

Book title: *The Next 100 Years – Creating Home Economics futures*

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Chapter 1 – Stimulus chapter

The next 100 years: Creating home economics futures

In 2012 Home Economics Victoria hosts the next World Congress of the International Federation of Home Economics (IFHE) in Melbourne, Australia. It will be the first congress of the *next one hundred years*. Home economics as a profession celebrated the centennial of the establishment of IFHE at the World Congress in 2008. This was followed up by the American Association of Family and Consumer Sciences (AAFCS) centenary in 2009. Elsewhere, contemporary home economics has been described by Pendergast as being at a ‘convergent moment’ (2006, 2009), a time of opportunity where several key societal factors are occurring simultaneously. I argue that these factors serve to provide a moment of alignment of potentially facilitating factors that, when taken together, provide an unprecedented opportunity to re-vision our profession. These convergent factors can be seen as a catalyst for major reform, and include: 1) the past century of invention, development and changes in roles for men and women; 2) consumption and globalisation patterns; 3) generational characteristics and the emergence of the digital native as the Y gener; 4) features of ‘New Times’ and the need to be ‘expert novices’ (good at learning new things); and 5) significant changes in individual and family structures impacting globally on demographic patterns.

Importantly, the home economics profession has now entered its 6th generation. It is characterised by a multigenerational cohort of professionals with the greatest number of members and the most leadership roles held by Baby Boomers, that is, people born between 1943 and 1960 (Howe & Strauss, 2000). Each generation brings to the field predictable traits, values and beliefs, along with skills, attributes, capacities and preferred modus operandi directly reflecting their generational location (see McGregor & Toronyi, 2009 and Pendergast, 2007; 2009).

At a global level, there has been important progress in the conceptual development of the profession, leading to the development of the *IFHE Position Statement – Home Economics in the 21st Century* (IFHE, 2008, www.ifhe.org). The position statement is a two page document produced through a global, collaborative process with members of IFHE and more widely of the Home Economics profession (see Pendergast, 2008). It is an attempt to locate the profession in the contemporary context by serving as a platform, looking ahead to viable and progressive visions of Home Economics for the twenty-first century and beyond. It is expected to be used to provide defensible arguments for individuals and professional groups requiring such support.

What do the futurists say? Megatrends

There are many futurists who make predications and speculate about the future. In fact there is a whole field of study that thrives on predicting future trends and advising organisations, professions, businesses, countries, individuals – almost everyone and anyone, how they might survive and thrive in the context offered by alternative futures. One such futurist group is the *Copenhagen Institute for Futures Study* (see

<http://www.cifs.dk/scripts/artikel.asp?id=1469>). The following megatrends are drawn from the future predictions made by this Institute and will form the basis for the chapter authors to develop their chapters.

The idea of mega (great) trends (move in a direction) is in fact a mega trend in itself; that is, the idea of having great moves in a direction is a trend we are likely to see more of! Theorists generally define mega trends as the great forces in societal development that will very likely affect the future in all areas over the next 10-20 years. Many companies and organizations use megatrends in their strategic work, and these trends are expected to affect all areas - state, market and civil society – both at the time of their emergence and for many years subsequently, as they change capabilities and impact on human behaviour.

Megatrends are our current knowledge about the probable future; hence, they are regarded as being predictable. Mega trends are the forces that define our present and future worlds, and the interaction between them is as important as each individual megatrend. That is why futures researchers, companies and others use mega trends when they develop and work with scenarios. Scenario is Latin *scena* (scene), an imagined situation or sequence of events, a possible course of action.

Even though megatrends say something about what we know about the future, it is not certain how society, companies or any of us will react to or shape these forces. The future is never a given, and any one of us can affect or create the future. Futures researchers always work with three types of futures: the predictable, the possible, and the preferred. *Probable futures* are likely to happen if present trends (and the interplay among them) continue. *Possible futures* might conceivably come about if nurtured. They are not bound by current, seemingly inexorable, trends or paradigms. Finally, *preferred futures* are futures we would like to come about, given our values and our priorities. Ensuring preferred futures often involves challenging current worldviews and paradigms (Selby, 1999).

Megatrends say something about the predictable future, but there are other possible, alternative futures. Every megatrend can be set aside or can suddenly and fundamentally change direction. Wildcards - events that are unlikely, but that would have enormous consequences - can slow or augment a megatrend's development or create counter-forces. For example, the terrorist events of September 11, 2001 which are recognised globally, temporarily stopped corporate growth and slowed some aspects of globalization.

Megatrends can be used as a method to strategically look to the future. This approach moves into the applied sphere of futures work known as future proofing, one of the key strategies for the future highlighted in the *IFHE Home Economics Position Statement*. McGregor (2011) explains that if a profession is future proofed, it is protected, guaranteed not to be superseded by unanticipated future developments. A future-proofed profession takes steps *now* in order to avoid having to make radical changes to practice in order to remain viable in the future. A future proofed profession is strategically planned so it can remain effective even, especially, when things change.

10 megatrends toward 2020

Megatrend 1 - Ageing

On a global frame, the population of the world is ageing. It is happening because we live longer and there is a decline in birth rates. This means there will be relatively more elderly than youths in the next decades. This ageing megatrend applies particularly to developed regions of the world, and has great significance for society, economics, corporations, and individuals. Japan and Italy have been identified as two of the oldest populations in the world, so will lead the aging mega trend. A federal government report released in Australia points to some of the implications of this mega trend as follows:

Over the next 40 years, a number of developed countries are expected to experience long-run population decline associated with low fertility levels. Europe's total population is projected to fall by over 40 million by 2050, driven by substantial falls in the populations of Russia and Germany. Higher spending on public health care, pensions and other social services caused by population ageing is resulting in rising fiscal pressures for governments across the OECD (Australian Government, 2010, np.).

Most OECD countries have the issue of an ageing population at the top of their political agendas, and health care, pension systems and care for the elderly have been prioritized in many countries in recent years. More elderly outside the labor market means reduced tax revenues and higher (public) expenses.

The elderly of the future are expected to get a great deal of attention because many of them are financially well off. Today's elderly are in better health and more affluent than the elderly of the past. As a result, age has taken on a different meaning, and many elderly have a completely different self-image than earlier generations. The elderly in the western world want an active retirement with travel, experiences or other forms of self-realization.

The greatest consequences of ageing will be felt on the labor market from 2010, when the number of people of working age will fall. The labor market will be a seller's market, and youth will be in great demand. This may prompt bottle-neck problems, upward pressure on salaries, greater international competition and, in the end, poorer competitiveness for OECD countries. The reaction can be more off-shoring and outsourcing and a different perception of immigration. In the immaterial and creative economy of the future, more of the especially well-educated elderly may remain active in business life longer, but that requires companies and organizations to start considering now new forms of employment to create the optimal conditions for this group.

Megatrend 2 - Globalization

Globalisation is regarded broadly as any range of processes, innovations and changes that increase the interconnectedness of the world. Globalisation of the economy is bound to the expansion of new communications technologies, such as the internet, creating a global village where the traditional boundaries of time and geographic space have been negated. It is not a new phenomenon, but it will mean something different in the future.

Globalization makes us more alike across the world, but it also makes us more aware of local differences. When we look at what is most globalized today - markets and

companies - the trend is towards regionalization. However, in the near future we will far more clearly than today see and experience what makes us alike - more globally oriented - and what makes us more different or locally anchored.

The global development leads to increased liberalization and expanded trade in most countries and regions. However, it does not seem likely, that the world will be dominated by common political and ethical values in the near future. A probable future can therefore be a world made up of regions and nations, with global free trade but only deeper integration at regional levels. Citizens and consumers also seem to be cross-culturally different in their behavior and their preferences for products. A growing number of multinational companies have therefore begun to adapt their products and marketing to the individual markets.

Megatrend 3 - Technological development

Our use of technology is what differentiates us from other animals. We are the only creatures who construct and develop tools that make life more pleasant for us. Since the start of the industrial age, technological development has accelerated, so changes come faster and in more areas. The most important technological development areas in the next decades are information technology, biotechnology, nano-technology and energy.

Information technology has created enormous changes in recent decades: personal computers, the Internet, mobile telephones, industrial robots, iPods, and much more. In 2020, computers will be about 200 times faster than today's computers, and will have memories 1000 times as large. Computers and robots will take on increasingly complex assignments, and the Internet will be a breeding ground for completely new, virtual industries.

In recent years, we have seen great progress in biotechnology with the mapping of the human genome, cloning of mammals, and genetic modification of plants and animals. Research in biotechnology opens the door to new, future treatments in the form of gene therapy and transplantation of cloned organs. Genetically modified plants and animals (GMO) may potentially relieve world hunger. However, at the same time, biotechnology opens ethical questions: Is it acceptable to manipulate life? Will biotechnology prompt unforeseen biological catastrophes?

Nanotechnology is a general term for technology with structures on a nanometer scale (one billionth of a meter). Researchers develop nanomaterials with many fantastic characteristics such as extreme strength, special electric properties and extremely low friction. Nanoelectronics may, in a few years, replace microelectronics. A little further into the future are nanomachines: microscopic robots that, for example, swim around in our veins removing cancer and plaque.

One of the great challenges of the 21st century will still be finding energy for both the new and the old industrial countries. Oil will run out eventually, so we must find alternatives. There is much research in sustainable energy from wind, the sun, and the earth's warmth and in alternative fuels such as hydrogen and biofuel. The following decades will also offer progress in atomic energy, both the traditional fission energy and the controversial fusion power that creates energy the same way the sun does.

Megatrend 4 - Prosperity

Prosperity is a megatrend because the majority of the population of OECD countries and large groups in formerly developing countries are now growing more prosperous.

Between 2% and 4% growth is assumed in the western world in coming years, and in some regions - especially North America, Latin America, and Asia - the growth rate will likely reach 10%-15%. It is doubtful that Africa and the Middle East will enjoy such growth and increase in prosperity because fertility rates are expected to remain high in these regions, among other factors. Moreover, prognoses indicate the Russian middle class will grow from 50% to 85% in the next 10 years, the Chinese from 5% to 40% and the Brazilian from 25% to 50%.

Gross National Product (GNP) is usually used to measure and compare the wealth of nations. The US and EU are, measured by GNP, far richer than other parts of the world, but that can change in step with the high economic growth rates and increasing employment in many developing countries.

The economic growth will cause a change in the demand for new types of products, with a new business structure as a result. In short, most countries are going through a structural social and economic change in the transition from agricultural and/or industrial society to a knowledge society. When we grow richer, new needs arise and we consume more in the form of intangible products such as entertainment, experiences, services, savings and investment. More prosperity changes our consumption of traditional tangible products such as food, because affluent consumers focus on health, quality, trust, origin, animal welfare, etc.

More prosperity and more consumption will change the relationships between costs, prices and profit. The relationship that formerly existed between consumer prices and production costs, based on resource contributions such as labor and capital, is no longer present. Much of the value of the tangible products of the future is not in production costs but in the knowledge behind the product: product development, marketing, distribution, etc. That also means that there will be much greater pressure on companies and individuals to be change oriented, creative and innovative.

Megatrend 5 - Individualization

Individualization is the shift from more collectivist societal norms to the person. It seems to be counter to globalization, but in fact both work together. Individualisation of life paths refers to the never before experienced lack of clear guidelines about future roles, the difficulties associated with long term decision making where careers and jobs have not yet been created. This ambiguity challenges what have been relatively predictable 'social scripts' for adolescents of times past. The individualistic approach has made branding one of the key figures in modern sales and marketing.

Individualization will be significant for the lives of the individual - and in private relations between people. As customers, people are increasingly going to expect individual and unique products. Secondly, companies are going to feel the increasing employee turnover more. The labor force of the future can handle more changes than that of the present. Thirdly, individualization will be felt as an employee demand for individual attention.

Megatrend 6 - Commercialization

Commercialization is the meeting of increasingly more human needs on the private market through trade that can be both supply and demand driven. Commercialization is closely linked to other megatrends such as globalization, prosperity, individualization and digitalization. Digitalization has made it much easier to reach consumers globally, and the Internet promotes commercialization by making it both cheaper and faster for companies to market to the global market. Globalization has great influence on

commercialization because of increased international trade, greater investment and more travel. Prosperity and individualization also accelerate commercialization because consumers have more money and at the same time demand individually tailored products and services.

Commercialization will probably increase in the future, and the consequences will range from even more prosperity to specialization in business and the labor market. Specialization means that companies deliver more differentiated products and services while employees work more with product development, innovation, marketing and sales. This will in turn speed up the transition to the creative knowledge economy.

Commercialization gives the individual more choices, increases competitive pressure on many companies and organizations, and thereby creates a growing market for new products. More competition forces businesses to further specialization and effectiveness. Some companies will concentrate on large-scale operations, centralization and standardization. Others will do the opposite, concentrating on decentralization, flexibility, niche production, marketing and customer service.

Megatrend 7 - Health and environment

Today, fitness has become wellness, and so has gained a more spiritual and personality-optimizing character. New spa baths, treatment resorts, and other offerings are constantly appearing on the market. The health and environment megatrend will have even greater significance in the coming years. There will come more age related illnesses, more lifestyle illnesses such as obesity and stress, and more mental illness. Men's sperm quality has fallen greatly over the last 10 years, more children suffer from allergy, and smoking is banned in more and more places. There will be focus on clean drinking water - even in the countries that until now have not had problems drinking water from the tap. The Asian Development Bank calculates that a pandemic could create a period with low growth in which global trade would fall by 14%. The health megatrend is, therefore, of great significance for the world economy.

The individual household uses more and more money on environment and health, and the number of new companies in healthcare has quadrupled in Denmark in just five years. The modern person buys vitamins, practices yoga and eats healthfully. In step with the individualization trend, more are interested in the body, beauty care and wellness, and more are aware of the connection between health and environment.

For companies, it will also be more important to take into account employee health. Many already work to improve employee morale, loyalty and productivity through meal programs, fitness centers, etc.

Megatrend 8 - Acceleration

The industrial revolution was the starting signal for increased acceleration, which has only grown since then. Today, for example, there is more knowledge for the individual to consider, more to produce and consume, more to throw out, more to communicate, more to transport, and many more people to interact with. The pace of change is the number of changes in society per unit of time, and there are no absolute numbers for it. But that many people say there are more and more changes is sign enough of it.

Changes touch us on many levels, and we change job, partners, friends, interests, home, knowledge, news and ideas faster than before. Information is not just more accessible today - the entry of new products on the market goes faster and faster. Modern people much make far more daily choices than ever before, and our curiosity and our aspirations for development, new knowledge and improvements will be forces that will increase the pace of change in the future. The pace of change already makes great demands on the ability of companies and organizations to reorganize. And that is not all: if you want to protect your competitive power, it is not enough to be change ready - you must be change-oriented so that you do not make do with subsequently and passively adjusting to the changes that happen in your world.

Megatrend 9 - Network organizing

To enter a network is a natural part of being human. Central to all networks is communication, because communication is the reason we have a society, a culture, an identity and an economy. Network organizing is a megatrend because network has become a central term that permeates our way of thinking. Cheaper transport, better infrastructures, the Internet, mobile telephony and increasing prosperity have revolutionized the opportunities for communication and network organizing. This megatrend is, in other words, closely connected to the development in several other megatrends, not least digitalization, globalization, and individualization, but also prosperity and commercialization.

A network's value increases exponentially with the number of members who are in it. Changes in a network society do not happen linearly as they do in an industrial society. That means that many changes that took decades in the past now happen significantly faster. Network organizing greatly affects technological, societal, and economic development, and we have probably seen only the beginning. The rapid development potential in the network society means, on the one hand, that companies can expand incredibly fast, as happened with Microsoft, but, on the other hand, companies in all industries can risk out-competing each other in a very short time.

In 2009 Facebook announced that 250 million people used the social networking tool. In 2011 there were reportedly 800 million active users worldwide. This is an amazing statistic given that it was only created in 2004!

Networks drive out hierarchies and create many new open and decentral social structures. This applies to private life, especially for the younger generation, to the labor market, and business life. Network organizations also promote urbanization, because urban regions with good infrastructure, good development possibilities, and a rich research environment attract the creative class. Network organizing challenges our entire way of thinking and traditional institutions such as the nation-state, the church, culture and language because people enter other and new networks than before.

Google is an example of a company where the network principle has shown itself to be a good business ideology. The Google search engine's strength is, in fact, that it lists search results according to how centrally a web site is in the network - that is, according to how interesting users believe it is.

Megatrend 10 - Urbanization

48.3% of the world's 6.5 billion people live in urban areas. The United Nations predicts that the share of the world population living in urban areas will rise to 53.6% in 2030, or about 3.9 billion people. While the average annual rate of change in

urbanization towards 2030 is predicted to be only 0.5% in more developed regions, it is predicted to be 2.3% in less developed regions, primarily in Asia and Africa.

Large-scale migration from region to region and countryside to urban areas continues in both Asia and the Middle East. Rapid urbanization poses a fundamental challenge the development of adequate infrastructure and liveable housing, and the maintenance of healthy environments. Other than that it also put stress on traditional ways of living, family structure and cultural values - creating a growing potential for social and political unrest.

Nevertheless, there are also reasons for optimism. The historic association between economic development and urbanization is well established. Cities are crucial environments and institutional assemblages for economic growth. Current research indicates that even in less developed countries cities experience lower rates of natural population increase than rural areas, average household income is higher, and educational levels are well above those in rural areas. Thus, cities can also be seen as places of opportunity in which the major need is effective management and provision of services, creation of economic opportunity, and the provision of safe and healthy environments.

The next 100 years?

To review, the 10 megatrends are: ageing; globalisation; technological development; prosperity; individualisation; commercialisation; health and environment; acceleration; network organising; and, urbanisation (see Figure 1). So what does that mean our world might look like in the coming decades, in the next one hundred years?

Figure 1 The 10 megatrends



In his book, *The Next 100 Years, A forecast for the 21st Century*, George Friedman (2009) reflects on historical and geopolitical patterns dating back hundreds of years to predict what the next 100 years holds. Among his predictions are the following:

- The US-Jihadist war will conclude, replaced with a second full-blown cold war with Russia;
- China will undergo a major extended internal crisis, and Mexico will emerge as an important world power;
- A new global war will unfold toward the middle of the century between the United States and an unexpected coalition from Eastern Europe, Eurasia and the Far East;
- Technology will focus on space, both for major military uses and for a dramatic new energy source that will have radical environmental implications; and,
- The United States will experience a Golden Age in the second half of the century (Friedman, 2009).

These rather more bold predictions about the future are also probable futures for us. So where in this story of the future does home economics as a profession sit? What is the role of home economics in these probable futures? Better yet, what future does home economics *prefer* given its values and priorities? *Preferred futures* are what we would *like* to see come about and ensuring these futures means we have to be prepared do challenge current worldviews and paradigms, even challenge the identity of the 10 megatrends described in this chapter.

Future Proofing the Profession

The final section of the IFHE Position Statement – Home Economics in the 21st Century (IFHE, 2008) states the following objectives for the next decade:

The focus on the decade ahead is on future proofing, which describes the elusive process of trying to anticipate future developments, so that action can be taken to minimise possible negative consequences, and to seize opportunities. Future proofing the Home Economics profession and the Federation is a challenging task but one which is necessary to ensure a sustainable vision both for the profession, and for individual members. The International Federation of Home Economics has commenced it's future-proofing strategy by focussing on questions of sustainability, advocacy and the active creation of preferred futures for Home Economics, relevant disciplinary fields, and the profession itself, while critically reflecting upon and being informed by its historical roots (IFHE 2008:2).

This is the platform upon which our future should be built. By way of commencing this work, the IFHE Think Tank committee is responsible for leading the processes involved in a rebranding exercise, involving the reflection and forward visioning of home economics as a recognisable 'brand' into the future. A brand serves several key functions. To be more visible and accessible, we have to be able to define and articulate distinctive characteristics by which people come to know us. A brand has to empower those using it to demonstrate their identity with the profession. It should be

based on a vision, a mission and ends valued by everyone who will be using the identity (brand). Promoting the brand with consistent visuals and messaging ensures that people know they are dealing with a stable and secure entity - that home economics profession (McGregor, 2007). Connecting with the 10 core megatrends is a proactive way to create a preferred future for the profession, by branding it as involved with megatrends.

In addition to branding the profession, McGregor (2007) proposed we consider creating home economics ambassadors. Ambassador stems from the Medieval Latin word *ambactia*, mission. Ambassadors are spokespersons authorized to represent the profession, and *carry its message*. They would represent the profession in areas outside the field of practice, bringing the mission, unique approaches to practice and valued ends to others' attention. Their main function would be to advance the interests of the profession. This work can occur quietly behind the scenes or in the public eye. They would be well versed in an agreed-to value statement of the profession (one example being the 2008 IFHE position statement). They would spread the word about our work, our value and the contributions of the profession to the good of humanity. This idea has potential. Ambassadors of the profession can position it firmly in the centre of the complex 21st century.

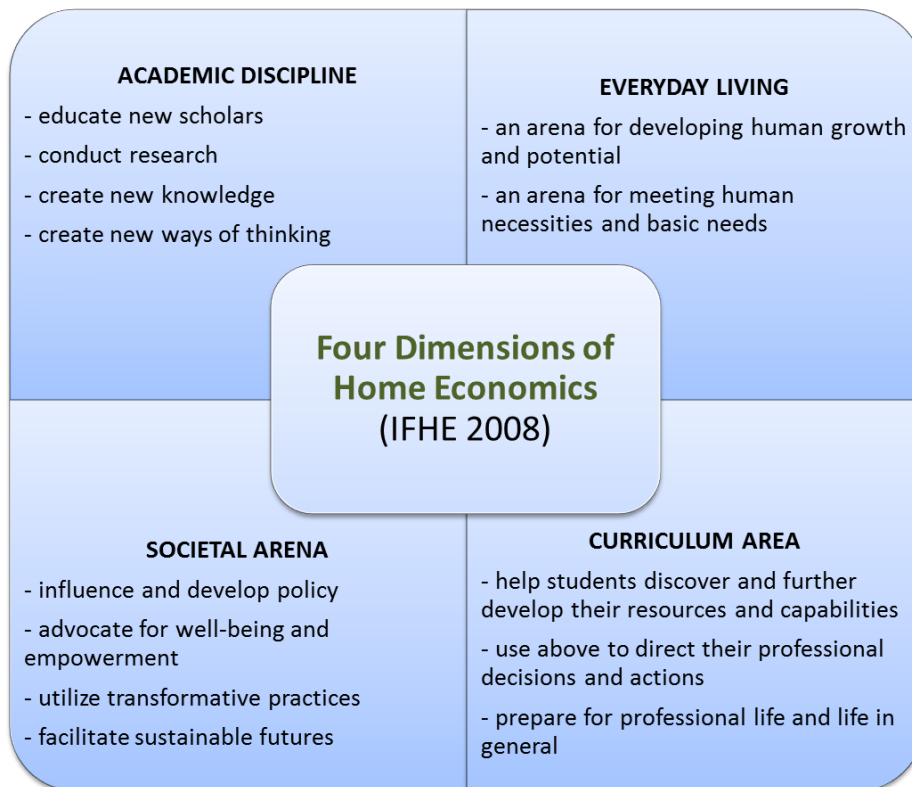
Within this mission of branding the profession, and becoming ambassadors of the profession, it is important to consider *what* home economics might be and *how* we ensure that the profession is a part of the future of humankind. Clarity about "what is home economics?" has been a challenge to the profession for one hundred years. IFHE has proposed a unified position from which to engage in home economics work around the globe:

Home Economics is a field of study and a profession, situated in the human sciences that draws from a range of disciplines to achieve optimal and sustainable living for individuals, families and communities (IFHE, 2008).

Furthermore, the IFHE 2008 position statement proposed that Home Economics can be clarified by four dimensions or areas of practice (see Figure 2):

1. as an *academic discipline* to educate new scholars, to conduct research and to create new knowledge and ways of thinking for professionals and for society
2. as an arena for *everyday living* in households, families and communities for developing human growth potential and human necessities or basic needs to be met
3. as a *curriculum area* that facilitates students to discover and further develop their own resources and capabilities to be used in their personal life, by directing their professional decisions and actions or preparing them for life
4. as a *societal arena to influence and develop policy* to advocate for individuals, families and communities to achieve empowerment and wellbeing, to utilise transformative practices, and to facilitate sustainable futures.

Figure 2: Four Dimensions of home economics practice



We now have a position about the four dimensions of home economics practice. In summary, the intent is to augment and advance the profession's knowledge base; facilitate everyday living of the family as a social institution; prepare any home economics student (primary, secondary and tertiary) to engage with life; and, influence policy for the improvement of family life and, by association, humanity. We now need to capture the 21st century thinking that enables us to enact this vision for the profession. If the profession of home economics is to survive and thrive, there must be a committed effort to adapt the incentives, the motivators, the leadership models and the overall culture of the profession to strategically target a preferred future. The profession is responsible for making its own future and must engage with the megatrends of society as a way forward.

References

- Australian Government (2010) *The 2010 Intergenerational Report*
http://www.treasury.gov.au/igr/igr2010/report/html/03_Chapter_2_Growing_the_economy.asp Retrieved 17 March, 2010.
- Friedman, G. (2009). *The Next 100 Years, A forecast for the 21st Century*,
- Howe, N. & Strauss, W. (2000). *Millennial's rising: The next great generation*. New York: Vintage Books.
- International Federation for Home Economics. (2008). *IFHE Position Statement – Home Economics in the 21st Century*. Bonn: IFHE.
- McGregor, S. L. T. (2007). Practising on purpose: Becoming professional ambassadors. Workshop for the Alberta Human Ecology Association Conference/AGM. Red Deer, Alberta. Retrieved from http://www.consultmcgregor.com/documents/keynotes/Alberta_2007_Practice_on_Purpose_PD_Overheads.pdf
- McGregor, S. L. T. (2011). Home economics in higher education: Pre professional socialization. *International Journal of Consumer Studies*, 35(5), 560-568.
- McGregor, S. L. T., & Toronyi, K. T. (2009). A millennial recruitment and retention blueprint for home economics professional associations. *International Journal of Home Economics*, 2(2), 18-35.
- Pendergast, D. (2000). The Future of Home Economics, *ECHO*, 39(2), 2-9.
- Pendergast, D. (2007). Teaching Y generation. *Journal of the Home Economics Institute of Australia*, 14(3), 15-21.
- Pendergast, D. (2006). Sustaining the home economics profession in new times – A convergent moment. In Rauma, A., Pollanen, S. & Seitamaa-Hakkarainen, P. (Eds), *Human Perspectives on Sustainable Future*. Joensuu: University of Joensuu.
- Pendergast, D. (2008). Introducing the IFHE Position Statement, *International Journal of Home Economics*, 1(1), 3-7.
- Pendergast, D. (2009). Generational theory and home economics: Future proofing the profession. *Family and Consumer Sciences Research Journal*. 37(4), 504-522.
- Selby, D. (1999). Global education: Towards a quantum model of environmental education. *Canadian Journal of Environmental Education*, 4, 125-141.