9. Conclusions

In their “optical consistency” and efficiency in fostering a “national” community stamps are comparable to maps and statistics in that they are both “fixed as a representational form and movable across territory as inscribed on paper” (Raento, 2006).

Introduction

The postage stamp exists as a viable lightweight and portable mechanism to prepay for postal services and transmit information around the world. In looking at the science on stamps messages of ten different countries, this study shows such examination can provide a truly international perspective. Science messages on stamps fulfill a wide spectrum of objectives, from the celebratory acknowledgement of the achievements of a scientist to the massive technonationalistic developments of the twenty-first century. The basic reason for raising a science issue might be nation-building, civic education, notification of political decisions, celebration of events and anniversaries, public health advice, and even propaganda, for which science is the medium of choice. The science issues raised are far-ranging and serve as a continuing reminder to the wider community by providing perspective and meaning to the role of science and technology.

The prevailing science issues of the twentieth century have been examined from a science communication perspective. I have shown that stamps as a communication medium have developed from providing simple portraits of the scientist or sketches of equipment, to experimental narratives and images providing a picture of what a country believes to be relevant at the time. Flight, communications and the world wide web, computers and lasers, DNA and medical advances, vie with space exploration as the most popular themes, combining iconographic images with minimal textual content. Reading and understanding the correct messages requires knowledge of science at the time of issue. Knowing the date of issue permits a detailed story of the history of science to be developed. Postage stamps are major media artifacts.

Semiotics has proved to be a most useful perspective through which to study the qualitative role of signs in human culture and social interaction as a process to analyse how the message representing science is conveyed to the public. Through the use of signs, ideas, ideals, objects and philosophy are disseminated, mainly in a non-confrontational way, although there have been stamp issues that do confront to challenge and change behaviours.
On a single or multi-country basis, the images and messages on science themed stamps can be traced to illustrate unique developments as they took place. For example, ‘Flight’ is an illustrated story taking us from the earliest experimental balloons to the space rocket, featured incrementally on the stamps of many countries as the interest in flight spread, especially in the early-twentieth century. Using the image of the airplane, for the new service, ‘air mail’, was celebrated at the time when it was making news. Illustrating a Cold War political bias, space exploration was shown on a flight-by-flight basis by Russia and Eastern Bloc countries to emphasise the scientific enterprise of the space race. The number of stamps issued by the USSR and its cohorts was inflated by as much as 30–40% during this period. The subject was treated more circumspectly by the United States and the west in general.

The life of the stamp and message is infinite, at least as long as the world’s 30 million collectors remain committed to the pastime and are serviced by the philatelic trade who reprint the images on an annual basis.

The representation of science and scientists on postage stamps

Postal administrations have, on average, chosen a science issue for inclusion in one stamp in ten. The proportion of science issues to all others has been on the increase from around the year 2000. In declaring my research agenda in Chapter One, I asked of the postage stamp: Is it a record of achievement, a target, or a didactic aspiration? It is all these things and more.

The scientists celebrated on postage stamps are largely local heroes, although there are a key group of universal heroes. Women are not well represented on postage stamps, which might reflect the fact that few women have historically been engaged in science.

However, with the growing sophistication of scientific images on stamps, the level of context has increased. Indeed, there are early examples where the achievement surpasses the need to recognise the scientist, because it was expected that people would know who was responsible. Examples of this are contained in the 1967 *Discovery and invention* set from Great Britain featuring radar (Watson-Watt), penicillin (Fleming), jet engines (Whittle) and television (Logie Baird) equipment. In the 1990s, when these achievements were revisited on stamps, the scientists’ names are included in the text in addition to a more descriptive image. Such trends have been followed, reflecting how science communication practice has changed with time.
Coexisting with associating scientist and achievement, message context has become more comprehensive since the later 1990s. In one example, the wheel has turned full circle and some science issues have shown extremely detailed images of modern medical procedures with a textual description of the name of the technique without mentioning the name of the inventor of the technique. A subsequent issue has used a similar image, and now names the leader of the team that has developed the procedure. A balance is being achieved, and modern designs reflect the message that the postal administration is wanting to tell and the awareness of the designer of the science he is illustrating.

The postage stamp is an audience-based local medium containing a message made available through everyday use, which adds to the literacy of science communication. It is a means of disseminating information in an engaging manner, without any pressure, and may well promote public conversation. The move towards contextual images that seek to challenge or engage the public, the stamp as a lens, may well reflect the trend in science communication from a deficit model to models that seek to raise awareness or promote engagement with science.

**Significance of the study**

I have conducted a comparative study in time, (from the nineteenth century), but also in space, (across ten different countries), as was suggested for future research by Raento and Brunn (2005). From a science communication perspective, I have been able to show that there has been a greater emphasis on context on postage stamps from the mid-1990s. It is a date that makes sense, I believe, as it coincides with public take-up of the internet and an increase in content of the validity of the science message subjected to a more stringent scrutiny by the public. The millennium is another meaningful marker. Those countries that celebrated the event did so with different approaches to illustrate their messages, coinciding with the adoption of the public awareness communication model.

This first examination of the science messages on stamps has shown it to be a relevant addition to research initiatives in science communication, providing a platform for further study.

Developing the mirror or lens analysis on a stamp by stamp basis, although subjective and subject to understanding of the science perspective at the time of issue, has proved to be a strong indicator of how and why postal authorities have issued stamps. Has the image and context been developed as a lens to influence public behaviour, to get people thinking, or does it, as a mirror, reflect a reality with which the authority is comfortable? It is a technique that could apply to images across publishing.
Limitations of this study

It was practical to limit the number of countries to ten. Had I been able to extend the number I would have examined the stamps of Israel, as a politically-created country with a religious background, and India, whose scientific achievements are well recognised. I did also consider Japan and Brasil but, as discussed in the background to the study, preliminary work has been done on these countries, although not yet from a science perspective.

There is very limited research available on whether the message on the postage stamp has been read and caused any change in behaviour or understanding as a result of exposure to the message. Philip Parker of Royal Mail in London gave me copies of research Royal Mail had conducted, but these surveys, although of general interest, did not have a science focus.

Recommendations for further research

Any recommendations for further research will include the larger question of the public awareness of science and include the postage stamp as one of the myriad of sources from which information or data about science might be gleaned. The following questions arise directly from this study:

1. Are stamps contributing to a better understanding of the scientific problems that confront humanity today and of the measures to understand them?
2. Are the postal authorities creating celebrities through the scientists they feature on postage stamps, and to what effect?
3. Some countries issue stamps for purely commercial gain, the numbers of which are far in excess of any possible fiscal use. Some issues are not available in the home country’s post offices. An analysis of the science stamps issued by these postal administrations, countries on the edge, as it were, could provide a quite different set of heroes.

Science on stamps

Although less standard mail is being sent, the issue of postage stamps and the opportunities to share messages with the public is expanding. The postage stamp or its equivalent will be raising the issues of science for a long time.

The underlying principles of science communication are reflected on postage stamps. The previous mode — a one-way informative educating image describing
science — has shifted to a public awareness model. From 2000, stamp messages have moved away from being from information giving and towards provided context, so that data are illustrated without any obvious editorial bias.

The theory, practice and research in science communications is richer because of the existence of the postage stamp.
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