the secrets of the natural world by using the scientific method. The scientific method is a process scientists must follow in determining the workings of the universe. There are five basic components to the scientific method: Observation, developing hypothesis, devising methods to test the hypotheses, collecting the data, modification and repetition. Scientists rigorously adhere to the scientific method in the pursuit of their career objectives and goals. Scientific culture determines the behavior of scientists across the board.

Indeed, scientists believe in evidence, scientific reasoning, scientific claims, peer review, replication, simplicity of arguments and theories and conclusions. They also believe that science is self-correcting, scientific conclusions are reliable but tentative, and that science is non-dogmatic and incapable of making moral decisions.

On the other hand, journalism is story telling with a purpose, a business, a public service and a watchdog, craft and ego gratification. The central purpose of journalism is to provide citizens with accurate and reliable information they need to function in a free society. This purpose also involves other requirements, such as being entertaining, serving as watchdog and offering voice to the voiceless³. From the above definition, a journalist is therefore anyone who provides, citizens through media with accurate and reliable information they need to make informed decision.

The principles of journalism that guide journalism practice and the work of journalists include the following:

- obligation to the truth
- loyalty to the citizens
- It is a discipline of verification
- practitioners must maintain independence from those they cover
- serve as an independent monitor of power
- provide a forum for informed public criticism
- make the significant aspect interesting and relevant

³ Bill Kovach and Tom Rosentiel. *The Elements of Journalism*. Amazon, <http://www.amazon.com>

- keep the news comprehensive and proportional
- practitioners must be allowed to exercise personal conscience

The above principles dictate the behavior of the journalist. Therefore, journalist must seek truth and report it as fully as possible⁴; be honest, fair, and courageous in gathering, reporting, and interpreting accurate information. In their daily routine, journalists must act independently, endeavor to give voice to the voiceless, and hold the powerful, including scientists, accountable.

Although the journalist must inform, engage, and educate the public in a clear and compelling way on significant issues, he must also seek out and disseminate competing perspectives without being unduly influenced by those who would use their power or position, be they politicians or scientists, to counter the public interest.

Like many professionals, journalists are required to remain free of associations and activities that may compromise their integrity or damage their credibility. They must take responsibility to minimize any adverse potential harm to people through their activities, whether they are politicians or scientists.

Journalists are required to treat sources, subjects, and colleagues as human beings deserving of respect, not merely as means to their journalistic ends.

Journalists are called upon to adhere to highest levels of accuracy and balance. The moment a journalist lacks accuracy, he or she has betrayed the reader. A journalist's job is to inform people of the issues in order to help them make the best choices and decisions. In fact, a misinformed journalist is like a loaded gun placed into the hands of a curious child⁵. Such a journalist is up to no good in society and is a threat to scientific advancement.

⁴ Bob Steele and Nelson Poynte. *Guiding Principles of Journalism*. <http://www.poynter.org/column.asp?id=36&aid=4349>

⁵ Ashley Kelly (2004). *The Role of a Journalist*. Perspectives (February 2004)

5. Areas of Conflict between Scientists and Journalists

The scientific culture and journalistic culture are areas of conflict between scientists and journalists. By their training and practice, scientists and journalists place emphasis differently. The scientist puts emphasis on detail while the journalist focuses on newsworthiness. This triggers a lot of conflict between the scientists and journalists.

Scientists hate ambiguity arising from science news and stories. By training scientific rigor does not entertain ambiguity. Distortion may occur because of journalistic mistakes such as failure to understand the story, failure to link story to audience, failure to translate scientific complexities into words readers understand, failure to convince editors of the significance of the story and some times lack of graphics needed to do a good job on a story. For instance, scientists often complain of distortion of headlines. This type of mistake may occur because the journalist and editors often look for color and impact to sell the paper while scientists put emphasis on accuracy and significance

Journalists may distort scientific information while writing about scientific hypothesis and reporting scientific uncertainty. Hypotheses are tentative until proven while journalists want facts. Scientists use a lot of claims, assertions and qualifications in their writing of hypotheses and propositions. Journalists hate qualifications and hedging because it dilutes the hotness of the story.

The failure of journalists to draw their points of their stories plainly and clearly for the editors irritates most scientists. This happens when journalists are confronted with very technical scientific work with complicated methodology.

The whole question whether science news published in journals should be news at all is a point of controversy. There is a long period between a scientific breakthrough and its review in scientific publications, at which point the news media may get to hear of it. According to scientists news is a breakthrough published in a scientific journal while according to the journalists, news is any piece of information nor event that meets the newsworthiness criteria of timeliness, proximity, impact, significance, uniqueness, human interest, prominence, conflict and innovation. A lot of what scientists call news are stale news that violate the journalistic value of timeliness. According to journalists, scientific news must conform to standard news values in order to qualify for publication in news media.

Conflicts often arise when journalists report violations of the norms of scientific research such as dishonesty in recording information, inaccuracy of data, incompleteness of reporting and partiality in peer review.

Scientific reporting is a laborious work that takes long periods of time. Scientists are very uncomfortable with journalists who take less than three hours to summarize their work into journalistic pieces sold as news. Most scientists do not understand how a 20-page article in a scientific journal can be summarized into a 600-word news article by a journalist.

Scientists do not respect journalists because they think they are not properly educated. Scientists go through many years of specialized training unlike many journalists. As such they do not think journalists have the ability to comprehend their complex scientific reasoning, claims and methodologies (Burkett, 1986).

Scientific norms often place obstacles on the path of journalists during the gathering of scientific news. Journalists face special challenges with regard to the utility of scientific publications, interviews, and scientific conferences as sources of scientific news.

5.1 Use of scientific publications

All scientists desire their work to be published in scientific publications because they cherish peer review. They have a tendency to refer journalists to the publications rather than giving interviews. Journalist hate this because they need sound bites, quotes and attribution to give their stories a sense of authority and legitimacy.

The structure of a scientific paper is different from a journalistic story. Scientists start with abstracts, statement of the problem then research questions, purposes, assumptions, justifications, theories, research methods, data presentation and conclusions. This structure is not logical to a journalist who presents their most important information at the beginning of the story.

Scientific journals have journalistic handicaps in the sense that they could be depositories of stale articles with no news value. Scientific publications hit the street many months after the scientific breakthroughs in scientific laboratories, by which time the breakthrough is no longer newsworthy. To make matters worse, many scientists and their readership may already have read the publication. According to journalists, whatever information is already in public domain is not newsworthy enough to qualify for publication.

5.2 Face-to-face interviews

Scientists are reluctant to give interviews to journalists about scientific work that has not been peer reviewed in scientific publications. It amounts to premature disclosure. Some scientists believe that the journalists should get all their news from scientific journals and not through interviews. The majority believe that interviews are a waste of time as all the information is already in the journal.

Scientists get impatient when journalists ask questions already answered in their publications because they think the journalists are either lazy or merely ignorant of the facts. This shows their ignorance of the value journalists place on sound bites, quotes and attributions in their work.

Some scientists demand to edit stories arising from interviews with them before press. Once again this shows the mistrust between scientists and journalists and, also the level of scientific ignorance of journalistic independence that states that journalists must act independently without undue interference.

Scientists covet peer review but loath peer criticism. They are reluctant to permit interviews or activities that may lead to negative peer criticism which may jeopardize their scientific careers.

Journalists often use probing technique to get deeper insight into issues under discussion during interviewing. At such times, the journalist's line of questioning when they are shaping a story can be disturbing to scientists when it is not exactly clear what turn the conversation will take next.

Scientists take offence when questioned regarding moral and ethical implication of their work. Scientists are objective and not used to questions that want them to discuss their opinions and feelings as journalists are in the habit of doing when they intend to profile a scientist.

5.3 Scientific meetings

Meetings honor the scientific tradition of open discussion and criticisms of research that gives scientists an opportunity to discuss issues of interest to them. Depending on the goals of the meeting, journalists may be barred from such meetings. Scientific meetings present two problems that influence the relationship between scientists and journalists. The publication of scientific results that have not been reviewed in a scientific journal in the mass media amounts to premature disclosure. Such behavior on the part of the journalist dents the credibility of the scientist. The journalists may also rely on oral presentations during the meeting to write their stories. Scientists do not appreciate this because they think they may be quoted out of context.

Of course scientists are happy when journalists write about the culture of science that highlight scientific genius behind the innovations, the rational scientific thought and logic, the careful planning and executions of experiments. Unfortunately, conflict arises when journalists write about the failures behind the innovations, the frustrations, the broken test tubes and dirty labs, power failures and the cut-throat competition between scientists. Scientists are rarely amused when journalists report about scientific deceit, plagiarism, theft, arrogance and conceit.

5.4 Trivialization of serious issues

Scientists often complain about journalistic tendency to ignore serious issues and highlight what they see as trivia. Jim McWhir from the Roslin Institute in Edinburgh of the Dolly the Sheep fame⁶ once complained that “So after being grilled about lots of serious issues all that appeared on the Spanish news that evening was 10 seconds of me saying that I wasn’t worried about getting pregnant.” This kind of remark shows that scientists and journalists place emphasis differently owing to their different professional traditions. The scientist is focused on detail of the perceived real issues while the journalist is prioritizing hot news or newsworthiness that would sell the paper.

5.5 Language use

Most scientists have serious difficulties in avoiding using jargon and scientific terms during interviews meant for popular dissemination in the mass media. Many journalists do not understand these jargons and require studying them before putting them to effective use.

On the other hand, scientists cite oversimplification as the cause of their frustration with journalists. Scientists fear that oversimplification result in loss of important details critical for other scientists to favorably assess their work. Journalists often edit redundant details.

The use of sensational language is also of great concern to scientists. Journalists often use colorful words, figurative language and idiomatic expressions that scientists perceive do not depict perceived scientific reality. For instance, scientists complain that journalists often write misleading headlines that read “breakthroughs” when there is hardly any breakthrough in scientific investigations under scrutiny.

5.6 Loss of scientific control

A major causal problem is loss of control by the scientist over the content of the article published in a news media. Scientists have a strong sense of ownership of their work because they spend a lot of time and make difficult sacrifices during their investigations. Their ownership and control over their work is preserved through scientific reporting and attribution procedures in scientific publications. However, in journalism the journalist becomes the author of the story obtained from a scientist with the scientist relegated to a mere motor-mouth.

This very loss of control over the outcome of media encounters leads many scientists to be reluctant to even speak to journalists in the belief that they are exploitative, manipulative and—the ultimate sin—inaccurate in their representation of the facts (Owens, 2002).

⁶Susan R. Owens (2002). *Its Good to Talk, European Molecular Biology Organization*. <http://www.nature.com/embor/journal/v3/n8/full/embor091.html>

5.7 Low understanding of media

Most scientists do not understand how media operate. This is understandable because scientists are not communication professionals. For instance, scientists do not know how to translate research into easily understandable sound bites. In any case, scientists are not story tellers.

Rarely do scientists appreciate the fact that journalists have short and strict deadlines. They fail to appreciate that a journalist may have only three hours within which to research the background of a story, conduct interviews, draft the story and proof read it before publication. This contrasts sharply with scientific reporting process which takes longer period of time.

Journalists claim that scientists overreact when exposed to media spotlight. It may be right to say that scientists find it difficult to handle sudden media attention and scrutiny. After such exposures, scientists often complain that the media are unfair to them. Rather than grumble as is the practice with many scientists, they should be proactive and demand their rights or use alternative media to get their messages out.

In Africa, journalists and many media houses have credibility gaps. Poor training background is the root of these problems. Few journalists in Africa have degree level education with the majority having basic mass communication training at tertiary level. Few of the training institutions have science communication related courses. The implication is that few editors are qualified to edit science stories. In fact, some editors are known to encourage scientific jargon in popular media. To make matters worse, their writing orientation is toward reporting politics and public affairs. Few of these media houses have editorial policies on science reporting. To make matters worse, many journalists and media houses are partisan making it difficult for scientists to trust them as reliable partners.

6. Complementaries between Scientists and Journalists

Scientists and journalists have common areas of interest. They both seek to know the reality, seek to know the truth, need timely and specific information, believe in accurate and honest reporting, believe in verification of facts, and espouse timeliness in reporting.

6.1 Bridging the gap

Capacity building through training programs targeting journalists and scientists is the best means of bridging the gap. Scientists need to learn more about journalists and the mechanics of their work in order to know how to effectively use them to pass on their scientific breakthroughs. Similarly, journalists need to learn more about scientific methodology and principles guiding scientific practice.

Workshops that use participatory and experiential techniques of learning are useful in improving the understanding relationship between scientists and journalists. More scientists should be encouraged to train as journalists in order to build a cadre of reliable science reporters or journalists. Training institutions offering science should include specialized communication and journalism courses that would help narrow this gap. On the other hand, communication and journalism training institutions also need to develop comprehensive and specialized curriculum for various science communication courses. This would nurture the development of science communication and help reduce the variance between scientists and journalists.

There is need for special training for editors because they are the ones who set the agenda for news in media houses. If they are well informed, they would encourage the development of a reliable cadre of science writers in media houses.

In Africa, there is need for intensive capacity building for mass communication training to improve the quality of journalism. Journalists in Africa lack credibility because of their poor training background.

Scientists need to understand that the media is not there to enthuse, it's there to challenge and question what is going on in the scientific community. The job of a journalist is not so much to explain in an artful manner, but to reflect the debate that is going on both within the scientific community and in the wider society. Scientists need to understand that journalists are driven by the common good and public interest in the pursuit of their stories

On the other hand, journalists need to understand that misleading information is dangerous. Information that is misleading or factually inaccurate can cause real distress not only to scientific

community but also to vulnerable groups. Misleading information may also provoke unfounded public reactions that can lead to various injuries or loss of lives.

There is need to publish guidelines for both scientists and journalist that explain how they should approach one another in pursuit of the common good. For journalists such guide guidelines should clearly give counsel on the following issues that are the bone of contention between scientists and journalists:

- Credibility of sources
- Scientific procedures and methods
- Findings and conclusions
- Significance of the study
- Communicating risk
- Anticipating impacts
- Role of sub-editors, correspondents, editors and journalists
- Expert contacts

For scientists such guidelines should give counsel on how to deal with the media, credibility of the study, accuracy, communication of risks and benefits, safety issues and right to complain.

A good example of a guideline is the Guideline on science and health communication prepared by the Social Issues Research Centre (SIRC) in partnership with the Royal Society and the Royal Institution of Great Britain⁷.

The scientific and journalist community should put in place motivation schemes that recognize organizations and individuals who have shown remarkable improvements in either dealing with scientists or journalists. Such schemes may include awards such the AAAS Science Journalism Awards⁸.

⁷ Guidelines at: http://www.sirc.org/publik/revised_guidelines.shtml

⁸ Award scheme at: <http://www.aaas.org/aboutaaas/awards>

7. Conclusion

There is evidence that the barriers between scientists and journalists are real and culturally based. There is need to bridge the gap through advanced degree and professional training programs that use participatory and experiential strategies.

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Acknowledgement

This paper is based on research carried out under the auspices of the African Technology Policy Studies Network's (ATPS), Water and Environment Programme funded by the Royal Dutch Government – Activity no: 10385-DCO0020791. The authors thank Dr. Kevin Chika Urama of the Macaulay Institute, Aberdeen, UK for his contributions to the study in his capacity as the ATPS Lead Resource Person for the W&E programme. The authors also thank the ATPS Communications and Outreach Department for their editorial support.

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