Transformative education and food: thoughts from Wales

A position paper by the Food Working Group of RCE Cymru/Wales

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This paper has been written in order to stimulate discussion on Education for Sustainable Development and Global Citizenship (ESDGC) with particular reference to food. It draws on our experiences in Wales which we have placed in the context of some theory.

It takes as its starting point generally accepted views of what ESDGC is, while noting that the concept is based on assumptions that are open to question and refinement, and that an effective educational process will be capable of investigating its own limitations. One such question that immediately presents itself is the distinction between education as an end in itself, and education as a means of bringing about changes in behaviour along predetermined lines, or campaigning. We offer some thoughts about this below, and hope that our account sets out a starting point for further investigations.

1. Definitions

According to www.esd-wales.org.uk:

> **Education for Sustainable Development** enables people to develop the knowledge, values and skills to participate in decisions about the way we do things individually and collectively, both locally and globally, that will improve the quality of life now without damaging the planet for the future.
>
> **Education for Global Citizenship** enables people to understand the global forces which shape their lives and to acquire the knowledge, skills and values that will equip them to participate in decision making, both locally and globally, which promotes a more equitable and sustainable world.

Working from these definitions, the purpose of this paper is to consider how people learn about food in the context of:

- improving quality of life;
- not damaging the planet for the future;
- bringing about a more equitable and sustainable world.

2. A model for how ESDGC works

There seem at first glance to be two distinct aspects to ESDGC:
1. the *processes* by which this learning occurs, both individual and collective (social, emotional, cognitive, practical, etc)
2. the *content* of this learning, largely driven by the external context in which it takes place, and including social, economic and political dimensions, and the processes and relationships within and between the biosphere and atmosphere.

These two aspects, process and content, tend to be championed by different groups of people and it is not always clear how they relate to each other. Thus on the process side, ESDGC seems to focus on matters in the human sphere, such as empowerment, empathy, participation and experiential learning. On the content side, it commonly focuses on the relationships between humans (individuals or groups) with one or more aspects of the earth and its life-supporting systems, and so it is seen for example to be about reducing our carbon footprints, reducing waste, learning about renewable energy and instilling a sense of urgency about climate change.

One model which brings these two aspects together is the AQAL (All Quadrants, All Levels) or Integral View developed by Ken Wilber. This groups all areas of human activity and experience into four quadrants according to whether they are subjective (interior) or objective (exterior), individual or collective. Within these quadrants, it also recognizes levels of complexity and development, which will be considered below. Applied to the questions we are considering in this paper, the model appears as follows.

2.1 The four quadrants

Upper left: subjective, individual How individuals experience the world and what it means to them; motivation and intention, e.g. "I like to buy local food because it feels more sociable"	*Upper right: objective, individual* How individuals appear and behave e.g. my carbon footprint, how often I drive a car
Lower left: intersubjective, collective Shared cultural interpretations of the world, values and ethics, e.g. "Wales values sustainable development"	*Lower right: objective, collective* Food systems, economic systems, catering services, the composition of the atmosphere, e.g. the amount of food imported by Wales

To take the example of food: in the lower-right quadrant there is general agreement that a food system that produces large amounts of greenhouse gases is unsustainable. Many people therefore call for reductions in greenhouse gas emissions, for instance by buying food more locally to reduce transport costs, or by moving away from livestock farming. However, such changes can only occur if there are corresponding behavioural changes in the upper-right quadrant, such as changes in consumer purchasing practices. These behavioural changes, in turn, are only likely if individuals are motivated by some new understanding of the world. This is likely to come about partly from experiential learning (upper left) but also through cultural attitudes to food (lower left) that will influence personal views.

To put it another way, our collective human behaviour, including the institutions and trading systems we have set up and the human-environmental relationships arising from them, are a consequence of what we have learned in the past. Food systems are only likely to change when we learn new things or change our interpretations (values), such that we question accepted norms. This is likely to occur through a combination of personal experience and collective learning. The purpose of ESDGC, then, might be to facilitate these processes so that we deepen our understanding of the world and our relationships with it. This will enable us to modify our behaviour in favour of individual and collective practices that reduce our impact on the biosphere, if we choose to do so.

Within each quadrant, Wilber further identifies levels of increasing complexity, which manifest as developmental stages. These will be described further below.

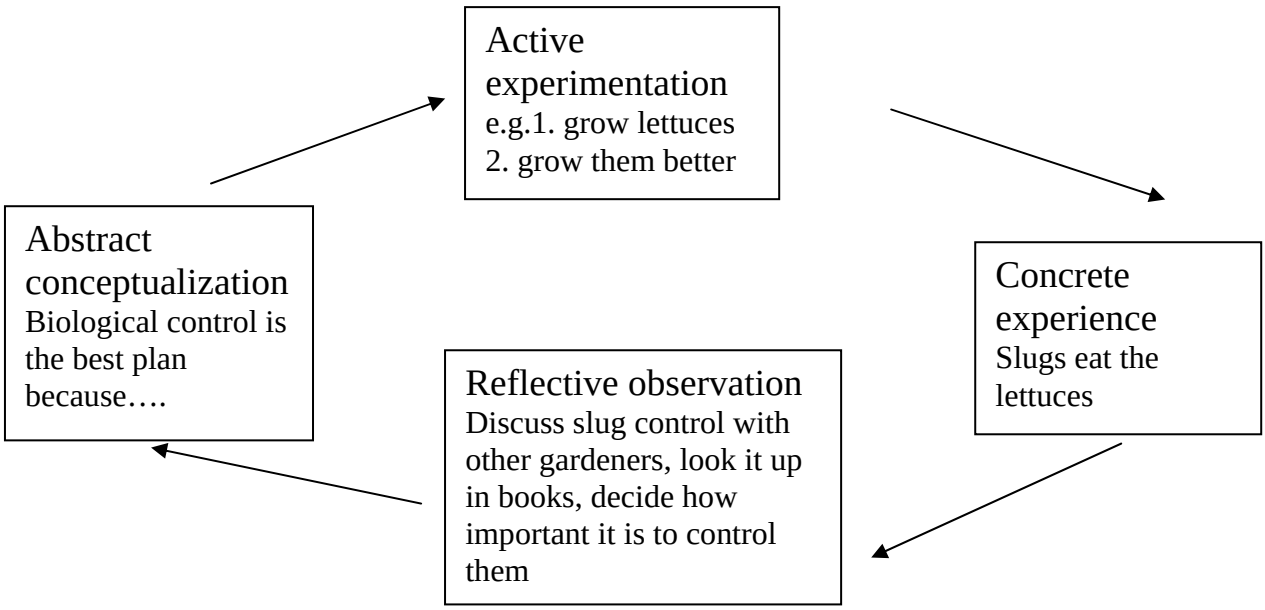
2.2 Learning cycles

The AQAL model suggests that ESDGC will work best when it takes account of all four quadrants, as well as the levels within them. This suggests the need for a learning model which moves from one quadrant to another, rather than focussing on only one or two of them and stifling development in other areas.

One such model is the learning cycle developed by David Kolb, which also has four stages. These are:

1. active experimentation
2. concrete experience
3. reflective observation.
4. abstract conceptualization.

This can be represented by a diagram:



Kolb contended that learning was limited when one of the four elements of the cycle was emphasized at the expense of the others. For instance some people (and organizations) are most comfortable with practical action which produces a sense of achievement, and do not pause to reflect on their experiences; others may get stuck in abstract conceptualizing which does not lead to action and so cannot be tested against reality, and so on. From this it follows that strengthening the weaker elements would accelerate learning. So for instance a reflective learning process might be introduced where there is already strong focus on activity and results. The introduction of the Agrisgop action learning programme for Welsh farmers in the last decade is a good example of that (Pearce and Williams, 2010). Similarly, giving learners a chance to engage in a hands-on activity can bring theory to life and stimulate them to ask their own questions. An opportunity to put thinking into action could stimulate fresh rounds of thinking in a group which had lost direction.

The four stages between them could be mapped onto Wilber's four quadrants, if conceptualization and experimentation are seen primarily as individual activities, while concrete experience and reflection correspond more to collective and systems processes. However what is important here is the spiral learning process that takes in all four quadrants, and allows learners to progress to higher levels of understanding and function.

3. Transformative education

This is a term given to a deep form of learning, requiring critical reflection of received assumptions and values that influence our current world view and practices. Sterling (2001) describes it as radical in character, resulting in a fundamental change in the way we, individually and collectively, see the world. It is systemic, connected and practical and results in changed paradigms, or ways of understanding the contexts in which we live. It seems to us that it is only at this level that we can hope for social change to occur, through a reassessment of our world views and values. Without such deep personal reflection, fundamental and sustainable shifts will not be realised.

The AQAL/Kolb model above explains how such transformations might come about, linking practice and thinking and stimulating learners to re-evaluate past beliefs and move to a better understanding which will be expressed as altered behaviour. Individual transformative learning necessarily takes place in a shared educational context which adopts certain consensus values of empathy, respect, honest enquiry, equality of opportunity and so on, and which thereby supports learners in their discoveries and is reinforced by their developing understanding. This in turn will ultimately lead to changes in wider society, trade systems and the biosphere.

3.1 Food in ESDGC: current practice

To summarize, ESDGC as it is generally practised can be grouped into four elements:

1. the individual learning process (values, knowledge, skills)
2. individual action, and changes in behaviour
3. collective, societal action and the identification of any necessary changes, aimed at the transformation of society (social justice, accountability, culture, values etc)
4. the study and deeper understanding of the world.

The Kolb learning cycle shows how all four are connected, while the Wilber AQAL model maps out the content of each. We will now examine how this is carried out in practice.

In our experience, some food projects naturally link all four quadrants and the levels of complexity within them, while others seem to concentrate on one or more aspects of the whole ‘system’ at the expense of others. For instance, work on healthy eating is most often talked about in terms of individual behaviour and ‘five a day’ (upper right) but is not often linked to sustainable food systems (lower right). Such an omission limits the transformative learning possibilities for an individual, including those which are likely to lead to deeper understandings and subsequent behaviour change.

Elsewhere, there is great emphasis on cutting our carbon footprints (right hand quadrants) with little or no discussion as to what might motivate people to do so (left hand quadrants). We seldom include discussion of the cultural conditions that might have resulted in our reliance on fossil fuels in the first place. Nor, indeed, as educators, do we often consider how we might assist deeper learning through, for example, facilitating a constructive critique about the nature of the barriers we individually and collectively face in this respect. Meanwhile, much well-meaning educational work suffers because of an incomplete understanding of the complex interrelated scientific, economic and geographical dimensions of sustainable development (right hand quadrants), which are not subjected to rigorous examination.

4. Food systems in sustainable development

It is important to remember that while it is convenient for us to study these four aspects of food in ESDGC separately, no one aspect is on its own sufficient: ESDGC requires attention to the integration of all four. Indeed, by studying the points of contact between these four aspects, we can perhaps inform our ESDGC practice, for example in deciding more clearly where, how and focusing on what, our ESDGC contributions might most effectively be made.

The lower-right quadrant, or the study of food systems, is a common place to start. What makes a food system sustainable?

At this point it is necessary to introduce the hierarchy of levels of complexity and organization within each quadrant which is an important part of Wilber's thinking. There are many components to a sustainable food system – physical, economic, personal – and it is helpful to have a scheme for ordering them and showing their relationships to each other. For food systems, the following is suggested as a model:

Level of complexity	**Positive aspects (underpin sustainability)**	**Negative aspects (underpin unsustainability)**
World view, big picture, rights and values	Fair trade, ethical employment, animal welfare, social justice	Poverty, exploitative trade, poor animal welfare
Human knowledge and skills	local knowledge, understanding, leadership, skills, adaptability	Loss of skills and knowledge to produce and process food locally
Social and economic systems	Effective distribution, market support, education, health, research, information networks, equitable land tenure	Market instability, famine, waste, recession, reduced limits of political acceptability, drivers for economies of scale
Farming systems	Self-sufficiency, carbon sequestration	Crop failures, greenhouse gas emissions, high dependency on inputs, reduced water quantity and quality, reduced dependency of water supply, monocultures
Plants and animals	Biodiversity, crop genetic resources	Species extinction, loss of genetic diversity and species resilience
Soil and water microbes	Nutrient cycling, soil structure	Nutrient depletion and change, soil erosion, irreversible changes in soil condition and processes
Rocks, water, atmosphere	Availability of clean water and land, stable climate	Climate change, drought, pollution, extraction

In this scheme, each level supports the levels above, and is also modified by them. Thus farming systems will not ultimately work well without biodiversity, while biodiversity requires appropriate farming systems for its sustainability. Changes, activity and problems at any one level will have effects on all the other levels, and all must be working well, individually and together, to produce a sustainable food system in the widest sense, including our human quality of life.

Since a sustainable food system exists to feed people it can also be described in terms of food security. According to the UN (www.foodsec.org):

> Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

The same source describes food security as having four components. As in the system above, these form a hierarchy, in that each one depends on the one before it.

1. Physical **availability** of food.
2. Physical and economic **access** to food.
3. **Utilization** of food. This relates to general hygiene, food processing, nutritional composition of the food, diversity of the diet, ability of the body to absorb nutrients and other factors that ensure individuals receive the food they need, in particular the ability to prepare food safely for eating.
4. The **stability** of the three factors above. This means that risk needs to be reduced in all three dimensions over time.

In the UK food security is now back on many people's agendas, but is approached very differently by different groups. On one hand, it may be framed in terms of Peak Oil and the need to localize the food chain, possibly involving far-reaching social change; while at the other extreme it is high-tech challenge for scientists. The immediate point of connection for the individual is at the level of utilization of food, where an understanding of healthy eating and the ability to design a balanced diet is crucial, and this is the subject of much educational work. This may lead naturally to the other considerations of availability and access to food, as well as the wider aspects of food systems mentioned above, such as biodiversity, climate change and fair trade.

However, in the professional sphere the other levels of food security are also important and deserve direct attention.

4.1 The importance of reliable information

ESDGC would give individuals experiences and information to enable them to choose the futures they want, and to critically analyse the various scenarios with which they will be presented. It is very important that learners have access to information from reliable sources and that they know how to select reliable sources, and are encouraged to be rigorous in their assessment of it. It is very easy to adopt a certain received wisdom that is not questioned. For instance, the concept of 'food miles' is now well established in people's minds, and it is easily equated with carbon dioxide emissions, leading to the assumption that eating local food will automatically have a lesser environmental impact than imported food.

In fact, transport of food by road and sea produces a relatively small amount of carbon dioxide, and much more harm is done during the production of the food. For instance, nitrogen fertilizers not only produce carbon dioxide during their manufacture but also release oxides of nitrogen which have a far more powerful global warming effect than carbon dioxide. It is likely that the real motivation for buying local food is to do with building a sense of community, which is seen as a part of a sustainable future, and it would be better to be explicit about this, rather than appealing to half-understood science.

Learners will tend to have confidence in sources which have wide public credibility, such as universities and certain established international organizations. They may need guidance in assessing which of these are the most reliable, and what biases are likely to be present in the information they produce. Governments have an important role to play in monitoring our food systems and collecting information on health and food security, which is then incorporated into strategy, picked up by the media and fed into the public consciousness.

5. Individual learning about sustainable food

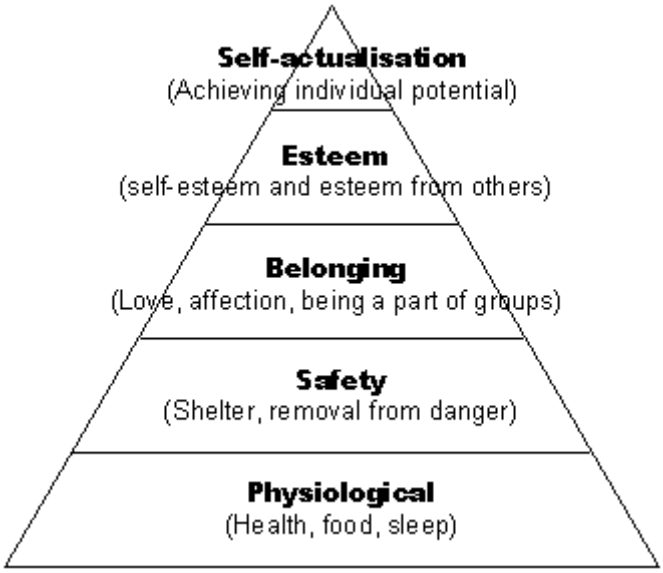
Transformative education requires the engagement of the individual in all aspects – intellectual, practical, emotional and spiritual. It is likely to include an element of direct experience (for instance, lifting potatoes or planting a garden) as well as the assimilation of information, personal reflection and an examination of the learner's fundamental beliefs and values. It will involve the imagination, aesthetic response, and maybe a sense of awe and mystery.

It is important to recognize that learning is a complex process and that people will be at different stages of intellectual and emotional development, with different needs. Besides passing through various stages of cognitive development (from concrete to abstract thinking for example) children develop from an essentially egocentric outlook ('my world', or personal) to one of group loyalty ('our world', or public) to a world-centric view ('the world', or global), with the rider that the higher stages include rather than displace the lower ones, and that all are necessary stages in development. Personal concerns can coexist, for example, with a passion for social justice. It is not "wrong" for people to be more interested in their local community than they are in, say, the impact of climate change on Africa; it is in fact essential to learn about one's own community and to value it before it is possible to feel genuine concern for other communities. Similarly it is to be expected that people wishing to improve their diet will choose what they consider to be healthy food, for instance white rather than red meat, but not concern themselves as to how it was produced. That can come later.

This progression from the small group to the universal has long been recognized in Wales, where the family, village and nation are celebrated. In 1895, Emrys ap Iwan wrote:

> *Fel y mae'r teulu wedi ei ordeinio i ddysgu dyn i garu ychydig yn lle un, sef ef ei hun, felly y mae'r genedl wedi ei hordeinio i ddysgu dyn i garu llawer yn lle ychydig; nid yw'r teulu a'r genedl amgen na dwy ris i'w gynorthwyo i esgyn oddi wrth hunangarwch at ddyngarwch, sef cariad cyffredinol…*
>
> *As the family is ordained to teach man to love a few instead of one, namely himself, so the nation is ordained to teach man to love many instead of just a few; the family and the nation are none other than two steps to enable him to ascend from self-love to love of humanity, or general love…*

The American psychologist Abraham Maslow described a similar system with his well-known hierarchy of needs. His system, shown by the pyramid below, expresses the truth that until certain basic needs such as food, safety and belonging are met, people will not be able to give much attention to the higher needs for esteem and self-actualization, which is the point at which world-centric morality – concern for the wellbeing of the whole biosphere – becomes an important value (while recognizing that Maslow's concept of self-actualization was unclear and does not necessarily include altruism). Therefore, comparatively few people in any given society have the luxury of turning their attention to such matters.



In present-day Wales it is safe to assume that the needs for physiological function and safety will be met for most people most of the time. However the need for belonging (corresponding to the 'our world' view mentioned above) is often critical, whether it is adults who feel isolated from their communities, or teenagers anxious to fit in with their classmates.

Maslow's model suggests that successful approaches to ESDGC must recognize this need and meet it in some way before messages about sustainable development and global citizenship can be received. The beauty of group activities such as community gardens, cookery clubs and food co-ops is that they meet the need of the individual for connection with other people while also providing opportunities to develop skills, build confidence, and have new, direct, and positive experiences of the natural world.

5.1 Value of direct experience

Until a century or so ago, the food chain was highly visible at least in rural areas of Wales, in the form of livestock and crops, mills, butchers' shops, communal bread ovens and the kitchen. In recent years however, with the rise in food imports and processing, the demise of mixed farming in the UK, the arrival of more intensive indoor animal rearing and long and complex distribution systems, people are often ignorant of the origin of their food.

This ignorance means it is hard for us to feel a sense of responsibility for how our food is produced, even when we are told that there is a problem, be it greenhouse gas emissions, animal welfare, obesity, waste or labour conditions.

Because food chains are entangled in a hugely complex modern industrial system they are not at all easy to understand. Conversely, the study of food production reveals many aspects of the socioeconomic, cultural and psychological background to our lives and so is very rewarding in terms of ESDGC. Direct personal experience, for instance through gardening, cookery and farm visits, as well as with more complex manifestations of the food chain such as supermarkets and factories, is an essential part of making the connection with our food systems and starting a learning process.

6. Collective learning

Learning never happens in a vacuum. It will always be affected by the culture and the social and political context in which it occurs, whether that is explicitly specified by a formal curriculum or more informally determined by background assumptions, such as religious beliefs or a materialistic world view, which may be unconscious. These help shape our interpretation of what we see and can have a strong emotional hold. The power of branding and advertising in directing our choices is an illustration of that. Collective learning corresponds to the lower left quadrant in Wilber's scheme.

To take an extreme example, two people visiting the same abattoir at the same time may have completely different experiences. One may see an efficient, humane facility for producing one of our essential foods, while the other might see a shocking scene in which innocent animals are slaughtered without regard to their rights. What they see will be determined by the expectations they already have, which are also shaped by their personal values, and the meanings they have learned to assign to things, which are connected with cultural contexts. In the same way, growing your own vegetables could be a sign of poverty or an enriching reconnection with the soil; cookery could be a tedious chore or an enjoyable and creative activity, and so on.

Meanwhile, we question our interpretations and deepen our understanding of what is happening, especially through direct experience and discussion with others. The result of this is to modify the shared understanding, allowing for a further cycle of exploration. A good example of this is the Transition Towns movement, which reinterprets the more localized food systems of the past as a model for sustainability, rather than as a primitive stage which has been left behind (Hopkins, 2008).

6.1 The importance of the collective learning process

If collective understanding is to deepen and respond to new circumstances, and not become stale and resistant to change, it is important for that there should be opportunities for learners to share their experiences, reflect on their learning, critically evaluate their beliefs and values and express their opinions. They need to develop empathy and respect for the views of others, and an openness to other points of view, while also recognizing that all views are not of equal value. Some indeed may be very limiting or even harmful. Many unconscious assumptions may surface and need to be challenged, for instance the idea that a low-paid job such as vegetable growing is necessarily of less value than a higher paid office job. Complex and heated debates like that surrounding genetically modified food are an opportunity to examine some of these assumptions and find the underlying values which express what people really care about, enabling deeper understanding to develop and maybe new solutions to be found.

In schools, approaches such as Philosophy for Children (www.philosophy4children.co.uk) teach skills of empathy, questioning and reflection explicitly and thus strengthen the relationship between individual learning and group learning. For adults, conferences, training courses and other events may provide an opportunity for shared learning. These group learning experiences can be particularly valuable when people from very different backgrounds, or with different professional concerns, are brought together. This can challenge assumptions and drive learning very effectively, especially when it is linked to action. This is exemplified by approaches such as Action Learning and Action Research. For a good example of action research applied to food in Wales, in this case the improvement of school meals, see Pivcevic and Porter (2010).

7. Individual action

If we are to build a sustainable future, we will need to change our individual behaviour. This corresponds to Wilber's upper right quadrant. We will need to make new choices at all levels – in the home, at work, when buying food, and through the political process. This action will come out of our own understandings and motivations, and is a sign that genuine inner transformation has taken place. We might start buying local food because we value our local community, we may choose fair trade goods at the supermarket because we want to feel good about our purchases, we may start gardening because we enjoy the seasonal rhythm of it or because that's what our friends are doing, we might lobby our councils for more sustainable food procurement or write to our Member of Parliament.

These actions are not an end point in themselves. For all we know, they may not even be helpful. From the point of view of ESDGC, they are important however because they give learners a deeper and more direct experience of the world, and provide an opportunity for learning and reflection, leading to further changes in understanding.

7.1 Opportunities for action

Because individual action, or 'learning by doing', is such a potent factor, it is worth looking at all the ways in which it can be supported. Pupil ownership of ESDGC came across as an important theme at a teacher conference organized by the Welsh Growing the Future network in April 2010 (OCW, 2010). This was expressed in various ways, including the provision of practical tasks at the right level (such as producing and preparing food), links with community and local government, and 'real world' learning with opportunities to take on challenging responsibilities, such as running a food co-op.

8. Conclusion

Taken together, the AQAL and Kolb models above suggest a philosophy for ESDGC which links personal and collective learning with the direct experience of the world, through action and reflection. Learners move in a cyclical process through the four quadrants of AQAL, or the four learning stages of Kolb, using a variety of learning styles. At this point, it is important to note that although practical action is considered an essential part of this cycle, it is not any more important than the other stages. Action, or a change in behaviour, is evidence that a learning process has occurred, and it drives further learning, but if it is considered to be an end in itself then education has given way to campaigning or the imposition of a fixed agenda. There might be a place for this in the world, but the most powerful, transformative education will not limit itself in this way.

A healthy learning cycle will allow progressive questioning of the assumptions which underpin our view of the world, and of ESDGC itself, leading to deeper and more inclusive understanding and thus improving the conceptualisation of our food systems. We do not know what the ultimate sustainable food system would look like, or if it is even possible. Different groups in Wales, such as government departments, consumers, farmers, nature conservationists and so on, suggest very different futures for agriculture. This is likely to be because they are motivated by their own partial visions of the whole, whether their primary concern is productivity, mitigating climate change, biodiversity, profitability, animal rights, human diet, local communities, resource use, food safety, or other factors. All these concerns have some validity and must be reconciled or prioritized in some way.

ESDGC then can be seen as a process for investigating and developing our understanding of our connections with food and with the natural systems that produce it, from as many angles as there are people, and building together a shared vision of the future. This must necessarily involve the painful reassessment of much of the received wisdom which has brought us to the point we have now reached, and a venturing into unknown territory.

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Wilber, K. (2000) *A Theory of Everything: An Integral Vision for Business, Politics, Science, and Spirituality*. Shambhala Publications, Boston. NB A handy summary of Wilber's AQAL approach is given in http://www.isf.uts.edu.au/publications/RiedyEcopolitics.pdf.