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Health literacy: communication for the public good

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SUMMARY

This article builds upon a presentation at the Fifth Global Health Conference on Health Promotion (Mexico City, 9 June 2000), seeking to advance the development of health literacy through effective communication. First, it offers a timely reflection for health promotion epistemology in particular, and the potential approach to framing health promotion activities in general, with health literacy as a bridging concept. The concept of health literacy is briefly explained and defined, followed by identification of some promising communication interventions to diffuse health literacy. Four predominant areas within the communication field are described that shed light on approaches for developing health literacy: integrated marketing communication, education, negotiation and social capital. Each component can contribute to strategic science-based communication. Finally, the article elucidates that communication and developing health literacy are not simple solutions. Communication is not simply message repetition, but includes the development of an environment for community involvement to espouse common values of humankind. With effective communication, worldwide health literacy can become a reality in the 21st century, embodying health as a central tenet of human life.

Key words: communication; education; health literacy; integrated marketing communication; negotiation; social capital

The 20th century was heralded by great medical progress; hygiene, vaccines and antibiotics have contributed to the doubling of lifespan for many. However, such progress has diffused unevenly throughout the world. In the year 2001, we live in a disordered, anybody-in-charge world of health. As we begin the third millennium, the potential of a new powerful intervention—communication—can help to advance health. Yet, with the opportunity to transmit data instantaneously, prevent disease through lifestyle and behavior, and even cure disease with innovative pharmacological and surgical intervention, the general population relies on a health system, rather than on themselves, to manage health.

The US has the most expensive and technologically advanced health care system in the world, with more spent per capita annually than any other economically developed nation, yet the US ranks lower than many nations with respect to average life expectancy and general health status (currently fifteenth). Japan ranks higher, their longevity often being attributed to a diet of fish, rice and the avoidance of saturated fats, but Switzerland and Austria also rank ahead of the US, despite their less healthy diet. Other countries also have a better health status, irrespective of how much is spent directly on their health system (WHO, 2000).

As western medicine attempts to advance health, 20th century contributions have focused on methodological progress: medical science systematized the discovery of facts with the invention of the randomized clinical trial. Despite many calls to examine other variables and determinants of health, biomedical research has received the greatest share of capital, and has had both unique and limited success in advancing our health ideal. Such progress has translated

*These views are the author's only and do not represent any official views or positions of USAID.

into many biological and technological innovations such as chemoprevention, early molecular detection of disease etc., vaccines, monoclonal antibodies, functional foods (e.g. cholesterol-busting margarine) and genetic modification in areas such as 'pharming' (e.g. impregnated vaccines in cow's milk). We know, however, that each medical intervention and preventative measure with proximal cause and effect that is limited to disease preventive measures does not *a priori* deliver better or perfect health. It is clear that diet, lifestyle and technology are not always correlated with health status in a population-based model; focusing on these alone yields limited advances in health.

Health—a sound mind and sound body—was the foundation of the ancient Greek ideal of life. While the aspirations to discover the 'truth' were the center of ancient Greek democracy more than 2000 years ago, modern day science has 'progressed' as far as operationalizing this search through experimentation, rather than basing it upon syllogistic logic and the balance of art, nature and science, initially promulgated by the ancient writings of Plato, Aristotle and Hippocrates. While this 'truth' is dynamic, it still remains an ideal, and therefore a challenge. Many suggest that global health promotion has been weighed down in such a concept, developing models that limit its effectiveness by explaining and proscribing global health 'factors' (Whitelaw *et al*., 1997).

The 21st century may also be apocryphal, nonetheless, humankind has developed to govern people, with structures in an elaborate organization of states. The 'state' has generally been responsible for the formation of authoritative decision-making bodies in the quest for social health and happiness. The state is often larger than government itself as it includes the public institutions that make collective decisions, which in turn become laws and affect society as a whole. Today, people, governments and the state interact in ways that affect health. With new technologies, blurring of borders and devolution of decision making, globalization has emerged as a new modern mantra, presenting unique opportunities. Health can become fully recognized as an essential component of global civil society.

This article intends to offer a timely reflection on health promotion epistemology in particular, and the potential approach to frame health promotion activities in general with a bridging concept linking knowledge and practice, entitled health literacy. First, health literacy is explained, some promising communication interventions to diffuse the concept of health literacy are identified, and health literacy as a core component of health promotion is suggested. With today's information age translating into a wild and wired world, promoting health can become a greater challenge in this new, global, uncentralized information world.

This essay also seeks to advance the development of health literacy as an organizing principle within health promotion through effective communication. It builds upon a presentation at the Fifth Global Health Conference on Health Promotion, Mexico City, 9 June 2000.

The preamble to the Constitution of the World Health Organization suggested the importance of advancing the state of health:

> Informed opinion and active cooperation on the part of the public are of the utmost importance in the improvement of health of the people (WHO, 1958).

However, even with such a charge, over the last 50 years of the WHO, limited public health priorities have emerged globally. Both a review of the literature and various explorations describe the public health community's theoretical and practical approaches to health promotion to impact upon population-based health behavior change as unintegrated (Orleans, 2000). However, medical progress and emphasis in our research agenda continues to focus on proximal interventions (e.g. taking pills for diarrheal disease), avoiding the distal determinants (e.g. creating and securing access to clean water) and unique interventions that affect health through global initiatives.

There have been numerous descriptions of education as it relates to health globally: some demonstrate direct associations between the mother's education level and such health indicators as infant and child mortality in developing countries (Ratzan *et al.*, 2000); years of formal education are strongly related to age-adjusted mortality in disparate countries such as Norway, England and Hungary (Ratzan *et al.*, 2000); educational level is related to smoking prevalence and cessation in Europe (Cavelaars *et al.*, 2000); and educational level is related to relative body weight in Europe, Russia and China (Molarius *et al.*, 2000), to cite but a few of the many studies. Despite the difficulties of developing a consistent measure of education status (literacy, years of schooling, highest grade attained etc.), due to differing systems and data collection as well as

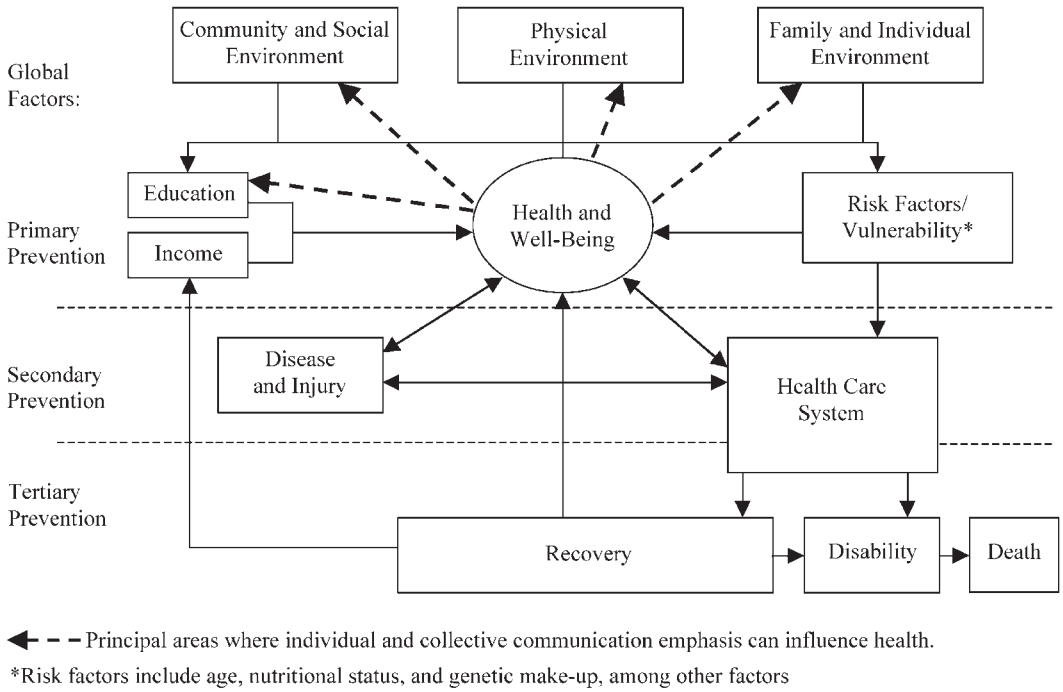

Fig 1: Determinants of health: the 21st century field model. The center circle is the goal: maximization of human health and prosperity. Human and financial resources are generally aimed at the 'system' as the remedy. Primary prevention and global factors illustrated above comprise over three-quarters of the health determinants. Source: adapted from Evans, R. G. and Stoddart, G. L. (1994) Producing health, consuming health care. In Evans, R. G., Barer, M. L. and Marmor, T. R. (eds) *Why Are Some People Healthy and Others Not?*, 53. Also in *Social Science and Medicine* (1990) **31**, 1359.

different dependent variables, as a proxy for health status, the association between lower educational status and lower health status is consistent. Available data from Demographic Health Surveys and the World Bank have been compiled as figures (infant mortality rates and female schooling, life expectancy and adult literacy, infant mortality and adult literacy) that demonstrate the relationship between education measures and health status indicators.

As an example of the above, we can examine Costa Rica. It is the most literate society in the western hemisphere, with an average annual income of US$2000 per capita. Life expectancy is 76 years. In the US, with an average annual income per capita of over $20 000, average life expectancy is only 1 year longer. This is only one measure, but it demonstrates that money alone is not the answer.

Despite such evidence of the relationship between education and health, there have been a limited number of organizing frameworks and principles that integrate and bridge the fields and approaches necessary to advance health. While it is beyond the scope of this article to address comprehensive models of health, conceptual frameworks do help explain the relationships between the elements that contribute to health. Evans and Stoddart defined the determinants of health and how these interrelate with the health care system, being just one factor among many (Evans and Stoddart, 1990). This 'field' model builds on the earlier health field framework of Blum and Lalonde [see also (Mustard and Frank, 1991; Hancock, 1993; Collins, 1995)]. This model has been advanced recently as a '21st century field model' (Ratzan *et al.*, 2000). The 21st century field model (Figure 1) highlights that the more important contributors to health are education and environmental factors. The health care system is relegated to a secondary factor in deriving health, despite the financial emphasis on

and resources for tertiary (living with disease) and secondary prevention (getting better). The conceptual framework presents an opportunity for health literacy application, linking medical terminology of primary, secondary and tertiary prevention with determinants of health, i.e. social, physical and environmental, education and income, and vulnerability/risk factors. It translates for the public into: (1) staying healthy, (2) getting better and (3) living with disease.

The concept of health literacy presents an opportune integration of necessary conceptual foundations. What is health literacy? The term was first used in a 1974 paper entitled Health Education as Social Policy (Simonds, 1974). In discussing health education as a policy issue affecting the health care system, the education system and mass communication, health literacy is described as health education meeting minimal standards for all school grade levels.

This early use of the term shows there is a link between health literacy and health education. Failures in health education are related to poor health literacy, but the health literacy issue is not just inherent in the educational system. Health literacy problems have grown as the health system has become more complex: diagnostic and treatment options have skyrocketed and people are asked to assume more responsibility for self-care. Health literacy can be described as both a goal and an outcome, becoming the currency and capital needed to develop and sustain health (Nutbeam, 2000).

A bibliography was compiled by the National Library of Medicine (Selden *et al.*, 2000) to help define and describe the evidence base for advancing health literacy programs by examining theories, strategies and tactics in the published literature. The bibliography was based on the definition of health literacy as 'the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions' [Ratzan and Parker introduction in (Selden *et al.*, 2000), p. ix].

This definition builds upon the previous work of Kickbusch and Nutbeam (Kickbusch and Nutbeam, 1998):

> Health literacy represents the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information in ways which promote and maintain good health.

Such a definition was elucidated further [in (Kickbusch, 1997), p. 269]:

> Health literacy implies the achievement of a level of knowledge, person skills, and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions.

Such definitions and developments in health literacy suggest we move beyond the 20th century emphasis and principles that currently drive public health practice and health promotion, namely: (i) the data speak for themselves; (ii) surveillance sets the agenda; and (iii) indicators set policy objectives. The 20th century trend is continuing toward 'evidence-based practice', developing incremental progress, based principally on the first randomized clinical trial in 1947. In many ways, however, it has hindered health as it has meant a departure from evidence based on tradition, protocol and habit. The focus on evidence has come to mean that which is embedded in the evaluation and design of studies, deriving risk factors from such studies aimed at examining the causes of disease. Such an emphasis on health by scientists and epidemiologists has belittled determinants of health implicit within health promotion and amongst new concepts of health literacy and social capital. Additionally, due to the limitations of study design and 'evidence', the proximal cause of ill health, disease or disorder is often identified by the experiment, rather than the 'true' or more distal cause.

HOW CAN WE DEVELOP THE CONCEPT OF HEALTH LITERACY USING COMMUNICATION?

New communication is often defined as the internet, associated with a computer. In the 21st century it will be ubiquitous, accessible from television, land-linked and cellular phones, satellites, radio, kiosks, watches and by other new means. The wearable web/e-device will be an interconnected, interactive device with the added benefit of monitoring physiological components.

While we can easily imagine a 21st century with information available everywhere, our presiding goal should be ethical art and technique for effective delivery of information. The communication we are talking about should not be lost in the technology; it means getting the right message to

the right people, at the right time, with the intended effect. It requires both the science and the art of communicating health.

The ideals of employing communication to advance the public good are rooted in the precepts of rhetoric. Communication has evolved as a science offering an approach that: (i) adds value to health, not only disease; (ii) bases decisions on sound science and theory; (iii) develops opportune opinion leadership; and (iv) involves a partnership between policymakers, the public health and the private sector.

The strategic scientific communication effort should use research (formative) in its development and execution, and explore the use of new dissemination partnerships and networks (e.g. new technologies, business and trade media publications and special events). The science-based communication approach should also continually assess results of activities in order to make adjustments and provide feedback to heighten awareness further, to interest recipients, and to generate appropriate action.

Four predominant areas within communication can address an overall goal of developing health literacy; each component can help us to focus our efforts. The four areas will be described briefly: integrated marketing communication, education, negotiation and social capital.

Integrated marketing communication

There is an opportunity to advance a leadership position, not only in publications and the hospital, health care facility and academic health center, but also in creating health using the marketing milieu.

Public relations is one of the areas within marketing communications that was coined in the early 20th century, and is a technique for changing the culture or the environment for individual decision making. Public relations strategies should include advancing discussion of the need for health literacy. Systematic agenda setting in health literacy in general could be of great value. This is where highly credible organizations such as the World Health Organization, professional societies, NGOs and our universities could be most powerful, by educating the media and hence the public. Public/media relations that strive for health literacy could provide a necessary basis for informed decision-making, understanding of bias and levels of evidence, statistics and probabilities, and critical thinking skills. Effective communication strategies are not meant to manipulate and tell the public what to think, but what to think about. Presenting and framing health literacy as a salient element of everyone's life is a key challenge.

Social marketing is another young field, with roots not in marketing *per se*, but in social psychology and mass communication. Social marketing is often thought of today as employing the tools of the commercial marketing world; modifying the 4Ps of marketing—product, price, place and promotion—to change target audience behavior. In social marketing, the focus is on the determinants of the behaviors of our intended audiences. By merging the science of marketing, polling, public opinion and communication, social marketers have segmented hundreds of different population groups in the US. These audience measurement techniques help to test a message and measure the intended effect. Similar approaches and segmentation can be considered globally, as people behave differently and make decisions based on different value systems of information and data sources. A good social marketer realizes that 'if you try to reach everybody, you reach nobody'.

Ideal marketing communication can advance dialogue that sets the foundation for future developments in the diffusion of ideas. Marketing communication can help create a future where the public or media sources could elicit accurate, up-to-date interpretation of study results that translates 'health as we know it' into real-life daily activities, developing accessible health news? There are no longer technological barriers to such ideas. We ought to consider how we can develop communication systems for disseminating health literacy.

For example, we must not only strive for new medical discovery, but also translate such knowledge into a healthier society. Each day we could have a 'public abstract' or health 'legend' of the latest study of interest for a given consumer, based on education level, age, gender and related variables. The 'legend' could be simple so that it could be easily explained at the appropriate level to anyone unfamiliar with the issue at large. Experts and professionals often forget the foundation and building blocks necessary for those people who ultimately act upon 'information and knowledge'. Information must be framed in a way that makes it understandable and actionable to the most important members of the public.

The idea of marketing health information so that it is institutionalized into our daily psyche leads to the next stage—education.

Education

Albert North Whitehead described the goals of education in the early 20th century: 'to provide life and wisdom for the information learned' (Whitehead, 1929). Education related to health can have a great impact, provided our health education efforts provide information, knowledge and wisdom development beyond the school and health setting. Consumers and professionals alike have, or will have, a host of new opportunities for creating, distributing and obtaining health information, including ubiquitous and completely portable access to remote information via the World Wide Web, individually/tailored print and multimedia materials, interactive computer games, interactive kiosks, multimedia cable to the home and office, two-way satellite linkages, high-speed transmission of extremely high-resolution images and audio, and other multimedia technology.

The fundamental tenet of where education can make an impact should be clear. Health literacy is not simply health knowledge. The goal is a change in social norm of developing health literacy at a level commensurate with age, mental capacity, gender and environment. For example, children and young people can learn about health and hygiene, nutrition and physical activity while learning about sexual and reproductive health behavior. Sexual behavior of condom usage for birth control/family planning can be concomitant with HIV/AIDS and other sexually transmitted disease prevention (so-called dual protection). Learning opportunities also exist during immunization experiences, such that families and recipients understand the disease preventative and public health benefit of immunization. Adolescents might have more of a focus on reproductive health practice (e.g. use of condoms) along with instituting cancer prevention (from human papilloma virus) and detection (periodic pap smears)—breast self examinations, testicular examinations, annual pap smears, etc. In young adults, the notions of communicable and non-communicable disease and the need for parental and childhood vaccination could be reinforced. As one ages, an imbued health literacy can continue to enhance knowledge and practice in three key areas, all of which are embued in the 21st century field model, as primary, secondary and tertiary prevention:

- How do I stay well?
- How can I detect disease/illness early [and treat it appropriately (self or facility based)]?
- How do I live best with illness (e.g. from an aspirin a day for those living with hypercholesterolemia to blood sugar level compliance for chronic diabetes)?

If people successfully reach the mature/aging years, they will be more prepared for the self care and generational transference of health literacy.

Finally, new communication technologies offer educational opportunities that help the individual to be more involved in their health decisions and treatment. With appropriate access, new technology can help develop a health literate public. Such health literacy can advance the public understanding of the health risks and associations of both individual and community behaviors, allow the attainment of knowledge and ability to access the healthcare sector for more information, and finally, develop the ability of individuals to make decisions based on a 'true' health knowledge base.

Negotiation

Negotiation was popularized with French diplomacy training in the early 18th century. Today, negotiation's aim is to change the nature of the involvement of people. In the health setting, such as the program at Dartmouth Medical School, it is termed 'shared decision making', involving the patient in the treatment process. In other cases it can influence the decision maker responsible for delivering health messages. When it involves the entertainment media, it is an entertainment-education strategy. For example, studies indicate that discussion of immunizations on soap operas actually increased the number of mothers seeking vaccinations for their children (Glik *et al.*, 1998). The desired result of negotiation is that people participate more effectively in decision-making by working with community groups, public–private partnerships and other interested parties.

Negotiation strategies can also include developing a public–private partnership to influence health through the media. The media industry is one of the largest conglomerates, with 11 corporations controlling the majority of what everyone

hears, reads and sees (Alger, 1998). These corporations can promulgate health and prosperity through civic responsibility, global citizenship, environmental justice, gender equality, cultural competencies, etc. as part of their basic goods and services. Efforts should be made to foster investment in the only common currency of humankind—health.

Negotiation also suggests advancing shared interests through community participation, selecting priority items for community health, such as investment in education for self care, penetration of vaccinations, elimination of vectors (mosquito control, clean water), control of sexually transmitted diseases, etc. can be more valuable than the technological interventions and care aimed at prolonging the last few months of life. Similarly, the investment in the health literacy that empowers individuals to utilize the system effectively will help drive the efficacy of any system.

Negotiation strategies should be tantamount in involving all the members and collective bodies that comprise the 'state'—NGOs, media corporations, academia, and other private voluntary organizations. These groups can often be most effective in helping to develop the necessary environment for health literacy to flourish. In some cases, they can point out the inefficiencies of current state policy and practice, while in others they can serve to influence the policy agenda.

Social capital

Clearly, to fully imbue the concept of health literacy, new thinking and approaches are required. Social capital has developed as an umbrella concept, often defined as 'the resources embedded in social relations among persons and organizations that facilitate cooperation and collaboration in communities' [(Gittell and Vidal, 1997), p. 16]. Studies suggest that such communal activity and community sharing translates into better health. Evidence suggests that communities with less social capital have lower educational performance, more teen suicide, higher prenatal mortality and lower birth weight. It is often suggested that if a person smokes and is disconnected from society, it is a close call as to which is the riskier behavior.

One aspect of social capital, interpersonal trust and its relationship to national and community rates of illness and death, suggests that in neighborhoods where social trust is high, negative health behaviors (such as smoking and alcohol abuse) might be discouraged through community pressure (Kawachi and Berkman, 1998). Residents in high trust neighborhoods may also share more resources, be willing to help one another and offer one another more emotional support. Community participation to set their own agenda for health will be the right start for the 21st century ideal of health for all.

The value of social capital development is that it can affect the socioeconomic and environmental phenomena that change population density, community social cohesions, income disparity, and ultimately health. Like health literacy in general, it demands perseverance and top-level commitment. The ideal health advance would assist in building a healthy community with participatory governance that could make culturally appropriate decisions for *their* community, thereby enhancing *their* health.

Health literacy with social capital, negotiation tenets, education precepts and sound scientific communication strategies can advance social norms that encompass appropriate health promotion activities/policies, personal responsibilities, government roles and services, and finally, baseline health knowledge and skills.

CONCLUSION

Developing health literacy requires strategic science-based communication. This essay elucidates that communication is not just message repetition. Effective communication must also enable an environment for community involvement to espouse common values of humankind: promulgation of life by promoting health. Such health promotion efforts advance health beyond the medical establishment, arming the individual to affect his/her personal health, those people in his/her life, and the environment in which we all live. Health can be advanced by influencing personal health through decision-making with respect to policies, expenditure, system design and service availability.

To attain health literacy, policymakers and leaders outside of the health sector must be aware of the critical elements that contribute to health illiteracy. Framing such issues can mobilize forces from those outside the traditional health polity to truly develop health, ultimately affecting the social, economic and environmental determinants.

Communication alone is not a simple solution to the complex problem of health literacy. Without effective communication, we will have limited success in developing health literacy. Effective communication can lead the advance of health in this century. Health literacy ought to be the common 21st century currency we all share that values health as a central tenet of individual and community life.

Finally, the practice of public health embodies advancement of the quality of life, prevention and treatment of disease, and promotion of health and human rights for all. Promulgating the concept and advancing such an outcome of health literacy can serve as an organizing principle for 21st century public health activities. Regardless of everyone's role in health promotion, medicine or education, a healthier world is in reach as we contribute towards realizing the ideal of a health literate public.

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REFERENCES

Alger, D. (1998) *Megamedia: How Giant Corporations Dominate Mass Media, Distort Competition and Endanger Democracy.* Rowman and Littlefield, Lanham, MD.

Cavelaars, A. E. *et al.* (2000) Educational differences in smoking: international comparison. *British Medical Journal*, **22**, 1102–1107.

Collins, T. (1995) Models of health: pervasive, persuasive, and politically charged. *Health Promotion International*, **10**, 317–324.

Evans, R. G. and Stoddart, G. L. (1990) Producing Health, Consuming Health Care. Canadian Institute for Advanced Research. Population Health Working Paper No. 6.

Gittell, R. and Vidal, A. (1997) *Community Organizing*. Sage publications, Thousand Oaks, CA.

Glik, D., Berkanovic, E., Stone, K., Ibarra, L., Jones, M. C., Rosen, B., Schreibman, M., Gordon, L., Minassian, L. and Richardes, D. (1998) Health Education Goes Hollywood: Working with Prime-Time and Daytime Entertainment Television for Immunization Promotion. *Journal of Health Communication*, **3**, 263–282.

Hancock, T. (1993) Health, human development and the community ecosystem: three ecological models. *Health Promotion International*, **8**, 41–47.

Kawachi, I. and Berkman, L. F. (1998) Social cohesion, social capital, and health. In Berkman, L. F. and Kawachi, I. (eds) *Social Epidemiology*. Oxford University Press, New York, NY.

Kickbusch, I. (1997) Think health: what makes the difference. *Health Promotion International*, **12**, 265–272.

Kickbusch, I. and Nutbeam, D. (1998) *Health Promotion Glossary*. World Health Organization, Geneva. Available at http://www.who.int/hpr/docs/glossary.html.

Molarius, A., Seidell, J. C., Sans, S., Tuomilehto, J. and Kuulasmaa, K. (2000) Educational level, relative body weight, and changes in their association over 10 years: an international perspective from the WHO Monica Project. *American Journal of Public Health*, **90**, 1260–1268.

Mustard, J. F. and Frank, J. (1991) The Determinants of Health, CIAR Publication No. 5. Canadian Institute of Advanced Research, Toronto.

Nutbeam, D. (2000) Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. *Health Promotion International*, **15**, 259–267.

Orleans, C. T. (2000) Promoting the maintenance of health behavior change: recommendations for the next generation of research and practice. *Health Psychology*, **19** (suppl. 1), 76–93.

Ratzan, S. C., Filerman, G. F. and LeSar, J. W. (2000) *Attaining Global Health: Challenges and Opportunities*. Population Bulletin, Washington, DC.

Selden, C., Zorn, M., Ratzan, S. C. and Parker, R. M. (2000) Health literacy (bibliography online). Available from http://www.nlm.nih.gov/pubs/resources.html. National Library of Medicine, Bethesda, MD.

Simonds, S. K. (1974) Health education as social policy. *Health Education Monograph*, **2**, 1–25.

Whitehead, A. N. (1929) *The Aims of Education and Other Essays*. Macmillan, NY.

Whitelaw, S., McKeown, K. and Williams, J. (1997) Global health promotion models: enlightenment or entrapment. *Health Education Research*, **12**, 479–490.

WHO (1958) Constitution of the World Health Organization Geneva. World Health Organization.

WHO (2000) *World Health Report 2000. Health Systems: Improving Performance*. World Health Organization, Geneva.