



Special Education

Human Sustainability

- Towards Dysfunction or Evolution?

An Educational Programme for Healing

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Abstract

This paper begins by considering two arguable positions; firstly that Humanity as a species is, through current behaviour, exhibiting trends of sickness revealed by our currently dysfunctional environmental relationships, and secondly that this dysfunction could be seen as a process of evolution, in the way that the often challenging behaviour of an adolescent can be considered a stage of the growing up process. Following an exploration of these thoughts, a nature-based educational programme is proposed that the author believes is of value to either of these positions and as such is a therapeutic form of Special Education.

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This paper discusses the relationships between Humanity and the environment and it is important to clarify certain terminology used.

Firstly the word Nature is recognised to have four different levels of meaning, the most inclusive of those is 'Nature' with a capital 'N' which refers to Universal/Supra-Nature, which may be taken to include all scientific, religious and spiritual concepts of an all-inclusive condition.

Secondly there is planetary 'nature' (nature with a small 'n') which, for us, includes all aspects of Earth-based systems.

Thirdly, as a species of the planet there is Human '*nature*' (in italics) which considers our species functions, tendencies, habits, expressions, etc. as a whole and is also considered to be the '*nature*' of the Human 'Self' (with a capital 'S').

And lastly there are the tendencies, the nature, of each individual in which the word 'self' (with a small 's') is used when necessary, rather than the word nature.

Each of these is a subsystem of the former larger and more inclusive 'Nature';

Universal 'Nature'

v

Planetary 'nature'

v

Human '*nature*'/'Self'

v

Individual 'self'.

Introduction

When considering ourselves as individuals as well as members of a species, the author suggests that due to the precarious state of our environmental conditions brought about through unhealthy Human Self/Planetary nature relationships and the dangers presented by Human-induced climate change, amongst other things, Humanity is, by threatening living conditions on our planetary base, Self-harming and this may be recognised as an outer sign of an inner disorder.

The Human Self is not the only important element to consider in this unfolding drama but as it is Humanity, or at least specific areas of Human behaviour and attitudes, that are harming ‘all our relations’, to draw on a phrase from our indigenous ancestry, it is only by addressing these attitudes and behaviours, in short *our relationships*, will it be possible to begin healing ourselves and subsequently our world that is this planet we call Earth.

Healing not only takes treatment but more importantly needs accurate diagnosis and this paper considers different elements that may inform the development of diagnoses in order to lend support to the nature-based educational programme submitted as a partial contribution to the greater work that the author believes Humanity must undertake with urgency to promote worldwide healing and to develop resilience and adaptability in individuals as well as societies in light of potentially catastrophic changes predicted to occur.

This situation is now believed, by many, to be an unavoidable consequence of our previous actions and attitudes (IPCC, 2018; World Economic Forum, 2018) and although there is an urgent need to mitigate against further disruptive behaviours by addressing economic and lifestyle drivers, it is also important to up-skill ourselves and especially our young people to become competent in practical, emotional and intellectual ways that will enable them to adapt to whatever futures emerge and to develop better means and models for living in local as well as global societies.

This paper suggests that a critique of the ways in which we teach our young needs to be considered in light of emerging thoughts and research, and that compulsory public education in many countries may need to reflect and adjust its relationships, not only to the natural environment but also between teachers, students, materials taught, methods of teaching and assessments.

Firstly, however, it is important to acknowledge where we are, to describe the outer problems that scientific data has observed, so that there can be agreement on the magnitude of the problems that need addressing.

Then, through a review of literature, thoughts from others are presented, some of whom have attempted to find meanings and metaphoric comparisons between individual conditions recognised in the Diagnostic and Statistical Manual of Mental Disorders (DSM) and our symptoms as a species ... our Human Self ... in order to see if useful clues are revealed to develop this discussion.

As the purpose of this paper is to propose as well as to justify a nature-based educational approach for healing our relationships with this planet and its natural expressions, findings are also presented from studies of nature-based activities and experiences that show the values of these approaches in addressing different individual disorders.

Following this, the opinions of four, 'international' others, have been gathered, through online written interviews, regarding specific questions proposed, in order to deepen the continuing discussion.

Next, significant questionnaire findings are presented from a random selection of adults ($n \leq 100$) of all ages and backgrounds internationally. The full questionnaire explored their backgrounds and asked whether they would support an educational programme for schools which includes nature-based experiences and activities, in order to ascertain the levels of public support for such a proposal.

Following this a discussion is developed based on the survey responses and from further thoughts from other writers, alongside an exploration of concepts found in Ecofeminism thought, as there is an observable and coherent link between Humanity's historical attitude to the feminine and our environmental crises which the author considers is important to explore.

Finally an educational programme is presented which could be added into any school in any culture that was willing to integrate such an approach into their national educational systems in order to attempt to improve attitudes, approaches and understandings of and towards our natural environment and the other species that we share it with.

Where we are

In 1977 UNESCO held the World's first 'Intergovernmental Conference on Environmental Education', from which emerged the 'Tbilisi Declaration' (UNESCO & UNEP, 1978). This recognised the importance of teaching and learning as a means to help our young meet and be prepared for future challenges while equipping them with the knowledge about how to live more ecologically ethical lives.

Although there are many parts of this declaration that are relevant to this paper, here is one extract which lends support to the upcoming discussion on the value of Land & Craft Work.

“For this purpose, Environmental education should provide the necessary knowledge for interpretation of the complex phenomena that shape the environment, encourage those ethical, economic and aesthetic values which, constituting the basis of self-discipline, will further the development of conduct compatible with the preservation and improvement of the environment; it should also provide a wide range of practical skills required in the devising and application of effective solutions to environmental problems.”

(UNESCO & UNEP, 1978, p. 25)

Later in 1987, the World Commission on Environment and Development delivered the report 'Our Common Future' (Brundtland, 1987) to the United Nations General Assembly which led to the development of the United Nations Millennium Declaration (United Nations, 2000) from which the UN's 8 Millennium Development Goals for the 21st Century were developed. This was followed by the UNESCO, 'Decade of Education for Sustainable Development' (2005 – 2105) and later by the development of the 17 Sustainable Development Goals (SDGs) ¹ as a part of Agenda 2030².

These are global examples of significant engagement with and recognition of the magnitude of the problems facing Humanity and it is clear that there are strategic high-level approaches to these global issues; but are top-down policies and encouragements enough?

¹ <https://sustainabledevelopment.un.org/sdgs>

² <https://sustainabledevelopment.un.org/post2015/transformingourworld>

In 2002 scientists and academics who worked for the Global Scenarios Group, presented the book ‘Great Transition, the promise and lure of times ahead’ (Raskin et al., 2002) which recognised significant transitions periods in Human history, moving from the Stone-Age, through Early Civilisation, to the Modern Era and they argued that a new transition process is upon us which they refer to as a “Planetary Phase of civilisation” (Raskin et al., 2002, p. 2) in which Humanity needs to develop for a future of equity, solidarity and ecological sustainability. This ‘Planetary Phase’ has also been described by others who proposed different terms such as “Ecozoic” (Swimme & Berry, 1992, p. 4) or “Anthropocene” (The Geological Society of London, 2012) but all are referring to the same idea of a period in which Humanity has a significant effect on the conditions and life found on the Earth.

Within this period, civil and academic society is asking whether Human lifestyles are healthy (sustainable) or not, and subsequently in symbiotic equilibrium with the rest of the planetary community. The concept of more ecologically sustainable societies involves a consideration of more than just industrial and consumer practices, it involves fundamentally a re-visioning of our world approach and a re-considering for our planetary home. The literature offers old stories renewed, about the qualities and approaches of our relationships to Earth nature, which is embedded within the wider Universal Nature, as our platform for life.

As a species, Humans are creatures of this planet named, ‘Earth’, and it is our current, and only, home. The natural ‘whole-Earth’ system of the planet has been shown by Professor James Lovelock to be an interdependent and entirely complex self-regulating organisation of systems which maintains itself in a homeostatic³ condition that enables life; he named this integrated systemic planetary condition “Gaia” (Lovelock, 2000).

Some consider that these qualities suggest the planet itself could be a living organism, which enables life as we know it to exist and evolve, whose cycles and systems work in dynamic equilibrium over time to maintain a state of planetary homeostasis appropriate for the existence of Humans and all other species and materials (Swimme & Berry, 1992).

³ Homeostatic, from Homeostasis which refers to: “The tendency towards a relatively stable equilibrium between interdependent elements, especially as maintained by physiological processes” (Oxford University Press, 2018).

Humanity has an on-going part to play in this celestial drama but is it one of dysfunction or evolution? If observed carefully, perhaps there are enough clues to present a coherent narrative, a cosmological story that will inform efforts towards the future, especially regarding Human relationships with the Earth and in the progress and development of compulsory education which informs the development of our young.

To begin this journey we need to see where we are now, and one way of examining Humanity's relationship to the Earth can be through current data sets, on a wide range of external indicators, which present a coherent, if not bleak, view of current and projected futures for all species, natural systems and habitats.

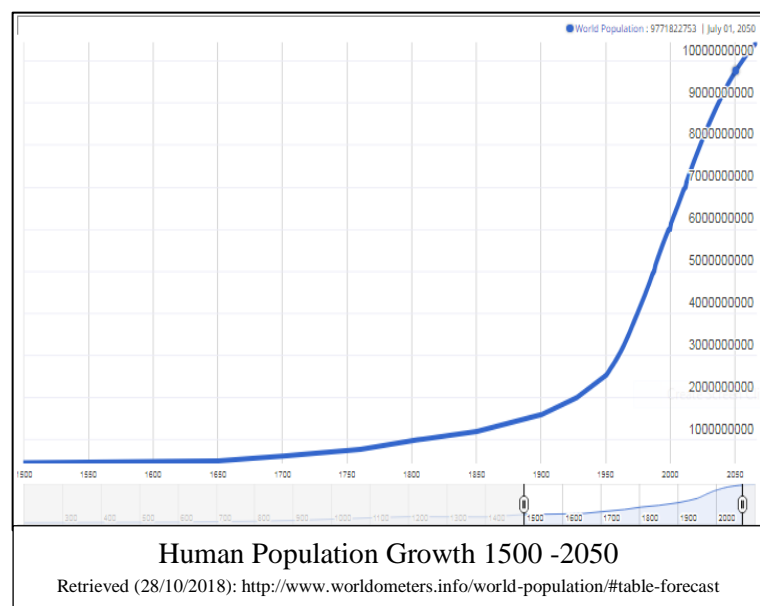
“The study of environmental problems is an exercise in despair unless it is regarded only as a preface to the study, design, and implementation of solutions”

(Orr, 1992, p. 94)

This paper strives to contribute to this need for solutions.

When reflecting upon the history of the Earth it is recognised that this planet gave birth to diverse life forms and within those living beings Humanity has emerged as the currently dominant species across all regions. When looking at historical data, it

can be recognised that since the 17th Century Scientific Revolution, Human population began to grow exponentially reaching approximately 7.65 billion today and is estimated to continue growing towards 9.77 billion by 2050 (Worldometers, 2018).



In terms of direct, regular and meaningful contact with Nature, more than 50% of people already live in predominantly de-natured, asphalt and concrete, urban settings.

“Globally, more people live in urban areas than in rural areas, with 55 % of the world’s population residing in urban areas in 2018 ... by 2050, 68 % of the world’s population is projected to be urban”.

(United Nations, 2018, p. 2)

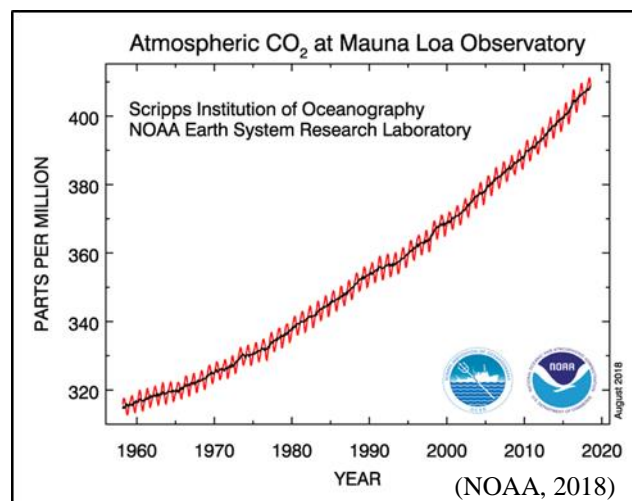
This means therefore that by 2050, with a population of around 9.77 billion people, rural populations will decline to approximately 3.12 billion globally leaving the majority of Humanity to live in environments deeply disconnected from nature. This rise in urban populations will mean an increase in the urbanising process of previously rural lands, which means not only a corresponding loss of access to land for food production and personal rejuvenation, but also has an effect on the biospheric relationships which previously lived in, around and within these areas. This affects natural CO² sinks through vegetation loss and soil-sealing practices with concrete or asphalt, creating new urban based greenhouse gas outputs and simultaneously disrupting habitats and communication routes of other-than-Human species.

When considering the populations of recognised ‘other-than-Human’ species, of the 93,579 species assessed and registered on the International Union for the Conservation of Nature’s Red List, (IUCN, 2018), more than 27% are threatened with or have become extinct. Of this 27%, 11,534 species are currently classified as ‘vulnerable’ to extinction; another 13,761 species as either ‘endangered’ species or worse; and 931 species are recognised as already extinct and these threats and extinctions have been primarily caused by Human activities. Habitat destruction and fragmentation, caused by agriculture, pollution and climate change, are the biggest Human activities that cause species loss and degrade local biodiversity. The loss and fragmentation of habitats, through deforestation for logging and agriculture, not only increases the loss of species but also contributes hugely to current and on-going greenhouse gas emissions, being responsible for at least 10% of annual production. (Union of Concerned Scientists, 2013)

When looking at the atmosphere, that thin life-giving envelope that enables gases and temperatures to be maintained at optimum levels for life in an otherwise cold and vast Universe, it can be seen that increasing emissions of so called ‘greenhouse’ gases and the effects on global temperature are justifiably worrying many of the Earth’s scientists, politicians and people, let alone our non-human co-residents.

“The 2018 BP Statistical Review of World Energy (BP, 2018) that was recently released, showed a new all-time high for global carbon dioxide emissions in 2017, which were 426 million metric tons higher than in 2016. This was 1.6% higher than carbon dioxide emissions in 2016, and was higher than the 10-year average *growth* rate of 1.3%. Since the Kyoto Protocol -- the international treaty that commits state parties to reduce greenhouse gas emissions -- went into effect in 2005, global carbon dioxide emissions have increased by 19%.”

(Rapier, 2018)



What the future consequences from this will be is unclear but it is clear that Human industry, large-scale industrial agriculture, energy and waste production are not only *the* main drivers of global warming (US EPA, 2017) and species losses, but are also responsible for the on-going large-scale degradation of the Earth’s natural environment, with a 300% increase in global resource extraction over the last 40 years (UNEP/IRP, 2017) supporting the continuing demands for economic growth.

These levels of global resource extractions and consumption have emerged over time and in relation to population growth which is related to industrial development

and as population increases there is an equivalent increase in requirements for food, fuel and raw materials.

Looking towards the future, apart from demands on primary ‘natural/planetary’ resources and subsequent pollution posing existential threats to Human sustainability, the degradation of the soil in what-were-once-wilderness areas that now are either urbanised or produce food, fuel or fibre for Humanity, has reached such proportions that according to the UN Food and Agriculture Organisation, a change has to happen in favour of nature and natural systems.

“... erosion rates are still high on much of the agricultural land of the globe, and this is related to the lack of economic incentives for today’s farmers to conserve the soil resource for future generations. Tackling this problem requires the soil erosion problem to be reframed. Solutions need to be embedded in policies and programs that support the development of more sustainable agricultural systems”.

(FAO & ITPS, 2015, p. 108)

However, in order to do that, there has to be a turn towards ‘Organic’ agriculture and this creates a series of challenges yet to be overcome by the Industrial/Economic paradigm that is currently dominant.

The Water of the Planet is also overloaded with our pollutants, and the extent of the oceanic ‘Dead Zones’ across the globe is increasing. These zones are areas of low oxygen (hypoxic) caused by high-levels of Human-induced pollution of inland waterways with fertiliser and biological waste run-off from large scale agricultural practices, particularly nitrogen and phosphorus.

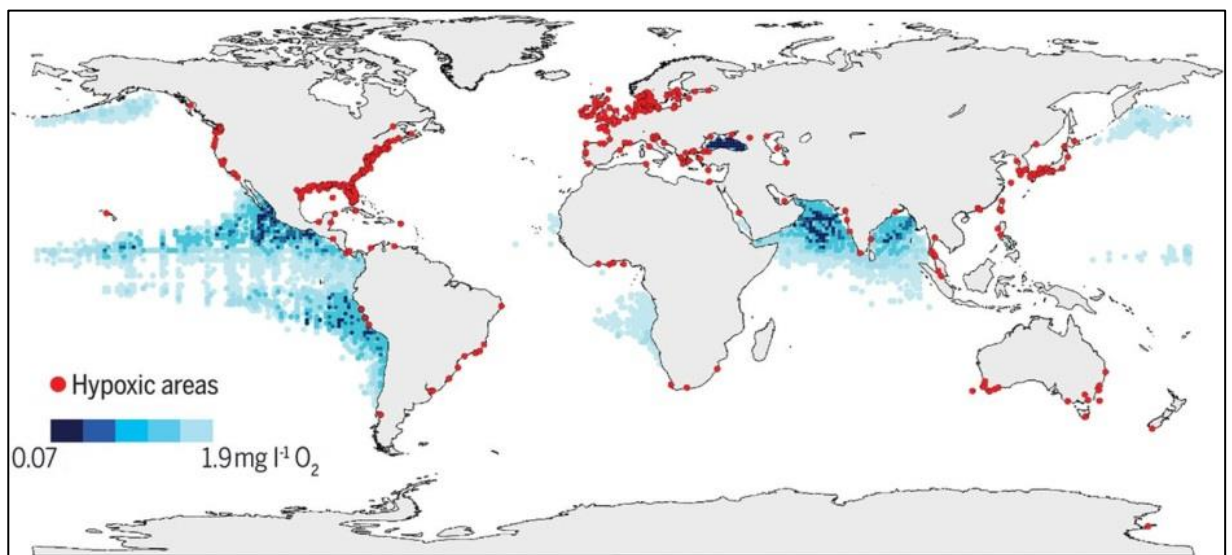


Fig. 2 - Global Oceanic Dead Zones (Breitburg et al., 2018)

These discharges flow through the inland fresh water systems into the sea, causing large nutrient-rich areas enabling enormous algal blooms to grow which then die and absorb oxygen making the seawater inside the ‘Dead Zone’ an untenable living environment for the large majority of marine wildlife (National Ocean Service, 2018). There are many other types and locations of Human-induced pollution of water and currently there is a focus on plastics, chemical and oil spills and radiation leakages, all of which cause havoc for the local communities whether Human or otherwise and marine wildlife is commonly viewed in terms of stocks, rather than beings that exist and have social structures and practices.

“All of the major drivers, climate change, land use change, invasive species, overexploitation, pollution, population increase, and economic growth, continue to grow, and the trends have taken us beyond the bounds of human experience. Thus, society faces a challenge of unprecedented proportions. Global degradation of ecosystem services⁴ has many causes, including dysfunction of institutions and policy, gaps in scientific knowledge, unpredictable events, and other factors. We often do not know if, or why, policy instruments have succeeded or failed.”

(Carpenter et al., 2009, p. 1306)

Through all this data the importance of a need to change can be recognised and taken seriously at all levels from local to international, from civil to political, but the reality that the data shows is that although new regulations and agreements are slowly emerging, the situation is significantly worse on all fronts.

Are these outer signs of an illness, a disorder, a dysfunction, that has been spoken about? If so, how is it possible to enquire about inner symptoms?

Perhaps the data reveals not only these outer examples but also reveals deeper, more important philosophical premises, emergent within human societies over time and across the Earth. Perhaps the data reveals more clearly the types and qualities of *relationships* between Humans, as individuals and as a species, with all other beings, and materials of the planet.

⁴ Eco-system services – a defined set of ‘free’ processes and materials provided by the natural environment that are of benefit to Humanity and so can be prescribed a value.

This surely reflects and reveals a general attitude to nature as a whole.....and as an 'Other'. Perhaps by considering Humanity's inner *relationships* with nature, clues may also be revealed about this dysfunctional situation.

Through considering these inner *relationships* it is important to recognise the variety of culturally emergent spiritual paradigms and practices across the millennia and the positive guidance that these have given to the evolutions of cultures and societies.

But a growing body of belief and evidence should also be recognised that, over time, certain religious/philosophical paradigms and practices have emerged, that not only promoted a subjugation of Earth-nature as a whole, beginning with the domestication of animals and the emergence of agriculture (Shepard, 1982), but which also encouraged the intrinsically linked devaluing of the feminine principle in Universal-Nature, in actual as well as metaphoric terms.

The emergence of 'The Scientific Revolution' and the subsequent mechanistic worldview which developed the idea of the world and the Nature of the Universe as nothing more than a clockwork machine with no inherent value (Merchant, 1980) is related to this devaluing of the feminine and will be explored as a possibly evolutionary process in the final discussion, now however, considerations will be given to the suggestion that Humanity is suffering some kind of mental or emotional disorder in relation to nature.

Literature Review

The Cut

On reading the literature it became clear that something more was going on than just a need for education and better behaviour. Looking back across history, a pattern began to emerge that suggested that perhaps Humanity is suffering a type of wound, an injury, and that this injury may have been self-inflicted, be Self-harm and is, perhaps, a call to attention. James Hillman in his foreword to Ecopsychology pointed to what he called “the cut” (Hillman, 1995, p. xviii) which separates humans from the feelings of birds, fish and animals and in the greater extent, the rest of the Earth as well. A survey carried out by ‘The Royal Society for the Protection of Birds’, U.K. in 2013, confirmed this position when it found that “currently only 21% of 8-12 year olds in the UK have a level of connection to nature that the RSPB considers to be a realistic and achievable target for all children” (RSPB, 2013, p. 3)

Through this paper a consideration will be given to whether ‘the cut’ is real and Humanity is forever cast from the proverbial ‘garden of paradise’ or whether the emerging story could be about the return of a prodigal child, rather than about dismissal by an angry parent; whether perhaps another story could emerge.

Many people strive to develop good relationships and maintain a sense of ethical moral connections through contemporary religions, yet this has not stopped the emergence of bad relationships which are observable through our various ecological crises. Clearly the needs, greed and desires of 7 billion humans have led to the ecological crises in terms of what we need and how much we need (or want), and that the pressures this level of population puts on ecosystem services is extreme.

Apart from the sheer number of people, other contributing factors can be found in the ways in which people approach life, in attitudes and actions. It could, perhaps, have something to do with the idea that, as Ralph Metzner recognised, for a majority of western people it seems that the idea of spiritual progression does not really include the physical world, instead the “core feature of the Euro-American psyche is a dissociative split between spirit and nature” [in which people] “have become deeply associated with a sense of having to overcome and separate from nature” (Metzner, 1995, p. 66) in order to achieve spiritual/personal development.

This inner ethical drive implanted in people through culture, promotes ‘the cut’ through inwardly striving to overcome and separate from nature; and with the further expanding additions of technologies and urban development reducing nature and possibility of contact, the psychological costs are not insignificant.

Chellis Glendinning suggested that over time, this cultural dissociation from nature and of disrupted relationships has created and is still creating, on-going harm.

“Technological society’s dislocation from the only home we have ever known is a traumatic event that has occurred over generations, and ... occurs again in each of our childhoods and in our daily lives”

(Glendinning, 1995, p. 53)

In terms of trauma, Humanity is living in a time of continuous environmental damage and concern, and our western economic paradigm mainly seems to see the planet and all other life on it as nothing more than material which can be “manipulated and exploited to suit our greed” without regard for stewardship or spirituality, ignoring “the wisdom of our ancestral heritage” and “diminishing the growth of our spirit” (O’Sullivan, 1999, p. 262). Yet the concepts of ancient wisdom and diminishing spirit, for many digital citizens is nothing more than a story they once heard, as ‘getting on with earning a living’ is more important than being bothered about ‘ancient wisdom’ and ‘anyway isn’t that all a bit wacky?’

These perceptions of Human’s negative effects on the environment are precisely why deep questions need to be asked about the relationships between Humanity and World. The literature recognised this ‘cut’ and that “nature is considered to be independent of divine providence” (Spretnak, 1991, p. 198), yet even when “modern science swept the world clear of all soul and thus eliminated for centuries the emotionally rich communion experiences pre-modern people enjoyed,” (O’Sullivan, 1999, p. 220) putting western societies “out of phase with the larger evolutionary processes of the earth proper” leaving “human participation with the earth [as] problematic and dysfunctional” (O’Sullivan, 1999, p. 222), the final and very present outcome of this ‘cut’ is that, “as humans we are now coming to understand how vital for our living is our connection with the natural world” (O’Sullivan, 1999, p. 228) to be in place and that ‘the cut’ needs healing.

How it may be possible for Humanity to find a way forwards to some sort of meaningful connection with nature is a question within this paper, but certainly a re-engagement with the world on ‘her’ terms will be necessary, re-cognising the cycles worthy of celebration and finding new wisdom stories that children will love and elders will understand.

As Joanna Macy observes, we are connected in very deep existential ways to the world, we

“are integral components of it, like cells in a body [so that] when a part of that body is traumatized – in the suffering of fellow beings, in the pillage of our planet and even in the violation of future generations, we sense that trauma too, ... at semiconscious level, ... like the impulses of pain, ... warning signs”

(Macy, 1995, p. 241)

We need new stories to live towards, for the one’s we now have for our future world, are incoherent and filled with dangers that keep us from hope and promote dissociation.

When Richard Louv (Louv, 2005) referred to separation from nature; to the fears, that restrict human children touching and connecting with Earth-nature; that drive parents to keep them indoors due to perceived stranger-danger; or of health bills if a child falls from a tree when developing nature contact and skills; he was just highlighting the paradigm of fear that has become, at times purposefully, embedded in the cultural matrix of society and serves to maintain a sense of pathological disconnection through protection and is in itself a dysfunction and causes harm.

Charlene Spretnak spoke of how this disconnection goes two ways and includes nature as a knower when she recalled how Native American Indians’ view their environment: “A people rooted in the land over time have exchanged their tears, their breath, their bones, all of their elements – oxygen, carbon, nitrogen, phosphorus, sulphur, all the rest – with their habitat many times over. ‘Here nature knows us’” (Spretnak, 1991, p. 91)

And so our relationship to place was much deeper in the past, when we lived in smaller rural communities; our internal sense of place has become increasingly more degraded in line with the outer environment, to the point that now, in many cities

there is very little of nature for us to know; and hardly any of nature to know us. Our children grow and develop in mostly covered and contained spaces, often lacking the opportunities for meaningful encounters with nature, which creates, as Shepard said, adults whose “Maturity ... is spurious because the individual though he may become precociously articulate and sensitive to subtle human interplay, is without a grounding in the given structure that is nature” (Shepard, 1982, p. 108).

By having no basis in the simplest of things such as a profound understanding of where drinking water comes from, or how food is produced, a symptom of deep Human/nature disconnection is observable. Continuing urbanisation has also played a significant part in this gradual disconnection from nature, and for both “Mumford and Dewey, much of the pathology of contemporary civilisation was related to the disintegration of the small community” (Orr, 1992, p. 129).

Since Industrialisation small rural communities have been in decline and much of the literature suggested that, apart from population growth, urbanisation and demands on resources, it is the *quality of relationships* that is the major problem to be addressed. There is a recognition that something important is missing in emotional terms, in terms of allowing more meaningful relationships with Earth-nature than just seeing ecosystem services as primarily commodities for trade. There is an asking for a reconsideration of stories and approaches from older cultures and the recognition that there is something that needs healing.

Illness?

“A system that either undermines the health of its own subsystems or of its own supra-system is unsustainable” (Sterling, 2001, p. 54)

Should we consider our behaviour towards the natural environment as an illness? Certainly it seems valid to argue that the on-going degradation Humanity is causing within the natural world is against personal interests, especially if personal interests are extended into the future to include children to come as well as the natural world as a whole. The reactions in the literature, to this question, settled on the “world view of western thinking [as] fundamentally at issue and is the root cause of the environmental crisis” (O’Sullivan, 1999, p. 94).

From this world view, has come a belief, an entrancement, with an industrial vision, that “has lost the integrity of its meaning and entered an exaggerated and destructive

manifestation” and which now “must be considered as a profound cultural pathology [and] can be dealt with only in terms of deep cultural therapy” (O’Sullivan, 1999, p. 3). But if this is so what would that therapy look like and need to be like?

The literature recognised an “increasing injury to the planet [as] a symptom of human psychopathology” (Shepard, 1982, p. 128) on its journey to what is supposed to be “a better life in a better world” (O’Sullivan, 1999, p. 232), but it also recognised that certain privileged clusters of humanity believe that this *is* the better life in the better world without sufficiently considering the future. Considering the current ecological conditions, maintaining this privilege by shielding oneself or one’s community from responsibility for the results of ones’ actions and approaches, must be regarded as a form of “denial, [which] presents us with a grave cognitive deficit [and] within the context of global privilege has had a devastating planetary impact” (O’Sullivan, 1999, p. 131) and means maintaining an “economy that is unsustainable, one that is slowly destroying its underpinnings ... on a planet that is deteriorating ecologically and inhabited by people who are psychologically troubled” (Brown, 1995, p. xiv).

There appeared to be a general consensus amongst these authors that there is a question of mental health to be addressed and they offered a variety of analyses and suggested different diagnoses. However, with these proposed diagnoses of species disorder or dysfunction, also came the caveat that although something may be known, it may, through denial or dissociation not be seen; the “pathology might be epidemic in a culture yet hidden from itself” (Shepard, 1982, p. xx); the disconnection could be deeply layered such as when Ralph Metzner cited Paul Devereux who said that perhaps “Humanity has *forgotten that it has forgotten* how to live in harmony with the planet” (Metzner, 1995, p. 61).[my emphasis]

In that forgetting, social and cultural constructs have emerged meaning that,

“... the young of our advanced society are increasingly shaped by the shopping mall, the freeway, the television, and the computer. They regard nature, if they see it at all, as through a rear view mirror receding in the haze....ecological literacy is in decline, at the very time [when it] is most needed” (Orr, 1992, p. 105)

Alongside this forgetting of forgetting, there has also been a move, in urbanised industrial society, away from natural time cycles and rhythms and into regimented time management structures that, as much as possible, ignore sunrise and season, although it is worth noting that for women, there is a monthly reminder of cyclic impulses within Earth-nature and so they remain more conscious of this, yet the general trend is away from this recognition and “when ... human forms betray the natural psychic pulse, people and societies get sick, nature is exploited and entire species are threatened.” (Aizenstat, 1995, p. 93); is this more Self-harm?

The literature suggested that the first outwardly observable cultural beginnings of Human disconnection from ‘wild’ nature began through the taming of wild processes through horticultural and agricultural domestication and settlements (Shepard, 1982) although within this taming process there was still connection through celebration of and reliance upon, the Earth’s seasonal cycles and rhythms in order to thrive. Later, cultural norms, affected by religious/spiritual/philosophical approaches and practices developed, that supported or amplified this disconnection (Shepard, 1982), culminating in the emergence of the rational western scientific mind and in our current and on-going environmental crisis situation where ...

“...the natural world beyond the human has become seriously degraded and we are now living in a clearly dysfunctional relationship with the natural world. Thomas Berry (1988) speaks of the human as in a state of autism...in a state of insensitivity to the natural world in the deeper emotional, aesthetic, mythic and mystic communication. Just as autistic persons are enclosed in themselves so tightlywe have lost our intimacy with the natural world.” (O’Sullivan, 1999, p. 257)

The Enlightenment thinkers and the scientific revolution considered the Universe as nothing more than a machine set in motion by a male God (Merchant, 1980) and the literature recognised that with the Cartesian split running alongside the Enlightenment Philosophy a voice was denied to the other-than-human, so that “the mind was [fully] elevated over nature” (O’Sullivan, 1999, p. 95) which now had no intrinsic value and left Humanity effectively detached from it.

This on-going and often unconscious sense of separation that is within Humanity, presents as a psycho-spiritual rupture, has removed ‘Gods’ from the world and

replaced them with Goods, and has developed its own pseudo-spirituality in which “globalization is becoming religion...that warps the human spirit by its egregious emphasis on material goods and is no less than soul murder... a cancer of the human spirit” (O’Sullivan, 1999, p. 260). Now the boundaries of comparisons from the literature have extended to include out-of-control consumption and economic growth as illnesses which, perhaps, would need surgery or further treatments of some sort ... but what would that look like?

Ralph Metzner saw the similarities to autism, by agreeing with the work of theologian Thomas Berry (1992), when he said that:

“Like autistic children, who do not seem to hear, or see, or feel their mother’s presence, we have become blind to the psychic presence of the living planet and deaf to its voices and stories, sources that nourished our ancestors in preindustrial societies.”

(Metzner, 1995, p. 59)

This really asks us to try to *feel* a way into our planetary home, to find ways to relationships that might move us towards better relational health.

Chellis Glendenning (1994) saw these problems as causes and reasons for addictive behaviour and as denial responses to ecological (and social) degradation and violation. Shepard proposed that this dissociation from nature is akin to and causes behaviour similar to, a child that develops without the healthy and mutual love that should exist between mother and child, and he also proposed that western civilisation has caused a further ‘cut’ by gradually eroding the traditional and ancient adolescent transition to adulthood through ritual ‘initiation’ bonding with the wider planetary world (Shepard, 1982) and replacing it with a right to vote, have sex, drink alcohol and get a job; a story in which nature doesn’t have place.

The literature to this point is in agreement that disconnection from nature and its rhythms over time has caused: increasing dissociation, partly due to trauma, leading to; expressions of addictions in cultures and individuals; and an almost autistic inability for the possibility of bonding between Human Self and nature.

Finally the culmination of these perceptions about, and descriptions of what can be broadly described as eco-disorders or eco-dysfunctions must be the work of Robin van Tine whose work strived to establish links and reflections between individual

and group human behaviour and a variety of conditions as recognised in the Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (APA, 1994). He formulated a diagnosis that he claimed incorporates and describes the whole range of disorders presenting in the Human Self/Earth nature relationships. He proposed

“... naming this psychological condition **gaeaphobia** (a form of insanity characterized by extreme destructive behaviour towards the natural environment and a pathological denial of the effects of that destructive behaviour). Some of its symptoms include: obsessive-compulsive disorder, violation of Freud's reality principle, autistic disorder, narcissistic personality disorder, obsessive-compulsive personality disorder, social phobia, denial, the tendency to "pathologize" deep emotions about the destruction of nature, psychic numbing, posttraumatic stress disorder, antisocial personality disorder, and paranoid type schizophrenia” (van Tine, 1999, p. 1)

This is probably the strongest metaphoric combination of negative diagnoses that can be justifiably attributed to western industrial behaviour with regard to stresses on ecosystem services and it is clear that the criticisms and comparisons proposed by these authors resonate. They agree that Human behaviour in relation to the planetary base, especially a majority of large-scale western industrial ‘corporate’ behaviour, presents pathological symptoms found in psychologically unhealthy individuals and as such, calls for attention. It was also suggested that

“...assuming a deep abiding connection between psyche and Gaia ... Ecopsychology [as a science] might generate a new, legally actionable environmentally based criterion of mental health....with the full weight of professional psychological authority ... that people are bonded emotionally to the Earth [suggesting] a powerful new meaning into our understanding of ‘sanity’.” (Roszak, 1995, p. 15)

From this way of thinking it is possible to understand that perhaps our current definition of ‘normal’ needs to be questioned such that if the normative standard changes so, perhaps, does the scope of Special Education.

Illness is one way of looking at things, but the literature also proposed other ideas.

Nature and Adolescence

Another way of considering our ecological crises has been by comparing certain types of adolescent behaviour to Humanity's behaviour as a whole.

In line with research data obtained for this study, just under 62% of respondents (n=99) said that their relationship with nature between 13 and 16 years of age was at its worst. And although as adults our relationships to nature can deepen, it supports the idea that adolescents and nature are particularly prone to disconnection.

Professor Paul Shepard (1982) suggested that this disconnection has been intensified through the loss of adolescent initiation rituals which, in earlier cultures, served to 'bond' the emerging young adult to their responsibilities for the environment as well as their communities.

This process served to transform, through initiation, the primary bond of mutual and reciprocal mother/child love into a nature/adult relationship that allowed a deep interior emergence of the individual, giving understandings of childish things in whole new ways, not denying them or discarding them but seeing them with wider understanding and deeper appreciation.

In Ecopsychology, Ralph Metzner drew comparisons between the adolescent characteristics of Identity 'development and diffusion'⁵ and those of Industrial Society and the self-interested western values of corporate and economic global players, "where the short-term profit of entrepreneurs and corporate shareholders seems to be not only the dominant value, but the only value under consideration" (Metzner, 1995, p. 57); the detachment and ambivalence towards nature is a given and is shown to be comparable to disordered adolescent behaviour. The importance of this period of transition to adulthood is referred to again by Shepard when he reached almost poetically into the depths of the developing human soul and declared, "... the framework of nature as metaphoric foundation for cosmic at-homeness is as native to the human organism in its adolescent years as any nutritive element in the diet" (Shepard, 1982, p. 71)

Through the loss of this developmental nourishment and of these adolescent initiatory transitions "that affirm the metaphoric, mysterious and poetic quality of nature" (Shepard, 1982, p. 11) there is the further suggestion that full human adult

⁵ as per Erikson's psychosocial model

maturity cannot be reached, or at least that there will be a layer within the developmental stages of the individual, or even society as a whole, that may be ontogenetically damaged at the adolescent phase; this may also be layered on top of any previous damage which may have occurred during earlier [childhood] periods. Shepard further described how the child in the cities of the past was, in some ways, more connected to nature than children of today; they would have seen the water and the waste; the foul as well as the fine; in contexts that were understandable through the cohesiveness and observability of systems, everyone understood where water came from and went to, where food and fuel came from, how we stored it and how we used it. In contrast, today's urban children experience life in a safe, and sanitised human 'made' environment, with nature often covered over, piped in, portrayed as another item for entertainment, or caricatured in a myriad of "incoherent" (Shepard, 1982, p. 105) ways, presenting nature and her majesty, in devalued and dissociated forms.

Currently children pass through their urban education, without really seeing the sewerage, the waste, the water, and, without developing a living understanding of these basic conditions of life, they are not initiated into the ancient inter-relationships between Humanity and nature and

“...conventional education, by and large, has been a celebration of all that is Human to the exclusion of our dependence on nature. As a result students may often turn out to be what Wendell Berry has called “itinerant professional vandals”, persons devoid of any sense of place or stewardship, or inkling why these are important.”

(Orr, 1992, p. 90)

Compulsory education, the literature suggested, is a contributor to the problem and as Arne Naess says,

“To achieve a convergence of reason and feeling ought to be a goal in society, where intellectual development in its narrowest sense seems to have received far too great a role compared with emotional development. This is true not least in a human being's formative years, say between five and fifteen.”

(Naess et al., 2002, p. 85)

In this the author also agrees, as experiences have shown that adolescent behaviour can be modified through appropriate aesthetic and creative experiences in nature that are of value to the individual and which are formatively significant, but generally compulsory education does not provide this.

By questioning the ways in which the adolescents' need to emerge as individuals into society is seen, it may be possible to envisage what a healthy 21st Century transition into adulthood might conceivably look like or entail and what relationships might ideally be developed to assist in the global drive for Sustainability and environmentally regenerative lifestyles.

Current Education

“The wisdom of all our current educational ventures in the late 20th Century serves the needs of our present dysfunctional industrial system. Our present educational institutions which are in line with and feeding into industrialism, nationalism, competitive transnationalism, individualism and patriarchy must be fundamentally called into question”

(O'Sullivan, 1999, p. 7)

The general position from these authors was that much modern education is in need of radical pedagogical change in direction from 'transmissive and imposed' towards 'participatory and transformative' (O'Sullivan, 1999; Orr, 1992; Sterling, 2001) and the author's experiences in education, at all levels, supports this thinking. A need for the inclusion of nature, and relevant, practical and aesthetic experiences in education, also runs strongly through the literature with these being referred to as sources for empathetic connection between individual and world; as platforms for the development of manual competences and as the principle source of learning and experience of the sacred. (Maslow, 1994; Orr, 1992)

The inclusion of these qualities and values of empathetic connection, can help individuals identify their personal sense for what they consider to be 'sacred' rather than 'religious', experiences in compulsory education. These should lie alongside 'wonder', as these 'feeling' experiences are fundamental for healthy moral development and the choices made by students when choosing their subjects (Naess et al., 2002), and along with transmitted family values, compulsory school settings seem appropriate places to also '*grow a sense for goodness*'.

A change in the quality of the emotional environments in many schools, especially through the inclusion of nature and the development of what individuals would personally consider to be sacred, would help towards the kinds of education needed for the ecologically compromised 21st Century.

As compulsory public education is a direct emergence from the Industrial Revolution, it is understandable that schools across the world evolved as places of, mainly unfeeling, disciplined work, and there is a general recognition that educational systems are often designed and function like factories, in which

“...young people and their qualifications are produced; there are precise goals and targets; the curriculum provides directives for each stage of production; and teachers are technicians and therefore substitutable. And workers are not required to think too much.”

(Sterling, 2001, p. 40)

Students and teachers alike are not required to *feel* too much either, and much compulsory education about the environment and related problems, is kept to developing positions and understandings in the abstract, with little direct contact or on-going relationship with living nature and its “basic life-support systems [creating students who] learn that it is sufficient to intellectualise, emote, or posture about such things without having to live differently” (Orr, 1992, p. 91).

This speaks of a lack of linking thinking with practice; with many political top-down policy directives promoting education for ‘green’ knowledge and skills, but without prioritising and training teachers to be able to function, teach and learn *through* and *within* nature, leaving them predominantly teaching and learning in classrooms, *about* and *out of* nature. In order for this to change, different attitudes and values will need to be developed which recognise not only the need for wider training of new as well as existing teachers, but also the importance of changing the kinds of administrative expectations placed on teachers from their higher authorities.

A metaphoric comparison with the work of Caroline Merchant is relevant here as she recognises that in medieval times, environmental degradation often occurred in soils (the basis for healthy growth) because the levels of taxation demanded by landlords meant that “the peasants could not invest in sufficient animals to maintain soil fertility” (Merchant, 1980); in a similar way many teachers today are expected to

pay so much with their time and attention, to deliver expected paperwork, that it is more difficult to find time to nourish their creative and intuitive bases. While they are only expected to follow prescribed texts and teaching methods towards prescribed and limited attainment targets they often remain as technicians who apply the curriculum rather than adults who have time and support to develop deeper relationships and understandings of nature and sustainability(Carney, 2011), wisdom in themselves and personally meaningful and effective approaches to educate the children in their care.

There are also many manipulations in educational policy arguments that work against best practices and support the industrial paradigm and, in the author's opinion, are often justified with only partial truths. One of these is the idea that early socialisation of children in early years settings is beneficial for children and society, however what is often ignored is that although it may be true that children develop well in social situations with other children of similar ages, it is also true that the best early years experiences are when children develop *naturally* in these social situation with a close family member present and available until they have developed beyond that need. The movement towards detaching young children from their parents or close family members as early as possible does not create emotional security rather it creates premature emotional hardening as a coping strategy in many young children.

As children become more independent and continue into primary and secondary education the size factor also becomes relevant, as large institutions also function against our biological heritage even though justified as more economically viable.

“We are biologically and emotionally suited to interact in small bands...rather than in large impersonal groups [and] large organizations [such as schools] make us miserable because these are not our natural environments. When the biological needs of a human being are not met, psychological, emotional, and sociological dysfunctions are soon to appear, leading to interpersonal conflict and societal disorder. In other words, these needs are every bit as crucial as our need for food.”

(Torre & Smith, n.d., p. 1)

To develop as a healthy human being we all need the right types and quantities of nourishment, which must include not only good food and healthy social interactions but also positive relationships towards nature, and 21st Century compulsory education, as a global phenomenon, needs to recognise its role in delivering these health benefits at all levels.

Louv (2005) pointed out that many countries do have people and organisations striving to promote “more nature in the classrooms, more focus on ‘nearby nature’, greener school grounds and even new designs for ecoschools” (Louv, 2005, p. 219) but this is not yet a majority movement and often its driving motivation is to achieve improved test scores and enhanced performance rather than ecological literacy.

That Western culture has a difficulty with ecological literacy, is attributed to three primary causes: the paradigm of the rationalist reductionism of educational specialisation, which acts contrary to a wide and general appreciation of linkages within Whole-Earth systems thinking; the limited use of the outside as a teaching resource and setting; and the lack of “capacity for aesthetic appreciation”(Orr, 1992, p. 87).

There was however, recognition that through the emerging area of education based around sustainability concepts such as ESD, increasingly holistic approaches are being asked for, and explored, within teaching, but the existing structural constructs of the ‘managerial’ approach to education with their embedded and strict systems of delivery, accountability and evaluation, make it difficult to really change things radically enough to educate towards a “post-modern ecological paradigm”. (Sterling, 2001)

O’Sullivan was critical and clear when he said: “... the fundamental educational task of our times is to make the choice for a sustainable planetary habitat of interdependent life forms over and against the dysfunctional calling of the global competitive market-place”(O’Sullivan, 1999, p. 2). He went on further to say that we need “an education that counters the faces of mono-culture and opens all of us to the richer planetary culture of diversity” (O’Sullivan, 1999, p. 252), “a post-modern education, embedded in an ecozoic horizon [which] would tap into the profound significance of indigenous knowledge”(O’Sullivan, 1999, p. 100) and would “seek to resist and transform the institutions of patriarchy”(O’Sullivan, 1999, p. 250).

Following this, UNESCO recognised that since the start of the 20th century

“formal schooling systems have resulted in the loss of significant background knowledge about nature, culture and values that indigenous children previously acquired [and this] unquantifiable loss [occurred] when indigenous children were sent to residential schools or put up for forced adoption in an attempt to assimilate them into the dominant society”
(Reyhner and Eder 2015 as cited in UNESCO, 2016, p. 13)

When knowledge is lost in this way it is difficult to recover, so is this another example of Self-harming?

Changing values in a rapidly changing world asks global educational enterprises to focus on new objectives, recognising that

“...people require flexibility, resilience, creativity, participative skills, competence, material restraint and a sense of responsibility and trans-personal ethics to handle transition and provide mutual support. Indeed, an education oriented towards nurturing these qualities would help determine a positive and hopeful ‘breakthrough’ [rather than ‘breakdown’] future”.
(Sterling, 2001, p. 22)

When developing ideas of using schools as platforms for nature connection, all these authors agreed on and pointed to a fundamental need for education to be “concerned with its final values”(Maslow, 1994, p. 52) as “ultimately, sustaining the environment that sustains our humanity will require that we change [them]”
(Durning, 1995, p. 70).

Changing values will also mean that the world will have to find

“College and University officials with courage and vision [who] have the power to lead in the transition to a sustainable future [as] within their communities, their institutions have visibility, respect and buying power. What they do matters to a large number of people.”
(Orr, 1992, p. 107)

The literature asks for them to be leaders of change in Higher Education.

Emerging Paradigms

There is recognition that in the past, many values were learnt through the medium of ‘organized religions’ (Maslow, 1994, p. 52) but now with increased urbanisation, rational abstract thought, and dystopian lifestyles, there is a sense that schools should incorporate new ways of looking at things, be prepared to accept ideas that may require a widening and deepening of outlooks and of practices in light of emerging worldviews, helping “students realise that school isn’t supposed to be a polite form of incarceration, but a portal to the wider world” (Louv, 2005, p. 222).

In order to try to articulate new values and world views that would inform education, the literature pointed to ways of seeing, being and knowing that present a clear foundation for a new world paradigm, in contrast to the dominant, male, rational, mechanistic, dominator approach that has been leading up to today.

The new approach is based on a foundation of “transformative criticism [that] maintains that the culture is no longer ‘formatively appropriate’ [in which] there is a questioning of all the dominant culture’s educational visions...and suggests a radical restructuring of the dominant culture and a fundamental rupture with the past” (O’Sullivan, 1999, p. 5), although rather than this ‘rupture’ causing a splitting away, this is a call for a healing; a “healing of the Earth as a whole, and ... for the healing of the human considered as a particular species” (O’Sullivan, 1999, p. 214); A healing of ‘the cut’.

For this healing to occur, it requires the recognition of, and acceptance that, firstly “there is an emotional bond between human beings and the natural environment out of which we evolve,” (Brown, 1995, p. xvi) and secondly that “thought is part and parcel of the natural world since human life is embedded in nature. We would say that human thought is Nature’s way of reflecting on itself” (O’Sullivan, 1999, p. 75).

Through this bonding of thought and emotion we can begin to recognise that “it is the special capacity of the human to enable the universe and the planet Earth to reflect on and to celebrate, not simply the present moment, but the total historical process that enables this moment to be what it is” (Swimme & Berry, 1992, p. 267).

It is through this ‘special capacity’ and through the forms, structures and disciplines of rational scientific thought, that, since ‘the cut’, humanity is now beginning to be able to re-cognise itself in relation not only to our planet and its nature, but also to

the greater Nature of everything within which we are embedded and integral; this recognising is more inclusive and suggests the emergence of a wider and deeper worldview.

In the reawakening, reconnection and healing that is being asked for, the underlying message is that *all* human beings have an important role to play, through their relationship with Nature; “the unique abilities of the human species are understood to participate in responsibility for developments in the great unfolding”(Spretnak, 1991, p. 104).

It has been noted that by allowing mind and nature to communicate on equal terms, by healing ‘the cut’, new integral worldviews could emerge as examples of that participation, and we may find “...we have the possibility that the self-regulating biosphere (Gaia) ‘speaks’ through the human unconscious, making its voice heard even within the framework of modern urban culture”(Roszak, 1995, p. 14)

“We are not abandoned; Nature will receive us into communion once again and make our sterile consciousness fertile if only we will bring bare attention to its wonders. Recovered awareness, patient and precise, is the taproot of Gaian spirituality. In a garden, at a park, or on a wilderness retreat, we can open our senses and learn.” (Spretnak, 1991, p. 112)

Throughout the considerations of human disorder or adolescent dysfunction, there has been a presentation of sufficient ‘new worldview’ ideas, and enough pieces of the Human/nature puzzle, to begin to outline what this new, more inclusive paradigm may contain and how education may be able to play a part in teaching towards that. The authors agreed that “the feeling of kinship with life of the sort that cannot entirely be put into words”(Orr, 1992, p. 87), is an essential quality that will need to be present in Humanity for there to be any hope of overcoming the difficulties being caused by a lack of it.

Coupled with this ‘feeling of kinship’ ... this special ingredient ... it is suggested that it is important for people to “perceive the sacred nature of our journey” (O’Sullivan, 1999, p. 39) as “through nature, the species is introduced to transcendence” (Louv, 2005, p. 296)

These ideas of connection are further developed through pointing out that “humans are uniquely creatures of the planet Earth”(O’Sullivan, 1999, p. 215) and that “at its

deepest level the [human] psyche remains sympathetically bonded to the Earth that mothered us into existence.” (Roszak, 1995, p. 5)

The literature also suggested that there may be an evolutionary process going on in which our relationship to nature and the planet, plays a critical part.

Following this, O’Sullivan observed that, although our disconnection meant perceiving only the ‘physical dimensions’ of the Universe as real while forgetting that it “has from the beginning been a psychic-spiritual as well as material-physical reality”, through this forgetting something greater may have been achieved, in an evolutionary sense, as “in ourselves and through our empirical observations the cosmos comes to itself in its supreme moment of self-reflection”(O’Sullivan, 1999, p. 231).

Through those widened and deepened observations we can become aware that not only is “the Universe...both communion and community [but that] we ourselves are that communion in a special mode of reflective awareness”(O’Sullivan, 1999, p. 215).

Building on these concepts Sarah.A.Conn suggested that to heal ‘the cut’ and our planetary home, people will have to develop

“... an ecologically responsible construction of the self [which] will require what Arne Naess calls an ‘Ecological Self’ (Naess, 1973), which includes broadening the self through identification with all beings even with the biosphere as a whole.....then the Earth flows through us and we act naturally to care for it” (Conn, 1995, p. 163).

These ideas ask for a focus on the relationships of opposites; between self and other; between inside and outside; they point to “the idea of a permeable identity membrane that allows connectivity with the great others while retaining a sense of self” (Barrows, 1995, p. 106).

They ask for a redressing of the imbalance between Human and nature; mind and matter; through a “reawakening to the dynamic feminine [as] an important part of learning to live sustainably”(Kanner & Gomes, 1995, p. 120) and in order to heal the divisions that cut the soul of Humanity from the soul of the Universe.

To heal, we also need to overcome “one of the perennial problems that human communities have faced in the past, and still experience in the present, [which] is a solidarity with the community as an in-group while excluding and denigrating an out-group”(O’Sullivan, 1999, p. 246); this sense of us and *them*, extends between Human communities as well as towards nature’s communities.

Moreover, as we have already noted “some religious institutions and belief systems resist and distrust the suggestion that nature and spirit are related” and Louv went on further to illuminate the fact that “this belief, is perhaps one of the least acknowledged but most important barriers between children and nature”(Louv, 2005, p. 292).

Shepard pointed this out also, but with deeper analysis, and concluded that an earlier separation-from-nature event occurred through the emergence of Hebrew philosophy which “separated God from world and made Him omnipotent and distant”(Shepard, 1982, p. 54). This separation of nature and God left mother as nature and father as God and in that metaphorical process raised man above woman and removed the sacred from the tangible natural world and gave it exclusively to the invisible. Further recognition of the philosophical and subsequently cultural expressions of the power dynamic between male and female principles was succinctly put by Eco-Feminist thinker Charlene Spretnak when she wrote:

“a fundamental opposition was established between eros and cognition and hence, between women and rational thought. In the analysis of Hobbes, Rousseau, and Freud, for example, reason emerges under the authority and pressure of a patriarchal father. In Plato and Descartes, reason emerges only when nature, which was strongly associated with the female, is posited as oppositional with an ‘inevitable’ moment of domination. (Spretnak, 1991, p. 150)

Over time this male-dominant paradigm led to a “change in consciousness resulting from the modernist outlook [which] demanded that traditional knowledge as well as traditional ways of obtaining knowledge were either thrown into question or fully rejected” (O’Sullivan, 1999, p. 220), so the dominant patriarchal paradigm advanced and other versions were undermined, discredited and oppressed.

“The removal of animistic, organic assumptions about the cosmos constituted the death of nature—the most far-reaching effect of the Scientific Revolution. Because nature was now viewed as a system of dead, inert particles moved by external, rather than inherent forces, the mechanical framework itself could legitimate the manipulation of nature. Moreover, as a conceptual framework, the mechanical order had associated with it a framework of values based on power, fully compatible with the directions taken by commercial capitalism” (Merchant, 1980, p. 193)

O’Sullivan (1999) observed that the product of this paradigm is the “project of economic globalisation” in which “insensitivity to the natural world is callous” and “almost all major nation-states are in complicity with this destructive process,” although he further observed that there is a growing counter-balance to this male dominance and “on the global level, consciousness of the destruction of the natural world and resistance to it come[s] from women’s groups. Women seem to be our critical consciousness educators in the areas of environmental devastation”(O’Sullivan, 1999, p. 171) and after centuries of subjugation, they are strong voices for Humanity.

New Approaches to Education

“As a psychologist I believe that to address this (nature disconnect) imbalance at its roots will require ... a collective psychological process to heal us technological peoples who, through mechanised culture have lost touch with our essential humanity”
(Glendinning, 1994, p. 54)

To achieve anything like the scale being asked for by authors such as Chellis Glendinning requires a medium such as compulsory education that can transmit the messages, means and meanings, for a healing and reconnection, to a mass of the population in a relatively short period of time. The literature offered considerations on new paradigm approaches to education, especially for urban settings, suggesting and supporting the emergence of deeper and wider global educational approaches towards, what O’Sullivan called ‘Transformative Ecozoic [nature-empathetic] Learning (O’Sullivan, 1999) and Sterling developed as ‘Sustainable Education’(Sterling, 2001).

It was suggested that to use this medium effectively, "we need [not only] to *reclaim* an authentic education which recognises the best of past thinking and practice, but also to *re-vision* education and learning, to help assure the future" (Sterling, 2001, p. 15) He was critical of what he called "mechanistic education", while O'Sullivan, when he compared the values and principles of "modernist" and "holistic" educational approaches, recognised that "they complement each other and should be allied" and went on further to say that "... attempting to make this alignment will be another goal of an expanded and integral 'transformative ecozoic education'" (O'Sullivan, 1999, p. 64). Sterling suggested that this new vision for education would build "from humanistic educational approaches from the past" [would take] "account of complexity theory, systems theory, learning theory and the pressing imperative of sustainability" [and would present] "an *ecological* or relational view of education and learning" (Sterling, 2001, p. 14).

In terms of education evolving as a part of this greater narrative, Sterling (2001), pointed to the incorporation of, and development through:

- conventional first-order learning and change - which is based on transmission of information and development of functional skills;
 - second-order learning and change which "involves critically reflective learning";
- and finally, and most relevant for any discussion of any emergent education, he said:

"At a deeper level still, when *third-order learning* happens we are able to see things differently. It is creative and involves a deep awareness of alternative worldviews and ways of doing things. It is, as Einstein suggests, a shift of consciousness, and it is this *transformative* level of learning, both at individual and whole society levels, that radical movement towards sustainability requires." (Sterling, 2001, p. 15)

O'Sullivan suggested that this shift of consciousness comes "from a heightened awareness that one's personal identity is intertwined with the planet and with the universe as a totality," [with the subsequent realisations that]"the integral connections that we have had within the earth matrix in the past appear to have broken and are fragmented". These, he says, must be regenerated and renewed, and "these responsibilities must be taken into our conscious awareness and followed through with the resolve that it is the fundamental educational commitment for our

time”(O’Sullivan, 1999, p. 222). Orr is also in agreement when he stated that “our alienation from the natural world is unprecedented and healing this division is a large part of the difference between survival and extinction” (Orr, 1992, p. 17).

By recognising that “the movement from the medieval world into the modern world involved a new metaphysical and ideological change encompassing all major cultural institutions and, in essence, formed a new picture of the cosmos and the nature of the human” (O’Sullivan, 1999, p. 81), it is possible to recognise that this was a further developmental step for humanity away from nature which O’Sullivan recognised through the work of Ken Wilber (1995) who,

”... makes an important distinction between three different worldviews on the relation between nature and spirit; the first worldview is magical ‘indissociation’ where spirit is simply equated with nature (this-worldly); the second ... is ... mythic dissociation where nature and spirit are ontologically separate or divorced (other-worldly); the third is psychic mysticism where nature is a perfect expression of spirit (conjoined other-worldly and this-worldly).” (O’Sullivan, 1999, p. 276)

It has been suggested that we may be in transition between the second and third of these stages, striving to emerge, survive and improve in more ecologically mature and ‘connected’ ways, while being hampered by older forms, structures and habits of existing societies, built environments, and cultures. Disorders and dysfunctional relationships pass easily from generation to generation and while

“it is true that our western modern child-rearing practices effectively stifle any innate ecological sensibility the child may have, it is also true that in traditional societies ecological knowledge and respect for nature is passed on from parents and elders to children and without such training does not just emerge” (Metzner, 1995, p. 63).

This means that the disconnection deepens, as much for our increasing techno-urban populations as for our diminishing techno-rural populations; many nature-based skills and abilities are lost, as are place-based knowledge and understandings, leaving the majority of our young people with an accompanying desensitisation to nature and the loss of ancient knowledge, abilities and understandings that come about because of this.

The literature suggested that a change in educational paradigm, with enhanced practice and purpose, may offer the opportunity, and have the responsibility, to address some of these nature-based issues through educational experiences that would include and develop the ‘ecological self’; encourage nature connection; and develop understanding in practical and aesthetic ways as much as in academic ones (Sterling, 2001). It was pointed out that this connection with nature starts from the beginning of life, and childhood should be filled with “a sense of wonder and joy in nature [and] should be at the very centre of ecological literacy”(Louv, 2005, p. 221). Orr (1992) agreed with this but went on to reiterate the importance of Rachel Carson’s words, when she said that a child “needs the companionship of at least one adult who can share it, rediscovering the joy, excitement and mystery of the world we live in”, all children need this “to keep alive [their] inborn sense of wonder” and in an evolving world, education may require that all teachers are capable of being these adults. This ‘inborn sense of [emotional] wonder’ is further recognised by Orr in what E.O. Wilson called ‘Biophilia’ “which is simply the affinity for the living world” (Orr, 1992, p. 86) and by Louv who recognised the importance of “the awe and amazement that our Earth inspires, especially during our formative years” (Louv, 2005, p. 224). Charlene Spretnak also picked up on this childhood tendency to suggest a direction for a new education when she said:

“Young children feel a magical connection with other people, animals, trees and flowers that could, through the progression of years in a cosmologically grounded educational system, be gradually enlarged to include knowledge of the ways relatedness is explored by mathematics, science, literature, the social sciences, music, fine arts, and so forth.”

(Spretnak, 1991, p. 188)

Orr supported this also for on-going education, recognising that “where science has dismantled nature, we must study whole systems, linkages, processes, patterns, context and emergent properties at higher systems levels”(Orr, 1992, p. 37), this attention to ‘wholeness’ is the critical ingredient in the transformation required in education to heal the current devolving situation. Sterling supported this transformative ‘holistic’ ingredient when he said that “the key assumption with this approach remains that we need to ‘see’ differently if we are to know and act differently, and that we need learning experiences to facilitate this change of

perspective,” (Sterling, 2001, p. 52) and he went on further to say that we must develop a “deeper, more empathetic response to people and to the non-human world. It means putting heart, soul and spirit back into our thinking and practice”(Sterling, 2001, p. 19). We must “go beyond the conventional educational outlooks that we have cultivated for the last several centuries”, and we must have a “visionary and transformative” education (O’Sullivan, 1999, p. 45), that

“...implies education for all human capacities, not only the cognitive ones. It implies education for feeble-minded people as well as intelligent ones. It implies education for adults as well as for children. And it implies that education is certainly not confined to the classroom.”

(Maslow, 1994, p. 50)

In terms of further guiding features of this emergent educational paradigm, O’Sullivan presented us with a set of ‘features’ that stem from the cultures of Native American peoples and he suggested that these would provide a basic orientation for what he terms, a “transformative ecozoic vision” for education, these are:

1. That “the earth is not a dead resource for human consumption but a sacred community and a web of life of profound intricacy”
2. That education should help children and adults to cultivate “a profound intimacy with the natural processes of the earth.”
3. That “an orientation to the earth in a nurturing form where the earth is seen as Mother” would be considered normal.
4. That it acknowledges “a mystical sense of the place of the human and other living beings.”

(O’Sullivan, 1999, p. 67)

He also referred to a personal communication from theologian Thomas Berry, who suggested that: “All human institutions, programs and activities must now be judged primarily by the extent to which they inhibit, ignore or foster, a mutually enhancing human-earth relationship”(O’Sullivan, 1999, p. 43).

These are general statements of quality, whereas the work of Sterling (2001) is far more specific in terms of exposing the differences between “mechanistic [and] ecological” paradigms in educational policy and practice and although Sterling did not elaborate on a physical curriculum for learning, he noted that there are others

whose work in education in this area fits the criteria of the ecological paradigm, saying that “the contributions of key figures such as Montessori, Steiner, Dewey, Rogers, and Freire need to be acknowledged” (Sterling, 2001, p. 63) as contributors to an emerging sustainable education and David Orr noted that

“...education relevant to the challenge of building a sustainable society will enhance the learner’s competence with natural systems...practical competence is an indispensable source of good thinking [and] will be essential if sustainability requires that people must take an active part in rebuilding” [their communities and systems]...

(Orr, 1992, p. 92)

...which he believes will be the case.

Overall, these authors proposed that in contrast to today’s relatively sedentary and abstracted methods and modes of teaching, the design of any new approach would “forget controlling detail and instead, embrace leadership that designs for and nurtures participation, co-creation, healthy emergence, and self-organisation” (Sterling, 2001, p. 83) and would include far more direct nature contact and aesthetic appreciation, practical skills development and understanding of natural local systems and interdependencies.

“The foundation of sustainability, however defined, will be the clear awareness that our well-being is inseparable from nature. And, ‘if education does not teach us these things’ (Aldo) Leopold once asked, ‘then what is education for?’ ”

(Orr, 1992, p. 148)

‘Place-based Education’; ‘Practical Skills’; ‘Gardening’; ‘Wilding’; ‘Aesthetics’ and ‘Interiority’.

Although young people need to be brought to an awareness of human-induced environmental problems, it is acknowledged that this needs to be done carefully, so as not to induce ‘dissociation’ through an overwhelming sense for global abuse viewed from a position of powerlessness. Louv (2005) cited Sobel on this point who said that if children learnt that “between the end of morning recess and the beginning of lunch, more than ten thousand acres of rainforest will be cut down, making way for fast-food, ‘hamburgerable’ cattle, [we might be] engendering a subtle form of

dissociation, [while also believing that if children learn about the value of recycling] they'll grow up to be responsible stewards of the earth" (p. 133). Yet through lack of meaningful contact, schools often "cut our children off from their roots" [and so] "lacking direct experience with nature, children begin to associate it with fear and apocalypse, not joy and wonder" (p. 133).

In a time when children's knowledge of global threats is increasing and "their physical contact, their intimacy with nature, is fading"(Louv, 2005, p. 1), a suggestion that came strongly from the literature was to regard place-based education at the forefront of nature connecting educational models (Cahalan, 1995; Conn, 1995; Hensley, 2017; Naess et al., 2002; O'Sullivan, 1999; Orr, 1992; Shapiro, 1995; Sterling, 2001; Swimme & Berry, 1992).

Naess (2002) noted that in the past, individual's identities were strongly related to their deep personal sense of place and rightness in their geographic locations and suggested that it is important to re-instil this sense of "bioregionalism"(p.109) in our young. Others also recognised the value of this and some proposed that "we put our curriculum education in the context of the bio-region"(O'Sullivan, 1999, p. 202) to involve greater personal feeling and contact with local nature, its qualities, beings and structures (Blair, 2010; Brady, 2006; UNESCO, 2016), while recognising that "this sense is lost as we move down the continuum toward the totalised urban environment where nature exists in tiny, isolated fragments by permission only" (Orr, 1992, p. 89). Exploration of our place can be a deeply educational framework for learning, and William Cahalan (1995) wrote of the importance of exploring our neighbourhoods on foot and deepening our relationship with that region by learning where our "water, food, light, and heat come from in nature, and what the effects of producing these commodities are" (Cahalan, 1995, p. 222).

Alongside this type of learning there was the recognition of a radical distrust in the unreliability of the global economy which, overall, fails to ensure a secure basis for achieving life's minimum needs and that through "educating for a sense of place...locality education, encourages each self-identified community to build in the educational goal of fostering an independent local economy capable of providing goods and services for the inhabitants of a locality"(O'Sullivan, 1999, p. 246).

Structuring learning around these concepts promotes a ‘grounding’ of children’s education in local, relevant and dynamic contexts, and Elan Shapiro (1995) offered insights into ‘habitat restoration’ as an example of human/nature reciprocity that could also be applied to neighbourhoods, inform new education, and could develop ideas for schools’ involvements “by becoming active partners in regenerating the health of their localities – and in a less dramatic way, of the Earth as a whole” (Shapiro, 1995, p. 227)

Orr (1992) cited Dewey, who recognised the value of meaningful contact and involvement with the raw materials of life and said:

“We cannot overlook the importance for educational purposes of the close and intimate acquaintance got with nature at first hand, with real things and materials, with the actual processes of their manipulation, and the knowledge of their special necessities and uses. In all this there [is] continual training of observation, of ingenuity, constructive imagination, of logical thought, and of the sense of reality acquired through first-hand contact with actualities” (Orr, 1992, p. 128)

Through learning about, while within, the local natural environment, education has the opportunity to build on, deepen and widen a child’s understanding and appreciation of, what should already be their “familiar”(Conn, 1995, p. 166) landscape, the landscape of their family, and having an understanding and appreciation of the qualities of our local environment can satisfy “the depth of our need for a sense of place...akin to what other members of the natural world experience as stable habitat”(O’Sullivan, 1999, p. 245).

In urban settings nature can be found, through the birds, insects and animals, the trees and plants, the waterways and the soils, and the literature suggested that the greening of cities is an important element for personal nature connection and the sustainability transition towards more environmentally friendly and human conducive urban settings and lifestyles, and that children in schools can be a part of that process (Louv, 2005; O’Sullivan, 1999; Orr, 1992; Sterling, 2001). The literature further suggested that there are a number of factors to be considered for inclusion in any integral approach to education and the development of ecologically literate children.

“The ecologically literate person has the knowledge necessary to comprehend interrelatedness, and an attitude of care or stewardship. Such a person would also have the practical competence required to act on the basis of knowledge and feeling. Competence can only be derived from the experience of doing and the mastery of practice. Knowing, caring and practical competence constitute the basis of ecological literacy”.

(Orr, 1992, p. 92)

To achieve this ‘ecological literacy’ it is agreed that complementary (tame/wild) nature experiences are necessary, to enhance knowledge, appreciation, understanding and skill. On the ‘tame’ side, experiences, such as “growing food and cultivating the soil, can be central to this (ecological groundedness) experience” (Cahalan, 1995, p. 217) while on the other side “responsible wildcrafting connects children to nature in a direct way and helps explain the sources of food to them, and teaches them the basics of sustainability”(Louv, 2005, p. 194) and personal competence in challenging circumstances. A diversity of wild and tame experiences

“... properly conceived, trains the intellect to observe the land carefully and to distinguish between health and its opposite ... dialogue with nature cannot be rushed. It will be governed by cycles of day and night, the seasons, the pace of procreation and by the larger rhythm of evolutionary and geologic time ... the form and structure of any conversation with the natural world is that of the discipline of ecology as a restorative process and healing art”.

(Orr, 1992, p. 91)

Developing a societal level sense for responsible stewardship and protection of our environments “also depends on the quality of the relationship between the young and nature – on how, or if, the young attach to nature”(Louv, 2005, p. 154). These relationships develop through a mixture of direct contact; aesthetic experiences; stories, songs and images; through growing and making; and through being still and silent; and “being [ecologically] grounded is enhanced and renewed by periods of extended, sensuous, empathetic engagement with the natural world, balanced by restorative moments of inward reflectiveness”(Cahalan, 1995, p. 217). The literature agreed that not only is it important to develop practical and epistemological relationships with nature, but it is also equally as important to develop aesthetic ones and this applies to compulsory education as much as to the rest of life (Brady, 2006).

There was also a sense that compulsory education views time in nature as, *for leisure*, and a waste of valuable teaching time, instead of recognising it as a source for “our children’s health” and as a basis for the development of “self-confidence and awareness (that) can come from experiencing nature”(Louv, 2005, p. 120). And Louv went further in his analysis of the importance of our relationship to nature when he observed that “the generations do not go to nature to find safety or justice. They go to find beauty.” He then noted that “quite simply, when we deny our children nature, we deny them beauty” (Louv, 2005, p. 186). Swimme and Berry opened this view further as they crossed the “permeable identity membrane” (Barrows, 1995), and said “Poetry and the depths of soul emerge from the human world because the inner form of the mountains and the numinous quality of the sky have activated these depths in the human”(Swimme & Berry, 1992, p. 41) and Edith Cobb cited Sir Herbert Read, who recognised that the Universe is in its very nature is artistic and that “matter itself analyses into coherent patterns or arrangements of molecules [and] that all these patterns are effective and ontologically significant by virtue of an organisation of their parts which can only be characterised as *aesthetic*”(Cobb, 2004, p. 35). Further to this, she considered that in each person’s developmental journey, “child and nature [are] engaged in some corresponding bioaesthetic striving fundamental to the fulfilment of individual human biological development”(Cobb, 2004, p. 16), an organisation of relationships and understandings between child and the world, that settles into the coherence of the individual’s personal ‘point of view’ and way of approaching the world ... the individual as aesthetic emergence.

Orr and Shepard both developed this discussion by suggesting that beyond the effects of human relationships, “Landscape ... shapes Mindscape”(Orr, 1992, p. 130) and that the structures, forms and interactions had with the environment during childhood and adolescence, be that built or natural environments, will also affect the adult individual’s personal, cognitive, social development and maturity.

Stephen Aizenstat,(1995) when addressing our interiority, observed that;

“to build a respectful and sustaining relationship with the world ... we must first recover a sensibility that is informed by the psyche of nature, an awareness that our essential psychological spontaneities are rooted most deeply in the psyche of the natural world” (p. 98).

That this 'sensibility' needs to be recovered is a twofold issue, on the one hand, it is adults that need the recovery, but on the other hand, what children need is not to be put in a situation from which to recover, but to be guided, by 'recovered' or 'undamaged' adults, to develop and maintain a deep connection to and understanding of nature, from the beginning. Once "we have bonded with the Earth, we cannot escape growing up and learning to treat this primal parent as partner, friend and ally," affecting our patterns of consumption and behaviour, setting in motion patterns "of reciprocity, of sacred exchange"(Shapiro, 1995, p. 227) with, and within, the natural world; this is the premise of the relationship between education, sustainability, stewardship and change; it is the contextual framework that all the literature supports; and it recognises that, as a healing force, this is especially needed in our period of Human history.

If, as Richard Louv suggested, it is true that contact with nature "reduces the symptoms of ADHD" then, as he also said, we may recognise that although pharmaceutical interventions may be required in some cases, "the real disorder is less in the child than it is in the imposed, artificial environment" and seen in this way, "the society that has disengaged the child from nature is most certainly disordered. To take nature and natural play away from children is tantamount to withholding oxygen"(Louv, 2005, p. 107); we may be suffocating our children.

Digging deeper into nature's effects (studies)

Whether parts of society are sick [disordered] (van Tine, 1999); ontogenetically damaged [dysfunctional] (Shepard, 1982); or looking to improve educational development [emergent] (Sterling, 2001); in relation to nature and our natural home, by looking at studies that explore ways in which nature and 'green' outdoor activities affect human development, modify behaviour or alter attitudes, it might be possible to define/divine more elements of the disorder, disconnection, dysfunction or emergence, under discussion and possible therapies. The findings from these studies, although not always studying nature connectedness specifically, reveal elements that could be considered as indicators pointing towards the earlier mentioned Ecological Self and as resonating with E.O. Wilson's concept of 'Biophilia', a hard-wired, yet possibly forgotten, innate love for the natural world.

Schoolyard Greening, Gardening and Crafts.

“A holistic approach to education provides diverse students with what they need to thrive. School gardens are an important part of a holistic approach”.

(Ursini, 2016, p. 51)

Studies showed that outdoor exposure to living green spaces and engagement with and within nature, is crucial for holistic child development, practically, emotionally, intellectually and spiritually and also promotes greater social inclusion within school communities. 'Green' school grounds profiled by Dymont & Bell (2007), showed that they enriched and enhanced the quality of children's play and promoted significantly more activity, constructive play and expressions of imagination; they were friendlier and facilitated a better integration of physical activity into general school life while strengthening the link between play and learning. They also observed that green school grounds offered a far wider repertoire for play and learning, where “trees, shrubs, rocks and logs define a variety of places to jump, climb, run, hide and socialize” and there are also all the related 'loose' organic materials “such as sticks, branches, leaves and stones”... which... “provide endless opportunities to engage in imaginative play, such as building shelters and huts—an appealing and almost universal experience of childhood”(Dymont & Bell, 2007, p. 958). It was also recognised that when involved actively in school greening projects students were more accepting of each other's differences and were generally more

inclusive (Dyment & Bell, 2007; Dyment & Bell, 2008) while other research suggested that “nature relatedness could provide a unique route to increasing human happiness and environmentally sustainable behaviour (Zelenski & Nisbet, 2014, p. 19). These effects were also found to spill over into the wider parent community when they were involved in the maintenance and development of school grounds and gardens promoting social interactions through a common purpose (Blair, 2010; Ursini, 2016) which was empowering at a greater community level and showed “that through teamwork, cooperation and dedication they could make a difference” (Dyment & Bell, 2008, p.178).

In terms of academic learning, schools with outdoor learning programmes and diverse living green play areas, were shown to, not only, enhance cognitive abilities and academic performance, but also promoted greater tolerance and inclusivity; improved communications and kindness; and revealed greater expressions of creativity from the students (American Institutes of Research, 2005; Blair, 2010; Dyment & Bell, 2008; Kellert, 2005; Wells, 2000). Similar results were also observed through a study of the inclusion of plants inside classrooms and buildings and not only did the teaching and learning spaces look and feel better, but performance across the curriculum was also improved (Daly, Burchett, & Torpy, 2010).

In terms of inclusivity, it was noted, that diverse, living green school play areas enabled greater gender equality and empowerment for girls, with greater play possibilities emerging, as the predominantly competitive, and space-needy, ‘conventional’ sports playground mentality, especially encouraged in boys, is challenged and modified by changes in the physical, living and growing, environment of the school (Dyment & Bell, 2007; Dyment & Bell, 2008; Faber, Kuo, & Sullivan, 2001; Wells & Evans, 2003).

It has been further noted that exposure to nature, green settings and views peacefully empowers inner city youth, and especially girls (Faber, Kuo, & Sullivan, 2001)(Wells & Evans, 2003). This further supports the value of diverse living green school grounds and shows how they can be considered as silent actors who can play a role in addressing gender equality issues in schools.

As well as these benefits, green school grounds were found to be more enabling for students “with distinct needs [who] were better able to find spaces that were safe and suitably challenging [and] more in line with their abilities and needs”(Dyment & Bell, 2008, p. 175;)(Johnson, 2010; Ursini, 2016).

When green school grounds included gardening and food growing, it has been shown that, as well as creating a more diverse and changing living environment, students have a greater nutritional awareness and are more likely to eat fresh fruits and vegetables, thus promoting better health (Blair, 2010; Dyment & Bell, 2007; Dyment & Bell, 2008).

Another study recognised that, especially for urban dwellers, re-engagement and activity in and with the natural world is an important global welfare concern, as it promotes better physical and psychological health, and “evidence shows that time spent in parks and nature reserves is beneficial to health and wellbeing of city dwellers” (Daly et al., 2010, p. 6) and when “viewed as an essential bond between humans and other living things, the natural environment has no substitutes” (Kaplan & Kaplan, 1989, p. 204). Food production through school and community gardens and the practice of natural crafts are important bases that contribute to an understanding of sustainability concepts (Härkönen, 2013) and can also serve to emancipate people from corporate food control and raises awareness for informed discussions and exploration of issues such as seed patents, genetic engineering, pesticides and herbicides, food production types and techniques, economic relationships and famines.

In terms of craft activities studies have shown that there are multiple benefits not only in terms of well-being across a wide range of physical as well as psychological indicators but also in terms of the development of enhanced social interactions and personal and group creativity (Pollanen, 2009; Veeber, Syrjäläinen, & Lind, 2015). And further, through individuals acting with natural materials one can, through discussions, become aware of the overall relationships involved between extraction, production, use and waste, and these understandings are crucial to develop any deep appreciation for the fundamentals of sustainability and a responsible relationship to nature.

Adolescence

The transition period that adolescence presents us with, includes changes in attitudes and increases in abilities and responsibilities which inform the emerging self-identity of each person. During this period, research has shown that outdoor activities in nature, especially when challenging, “reveal ... considerable effects on maturation ... during late adolescence, including enhanced capacities for coping and problem solving, critical thinking, and interpersonal skills”(Kellert, 2005, p. 79) all of which are called upon, especially through activities and experiences in more unknown rural or even wild natural environments.

In school environments, urban as well as rural, when food growing programmes are incorporated into their educational profiles, studies have shown that “gardening may make a difference for health and nutrition behaviours and may contribute to adolescents’ health and wellbeing in a positive manner”(van Lier,et al, p. 2).

But although synergies have been shown to exist between nature and the adolescent transition, it has also been noted that during this period and especially in urban settings, social development issues may appear to overshadow any previous attraction to the natural outdoors, however as Kellert suggested, perhaps “these interpersonal concerns do not substitute or replace adolescent interest in nature so much as they indicate the need for these children to share [appropriate] outdoor experiences with others of their own age”(Kellert, 2005, p. 80).

The author’s experience working with teenagers certainly supports this, and through appropriate *eco-ethical* outdoor projects, of sufficient scale, to which everyone is able contribute, engagement with practical and challenging tasks in nature and with natural materials, can provide the platform for maturing experiences that help to develop individuals and strengthen groups and group-working skills. These kinds of experiential projects also often present challenges which require creative problem solving engagement from students, which in turn offers the possibilities for inter-peer teaching to occur.

ADD/ADHD

Research into Attention Deficit Disorder, with and without hyperactivity, has shown that contact with nature and activities in living green environments, is beneficial for

improving concentration and behaviour of affected children and that this applies to children from both rural and urban settings. (Kuo & Faber Taylor, 2004)

These benefits are equally beneficial to *all* students, and the inclusion of “vegetation into places where children live, learn, and play” presents schools with an opportunity to “maximize learning and achievements” (Taylor, Kuo, & Sullivan, 2001, p. 75) and through developing diverse living green school grounds it is possible to enhance these benefits in students during school break periods while simultaneously diversifying and enhancing the school’s teaching and learning resources.

“Green environments can play a particularly important role for young people who have difficulty learning in the formal school environment, who are reluctant learners, who have difficulty concentrating or who suffer from Attention Deficit Disorder (ADD). It has been shown ... that children with ADD have fewer attention deficit symptoms after spending leisure time in natural settings. The positive relationship between physical activity and academic success has been repeatedly demonstrated”.

(Dyment & Bell, 2007, p. 960)

It is further suggested that some ADD/ADHD children may be helped with regular and appropriate “doses” (Kuo & Faber Taylor, 2004, p. 1585) of nature, instead of other types of medication and by either including plants in their indoor environments (Daly et al., 2010) or by situating them in ‘green view’ locations to work, whether in classroom settings or at home; their symptoms may be decreased (Kuo & Faber Taylor, 2004) and their subsequent functioning and self-image increased. In this same study, the impact of the living ‘green’ factor in the reduction of symptoms was further checked and identified by comparing differences and similarities in responses to comparable activities in natural outdoor, green ‘living’ settings and indoor ‘non-living’ settings and across socio-economic types and geographic locations and it found that “Green outdoor settings appear to reduce ADHD symptoms in children across a wide range of individual, residential, and case characteristics”(Kuo & Faber Taylor, 2004, p. 1580).

Attention Restoration

The beneficial effects of nature as a regenerative influence on children with ADD/ADHD has also been found to concur with Kaplan’s “Attention Restoration

Theory” which recognises three related concepts that are especially relevant for education, teachers and students alike:

- “1. Increasing pressures lead to problems of mental fatigue.
2. Restorative experiences are an important means of reducing mental fatigue, and have a special connection to natural environments.
3. Natural environments, in providing these deeply needed restorative experiences, play an essential role in human functioning”

(S. Kaplan, 1992, p. 134)

As Kaplan observed, the mind recovers from attention fatigue and is refreshed through exposure to nature and living green environments, because the attention is able to rest effortlessly in the appreciation of the general, rather than exert itself through the work of being specific, and “the sense of rejuvenation commonly experienced after spending time in natural settings may in part reflect a systematic restorative effect on directed attention” (Kuo & Faber Taylor, 2004, p. 1580)

However, although this analysis by Kaplan and further by Kuo & Faber Taylor may be true, the author believes that it is also reasonable to argue that the mind (thoughts and emotions) relaxes because nature and natural forms are congruent and coherent reflections of our inner constructions which have been created from Earth-nature systems, and as such are nurturing, whereas, currently, much of Humanity’s built environments, alongside behaviour that is out of sync with natural rhythms, are linear and non-living and contribute to mechanistic thinking, mechanist living and higher levels of personal and collective stress. If this theory is correct then not only would city parks and farms and all kinds of living green spaces go a long way to changing people’s ‘inner’ conditions but it would also offer considerations for psychologically beneficial urban design.

Many urban people already turn to nature for its regenerative qualities, as “being away from one’s daily concerns permits a mental vacation, and the extent of the environment provides a scope or depth in which one can become immersed”(Wells & Evans, 2003, p. 325) leading to a deep sense of connectedness, well-being and innate belonging in the individual, perhaps through innovative urban design health as well as productivity could be improved.

Children & Stress

A study on the benefits of nature for stress reduction and management in children's housing conditions showed that natural environments promoted resilience in children and

“... the impact of life stress was lower among children with high levels of nearby nature than among those with little nearby nature...the result makes the powerful suggestion that vegetation and natural elements in or near a residential setting may be among a variety of potential protective factors that can partially shield children from the impact of stress and adversity, contributing to their resilience”.

(Wells & Evans, 2003, p. 324)

This study concluded that this is most likely due to two types of support that these environments offer; “social support” – as a neutral setting to meet peers; and for “attention restoration”(S. Kaplan, 1992) and further research suggested that generally nature is a key player in reducing stress in children (Chawla, Keena, Pevec, & Stanley, 2014; Wells & Evans, 2003). However, as previously stated, the author believes that these benefits from nature fundamentally exist because we have evolved our thinking and feeling from Earth systems, and when we perceive outward forms they cross the “permeable identity barrier” (Barrows, A. 1995, p106.), and resonate with our inner psychological structures, and so we feel ‘in place’, which ‘naturally’ relaxes us and that children are especially sensitive to these effects.

Autism

The effects of contact between people and diverse natural environments showed beneficial effects on many levels, and one study acknowledged that

“(i) there is strong evidence that outdoor activities can benefit children in general; (ii) there is considerable evidence that outdoor learning is particularly helpful for children with SEN who often face more difficulties with classroom learning and greater barriers to accessing the outdoors; and (iii) there is some evidence showing autistic children benefiting from initiatives such as gardening projects, summer camps, field visits and animal therapy”.

(Blakesley, Rickinson, & Dillon, 2013, p. 5)

It was further recognised by Blakesley et al, (2013) that outdoor learning was not only enjoyable, which “had particular significance due to the specific needs and

capacities of autistic children” (p. 4), but also helped to contextualise learning for them; whilst enhancing social skills; and understandings of personal and social health and well-being issues.

Chang & Chang (2010) found that outdoor activities for children with autism promoted 7 principle benefits which included, “promoting communication, emotion, cognition, interaction, physical activity, and decreasing autistic sensitivity” (Chang & Chang, 2010, p. 1). They went on further, to discuss the importance of the vestibular system, which helps people to respond to changes in speed and direction when in movement, explaining that for autistic children, physical activities that stimulate this system help to maintain an on-going personal sense of stability. They also noted that this benefit found in the sense of movement can also be addressed just by looking at a variety of elements in nature and landscapes that are dynamic. This study also recognised that although initially connecting to the outside can be challenging for some autistic people who have aversions to grasses, sandy environments or water because they have heightened sensory awareness, with continued and meaningful experiences they can be helped to become more resilient to those sensitivities and participate more fully in the world. This study also noted that learning becomes contextualised by bringing concepts to life in real environments in hands-on active experiences with the outdoors, school gardening, for example, provides autistic students the opportunity to nurture plants while gaining multi-sensory stimulation from other surrounding natural conditions and through this nurturing of an ‘other’, self-esteem can be enhanced and a sense of personal success and well-being can be achieved. (Chang & Chang, 2010)

No Disconnect

After reviewing possible interpretations about the effects of nature and the idea of ‘the cut’ it seemed appropriate to consider the idea there is no “Nature Deficit Disorder” as Louv (2005) suggested nor is there, nor has there ever been, a disconnection between children and nature.

Firstly the author makes the personal observation that being brought up in the huge urban sprawl that is London was in no way a barrier to a connection with streams and green spaces, hidden and open. However, growing up in the nineteen-sixties and seventies in Britain, there was a lot more freedom than today without ‘Health & Safety’ restrictions, nor constant fear for safeguarding children from the exaggerated

unknown. There was never a sense that parents had developed unreasonable safety fears around children ‘going out’ to play, and the option for plugging-in (to two-dimensional isolation technology) rather than playing-out (with the three dimensional relational world) was far more limited, with only three television channels available at that time, with children’s programmes limited to certain times of the day.....sadly, in terms of connecting to the outdoors for play, this has changed a lot. Yet it seems that even today, children, when allowed to, find little oases of nature whether in parks, along water ways, or in abandoned lots, and they do this naturally. The extensive study by David Sobel on Children’s Special Places (Sobel, 2002) lays testament to the truth of this and exposed ways in which this happens, especially under the age of 12.

Although it may be true that for many children nowadays, those natural outdoor tendencies are only available and allowed in protected and permitted environments such as gardens and parks, the argument that children are disconnected from nature needs unpicking. Are children disconnected from nature or is it society that is disconnecting them, and if so, how and when does it happen?

A study by O’Malley (2014) on children in Ireland recognised several key findings worth noting. The main finding was that although the quantity or quality of experiences outdoors has altered, the assumption that all children are disconnected from the natural environment, in the context of Ireland, was not empirically grounded and that “once outdoors, children are active agents in learning, investigating and discovering their natural surroundings” (O’Malley, 2014, p. 190). This study further recognised that any learning about the environment that they do in school either enhances their already existing relationships of knowledge of nature or not, depending on the relevancy of the teaching. Further to this, the study also found that in terms of developing better nature relationships in schools through the emergence of Education for Sustainable Development (ESD) as an adjunct to already existing Environmental Education practices, two significant conflicting strands of pedagogical approaches have been revealed; O’Malley refers to these as Strand One and Strand Two. Strand One refers to education which is more about connecting directly and empathetically with the outdoors with less emphasis on prescribed learning outcomes and more emphasis on learning processes and active relationships; whereas Strand Two is all about transmissive teaching from teacher to

student in order to achieve prescribed learning outcomes and is generally an indoor activity; active relationships are replaced by abstract relationships. That both are necessary is not in dispute, but the study has shown that the conflict between mass outcome-based practices of conventional education and personal experiential values-based practices for learning are problematic and “the research suggests that attitudes in the formal education system also played a key role in marginalising environmental education”(O’Malley, 2014, p. 202). The most disturbing finding from this study was that some parents relied solely on formal education for their children’s access to environmental knowledge and experiences, which placed a heavy duty of care upon educational establishments and teachers that cannot be delivered only through abstracted learning through knowledge transfer. Finally, this study showed that better relationships need to be developed in compulsory education between these two strands, with Strand One currently being the side in need of on-going development. O’Malley concluded by recognising that in Irish educational policy documents and requirements, “the absence of developing an empathetic relationship with the natural environment is in direct conflict to arguments in contemporary debate that emphasise the importance of holistic and experiential education”(O’Malley, 2014, p. 206).

Methods

Two types of data were required for this research.

Firstly, insights were wanted from people who were able to give international insights into emerging 'green' values, current conditions, approaches and opinions about education. Three international academics and one international health rehabilitation standards professional, agreed to participate, which deepened and gave clear directions to the topic areas.

As an off-campus international researcher the author was carrying out this study from a country other than Norway and therefore it was not possible to use secure on-site University computers and this created insurmountable restrictions on the use of video-conferencing as a medium to conduct semi-structured personal interviews; because of this it was not possible to get approval from the national ethics board due to security and privacy issues. Due to these restrictions mentioned, the data gathering method was altered and a fixed set of open-ended questions (Annex I) were developed, distributed and collected using University approved storage and internet survey platform. The questions were designed to explore respondent's thoughts and feelings about the roles and possibilities of compulsory education in relation to teaching ecological and personal resilience in light of our current environmental crises. This qualitative survey was not anonymous and was specifically designed to be able to cite directly the thoughts and ideas of the international respondents (with their consents); their nationalities as well as their professional and academic credentials lending credibility to the continuing discussions.

Secondly, a questionnaire was designed (Annex II) to assess perceptions about the validity and importance of embedding more nature-based activities in schools at all levels (9 questions), while also asking for personal background information (50 questions) in order to have data for comparison if there were significant differences in answers received from respondents ($n \leq 100$). This questionnaire was also developed, distributed and collected using University approved storage and internet survey platform. The random sample group was obtained by sharing across internet social media platforms using background information to enable sorting into prominent sub-groups for deeper analysis and comparisons; all these survey responses were anonymous.

Ethics

A number of ethical implications were considered within this research study.

For the interviews an invitation and information sheet was created (Annex 1.1.) and sent by email with a link to the online survey platform where respondents were required to give their answers and they were informed that they would be required to give their consent directly in the online survey prior to completing the questionnaire.

For the questionnaire, respondents were given information at the beginning of the online survey (Annex 2.1.) before being invited to participate anonymously.

As this paper addresses, and presents arguments, related to certain cultural and administrative outlooks, structures and practices, locally as much as globally, there had to be considerations with regard to the appropriateness of suggesting criticisms as well as suggestions, on the topics addressed, as some of the points under discussion are deeply personal existential issues for many people. Ethically, this was a difficult situation, as to avoid critical observations that may cause upset to others through philosophical or religious disagreements which are relevant to informing this study, only leads to nothing being said, leaving no discussion possible. Yet if Copernicus and Galileo had followed this approach we may still be living on planet at the centre of the known Universe. Therefore the ethical implications of *not* writing papers such as this, far outweighed any disturbance the discussion, interpretation or findings may suggest, and as our current ecological crises are of such proportions that restrictive or backward looking perspectives, that may have been appropriate in the past but now may act as contributors to this devolving ecological situation, would be better transformed to inform possible future visions for Human Sustainability.

The methodology for disseminating, collecting and storing survey information received suggestions and recommendations before being approved by the Ethics Board of the Norwegian Centre for Research Data (NSD).

Results

Qualitative Survey Findings

As earlier stated, the original intention was to conduct these interviews via a video-conferencing internet link. This would have meant a more personal and interactive conversation could have taken place with the people who so kindly offered to share their understandings and insights. Sadly, this Human contact was greatly reduced through the restrictive online written survey process, and in a way could be considered, ironically, as another example of the mechanising of the human narrative, so the possibility of meaningful discussions and encounters between people has been diminished.

Respondents were asked a series of questions (Annex 1.2.) beginning with their perceptions about the importance and relevance of connection to nature for people in our increasingly technological and virtual age and whether they thought it might be fair to consider that our current global ecological problems could be seen as ultimately acts of Self-harm as Humanity desecrates our primary planetary matrix.

In order to balance such a proposal they were then asked whether they could consider that this 'crisis' period as *“not primarily a disorder, but as a part of an on-going transformative evolutionary process striving towards greater species maturity more symbiotic planetary relationships and a paradigm shift”*.

Then they were asked to share their thoughts on what 'special ingredients' might be needed for people to care for nature as a whole, followed by an exploration of whether they thought that including a gardening and natural crafts programme into compulsory education at all levels, could enhance learning, while promoting nature connection to develop a 'greener' cultural emergence in the longer term and whether they thought it would get funding support from central governments.

Continuing they were asked if these kinds of activities already took place in, and/or out of, schools in their parts of the world (this is part of the reason for choosing internationally based respondents for this conversation) and to get their impressions about wider cultural viewpoints and activities around this 'green' theme.

Finally they were asked for views on the possible relationships between the devaluing of feminine principles and the ecological crises; asked a *“why should*

anyone bother” question and lastly, did they have hope that Humanity could achieve an ecologically respectful and technological future?

Working through their responses in this chronological order the author hopes to present a clear view of their thoughts ideas and feelings, summarising the findings in ways that are meaningful.

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So the journey began with the primary question “*Do you believe that a deep personal relationship and connection with nature is important or even necessary for post-modern people in our technological age? ...Why?*”

“Yes,” “Absolutely”, “Absolutely”, “Absolutely” (pers. comms: Feng, A. 2018; Hugo, A. 2018; Leme, P. 2018; Sterling, S. 2018) came the clearly unanimous responses; they recognised this as a fundamental prerequisite for both the inner and outer well-being of the Human species.

In terms of outer well-being, Stephen Sterling, (Emeritus Professor of Sustainability Education, University of Plymouth, UK) picked up this thread and explained that

“...human systems are a subsystem of natural systems. This is proven by a simple test: humans cannot exist without nature and without what are called ‘ecosystem services’, whereas natural systems are not dependent on humans to flourish. So by harming the ability of nature and natural systems to survive and flourish we put in question our own well-being and ultimately our own survival”

(Sterling, S. personal communication, July 17, 2018)

It was recognised by Angela Feng, an international medical rehabilitation standards professional, (personal communication, July 15, 2018) that outwardly, technological systems are pulling societies further away from nature and that, although certain religious and scientific beliefs may hold contrary opinions, Dr. Patricia Leme, an environmental educator at University of Sao Paulo (personal communication, July 17, 2018), pointed out that humans are as much a part of Earth-nature as any other species and as such, people continue to need a relationship to greater nature for our inner psychological health as well as for our outer physical health and well-being. This inner theme was taken further by Dr Aksel Hugo, principal of Sogn Agricultural College in Norway (personal communication, July 11, 2018), who

pointed to the neurological significance of sensory engagement with the natural world for human brain development, he said; “The sensuous contact with the living world, in its primacy – and not as a secondary reality (screen, curriculum, etc.) is vital for the development of the human being” He also referred interestingly, to a condition known as “hospitalism” [which occurs in infants that have been raised in emotionally (sensually) disconnected environments and causes significant long-term psychological damage], to draw us to consider how it may be for a Humanity that is disconnected from an emotional bond to our environment. This raised the question once again of the relevance and solidity of a normative standard for the Human condition and the ability to judge mental health from a potentially normalised position of sickness if considered in terms of maladaptive attitudes towards and actions within Earth-nature.

Next was asked whether *“the idea that our behaviour as a species, in damaging the primary matrix of our home planet could be likened to self-harming and so could be an outer sign of an inner psychological disorder or disequilibrium?; ... and if yes, what would you consider ‘normal’ or ‘balanced’ behaviour in relation to our planetary home?”*

There was general agreement that this was a valid hypothesis and that these outer ‘signs’ could be indicative of unresolved “inner home [issues, which may be externalised and that through] this condition of lack of self-awareness, we [perhaps] project to the outer world all of our internal wars, conflicts, rejections, victimisation, aggression etc.” (Leme, P.2018). This thinking echoes the earlier idea of a “permeable identity membrane” as mentioned by Anita Barrows (1995) and presents us, if true, with other considerations about personal as well as species-wide responsibilities.

The relationship between inner and outer was *‘internally’* widened by Professor Sterling through reference to a discussion about left over right brain dominance which suggested that currently “the left brain, which is the rational/linear part dominates the right brain which is the holistic/intuitive part of our mental make-up”, and that a healthy behaviour must surely lie in a balanced approach which emerges from “feeling less stressed, less fragmented, more whole, more empathetic with the Other, more content in ourselves”, this he considered, would be a generally healthy

‘normal’ Human condition (Sterling,S.2018). This suggests that finding healthy contentment in our relationship with and within nature appears to be thought of as a key element in being able to define a species-wide normative behavioural standard from which to consider deviation and disorder, misalignment or dysfunction that may be in need of remedy.

Dr Aksel Hugo suggested that a healthy norm comes about through “social and sensuous interaction with other beings, as a pathway for evolving one’s soul life” and he went on to say that “a balanced childhood will have a safe journey in widening circles of relationships to human beings and to place, life in nature and surroundings”(Hugo, A. 2018).

These ‘wise advisers’ were suggesting normality would be resumed when we recognise that ‘inner home’ (psycho-spiritual) work needs to be done which requires a balancing of right and left brain relations while in sensuous and ethical contact with outer nature as a whole. And so it appears that a normative standard for 21st century psychological health would emerge through the right kinds of learning experiences, in the right kinds of places, with the right kinds of beings and materials, at the right times in a child’s life, supporting appropriate and nourishing ontogenetic progression.

“How could compulsory education help contribute towards developing that behaviour?” [...and so work towards that norm] was the next question.

This revealed opinions which again coincided, concluding that children should not only be taught to know that each of us is no more than “an inhabitant of the planet earth [and] not the owner” (Feng, A. 2018) but also that much educational policy and practice around the world needs to change, “to revisit its earlier emphasis on the whole child, learner centred learning, respecting the individual and diversity, bringing out potential, in other words re-assert the liberal tradition of education [not to be confused with liberal/neoliberal economic philosophies and practices], but put in the context of contemporary settings and concerns” (Sterling, S. 2018).

Dr Patricia Leme, added to this conversation by observing that better eco-values can be developed in compulsory education by introducing more empathetic qualities into teacher training and general schooling such as “meditation and self-awareness practices [and] working with emotional intelligence” (Leme, P. 2018).

In order to shift the focus of this research and to approach with a different perspective, the respondents were asked a philosophical question which is more difficult to answer, but still needed asking.

They were asked whether it might be considered “*valid to argue that what is occurring is not primarily a disorder, but rather is a part of an on-going transformative evolutionary process striving towards greater species maturity, more symbiotic planetary relationships and a paradigm shift?*”; and asked also if any examples could be given to support this idea.

Although there was both agreement with this concept (Leme, P.) and disagreement (Feng, A.), Professor Sterling presented the following thoughts which are worth repeating in full,

“I think there are grounds for arguing that there are two opposing mega-trends. One is taking the hi-tec route towards cyber everything and giantism – but at the cost of what it means to be human and at the cost of ecological integrity and social coherence; and the other asserting human scale, localisation, community building, self-organisation, and inclusive well-being.” (Sterling, S. 2018)

Hugo addressed this question of possible transformative evolutionary development by building on his earlier comments, comparing stages of child development to the development of Humanity over (cultural) “epochs”, when he said “As a child moves through different ways of being situated in a relationship to the world in its mode of soul life and thinking, so does humanity” and he also spoke of the importance of recognising that the human being is “a soul and not just a body with some mental activity attached to it”. He believes that there is a recognisable pattern to everything, but whether he considers Humanity to currently be at a transition point in evolution is not suggested, but it was certainly an implicit possibility and these ideas will be dealt with shortly in the upcoming discussion.

When looking at the role of compulsory education in this scenario Sterling affirmed that the critical thing to be done is to imagine the future, imagine all the futures, the “probable, possible and preferable” ones, and the journeys and consequences that will come about by choosing one over another. And Hugo expanded the vision of possible educational practices for compulsory education by referring to the way in

which Waldorf Schools have “beautifully” integrated the human cultural and evolutionary journey into its ‘holistic’ curriculum in such ways that it mirrors not only the human cultural evolutionary journey but also the inner developmental journey of the child, taking on a deeper significance for students in their paths of learning. “We need to educate in a manner [he said] which makes the new generation understand where it is located in the story of Humanity that it is presently stepping into”(Hugo, A. 2018) The author believes that this will enable a future stage, or epoch to be envisaged and subsequently worked towards.

Taking into account, the fact earlier noted, that more than half of Humanity is now living in urban, built environments and that this is expected to continue increasing for the foreseeable future, the next enquiry asked: “*In an ever urbanising world, what ingredients do you think might be needed to encourage children of the cities to find, recognise and develop positive relationships with nature?*”

This showed unanimous support for “programs, projects and activities [that] might be developed in order to achieve the goal of approaching people to nature” (Leme, P. 2018); of “nature tables...and first hand experiences of growing things, of caring for plants and animals if possible” (Sterling, S. 2018) and of early years experiences and for putting “more nature in the school area” (Feng, A. 2018) while recognising that children can “with adults, help restore, rebuild, create beauty wherever they are [even in urban settings and especially when] collaborative agreements between schools and parks, museums, landowners etc.” (Hugo, A. 2018) are cultivated.

Looking further into ways people develop positive relationships with nature and whether there might be something special that needs to be present in people for that to happen, early childhood was recognised as a significant period for the development of that ‘special ingredient’ and that through qualities such as “beauty, sense of the other, sense of responsibility – understanding of interconnections” (Hugo, A.2018) children can be helped to grow in ways that maintain and enhance a positive relationship with nature and compulsory education has a role to play in this.

One way in which compulsory education could begin to approach and develop these qualities would be through applying the lens of systems thinking to children and educational practice, recognising, as Sterling did, that “young children are natural systems thinkers in that they are interested in how stuff relates, what happens to

things etc. [and that currently] this natural approach is not encouraged in the reductionist education systems” (Sterling, S. 2018), rather fragments are taught, details rather than relationships, parts rather than wholes, specific rather than holistic; this raises a metaphoric question: if relationships are disturbed at a foundational level how strong is the building above?

Earlier it was acknowledged that this approach *is* currently developed by ‘integral’ or ‘holistic’ educational systems that recognise and make educational use of cycles and patterns within nature, to show the inter-linkages between Humanity and the Earth and the cosmos as a whole. These approaches, when consciously combined with ecologically ethical systems thinking and when applied “throughout the schooling years to get people to understand cycles, circularity, consequences, feedback, interdependence etc.” (Sterling, S. 2018) would give a coherent, naturally grounded and integrated framework for compulsory education to aspire towards, to change principles and practice.

Another approach that offers schools the opportunity to work with cycles and systems in dynamic enjoyable and healthy ways is through communal gardening and when asked, everyone agreed that this would be a very positive educational approach which, ideally, would be developed across large regions rather than as isolated examples (Leme, P. 2018). It was also recognised that this would need to be supported by appropriate training for new as well as in-service teachers, not only to up-skill teacher/practitioners in the use of gardening as a teaching tool and experiential medium, but also to show how communal gardening can integrate regional curriculum expectations for other subjects into garden-based learning (Sterling, S; Leme, P; Hugo, A. 2018). It was further noted that schools should develop their gardens naturally, “in their own way - based on the local resources and a local curriculum which translates the national curriculum into activities that can serve their objectives” (Sterling, S. 2018). These local conditions would also influence garden styles, in international terms, as land availability and climatic conditions would allow different types of plants and horticultural, agricultural and arboricultural practices to take place; differing cultural practices, in terms of traditional rural crafts and styles, would also affect the ‘look’ and ‘feel’ of the garden, its tools and equipment; and local seasonal festival celebrations could also offer ways to integrate gardens, their produce and crafts, into cultural events which

again would help to ‘ground and connect’ not only the schools’ children but also the wider community.

Expanding on these themes of gardening, local crafts and seasonal celebrations respondents were invited to comment on the deeper idea “*of including an integrated semi-outdoor natural crafts, organic gardening and environmentally regenerative practices programme into all primary and secondary schools, in age appropriate ways, as a complement to purely academic learning*”. They were also asked if they thought that teaching strategies for different academic subjects could be supported through the use of the outdoor classroom/gardens and related activities and whether through that and in the long-term, it might be possible to affect the direction of societal development creating more eco-friendly and knowledgeable people.

Everyone was in favour, especially if this ‘green’ approach integrated well within the local curriculum and showed subsequent enhancements of academic ‘subject’ learning as an extra by-product of the outdoor and hands-on experiences and practices. The connections available to deepen and locate learning, in relevant ways, for students of all ages, was highlighted by Professor Hugo who said,

“If you follow the processes in practice, either in crafts or in agriculture – then you will have a structure with stations along the way from soil to table or from source to product and along [the way, at] each station, you can deepen the understanding by asking ‘what is behind the appearance’, where do they come from, what are the conditions under which they appear?”
(Hugo, A. 2018)

In this way many subjects can be taught and enhanced, and curriculums can be designed to maximise linkages between natural cycles, expected learning outcomes and naturally available processes and practices in school grounds and gardens. Curriculum development work and application on this type of idea was reported from Norway⁶, and Waldorf schools were again mentioned as educational examples with well-developed crafts and gardening curriculums across all ages.

When considering how and if, implementing this approach “*into all compulsory education could affect societal development in the long term*”, there was agreement that this could definitely be effective but much would depend on how widespread

⁶ www.livinglearning.org

and how deeply the approach was developed and applied; how well prepared the teachers were; and how involved the wider parent community would be encouraged and able to be. Yet it was also recognised that even if only a few children were positively affected by such experiences, they alone, as potential future “thought leaders, business leaders, [or] political leaders, [it] would make a difference to whatever social context they subsequently worked in” (Sterling, S. 2018).

A greater obstacle to a change to a ‘greener’ experiential education seemed to be that of getting funding from central sources, although this was acknowledged to be more possible in perhaps more educationally “enlightened countries such as in Scandinavia and Germany” (Sterling, S. 2018). Yet from Norway there was a response that addressed this issue, when Professor Hugo suggested that instead of waiting for top-down money, the greater motivation and need was for “a pedagogical tool and a group of teachers/school leaders who dare”. The pedagogical tool, he said, must “(1) give ... the deeper reasons behind the activities and how they serve the development of the class and individual child in a particular age group [and] (2) give the authorities a clear translation of how this fulfils the objectives that the national curriculum gives”(Hugo, A. 2018). After that has been presented, it is only political will or cultural ideology which would stand in the way of significant change.

As has been said, some countries favour this kind of ‘green’ educational development more than others, so as the respondents were from not only different countries but 3 different continents, it seemed appropriate to ask for impressions about their native countries attitudes and practices towards these things.

Dr. Leme shared that in Brazil there are thousands of eco-schools and eco-villages and that “food growing in the yard and in schools has been seen as a very positive new trend. As Brazil is the second largest pesticides consumer in the world, Brazilians have been looking for organic vegetables and food growing”(Leme, P. 2018). In Norway it was reported that there are hundreds of school gardens which continue to be developed and studied and currently increasing examples “of city gardening and of community supported agriculture” are appearing, alongside an increased appreciation for hand-made crafts; which are observable as trends within Norwegian society (Hugo, A. 2018). In the U.K. it was reported that interest and engagement with “community woodlands, community growing, community

supported agriculture (CSA) schemes etc.” is also growing. The engagement however, of compulsory education in this area was unclear although Professor Sterling pointed to a large project and study funded by the UK Government’s advisory body ‘Natural England’ and recently carried out by the University of Plymouth (S Waite, Passy, Gilchrist, Hunt, & Blackwell, 2016) which developed and assessed the impacts and potentials of nature connection and outdoor education in schools and found significant benefits across a wide range of indicators suggesting that further inclusion in delivery methods across the UK in the future would be a positive development. In contrast to the U.K, Norway and Brazil, in China, Feng reported that although crafts and gardening did not occur in public schools, culturally, hand-made crafts are still “very natural” and this question of *nature connection/respect* although emerging as “a topic in some communities” (Feng, A. 2018), does not yet appear to have developed a place as a type of educational impulse.

Moving on to follow the thread of nature connection/respect, the next question asked whether they believed that “*the philosophical and subsequent physical repression/oppression of the feminine through history has contributed to our environmental crises, and if so how?*”

There was no doubt here amongst respondents that this was a significant factor in the emergence of our dysfunctional environmental relationships and that through devaluing the feminine qualities found in the world, there is an imbalance, where male qualities dominate female qualities such as “intuition and empathy, ... ‘yang’ dominates ‘yin’” (Sterling, S. 2018). In all the answers, the most powerful words that appeared were ‘dominance’ and ‘subjugation’, by the male over the female; aggression over compassion; this was a unanimous position, again recognising that for health, balance needs to be achieved. Professor Hugo went on to describe how, through education, children can be brought to inner balance by recognising the value of the swinging “pendulum between belonging and immersing yourself in the other through the senses and compassionate life and the warrior-side that develops strength and independence of one’s own soul life and thinking, leading to an ability to act with clear reason and responsibility” (Hugo, A. 2018). This dominance of male over female also resonated with an earlier statement by Professor Sterling, who pointed to a dominance of the left side of the brain over the right side of the brain,

the rational over the intuitional, the parts over the whole; this left-brain dominance is what much compulsory education favours and this is a significant area where it can be asked to work to re-vision itself.

All these questions were designed to pick apart this global issue of environmental crises and shed light on the upcoming discussion, yet just defining a problem as large as we currently have, does not necessarily empower people to become parts of solutions rather than contributors to problems. With this in mind the penultimate enquiry needed a rather long and complicated series of questions to get the point across and was as follows:

“From my understanding, as the corporate/economic and royal worlds seem to control the legal/political and much of the material world (its resource extractions, uses and pollutions), and as this top-down control is beyond the influence of most people – can you imagine how the world could be changed to become more environmentally conscious from the bottom up from a ‘grass roots’ level?... What do people need, to be able to act in benign ways within our environment? Why should they bother?” big questions that prompted interesting responses.

The role “of economic repressive powers” was highlighted as problematic to change and it was suggested that a move towards “associative economics” would help to alleviate some of the causative factors driving environmental degradation (Hugo, A. 2018). This idea of hindrances from the economic world was also mentioned by Professor Sterling as he addressed the *‘why should they bother’* point by further deepening considerations of the factors at play and recognising what could be described as a ‘pressure wave’; a symbolic representation of change. This ‘pressure wave’ is being pushed, he said, by “a fear and recognition that mainstream and centralised ways of doing things have been harmful and encouraged inequity and environmental degradation, and are showing cracks; [and is being pulled, towards the] growing recognition of the positive potential of people to work together to address local issues, food, environmental quality, energy generation, banking, etc. The transition town movement in particular is a good example of the shifts beginning to appear in civil society”(Sterling, S. 2018). These kinds of values and civic shifts, if incorporated into compulsory education would help develop children in ways that would incorporate the left and the right, the masculine and the feminine,

the inner and the outer and this would undoubtedly lead to a grass roots change and greater possibilities for pro-environment societies to develop in whatever world condition they inherit.

And this question of inheritance was embedded in the final question: “*Can you imagine an evolutionary story for humanity that allows us the luxuries and privileges of scientific thought and creation whilst honouring the biosphere and the deeper narrative of us as an evolving species within species?*”

There were no clear answers to this one, ... “I don’t know” ... “it’s difficult” ... began the less than hopeful responses ... followed by a recognition that there is an enormous amount of work to be done to avoid degenerating social scenarios, and many responsibilities to be accepted. There was recognition that responses from civic society were emerging and the concepts of transition and sustainability were linked and referred to as examples. There was also acknowledgement that changes need to happen not only in terms of global outward behaviour, but also inwardly in terms of personal values and actions, recognising that our inner source is the same source as that of “evolution [and] we are not onlookers but in every move we [make], participators in creating the world we are part of” (Hugo, A. 2018).

The author believes that recognising that the source of each of us is also the wellspring of the worlds is a critical element in this continuing discussion. To know that the ‘Big-Bang’ has expanded from then until now, from its beginning to me and you, and that if anything deserves the word ‘sacred’, the emergent force of the Universe and all of creation, ‘Universal Nature’, must surely be deserving of such a title ... with Humanity having a role to play in that story, individually as well as collectively, in and with Earth nature and simultaneously within the Universal Nature.

From these respondents many textures and qualities were encountered in the forms of their words and ideas, which have shown them to be in accord with the earlier literature reviewed. Humanity has a problem and something needs to happen to promote positive change to have any hope of a socially as well as environmentally equitable future which would strive to avoid or reduce the potentials for serious Human difficulties and on-going decimation of bio-regions and species.

Quantitative Survey Findings (For raw data see Annex 2.2)

As stated earlier, the intention of this part of the research was to look at the different responses given by respondents about their backgrounds compared to their answers given in relation to the 9 principle questions that asked whether compulsory education at different levels should include more nature-based activities, attitudes and learning opportunities.

Across this random sample there was an expectation that there would be significant differences of opinions with regard to these questions and the perceived importance of including these types of educational activities and approaches in schools generally. However the findings were surprising and showed that regardless of age, gender or other background information there were significant agreements across all 9 key questions.

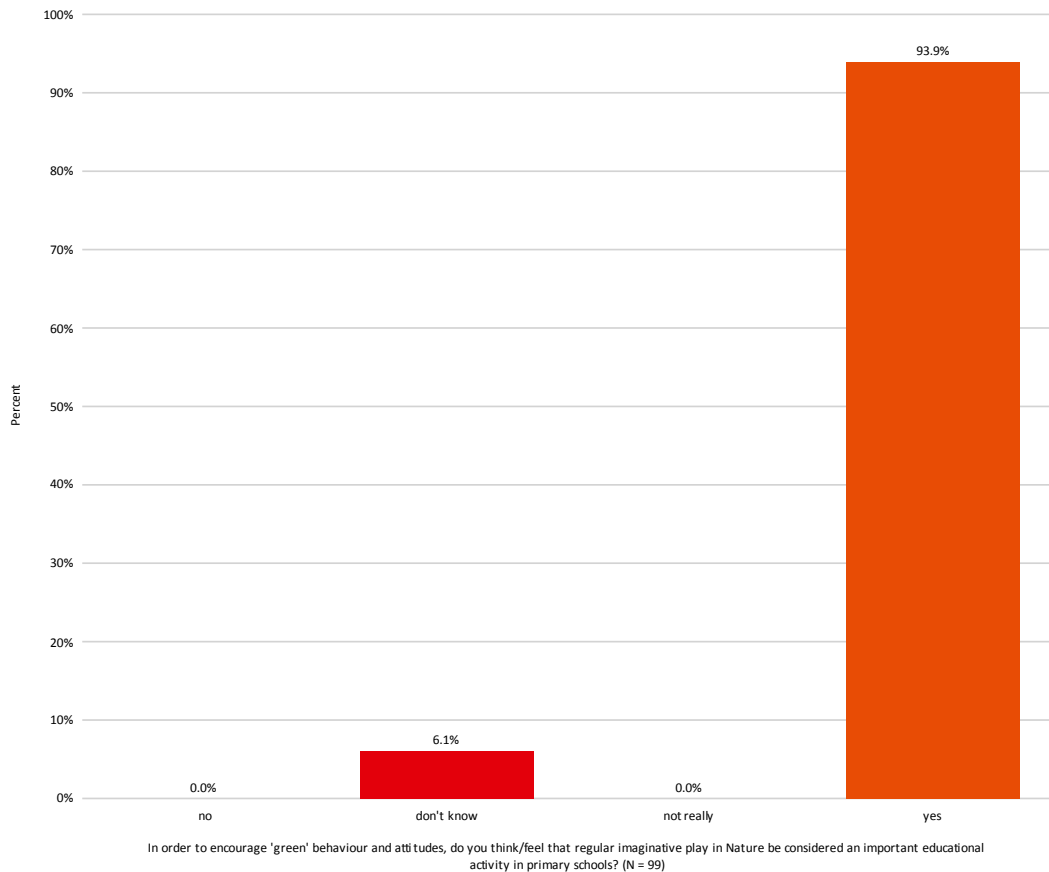
Below, the 9 principle question results are displayed as percentage values in column charts showing the amounts of agreements and disagreements, with explanations that show differences in degree or ages of proposed educational interventions given.

Also, included below each chart, is a selection of some ‘other comments’ given by respondents.

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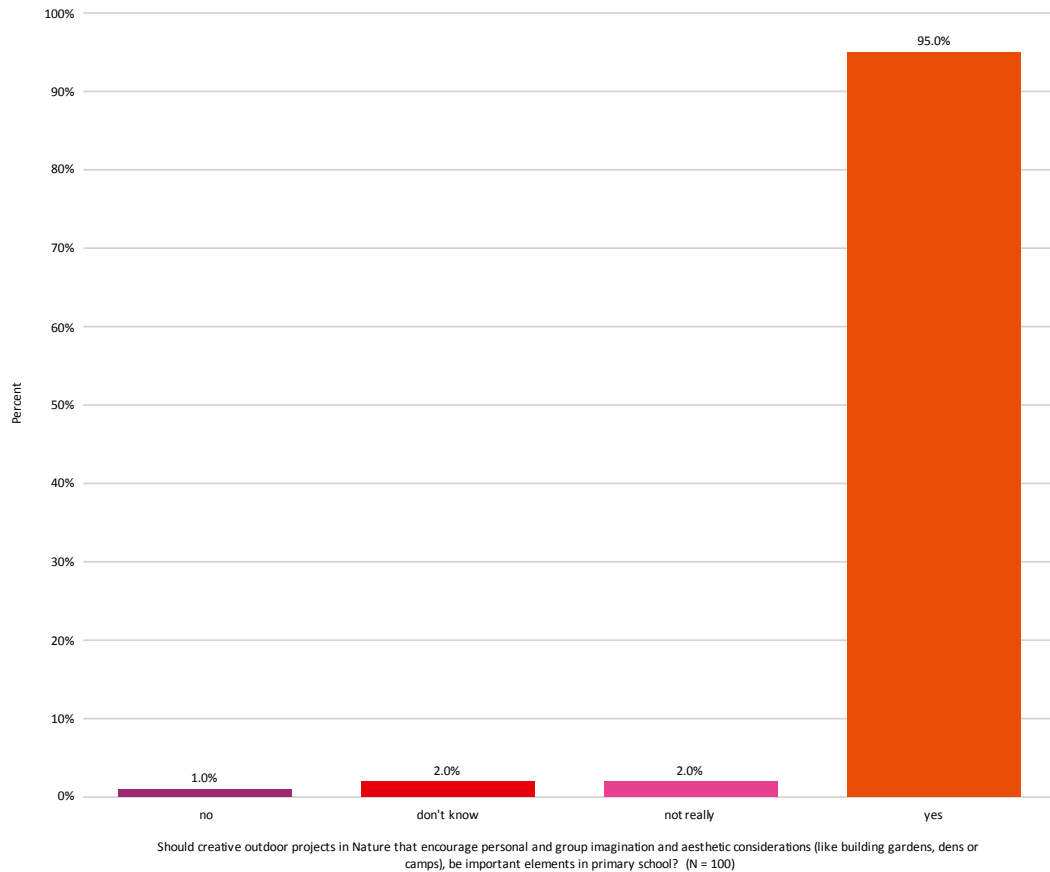
“I have worked in Field Studies, and on Nature reserves with many hundreds of children, the experience of the outdoors can be seen to be liberating and enriching by the way the children and young people respond to both their environment, and each other, when giving stimulating educational experiences, and peaceful time/space to wonder”.(comment by anonymous respondent)

1. When asked whether regular imaginative play in nature be considered an important educational activity in primary schools to encourage 'green' behaviour and attitudes, 93.9% agreed (n=99) leaving 6.1% being unsure.



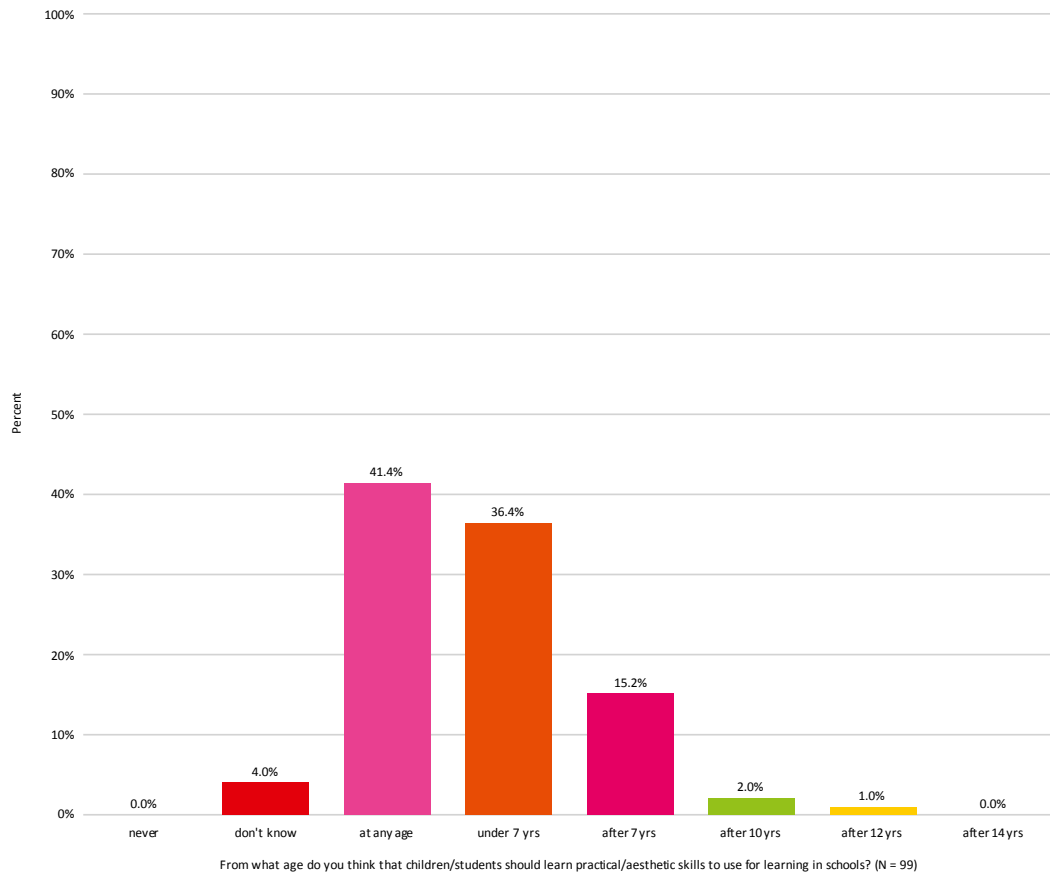
“I was lucky enough to be educated before national curriculum so on sunny days many of our lessons and daily stories happened outside under Oak trees. We had frequent walks along the river banks and did pond dipping, identified wild flowers and found joy in finding snake skins, dragon fly larva skins, broken bird shells, skeletons of various creatures etc. We went apple picking, bramble picking, we picked up leaves, identified them and in different season's their flowers, fruits or nuts which we then drew or painted once back in class. It was heaven.... In the snow we would find out which methods would melt it the quickest or simply appreciate that snow has different qualities in different states, for example it either took the shape of a container if powdery or impossible if compacted and icy unless force was used”. (comment by anonymous respondent)

2. 95% of respondents (n=100) agreed that creative outdoor projects that encourage personal and group imagination and aesthetic considerations (like building gardens, dens or camps) should be important elements in primary schools, with 2% being unsure, another 2% ‘not really’ supporting the idea and only 1% thinking that this was unimportant.



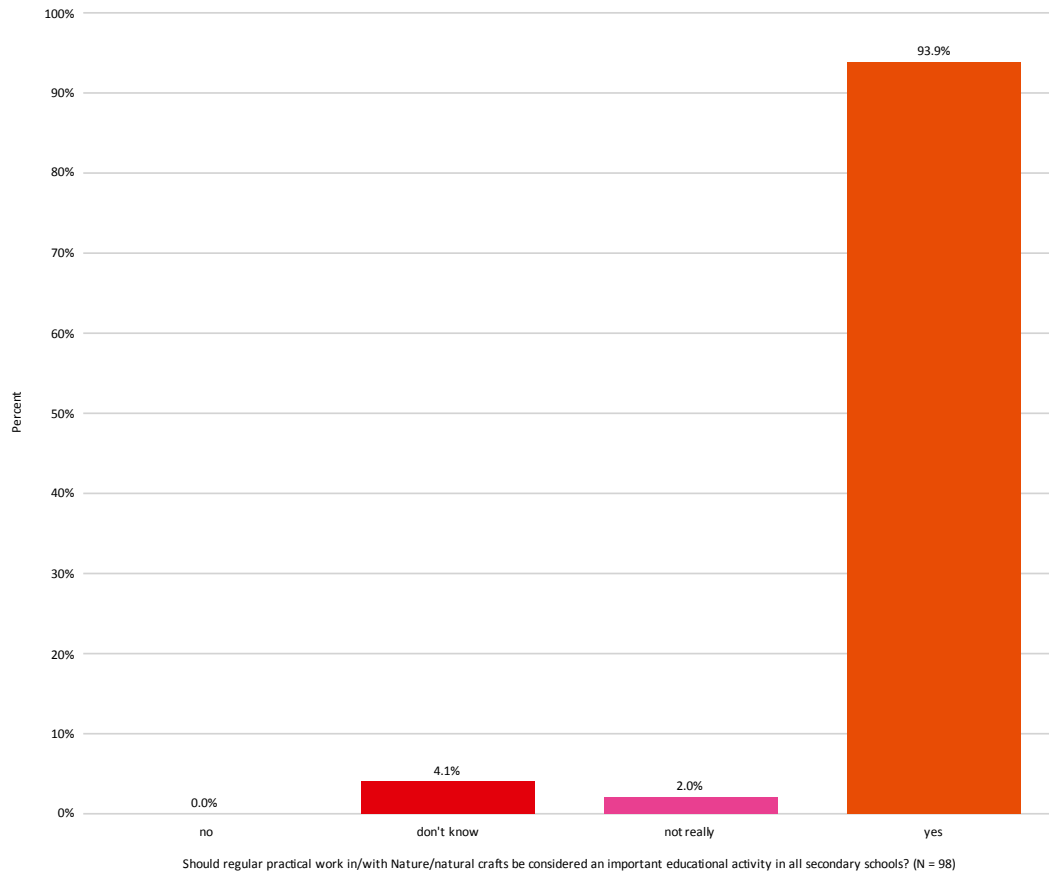
“I attended a private primary school until I was 12, in the 60's. It was very traditional and unimaginative in how it taught. My green time came at home. I worry that today's children often do not get the chance to run around, build dens, get messy, climb trees etc. We didn't watch TV or do endless organised activities. We played with other children in and out of each other's gardens, houses. It was a freer life in many ways, less sophisticated but the trees, bushes and gardens were our play areas”. (comment by anonymous respondent)

3. 77.8% of respondents (n=99) thought that children should begin learning practical/aesthetic skills for learning from early years education, whereas 18.2% thought that this should wait until primary education to begin, leaving 4% as ‘don’t knows’.



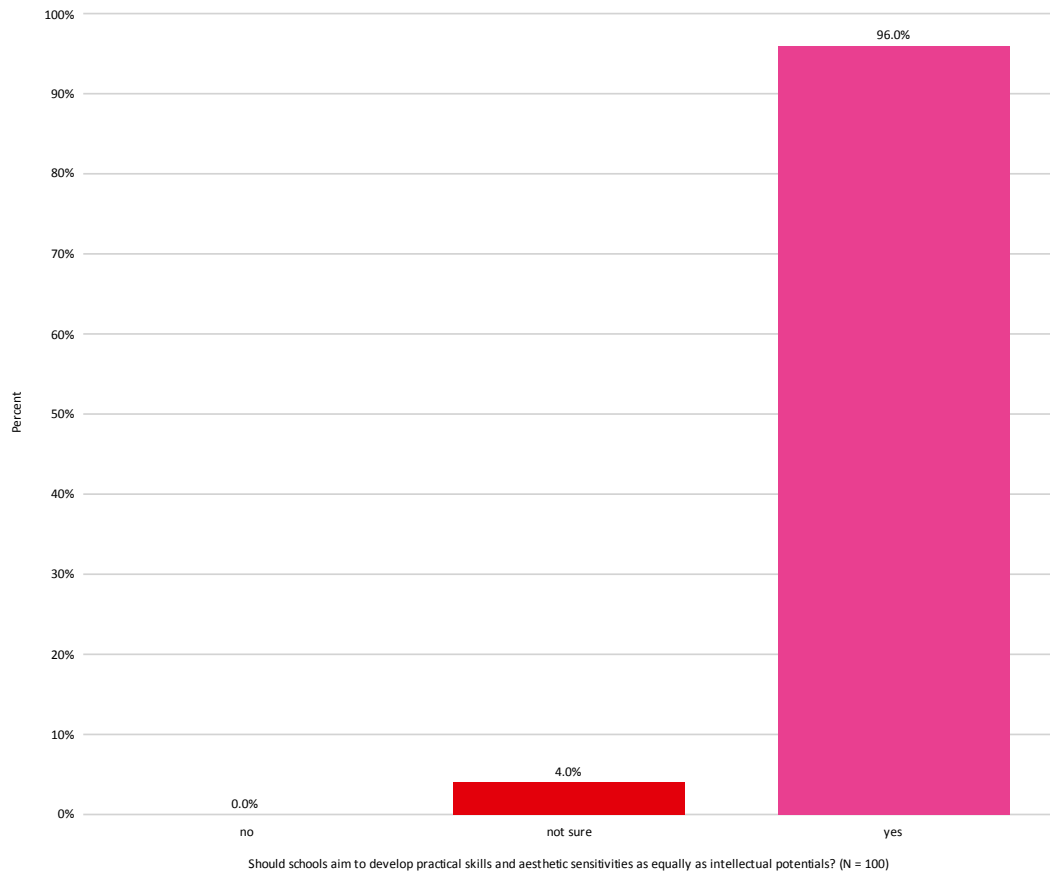
“Children are being separated from 'real life' and left with few practical skills. We have children now who know nothing about food production and cannot cook - hence IMO the current obesity crisis. We also have a generation 'encouraged' to put children into nursery etc. from an early age - again IMO- we will produce at least one generation without the skills to care for and raise their own children. On many levels society is heading for a cliff edge”. (comment by anonymous respondent)

4. 93.9% of respondents (n=98) thought that regular practical work in/with nature/natural crafts should be considered as important educational activities in secondary schools, with 4.1% being unsure and only 2% stating that this type of educational experience should not happen in compulsory secondary education.



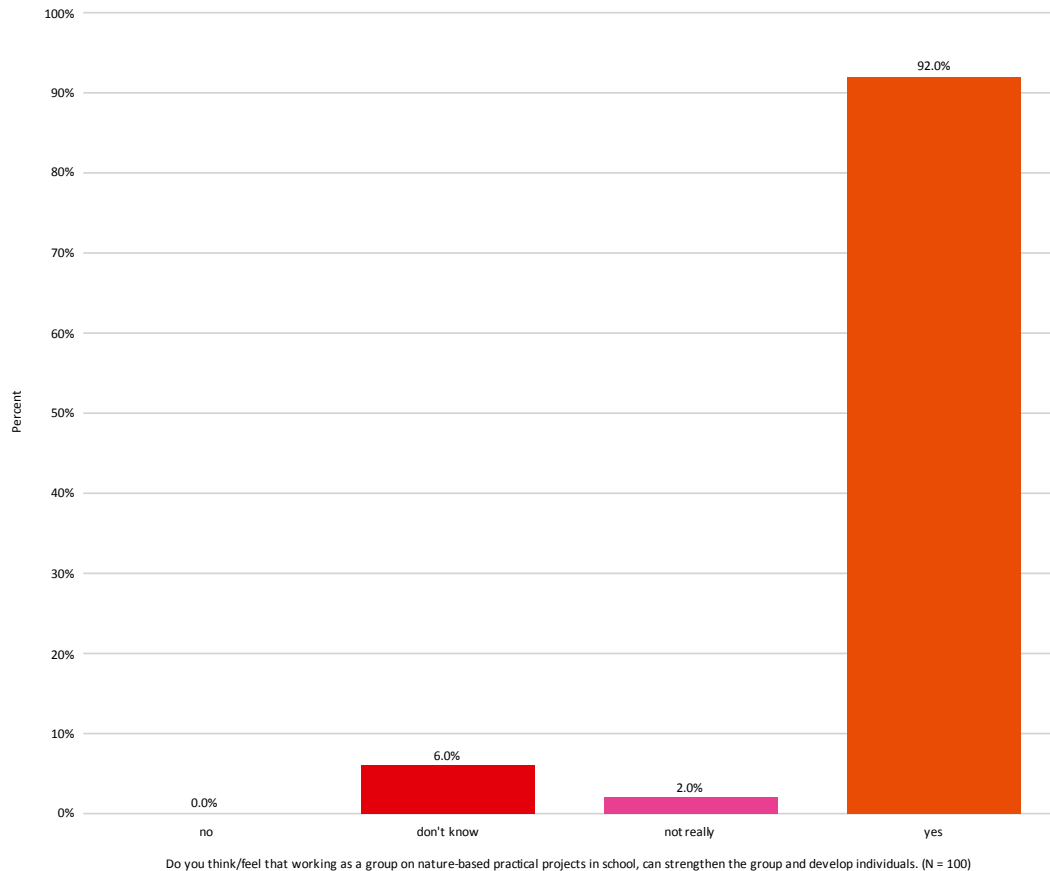
“I think most of what I was taught at school was fairly useless. Everything useful, I have learnt since leaving school and from reading books of my own choice. I believe that children should be taught practical skills as well as the 3 Rs. Skills like foraging, cooking, building, crafts, languages and also philosophy”. (comment by anonymous respondent)

5. 96% of respondents (n=100) thought that schools should aim to develop practical skills and aesthetic sensitivities as equally as intellectual potentials, leaving only 4% as unsure.



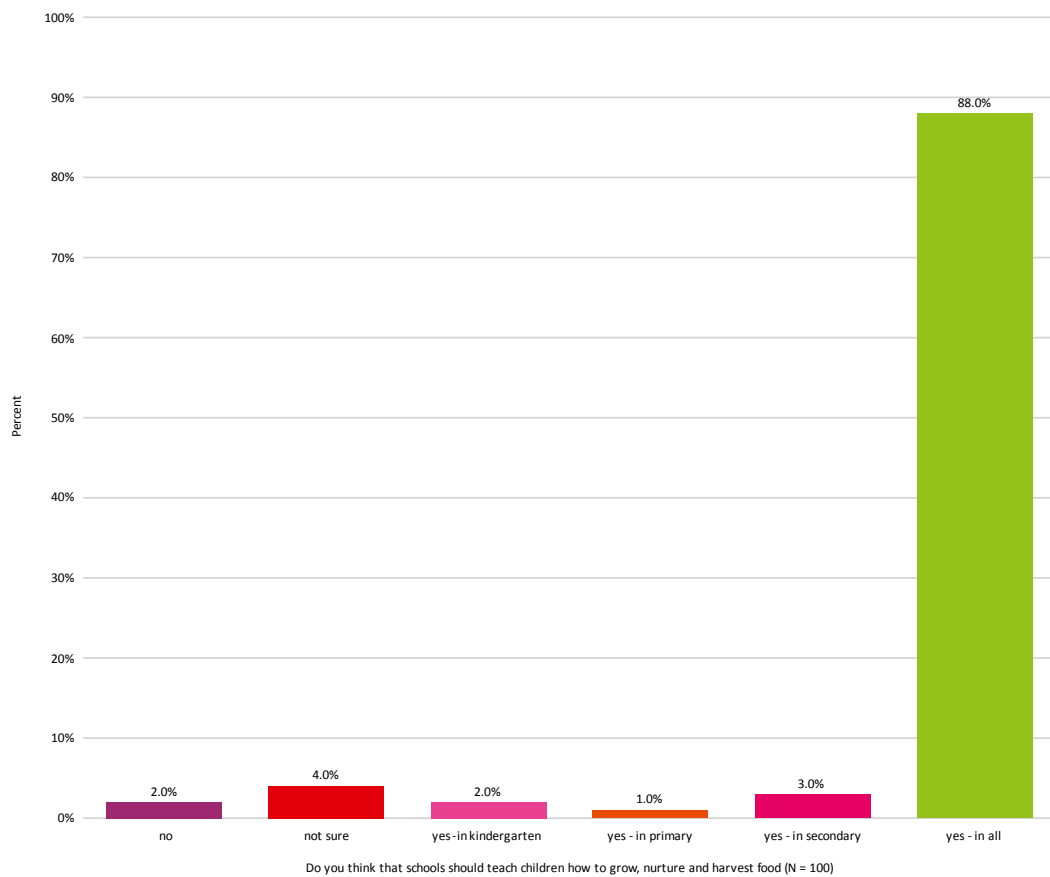
“Through my own experiencesborn and growing up in Zimbabwe, Africa and only leaving my country (returning very regularly) I feel such gratitude being brought up in nature. Not only growing and nurturing my own veg patch and gardening, collecting and planting seeds, but also very importantly knowing how the animal species of all types are a necessity and complement our environment! Being fortunate to be close up with the bigger animals, elephants, lions, rhinoceros, giraffes, buffalo, wild pigs and all the smaller and even tiny animals, and creatures made me not just like them but love them and their natural surroundings”. (comment by anonymous respondent)

6. 92% of respondents (n=100) believed that working as a group on nature-based projects in schools can strengthen the group and develop individuals, 6% were unsure of this and 2% did not really believe this was true.



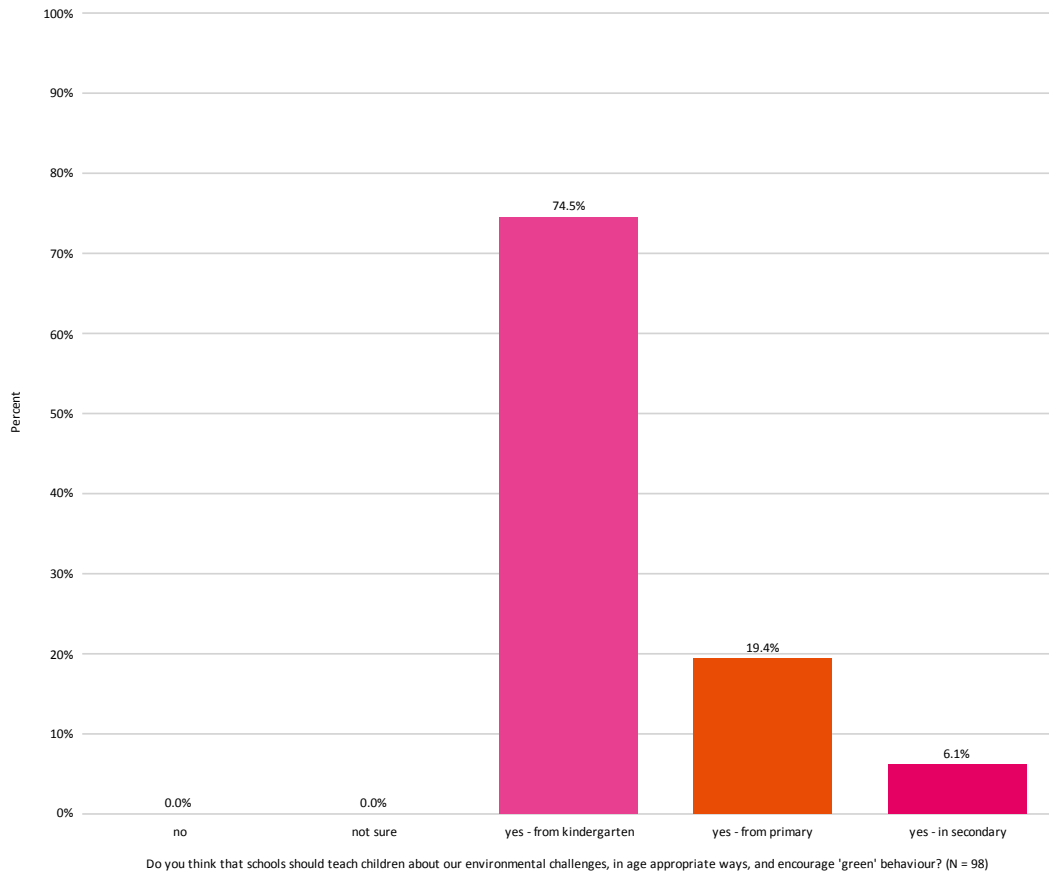
“I’m lucky where I live with a good sized garden [we] have planted lots of trees and we have red squirrels, owls, curlews calling from the fell tops. I don’t use chemicals in the garden. My dad grew nearly all our veg and that gene has been passed on and my children have had an up bringing in the countryside and small village primary school. The younger years are very important when children absorb all kinds of influences and what they see around them. I have a granddaughter now and she nearly 2 so she’ll be sowing seeds with me this week! Schools should teach more crafts, art, gardening, looking after the soil and more green issues. The oceans and seas are polluted the land is poisoned in some areas with chemicals and radiation. Children need to be taught to be responsible about not being wasteful”. (comment by anonymous respondent)

7. When asked if schools should teach children to grow, nurture and harvest food 94% thought that they should (n=100), although within this group, 2% favoured early years; 1% favoured primary education; and 3% favoured secondary education as the educational period for these kinds of learning experiences. 4% were not sure about the value of including these kinds of activities in schools at any age and 2% were directly opposed to children growing, nurturing and harvesting food at any stage within compulsory education.



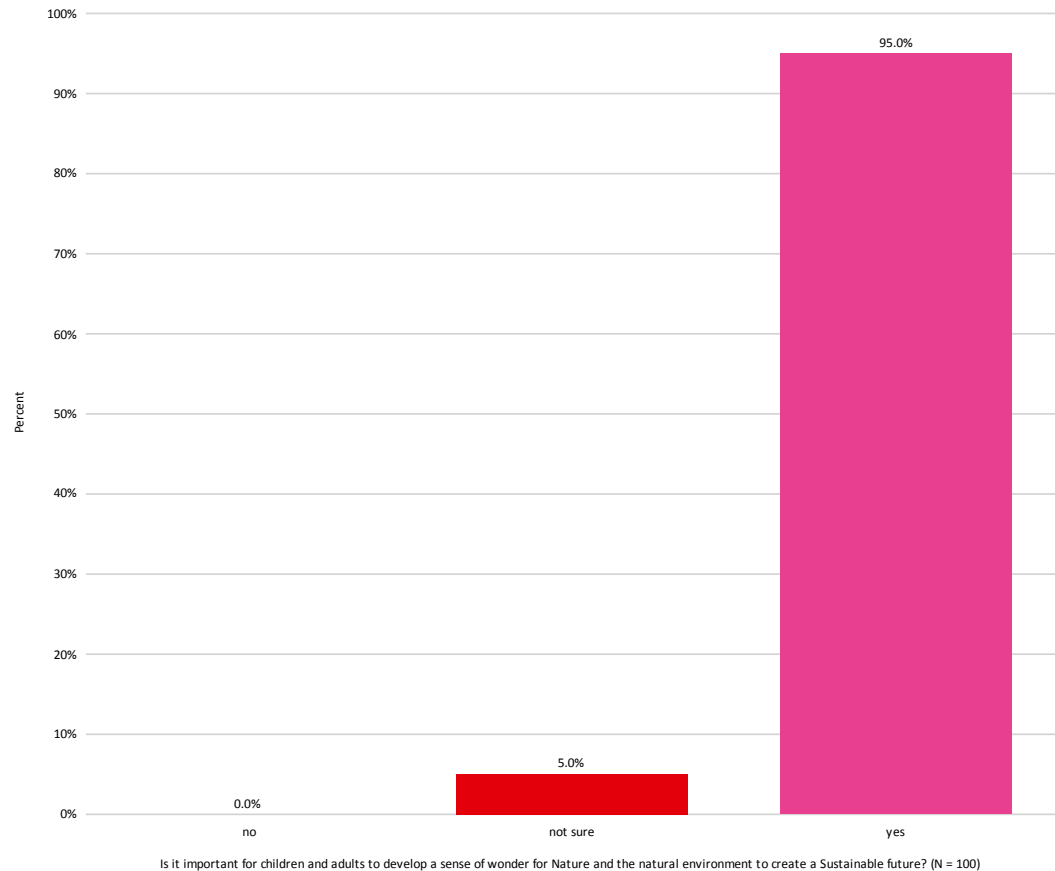
“Everyone needs to learn a skill with their hands. We all need to learn how to grow food and learn to grow in many different ways. I work with homeless young people in a residential home... they seem to have learned very little about how to survive physically or emotionally through main stream education or their home lives, probably because their parents are barely surviving”. (comment by anonymous respondent)

8. When asked if schools should teach children about our environmental challenges, in age-appropriate ways, and to encourage 'green' behaviour, there was 100% support (n=98). But there was a variable in when this should be introduced: with 74.5% in favour of starting this in K.G.; 19.4% thinking this should wait until primary education; and 6.1% thought that this should not come into education until secondary school.



“If anything is to be done to improve the state of the world we must educate children about nature, environmental issues and their place in the world as early as possible. Teaching children of all ages about nature is of benefit to them and the world”. (comment by anonymous respondent)

9. In order to create a sustainable future, 95% of respondents (n=100) agreed that it is important for children and adults to develop a sense of wonder for Nature and the natural environment, with only 5% being unsure.



“I was lucky enough to be brought up in a rural environment, my grandfather was a farmer and I spent many happy hours building camps in the woods, discovering life in the ponds and developed an early fascination and respect for nature. At pre-school aged three I can still remember the wonder we felt when we were introduced to a hedgehog in the garden; and again when learning Nature Study in Primary school. I never felt as if I was separate from nature. It saddens me when I hear that many adults as well as children have no idea where our food comes from and feel no responsibility for the natural world. It is vital that our children are educated and know that we are all responsible for looking after our planet and the many ways we can do this. An early engagement and respect has lasted me a lifetime, the wonder never ceases”. (comment by anonymous respondent)

Discussion

To begin by summarising, significant evidence has been found that show many people recognise the importance of a greater need for connection to and respect for nature as an important element for each human life, especially in current times. There is clear recognition that children need more meaningful contact with living nature in an increasingly digital and virtual world and that at many adult levels there also needs to be change in favour of valuing our environment as a whole. That Humanity may be considered to be Self-harming and may be exhibiting pathological behaviours, is not only an interesting and valid set of considerations when related to fundamentalism in religion or philosophy, especially those that seek to lessen or disregard the concept of an unbreakable connection between nature, spirituality and inner development, but also when related to political ideologies or economic, industrial, corporate behaviours, that overly prioritise profits for shareholders while disregarding or seeking to lessen any duty of care for our common environment. As has been shown, these positions are always supported by philosophical arguments, especially those of the currently dominant scientific view that considers the material world as nothing more than machinery and regards any kind of emotional relationship to it as unscientific, unrealistic and unworthy.

That certain aspects of our Human Self may be exhibiting behaviour reminiscent of an immature adolescent also seems to be a reasonable position to argue and through the research studies presented it has been acknowledged that meaningful contact with, and greater consideration for, nature and nature-based activities can have positive benefits for young individuals in many ways and suggest that if new appreciations for nature and greater environmental values are promoted, personal development can be enhanced and many disorders can be positively modified. It is also clear is that place-based education, practical skills and aesthetic appreciations for nature, have strong roles to play in the development of emerging educational practices. Following this thinking perhaps nature therapies could also be applied at national, international and economic/industrial/corporate levels in order to assist in the refocusing of critical environmental values but this would require further research and experimentation.

However, as the ultimate focus of this paper is to develop and justify re-engagement with nature and a nature-based educational approach, it is relevant to return to the concept of human stage development theory referred to earlier, as there are potential correlations between stages of child development and those of the larger stages of Human evolutionary development which can be argued to recapitulate through the educational life of each child. The ideas of stage development as applied to Humanity's cultural history suggests that earlier cultures developed qualities and understandings distinct to their periods of emergence and these were important to develop in order to inform the next developmental stage in the larger Human journey, in a similar way that children evolve through distinct stages which are optimum periods for learning of different types and qualities. Some of these cultural ways of being and knowing are still dominant amongst cultures that follow older belief systems and who retain stories and customs that have always informed their groups and who often resist, either rightly or wrongly, new emergent stories and ways of being and knowing. One way this can be revealed and recognised is by considering the differences between indigenous human tribal groups at one end of the spectrum, who live immersed in their natural environments and consider themselves to be within a living, feeling nature, compared to western scientific humans who live detached from the natural environment and consider it to be soulless and only of use for study, entertainment or as a means for production and profit. Both these two cultural qualities and conditions are referred to by philosophers Jean Gebser (Gebser, 1985) and Ken Wilber (Wilber, 2000) as 'Archaic' and 'Mental or Rational' and between these evolutionary positions they suggest that there are cultural stages which they have described as 'Magical' and 'Mythical'. All these stages have 'worldview stories' that fit these titles and Gebser and Wilber also suggested that the next step is towards more inclusive, holistic or 'Integral' cultures (using also the term 'aperspectival'). But these ideas immediately present the feeling that one stage is better than the previous, that western women and men are somehow 'more grown-up' than their indigenous brothers and sisters, yet with our current ecological crises it is hard to see how this argument could, in any way, be valid. However, when considering the question of the devaluing of the feminine across cultural history and the concepts that left and right brain hemispheres are metaphorically related to the genders and their qualities, another story can emerge.

The author suggests, in concurrence with Gebser and Wilber, that for all the destruction and negative behaviour that Humanity has exhibited across the millennia, a more positive story may be definable and that by comparing the human process of growing from child to adult, a pattern emerges that can also inform a greater evolutionary direction for Humanity. A pattern that could be considered to have occurred specifically, in order to develop the kinds of individualised, detached, scientific thinking (metaphorically male), that have enabled such vast and specific knowledge of the world to have been developed, but which now needs to move to re-integrate with more communal, connected feelings (metaphorically female) in order to allow an aesthetic balance to be restored with greater depth and increased understandings and sensitivities. This story is a story of maturing and initiation, of transitioning from the worst types of selfish adolescent behaviour into something better, evolving beyond separate self-interested individualism (as applied to a person, business, religious outlook or state) into the recognition that all individuals and all species are not only separate but also part of the larger community and need to be cared for, are interdependent and intrinsically connected within the great web of Earth-life and death and along with Humanity's great freedoms, there are rights as well as responsibilities that come with maturing.

The author considers that the 21st century could represent a period of great transition from the worst period of adolescence towards the beginnings of ecological maturity. Yet from the position of an adolescent it is difficult to conceive of *the way* to maturity without examples or role models. In the past, culturally mature adults designed and evolved appropriate initiation rituals and held back certain knowledge in order to meet the challenge of transition and to assist their young people to cross the proverbial threshold, but who can be those elders now, for the Human species? Perhaps that question cannot yet be answered, but for the moment the author will attempt to show below, that by aligning aspects of modern scientific understandings of hemispheric brain qualities with the works of certain pedagogues and philosophers it may be possible to reveal patterns that suggest this evolutionary development and the devaluing of the feminine principle throughout history, could have been an unfortunate, but perhaps necessary, evolutionary process which now asks for work to be done for balance and environmental harmony to be restored.

The author also suggests that if previous cultural knowledge, understandings and ways of being, *can* be seen in a similar way to that of a child emerging into adulthood, by reintegrating earlier nature connected practices and approaches, a framework for cultural initiation may appear, and a part of that process may be to include more nature-based activities in all levels of education in order to develop qualities, competencies and understandings that the author believes are needed for the great transition envisioned and to increase the possibilities for nature-regenerative practices and Human Sustainability.

Throughout history, Human cultures develop metaphors that inform the lives of societies and as time passes these stories are adapted or rejected depending on new knowledge and insights. It may be that Humanity has entered a period where earlier stories are again being questioned and unless new stories to live by are found Human sustainability may become increasingly difficult as there are fundamental environmental challenges which need to be overcome in order to avoid all the suffering and loss that failing to do so will entail. Recognising that, as described in the introduction, our current future presents a dismal picture, there is general agreement that this must change without further delay; but how can this be done with so many competing interests? The author accepts the concept that Humanity is on a staged developmental journey, not only through individual childhood but also through continuing cultural emergence over time, which is in accordance with the idea that the Universe expresses itself through a principle of evolutionary experimentation towards improvement; bearing in mind that if something doesn't work it can be discarded in favour of more successful models in the same way as Human theories and practices are adjusted and modified in relation to each other. Based on this thinking, the author proposes a combination of ideas that can be shown to weave together, presenting cohesive and coherent combinations to consider. These informing threads are simplified comparisons between Steiner's 9 human development/curriculum stages; those of Jean Piaget; the evolutionary stages of Jean Gebser and Ken Wilber (which concur); hemispheric brain differences as per, Dr. Jill Bolte-Taylor (Bolte-Taylor, 2008) [and then further based on metaphoric comparisons between masculine and feminine qualities of each hemisphere as per the author]; alongside the emergence of some relevant cultural fundamentals. By attempting to align or recognise similarities between these different theories it is

possible to begin drawing conclusions about the meanings of those similarities. Table 1 below, aligns the work of the previously mentioned thinkers and has been especially informed by the author's knowledge and understanding of Rudolf Steiner's curriculum which was conceived to reflect this Human stage development process, recognising the recapitulation between macro and micro levels of Human expression and emergence, and offers clear indications for the cultural stories and qualities that are the most appropriate for the different ages of children (see earlier interview comments by Dr. Aksel Hugo).

A healthy person develops capacities and qualities at each different age and then, ideally, carries those with them through their on-going years, not discarding earlier knowledge and capabilities but refining them, building on them and appreciating their original values. This applies as much to the development of physical skills and social/emotional development as it does to cognitive abilities and cultural understandings; however, problems can arise when an individual (or culture) becomes stuck or damaged at one of these developmental stages, or denies the value of earlier lessons. The developmental picture of a Human being that Philosopher, Scientist Rudolf Steiner gave, was one that considers a person needs 21 years to grow from child to adult, and offers a very detailed developmental schema of stages and related information across all his different lectures and literature. In the simplest terms his method is based on short repeating cycles of 3 complementary qualities within longer 7 year cycles of the same 3 qualities (bearing in mind that each child is an organic being and these time periods are only general indications). The three qualities are Physical, Emotional, and Intellectual under the control of the individuality that is the child. There is no suggestion that a child (or Humanity) does not have all of these qualities from birth, as they are present all of the time, but they are developed to different degrees during different periods. If all goes well, each child takes hold of their body, feelings and finally thinking, in layers, throughout the three stages of early years, childhood and adolescence. During the first 7 years the child is learning that it has these three; it begins by grasping them and starts to learn control over them in ordered and layered stages. First is control over bodily functions and movements, then comes the emotional control, with the terrible two's widely recognised as the advent of that 'emotional' section, and finally thinking experimentation is observable in children when they start playing with language and

their play begins to change. There are more outer signs and signals of these inner changes and conditions continuing through the subsequent stages within these 7 year periods, until adult maturity, all of which informs the training of teachers and the content and methods of delivery within the curriculum of Steiner's 'Waldorf Education'⁷ but fundamentally there is an observable progression from right hemisphere qualities towards the left.

When compared to Gebser and Wilber's ideas on cultural evolution it is possible to 'unlock' a way of reading our Human journey to help us inform future thoughts, feelings and deeds and it is possible to see how the ideas of Steiner and Piaget also offer close correlations that suggest support for this micro/macro stage development picture. What is important to understand in this discussion and in the viewing of constructed tables such as has been created below, is not only the potential similarities between 'qualities' in the child development pictures of Piaget and Steiner, related to the stages of human evolution as posited by Gebser and Wilber but also that *all the boundaries given should be considered as approximations* between qualities/ages/stages, with 'fuzzy' organic boundaries if you will, that suggest a recognisable pattern over time.

Are the stages/phases of the developmental journey of a child comparable to the longer cycles of human cultural emergence and if so what could this reveal? In the author's mind, the metaphoric comparison between feminine and masculine qualities and the right and left brain hemispheres can be shown to represent a clear progression from the earliest (Archaic) years of childhood through to the adolescent (Mental) stage. The qualities of the right hemisphere gradually emerging through age, to reveal the qualities of the left hemisphere, as will and feeling develop thinking, swinging like a pendulum from the earliest years of archaic immersion in living nature and the Universe, to the scientific rational separation in an apparently dead nature and Universe. The author considers this a valid way to consider evolution which now requires a reintegration of the right to enable a healthy transition to the Integral stage, a reintegration with the metaphoric feminine but on a higher level that includes but transcends all the previous stages.

⁷ The first school developed by Rudolf Steiner was at the Waldorf-Astoria cigarette factory in Stuttgart in 1919 and was called the Waldorfschule, since then the educational system has been referred to as Waldorf or Steiner Education.

Gebser/ Wilber Stages	Archaic		Magical			Mythical			Mental/Rational			Integral									
Inner Cultural Stages	Panpsychism					Emergence of Monotheistic Patriarchy			(Re)Emergence of Gender Equality			Re-integrate through 'Gaia' Bonding? ?									
Outer Cultural Expressions	Tribal Hunter Gatherer	Towns > Horticulture Agriculture		City States > Egypt etc. > Technology >			Western Philosophy Increasing Technology >		Nation States Enlightenment Scientific Revolution		Computers > Quantum > Internet >		? ? ?								
Interiority	Nature Bonded					Nature Separated					?										
Hemispheric Qualities⁸ Metaphorically:	Right Brain: 'Us'; Present; Holistic Learns Kinaesthetically; Thinks in Feelings; Connecting. Feminine					Left Brain: 'I'; Past/Future; Parts/Details; Thinks in words; Categorises; Separating. Masculine					Next Stage?										
Human ages (years)	... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8 ... 9 ... 10 ... 11 ... 12 ... 13 ... 14 ... 15 ... 16 ... 17 ... 18 ... 19 ... 20 ... 21 ...																				
Piaget Stages	Sensori-motor	Pre-operational			Concrete operational			Formal operational													
Steiner/Waldorf Stages	P	E	M	P	E	M	P	E	M												
Stories/Historical Periods for study⁹	Physical			Emotional			Mental														
	> Nature Stories > Fairy Tales > Fables/ Myths/Legends/> India/Egypt/Greeks > Romans > Middle-Ages > 15 th - 17 th Century > 15 th – 21 st Century > Review all & Imagine																				
	Human Emergence										(Progression)										
<u>Table 1. Proposed Comparative Timeline of Human Emergence Theories</u>																					

⁸ As per (Bolte-Taylor, 2008)

⁹ As per (Rawson & Richter, 2008)

This picture of development, from principally right-brain dominant human cultures and societies (environmentally immersed) gradually through to the development of left-brain dominant human cultures and societies (environmentally detached), brought about systematically through agriculture, religion, philosophy and science, and coupled with the intrinsically linked devaluing of the primordial feminine principles, offers us a cohesive picture suggesting, not only evolving phases of development recognisable over time, but also a relational dynamic between opposites which could be considered as a necessary developmental requirement to stimulate on-going Human evolution. From Table 1 it can be seen that a gradual external favouring of metaphorically masculine/left brain qualities began to dominate, developing new qualities, in evolutionary terms, culminating in the scientific method which, in light of our current environmental crises, now requires a re-establishing and valuing of connections to the metaphorically feminine/right brain qualities in dynamic equilibrium, a re-joining of mind and matter on equal terms. In this way one can begin to understand what some of the earlier contributors were referring to, when they spoke of the need for “Transformative Ecozoic Learning” (O’Sullivan, 1999) or “Sustainable Education” (Sterling, 2001) both of which are striving for the re-integration of *thinking and feeling*, into education and learning, of whole-Earth systems, and the subsequent re-valuing of Nature. The responses and the implications from the research and within the literature, suggest that Humanity may well be able to sense the possibility of a new stage of Integral emergence, but at the gateway to this proposed stage what is the fundamental philosophical premise to address? For a paradigm to be different, something fundamentally more inclusive must be informing the new worldview, but what could that be?

The Heart of the Matter

Because the earlier literature recognised that, metaphorically speaking, ‘Nature’ and ‘Matter’ have been considered as expressions of the feminine; and that Monotheistic Patriarchy, Industrialisation and the Rational Scientific approach have been considered as causative elements in our current ecological crises and as expressions of the masculine, it seemed appropriate to consider this encounter of opposites, to see where the imbalance may have begun and why?

The author first suggests that the historical notion of Singularity be addressed which is a concept from physics, and in spiritual traditions is called Spirit, God, Supreme Being or Original Mind, all of which also have other names in different traditions.

It is the idea that there is a single underlying force or principle that the whole of visible and invisible creation is derived from, or based upon. Even though this concept can be considered profoundly simple, to avoid confusion the author will attempt to clarify what it is considered to mean in this paper.

The existence of thought (an idea) requires some kind of substance (matter) to give it form for perception, therefore a duality exists as soon as the first thought, or the 'Big Bang' occurs and so this cannot be considered as Singularity, God or Spirit, for all these words describe pre-emanation. Therefore any concept of Singularity must be considered as 'prior' to the 'Big Bang' or original thought/substance, as a state of infinite potentiality from which thought and the revealing substance could emerge but had not, as though the Universe was unborn/asleep/unconscious. The author refers to this state of pre-emergent Singularity or Spirit as the 'Undifferentiated Absolute' ('UA'). In the earlier use of the word Spirit, found in the literature reviewed, this definition is not clear so the reader must exercise discretion in the interpretations of meanings, however it is this distinction of meaning that is critical to understand in unpicking the metaphorical power relationships between masculine and feminine in philosophy and religion.

As noted earlier by Shepard (1982), the Hebrew/Abrahamic tradition is attributed with the emergence of the singular absolute deity, God, and the general disposition in Abrahamic religions and subsequently western cultures has evolved to consider God as a 'He', yet because the 'UA' is pre-emanation, pre-dual and pre-gender, this is historically and developmentally significant as well as clearly incorrect and indefensible. This supreme patriarchy permeated all the Abrahamic religions teaching the children of Judaism, Islam and Christianity to refer to God as male, leaving the feminine, Nature and matter as subordinate. It has earlier been shown, especially through the work of Carolyn Merchant (1980) that patriarchy is supported by the philosophical premise that declares 'Idea', and subsequently 'Thought', to be a pre-requisite for any kind of material emergence and as such is superior to matter. So, because the whole of creation was argued to have come from the 'Ideas' of God (UA), *before* manifestation, 'Matter' is considered as 'secondary' and so cannot also

be considered Supreme. This philosophical premise is also traceable back, at least, to the ideas of Plato who considered that the Universe consisted of pure and perfect 'Ideas' which were then set in motion, effectively 'birthed' into existence by the female 'soul of the world'. These ideas were further built upon by the emerging religious stories of Christianity and in the words of Merchant'

“The Neoplatonism of Plotinus (AD.204-270), which synthesised Christian philosophy with Platonism, divided the female soul into two components. The higher portion fashioned souls from the divine ideas; the lower portion, *natura*, generated the phenomenal world.....Nature was compared to a midwife who translated Ideas into material things; the Ideas were likened to a father, the matter to a mother, and the generated species to a child. In Platonic symbolism, therefore, both nature and matter were feminine, while Ideas were masculine” (Merchant, 1980, p.10)

This thinking has permeated linguistics, cultures and societies to the deepest levels such that it passes unnoticed unless we begin to deconstruct cultural stories and linguistic environments. From a dominant patriarchal perspective, the male impregnates the female as thought demands its manifestation in the world. Women should obey men; Feminine Substance - *Matter* (Mother/Mater in Latin) should submit to the Masculine Idea – *Pattern* (Father/Pater in Latin).

To reiterate, these philosophical concepts held the belief that the realm of Ideas is the greater reality and that the primordial archetypal 'forms' are perfections from which the material world is but a shadowy reflection. From Plato came the story-image of prisoners watching those shadows on the walls of their cave, referring to the illusion of *perceived* material truths and how by turning and moving towards and besides the light, one can begin to see the *actual* truth, as definite objects in all their idealised archetypal glory. Many stories emerge in our world and often the one's that serve the dominant powers (the 'Elites') are the ones that are *officially* approved and promoted with others being discredited and oppressed, in this way the emerging religious and philosophical powers chose the stories that best supported their causes, beliefs and desires. Much of the development of western civilisation has been based on the premise that these beliefs are true yet perhaps there is a flaw in a fundamental assumption made by the Abrahamic religions, as well as by Plato, that there is a world of perfected spiritual ideas that the material world is based upon, perhaps this

just isn't true. Perhaps by recognising one fundamental change in this approach the author believes that the focus of our 'western' Human journey could be altered allowing all things that have been metaphorically related to the feminine, to return on equal terms.

The change proposed, is to refute this fundamental position on the original perfection of Ideas and that although it may be an acceptable concept that there are non-physical 'blueprints' or 'forms' upon which physical emergences are based, it may be that these are not the divinely perfected conditions from which imperfect representations appear in the physical world. The author suggests that they are, from the very beginning, 'vague' *Forms* (only general ideas) and it is only through the diverse revelations in *Substance* (Matter) that a reciprocal feedback occurs which enables the 'vague' to improve and for evolution to occur, for the Alpha to become Omega evolving from 'Raw' to 'Refined' in the on-going and ever-present moment.

The author also believes that this kind of thinking follows a pragmatic and functionally rational approach to the outer evolution of species as well as to the on-going development of the core 'vague' idea(s) constantly refining and holistically defining along evolutionary lines. If this is the case then it would appear that the Universe may be involved in a kind of action research project oscillating between theories (conceptual ideas) and practices (material manifestations). If this is true, it is further proposed that rather than the beginning of the Universe being a 'Big Bang' it was a 'Gentle Blossoming', an awakening into vague emergences which coalesced into the 'refined' primary elements and these 'vague forms' of the Universe continue to emerge and refine up to this day from there, a bit like waking up... perhaps living beings recapitulate a little every day.

Ultimately, neither ideas nor expressions can exist without the other, one is not superior to the other, thought cannot think itself nor express an idea without matter clothing its ideas for perception whether that be in the physical world or the world of thought and dreams, and matter cannot feel itself nor express any form without a pattern from thought giving texture, density and depth to matter to express.

The boundaries between these two poles is clearly firm on some levels yet 'fuzzy' on others depending on one's position for perception, allowing flexibility, sensitivity

and warmth between metaphoric male and female qualities and through that, the physical, emotional and intellectual are made manifest and evolve through time.

Humanity is a product of this planet, which is a product of the Universe, and has evolved out of its forces and conditions and it may be fair to suggest that all Earth species are owned by the planet; Humanity does not do not own the Earth. By accepting this premise and striving to improve our species behaviour towards ‘all our relations’ a route towards a healing of the ‘cut’ could occur.

Rather than continuing as earthlings attempting to control the Earth, perhaps the way forward may be through recognising ourselves as ‘gailings’ attempting to learn how to care for Gaia, recognising that we are, connected intrinsically through our minds as much as through our feelings and our bodies to the functioning of the biosphere in which we are embedded and to the greater Universe in which our planet is a part. As self-reflecting actors the author argues that the role for each individual person, as much as for Humanity as a whole is, through self-reflection and recognition of the connectedness of everything, to go about life knowing that whatever we do, fundamentally we are ‘home-grown creative planetary caregivers’ many of whom are currently destroying that which ultimately we need to care for. It may be that as products of this planet we are evolved to be ‘Keepers of the Garden’ rather than destroyers. We have forgotten that we have forgotten, but slowly perhaps an awakening and a remembering is germinating.

Conclusion

From the beginning of this paper it has been shown that Human sustainability is currently threatened and this is directly related to Human overpopulation, lifestyles and the relationships promoted by Religions and Philosophies that support the metaphoric devaluing of the feminine principles of nature, the mechanisation of matter and the belief in Humanity’s dominion over the Earth and all its species and materials.

It has also been shown that nature offers healing opportunities for all types of individuals in a myriad of ways and that these healing opportunities offer clues that support ways to improve Humanity’s ecological relationships.

All these arguments and considerations have also been used to describe the possibility that there may be an evolutionary process at work which culminated in the scientific method as a part of a separating and individualising process which allows Humanity to reflect upon itself, individually and collectively, as an emergent product of the planet Earth.

Young people today live in increasingly digital urban worlds and are less aware and have less practical skills and natural knowledge than their predecessors and although compulsory education is beginning to include concepts of environmental and Human sustainability in certain areas of the curriculum there is, as has been previously noted, a tendency to intellectualise these types of learning which also has the tendency to leave knowledge as an abstract concept rather than developing living critical knowledge based on direct practical experiences with living nature either in or nearby the educational setting. It is clear that the adults questioned in the research for this paper are overwhelmingly in support of the need to include significantly more nature-based practical and aesthetic experiences at all levels of compulsory education and see this as a necessary requirement in the movement towards achieving Human sustainability. Therefore to encourage a healing of the ‘cut’ and to find reconnection to a living, rather than mechanical, material world, in an existentially meaningful way, while training our young to be adaptable, skilful and aesthetically appreciative of nature and all interdependent systems, the author now proposes a type of therapeutic Special Education, to try to improve Human Sustainability and environmental relationships.

Green Transitions: An Educational Programme for Healing

Preliminary suggestions for age-appropriate activities given in the ‘Green Transitions’ programme shown below in Table 2, have been developed from the author’s experiences as a Crafts and Gardening teacher across all educational ages from Early-years children to University level students and through working with educational stage development pictures.

The programme is offered as an initial outline and potential add-on to any school that has the resources and will to bring about a change in their learning environment.

These guidelines can be applied equally across pedagogical approaches as they fit generalised stages enough to be broadly appropriate and should equally be

considered as a set of processes to follow for adults who have had limited or no real experience of these kinds of activities.

They are as applicable to mainstream education as to Montessori, Steiner or most other educational methods and being nature-based they are able to be adapted to specifically local and cultural orientations, recognising the global through the local, and by engaging with seasonal, non-denominational, solar celebrations to help contextualise activities and craft processes carried out in and around the gardens.

The programme has not been developed to specifically address pre-existing curriculum demands but can be used to do so in a variety of ways depending on setting, requirements and the creative imagination of teachers.

Often intellectual understanding can be brought about through conversations during some of the tasks or through drawing attention to the historical social and economic significance of different crafts or food production based on the locality in order to help develop deeper values in students than those alone offered by intellectual descriptions.

Values are also developed through the activities and production processes that are often seen by modern students as irrelevant and worthless until they have gone through processes and achieved a finished product which they then imbue with value. The author will illustrate this point by relating a learning experience that occurred with a group of 13 year old students each of whom was asked to make a Willow basket.

When the lesson was presented there was a lot of initial resistance, as is common for students of that age and one student declared that this was a stupid and unnecessary exercise as a [cheaply imported] basket could be bought for an insignificant amount of money at a local shop, however after many hours of work over several days, all the students managed to create their own baskets and, along with the others, the student who had initially rejected the value of the process, was proud of, and recognised the value of, his creation and also appreciated the under-valuing of the handmade baskets that could be bought so cheaply. With the supporting conversations that took place during the making process, economic, social and historical conditions of production were contextualised alongside concepts of disposability, self-reliance and resilience and environmental impacts in terms of

resource availability, waste produced from processes and low paid labour which enabled cheap imports to occur was also discussed; all of these issues were ultimately related to the concepts of environmental appreciation and Human sustainability. This making and talking process enabled the students to view the world in a wider way and directly enhanced their capacities for critical thinking and through discussion and imagining they were able to develop and deepen their understandings about the sustainability agenda in a greater way than just thinking that it was all about personal recycling or turning off a tap to save water.

These kinds of ‘natural’ projects, as they expand in scope and range throughout the different educational stages, offer local educators opportunities to find ways of integrating the required learning outcomes for subjects, from any national curriculum, into their rural crafts and organic nature-based activities. Developing these concepts would ideally be done at regional as well as local levels (as pointed out earlier by Dr. Patricia Leme), with continued study, redefinitions and internal appraisals being carried out between these special educators. What their title should be is unclear but ‘Green Transitions Teacher’ seems appropriate if a specific denomination is required.

As has been said, any school which incorporates such a programme into their activities, should recognise that not only can the programme stand alone as a curriculum based activity, but can also offer applications for classroom theory and practice from other subjects and offers teachers a new setting for their subject work whilst being supported by the Green Transitions Teacher with practical experience of outdoor learning.

This last point is important enough to make note of, as earlier studies have shown that coupled with a lack of time and resources, the biggest challenges for teachers in using the outdoors as a learning setting and in developing learning for sustainability, was a lack of experience in this area, lack of in-service training and lack of embedded elements in pre-teacher training which promotes, explains and develops empathetic connection with the built as well as living environment and nature as a whole. (Blair, 2010; O’Malley, 2014; Sterling, 2001; Waite, 2009)

Clearly this is an area which requires greater input from higher education institutions globally in order to research, evaluate and disseminate good practices for

compulsory schooling, but it is also important to acknowledge that “when looking to the future of sustainability education we must recognise the ethical implications of how curriculum and pedagogy in higher education influences the trajectory of future generations” (Hensley, 2017, p. 3) which again asks for leaders in HE to be courageous change-makers.

‘The JRC Science and Policy Report on Global Food Security 2030 – Assessing trends with a view to Guiding Future EU Policies’ (2015) – recognised that with increasing urban populations, food security will become more and more important in maintaining healthy populations and included in its “Key Message 4” for policymakers, is the recommendation that

“in order to build food security solutions from the ground up, a culture of innovation in food systems should be promoted ... in line with global needs but also attuned to local situations, lifestyle and diversity through new educational models and training”.

(Maggio, van Crieking, & Malingreau, 2015)

Developing school-based gardening and crafts curriculums as this paper suggests, would offer an innovative approach to food growing for children in enjoyable ways while helping them to understand the interconnections between healthy soils, healthy food production techniques, the values of crafted products and healthy lifestyles, within a nature-based framework even in heavily urbanised and digital environments.

However a study from University of Plymouth in 2007 recognised that even though there might be all the best will in the world from Global Institutions such as the E.U. or the U.N. to bring local nature and nature-based activities into the educational lives of students and teachers and to support the ‘sustainability’ agenda,

“...years of delivery modes for teaching mean that this turn to ‘nature’ may rather be viewed as ‘unnatural’ for some children and teachers. A universal welcome for its characteristics cannot be guaranteed”.

(Sue Waite, 2009, p. 1)

To develop the concept of a Green Transition crafts and gardening programme and based on the author’s experiences, it is important to suggest that when working with practical aesthetic tasks in schools the ratio of students per teacher should never

exceed 12:1 in order to enable greater personal attention, group and individual safety and a smaller working environment, not to mention the availability of tools and specialist equipment that may be required. Each class should ideally have a block of lessons which should be at least 2 hours in length across consecutive days for at least one week in each season. Sessions should be used for garden design, development and maintenance as well as rural craft projects some of which require continuous work either because of the sizes of tasks or because materials such as greenwood will dry out.

Workshop spaces for crafts should be within the gardens and the gardens should always have a vertical boundary, preferably living, to enhance the feeling of entering into an enclosed and protected woodland-type space. Gardens should be conceived of as a collaborative school/community venture with out-of-hours access being controlled between the school and the wider parent body/community.

Even a space which has no ‘free’ earth and is covered completely with asphalt or concrete can be greened up and living vertical boundaries can be created using containers for growing. An example of this is given below, with before and after photos, of work done with the eldest combined, primary school class of girls creating a tyre garden over a six month period for approximately one hour per week.



Before



After



A primary student pruning a simple example of a vertical living boundary

The curriculum indications given below are also the basic skills and abilities needed by a Green Transitions Teacher and should be integrated alongside the philosophical and pedagogical basis laid out previously.

Table 2 below gives a visual representation to the types of craft activities that are appropriate to introduce at different ages of children and some outline information is now given as a key from which to interpret and understand what is presented.

There is an implicit evolution of skills which are developed in order to enable children to move from simple to more complex skills, from using softer materials in their naturally occurring states to harder materials and processes in more refined states which need more difficult processes. This is working in harmony with the idea that children move naturally from play to work. It also includes the thinking that harder, more exacting linear work, which requires higher level thinking and critical assessment is more appropriate for older students than for younger ones and drawing on this concept, of hardness of materials and linearity, the forms created by younger students are less linear and more aligned with curves and the materials used are softer and more pliable, for this reason natural play with mud and grasses and less refined structures and creations are more in tune with the younger child's emerging capacities. This follows the same thinking as ordinary curriculum development which begins with simple tasks and computations and gradually moves towards more complex demands while still using and developing further, earlier learnt skills and knowledge. As noted earlier, in order to develop healthy individuals and societies it is important to recognise that the qualities and capacities developed at every stage along the educational journey of growing up should be maintained and appreciated, not 'grown out of' in the sense that things are childish and no longer of use but 'grown out of' in the way a tree 'grows out of' the fertile soil that has helped to enabled its growth, the connection is maintained, appreciated and deepened.

In kindergartens we teach children to be kind, to share and to avoid violence and these qualities need to be appreciated as deep foundations which should remain, inform and be integrated into the emerging personalities of each individual. As we attempt to integrate the benign qualities of each stage of childhood into each subsequent stage, we can see a metaphor for the ways in which we as a species should consider this same path to integrate the qualities of our ancestors, from

indigenous wisdom to rational thinking and beyond as presented in Table 1, shown earlier.

Overall Image

- Visioning, Creating, Developing and Maintaining a Green Transition Garden (GTG).

The concept of the Green Transition Garden is based on certain basic principles listed below:

1. The GTG should be controlled by a specially trained Green Transitions Teacher(s) who will have developed a series of basic craft and gardening skills and knowledge with a responsibility for studying the local environment to be able to recognise and deliver place-based learning and be responsible for networking for resources and knowledge across the local community.
2. The GTG should initially be designed by students with guidance, adjustment, dialogue and final decisions being taken in collaboration with the Green Transitions Teacher(s).
3. The GTG should be created and maintained by students, with support from the wider (parent) community as appropriate.
4. The GTG should ideally have a living vertical boundary which contains all craft activities and growing spaces, including indoor workshops and outdoor work areas and entranceways should be consciously designed to be aesthetically pleasing.
5. The GTG should be created using natural materials from the immediate locality as much as possible, however reusing, recycling and upcycling other materials should be considered as viable options as appropriate as should the use of appropriate 'green' technologies.
6. There should be a principle of using the simplest effective tools and materials for any job, so even simple digging tools can be made from carved branches when budgets for bought tools are not available or are limited.
7. Students should create as many pieces of equipment as needed for the functioning and aesthetics of the learning and growing space, i.e. cordage, baskets for plant/produce collection, wooden tools, handles etc.
8. Although students should, when necessary, be 'pushed' to work by the Green Transitions Teacher, a balanced approach must be taken to encourage the

development of wonder, joy and appreciation for nature in students without undue force.

9. The GTG should be operated wholly ‘Organically’ so soil fertilisation, control of plant pests and diseases should be based on ecologically sound principles avoiding chemical or non-local mineral alternatives where possible.
10. Work in the GTG should not be consider a type of vocational education and should be inclusive of all children regardless of age, preferences or abilities.
11. Each GTG should have a social space for the making of hot drinks, preferably using a wood burning stove or an open fire and a ‘social’ sitting space.
12. Culturally relevant crafts and aesthetic styles should form a part of the GTG and as much as possible items for use or for aesthetics within the space should be created by students.
13. Composting and Wormeries should form a part of the GTG.
14. Subject lessons should be encouraged, supported and developed in the GTG as much as possible with high levels of imaginative and creative collaborations between subject teachers and the Green Transitions Teacher.

In-Service Training

- Key Skills and Competencies for Green Transition teachers
 - Construction techniques and safety.
 - First Aid
 - Cordage and Knots
 - Basic Woodwork/Green Woodwork skills
 - Basic Pottery skills
 - Basic Copper work skills
 - Charcoal Making
 - Basic Gardening skills
 - Renewable Energy Technologies
 - Basic understanding of plumbing and drainage

- Up-Skilling and Festival development for region, to build platform to support practitioners; to facilitate sharing of good practices and regional mentoring; and to increase this approaches’ public profile related to Sustainable Education.

Work in the Outer World – Growth and Production/Extraction of Materials – Land & Craftwork

From Raw



To Refined

>> Digging-Sowing-Watering-Caring-Growing-Harvesting-Processing-Hitting-Poking-Scraping-Scratching-Dragging-Bending-Twisting-Knotting-Breaking-Boring-Chopping-Cleaving-Chiselling-Sawing-Carving-Creating-Cooking-Celebrating-Reflecting >>

<u>Play in Nature</u>	<u>Working with Nature</u>				<u>Basic Tool work</u>			<u>Refined Tool Work</u>				
<ul style="list-style-type: none"> • Simple Den Building • Dams and Streams • Soft Handicrafts • Twigs and Branches (Kindling) • Fantasy spaces. • Simple Horticulture • Composting • Wormeries 	<ul style="list-style-type: none"> • Crops to Vegetables • Soil and Water, irrigation and drainage • Handwork with Mud/Clay, Grasses, Sticks etc. • Hurdle-Making • Wool and Fibre Production • String/Rope Making • Knot Making • Shelter Building • Lintels • Bridges • Wooden Tools > Stone Tools > Metal Tools. • Whittling • Whistles • Pens, Blotters & Stands • Starting & Tending Fire • Simple First Aid • Camping 	<ul style="list-style-type: none"> ➢ Green-woodwork/Sloyd <ul style="list-style-type: none"> • Simple Felling • Mallet Making • Carving • Simple Basketry • Shave Horses • Brakes and Supports • Three-Legged Stools • Movable Toys • Ropes and Pulleys • Tensions and Compressions ➢ Pottery <ul style="list-style-type: none"> • Clay Ovens • Adobe • Arches • Lime Kiln ➢ Wilderness Camping ➢ Wilderness First Aid 	<ul style="list-style-type: none"> • Design, Construction and Evaluation • Pole-Lathe • Tool Handles • Charcoal Making • Forge Work • Potter's Wheel • Pottery Kilns • Complex Living Constructs • Basketry • Copper work • Harnessing Energy • Stone Work • Powered Tools • Larger Community Projects 	8yrs	9yrs	10yrs	11yrs	12yrs	13yrs	14yrs	15yrs	16yrs

>>Twisting, Spinning, Sewing, Knitting, Knotting, Weaving, Carding, Dyeing, Felting, Cooking>>

From Home Through Play

Work in the Inner World – Home & Handwork

to the World to Work



Softer

(Increasing Complexity)

Harder

Table 2: Green Transitions - Special Education Programme

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Appendices

Annex 1: Raw survey data (Qualitative Survey)

1. Information and Invitation Sheet for Interview Participants.
2. Interview Questions

All interview responses are stored securely on INN Server:

- Angela Feng (Director: International Rehabilitation Standards (China; Switzerland; International)).
- Dr Aksel Hugo (Principal at Sogn Agricultural College, Aurland – Norway; Former associate professor in science education at, Norwegian University of Life Sciences, Norway).
- Dr. Patricia Leme (biologist, PhD in Education, Educator at University of São Paulo, Brazil).
- Stephen Sterling (Emeritus Professor of Sustainability Education, University of Plymouth, U.K.)

Annex 2: Raw data (Quantitative Questionnaire) – Values as Percentages

1. Questionnaire Information Sheet.
2. Questions & Responses.

Annex 1.1

Information sheet for participants in research project

(Interviews)

~

Human Sustainability

&

Planetary Stewardship

Towards Evolution or Dysfunction?

~

This research project is carried out in order to inform a final thesis required as partial fulfilment of a Master's Degree in Special Education: Practical Skills, Transformative Learning' at Inland Norway University of Applied Sciences (Lillehammer University College campus).

I am reflecting on the relationship between Humanity and Nature.

I am exploring people's views on Nature in schools, the relevance of developing Human/Nature understanding and relationships, and how this could affect future development towards societal health; local and global sustainability; and improving environmental practices.

I am looking at perceptions about potential directions for general education and what today's adults' think that tomorrow's young people may need, to live sustainably in the 21st century.

My main question is: Can the development of active relationships with Nature, through including natural crafts and organic gardening in schools, enhance societal health; help development towards local and global sustainability; and improve environmental attitudes and practices of future generations?

In order to comply with data regulations and restrictions affecting the University, I am unable to use video call as a method of real-time interactive interview. Therefore I have compiled my list of interview questions in a survey format using a University approved software which allows the University to securely store all responses and personal data on their own servers.

What this means in practice is that you will need to follow the link given in the email and complete the survey online. You are able to save it and return, to make it easier to complete in stages.

Because a live video conversation would have helped me to avoid asking questions which may have been answered earlier, I have attempted to separate the written questions carefully to try to avoid this, but if a question seems irrelevant or has been answered previously etc. please just ignore it or refer to an earlier point.

I am also attaching a pdf copy of the survey questions so that you can print them off if you want, to browse them at your leisure, or if you wish to type and save your responses before going online, which can then quickly and easily be copied and pasted into the official survey page.

~

Data storage and contact details.

All personal data will be stored securely by:

Institution: Inland Norway University of Applied Sciences.

Student: L.A.C. Malins (160681).

Student Supervisor: Prof. Trond Jakobsen

Data processor: Inland Norway University of Applied Sciences.

All personal data will be securely stored and treated confidentially excepting previously agreed use for subsequent research and/or educational purposes.

The project is scheduled for completion by the end January 2019 and all personally identifiable data will either be anonymised, destroyed or deleted unless previously agreed and stored for future research/educational use by the University and/or student.

~

Voluntary participation

It is voluntary to participate in the project, and you can at any time choose to withdraw your consent and participation without stating any reason. If you decide to withdraw after submitting the questionnaire, written application must be made to Inland University of Applied Sciences and any personally identifiable data will be anonymised.

For any doubts, concerns queries or changes please contact and/or advise:

Student: Lucien (Chris) Malins – chris.malins@hotmail.com

or

Project Supervisor: Prof. Trond Jakobsen - trond.jakobsen@inn.no

The study has been notified to the Data Protection Official for Research, NSD - Norwegian Centre for Research Data.

~

When you open the survey link (included in the email), your first window should display a 'Consent to participate' message, which must be completed before continuing.

Thanks for giving this your time and considerations.
Lucien (Chris) Malins.

~

For your interest

I am attaching two other hyperlinks connected to my research and practice, the first to an anonymous quantitative survey which I have shared through social media, which explores general thoughts on nature and education, from any English speaking adult worldwide available to view, share or complete at this web address:

<https://response.questback.com/isa/qbv.dll/ShowQuest?QuestID=5184296&sid=7xaA8nxb5u>

And secondly a YouTube link to an organic school garden project made with recycled tyres and pallets, which I recently completed with children at our local Spanish primary school.

<https://www.youtube.com/watch?v=ua8pQ2y5jqY>

~

Annex 1.2.

Online MA Interview Questions

1. Consent to participate.

I have previously received and read an information sheet for interview participants in research project: 'Human Sustainability & Planetary Stewardship'.

By completing and sending this questionnaire I consent to participation in this study.

Please mark the appropriate boxes to confirm your consents.

- I agree that my responses may be used in this Master Thesis
- I agree that I may be identified as the source of my answers and comments for any subsequent research and/or educational purposes until project completion (January 2019).
- I agree that my responses may be stored to assist further research and/or educational purposes after project completion (January 2019) by Inland Norway University of Applied Science and by researcher Lucien (Chris) Malins.

2. Please give your name and any relevant background information.

3. Do you believe that a deep personal relationship and connection with nature is important or even necessary for post-modern people in our technological age and if so why?
4. Considering our various on-going Human-induced environmental crises, do you believe that our behaviour as a species, in damaging the primary matrix of our home planet, could be likened to self-harming and so could be an outer sign of an inner psychological disorder or disequilibrium?...and if yes, what would you consider 'normal' or 'balanced' behaviour in relation to our planetary home?
5. How could compulsory education contribute towards developing that behaviour?
6. Looking at this another way, could you consider it valid to argue that what is occurring, is not primarily a disorder, but rather is a part of an on-going transformative evolutionary process striving towards greater species maturity, more symbiotic planetary relationships and a paradigm shift?....(If yes, can you give any examples to support such an argument?)
7. How could compulsory education contribute towards developing that behaviour?

8. In an ever urbanising world, what ingredients do you think might be needed to encourage children of the cities to find, recognise and develop positive relationships with nature?
9. It appears to me that just being 'in nature' is not a certain way for people to develop a caring and conscious attitude towards Gaia/the planet Earth (as a whole, self-regulating, interdependent set of systems and beings). Many industrial farmers are 'in nature' but have a predominantly utilitarian approach to those systems and beings. Do you think that there is a special ingredient that needs to be present in people for them to love, or at least, respect and treat the Earth's nature in deeper, more caring ways? If so, where might this ingredient come from and how might it be promoted?
10. Studies have shown that communal gardening can be an effective tool to promote social integration, personal health and learning. Do you believe that compulsory education should incorporate this into regular activities, to encourage nature connection and understanding? If yes, what support, challenges or resistances, might advocates of such an approach meet, from whom and why?
11. What do you think about the idea of including an integrated semi-outdoor natural crafts, organic gardening and environmentally regenerative practices programme, into all primary and secondary schools, in age-appropriate ways, as a complement to purely academic learning?
12. Can you imagine any synergies that could be developed between traditional subject lessons and a natural crafts/organic gardening curriculum? ... could you suggest any examples?
13. Do you think that embedding a natural crafts and organic gardening programme into all compulsory education could affect societal development in the long-term? If yes, how?
14. In terms of possibilities and probabilities, how likely do you think it is that governments would make money and resources available to schools to promote nature connection through integrated natural crafts and organic gardening programmes? Why?
15. In your region/country, do schools have programmes included for vegetable and/or fruit growing? (Infants, Primary, Secondary, etc.?) ... If yes, do they share or sell the produce at holiday/cultural/community events? (please describe)

16. Do schools have programmes for children/students to process other plants, such as cotton to cloth; grasses to string; plants to baskets; etc.?
17. Have you ever come across any specific 'outdoor/semi-outdoor gardening/crafts classrooms'? If yes, what were your impressions of the activities and the effects on the children and the adults?
18. Have you observed any recent or general trends within adult communities in your region/country about this topic of nature connection/respect?
19. In some places and cultures, food growing and hand-made crafts are considered to be activities for poor people, what is the perception of this in your area and what do you think of this?
20. Do you think that the philosophical and subsequent physical, repression/oppression of the feminine through history has contributed to our environmental crises, and if so how?
21. From my understanding, as the corporate/economic and royal worlds seem to control the legal/political and much of the material world (its resource extractions, uses and pollutions), and as this top-down control is beyond the influence of most people – can you imagine how the world could be changed to become more environmentally conscious from the bottom up.....from a 'grass roots' level?What do people need, to be able to act in benign ways within our environment?Why should they bother?
22. Can you imagine an evolutionary story for humanity that allows us the luxuries and privileges of scientific thought and creation whilst honouring the biosphere and the deeper narrative of us as an evolving species within species?
23. Thank you is there anything else you would like to add?

Annex 2.1

Human Sustainability & Planetary Stewardship

- A survey for education

(Information Sheet)

This questionnaire is exploring people's views on 'Nature'¹⁰ and schools and will be active until the end of July 2018.

I am looking at perceptions about the potential directions for general education and what today's adults' think that tomorrows' young people may need, to live sustainably in the 21st century.

I am asking the question: Can the development of active relationships with Nature, through including natural crafts and gardening in schools, enhance societal health; help development towards local and global sustainability; and improve environmental attitudes and practices of future generations?

I appreciate your sharing of thoughts, opinions, memories and feelings in the survey below and thank you for helping me to see if there may be value in promoting green education in this way.

Please share this survey as widely as possible :)

Below are a series of questions which are partly focussed on periods of your personal development.

In these questions I treat childhood as up to, but not including, 13 years of age and define adolescents as between 13 and 16 yrs.

I hope the questions are easy to follow and the answer options always give you an obvious choice.

Thanks for helping.

L.A.C. Malins. (MA Student)

'Special Education: Practical Skills, Transformative Learning',

Inland Norway University of Applied Sciences.

Your identity will be hidden.

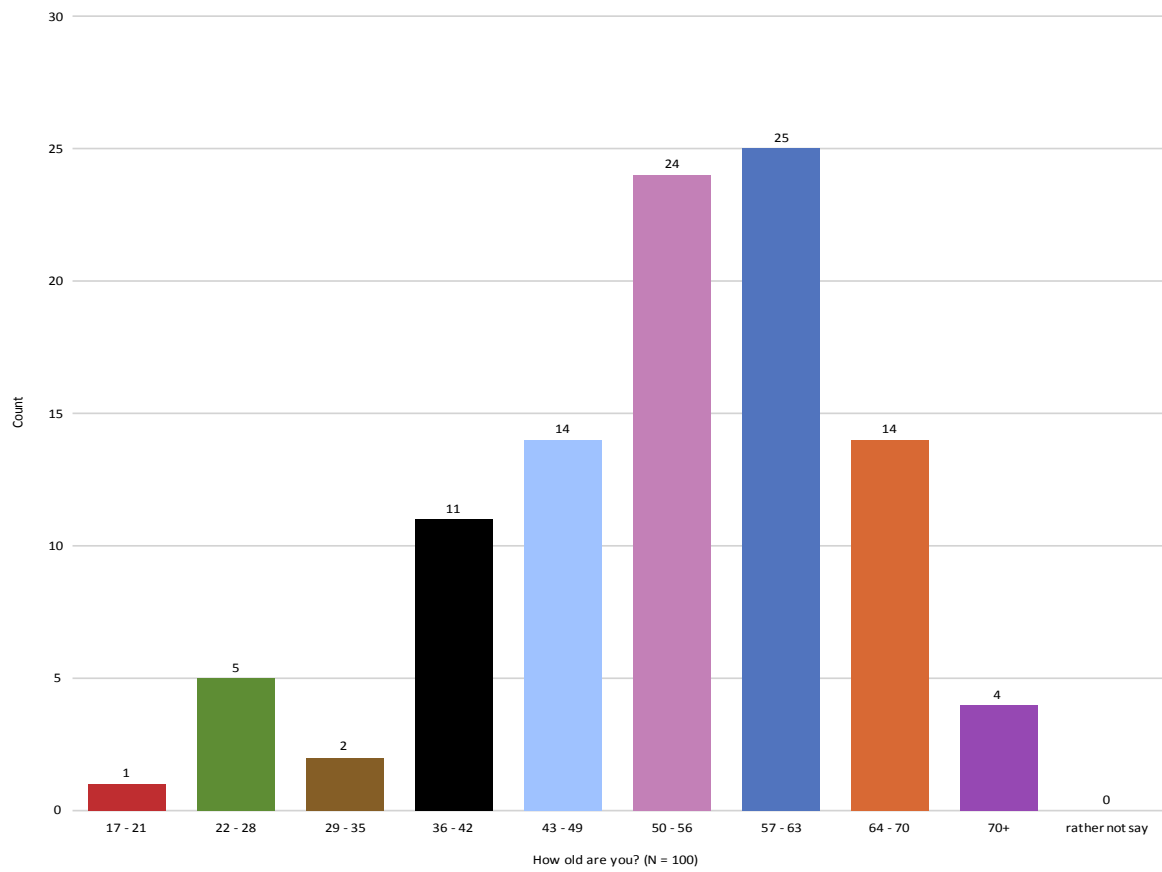
When hidden identity is used in surveys, no identifiable information, such as browser type and version, internet IP address, operating system, or e-mail address, will be stored with the answer. This is to protect the respondent's identity.

¹⁰ I use Nature with a capital N to denote all interlinked natural systems.

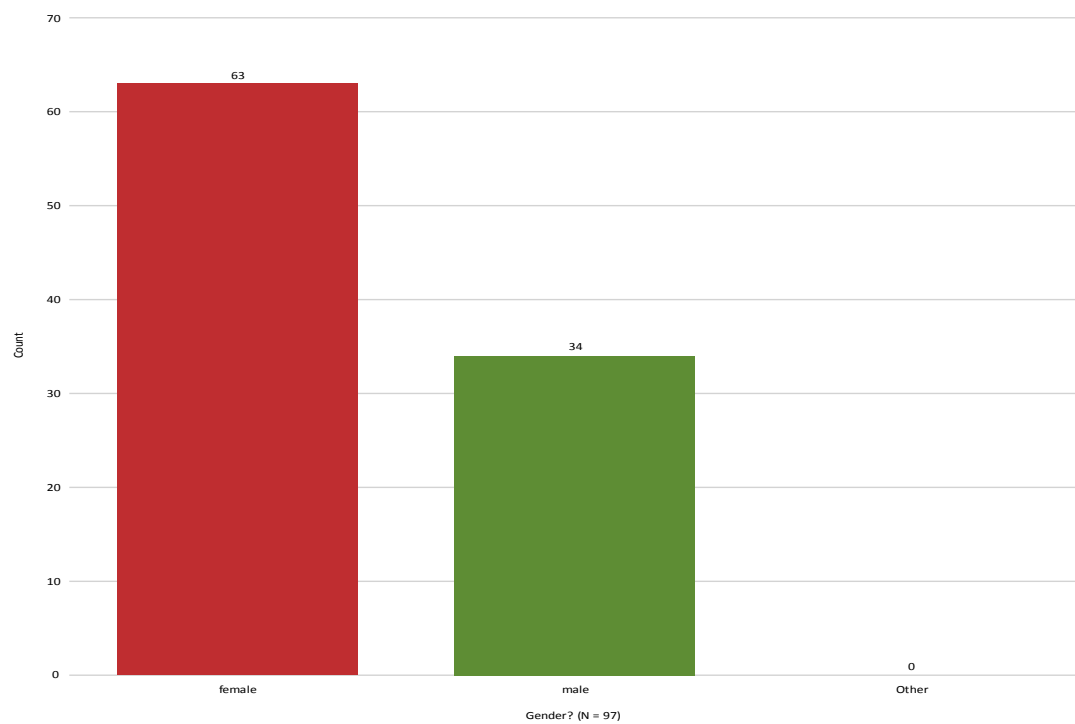
Annex 2.2

All Survey Responses as Values

1. How old are you?



2. Gender?



3. What country do you live in?

UK

Italy

Netherlands

United States

England

United States

Australia

United States of America

Uk

Spain

Scotland

USA

United Kingdom

Spain

Spain

Spain

England

England

Spain

UK

Spain

Malaysia

England

Spain

Spain

UK

Germany

Netherlands

Spain

UK

Spain

England

Spain

Spain

Spain

England

España

Spain

UK

Uk

UK / Spain

Spain

Australia

Spain

England

England

Sweden

UK

Spain

England

United Kingdom

UK

UK

United Kingdom

Australia

U.K.

UK

UK

United Kingdom

United Kingdom

Spain

Spain

United Kingdom

Uk

UK

Wales

England

Spain

UK

UK

Spain

Scotland

United Kingdom

Scotland

Scotland

Scotland

United Kingdom

Scotland

Scotland

Scotland

United Kingdom

UK

United states

UK

Scotland

Turkey

Brazil

Spain

United Kingdom

UK

Spain

United Kingdom

Spain

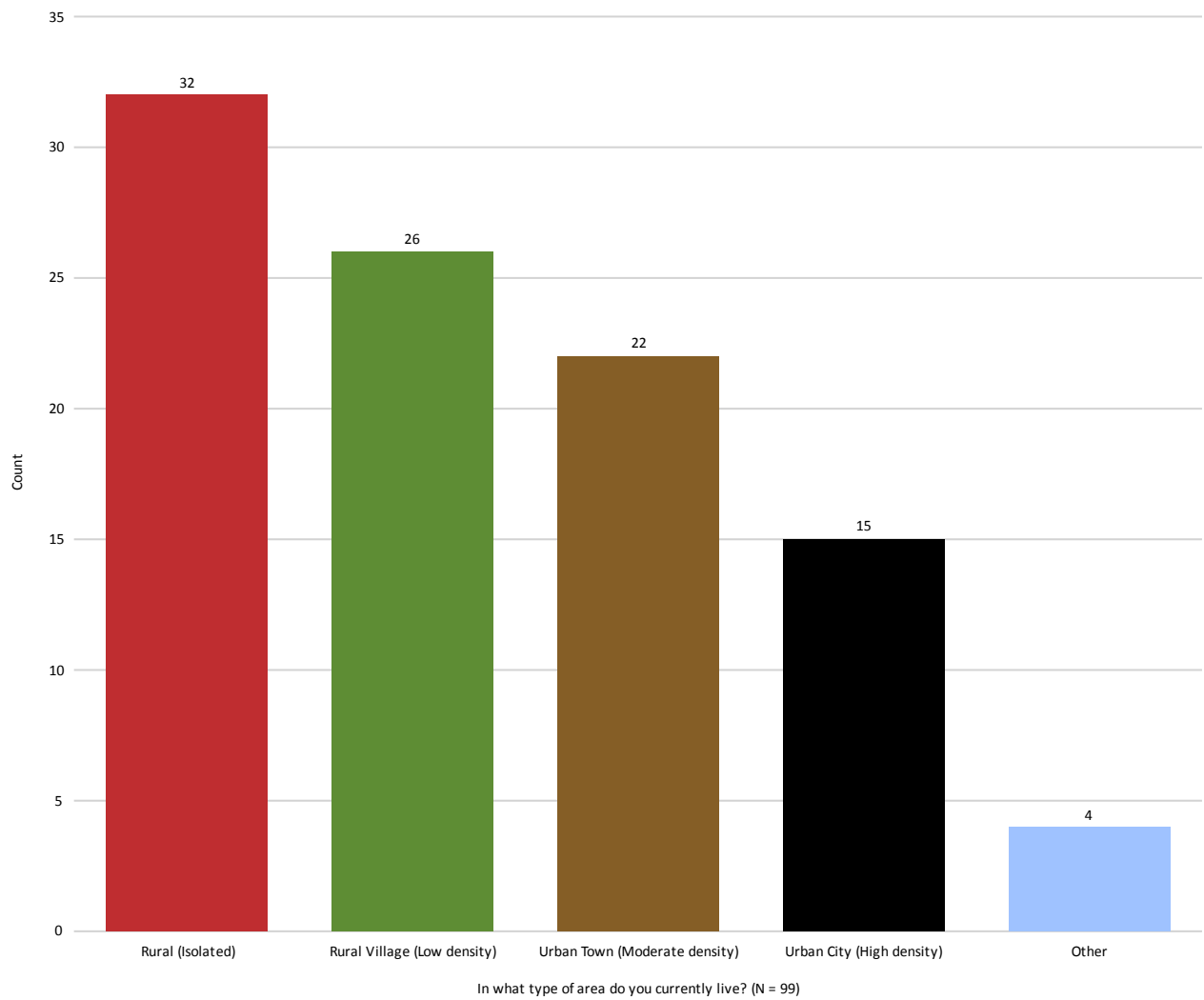
UK

Ireland

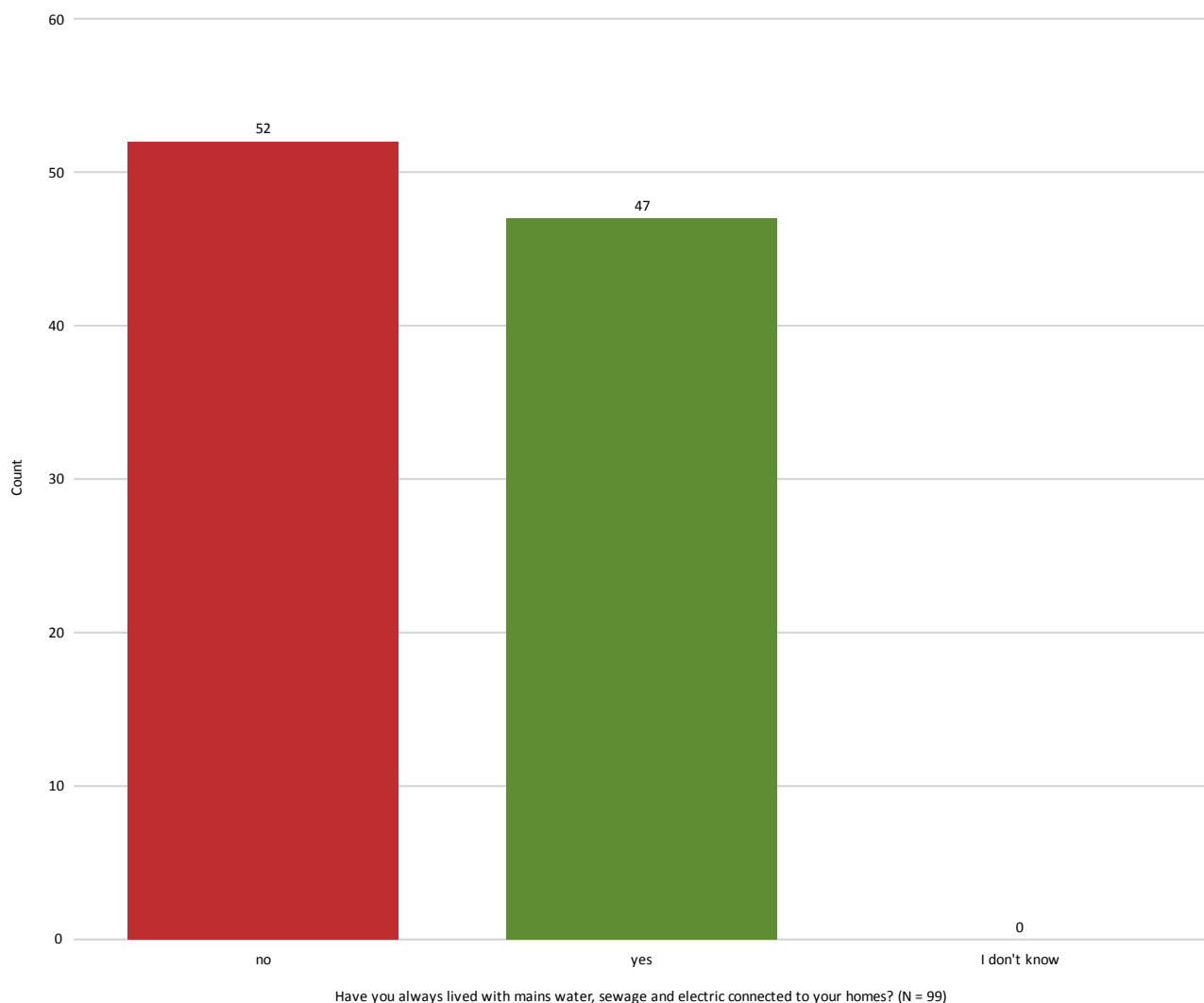
UK

Spain

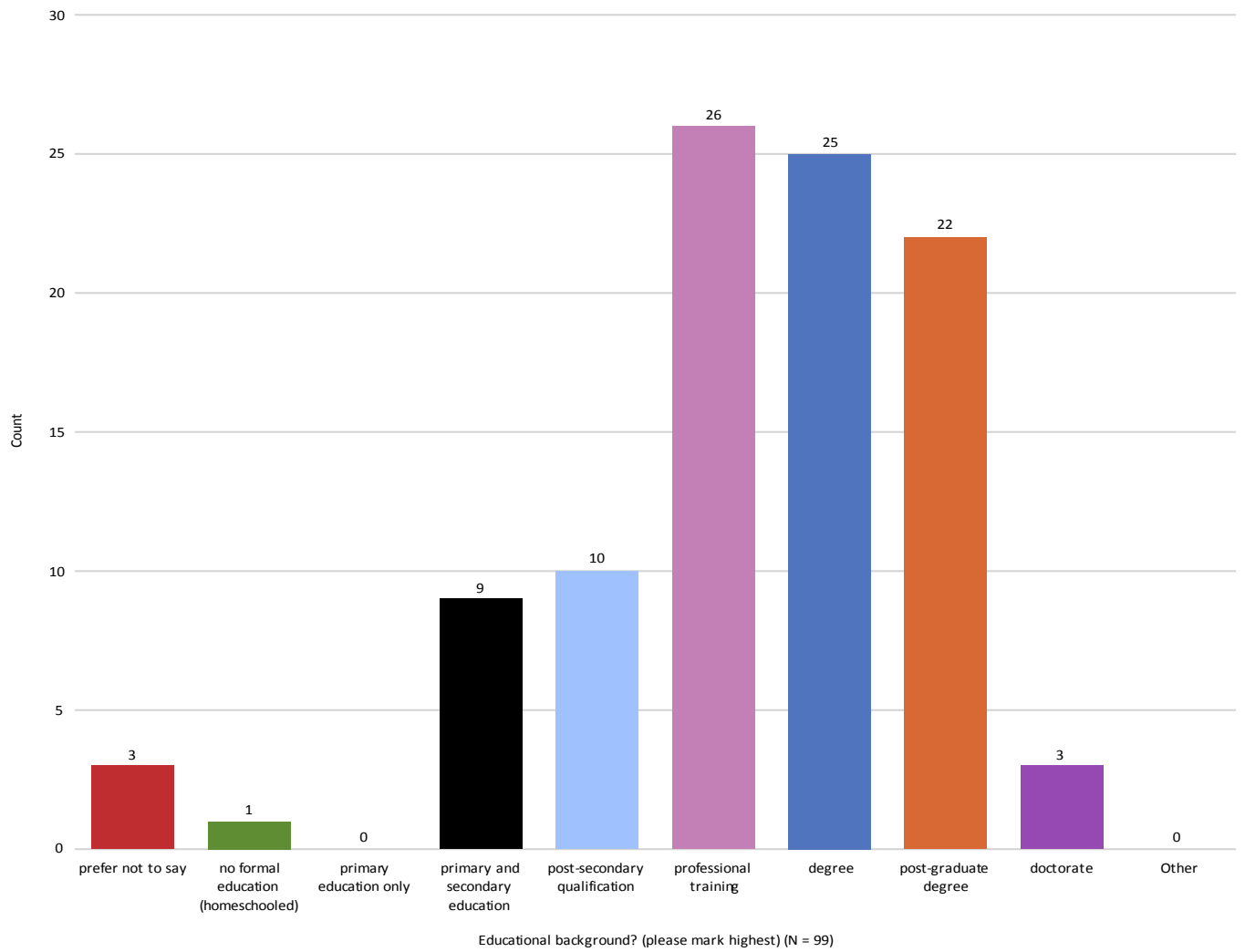
4. In what type of area do you currently live?



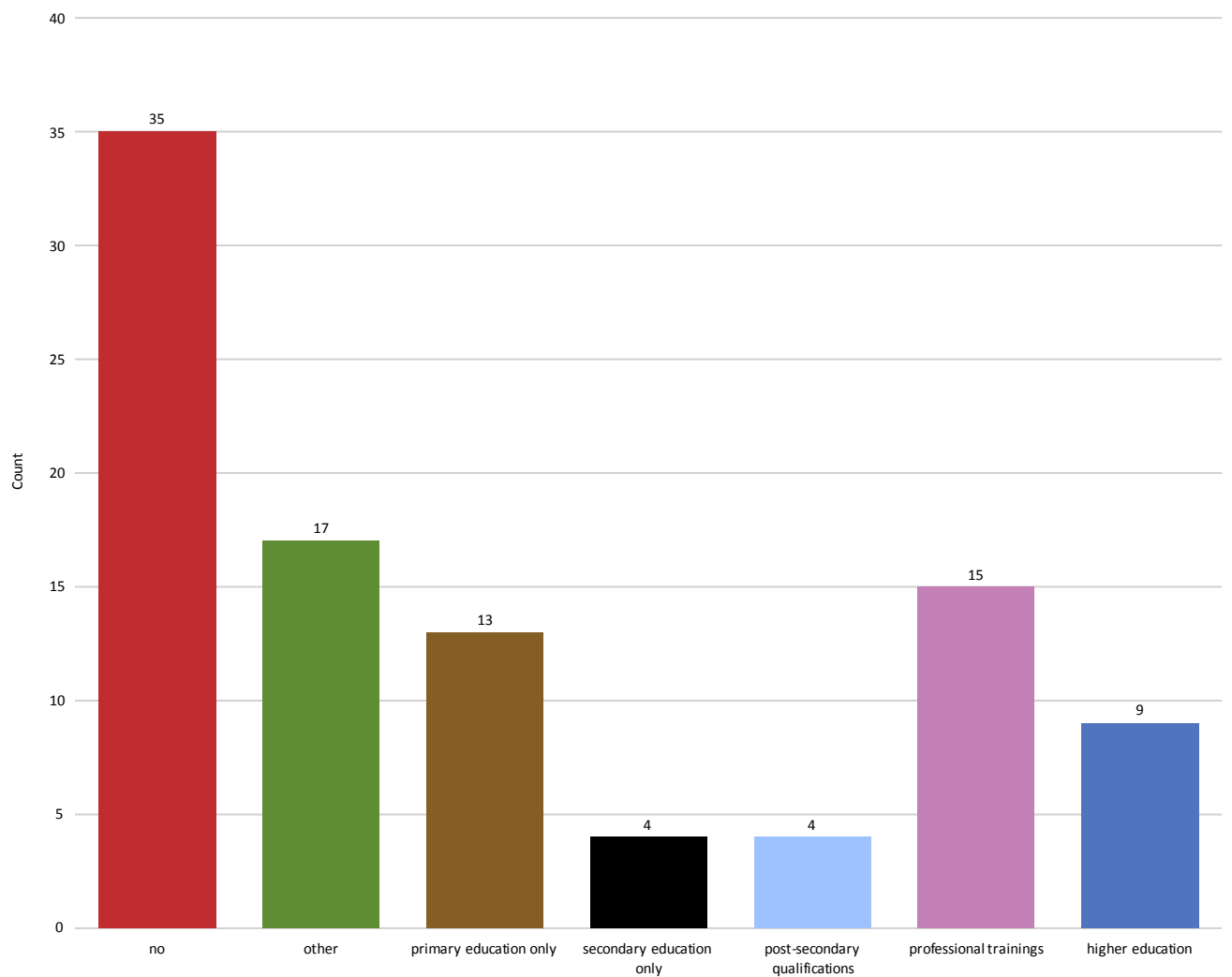
5. Have you always lived with mains water, sewage and electric connected to your homes?



6. Educational background? (please mark highest)

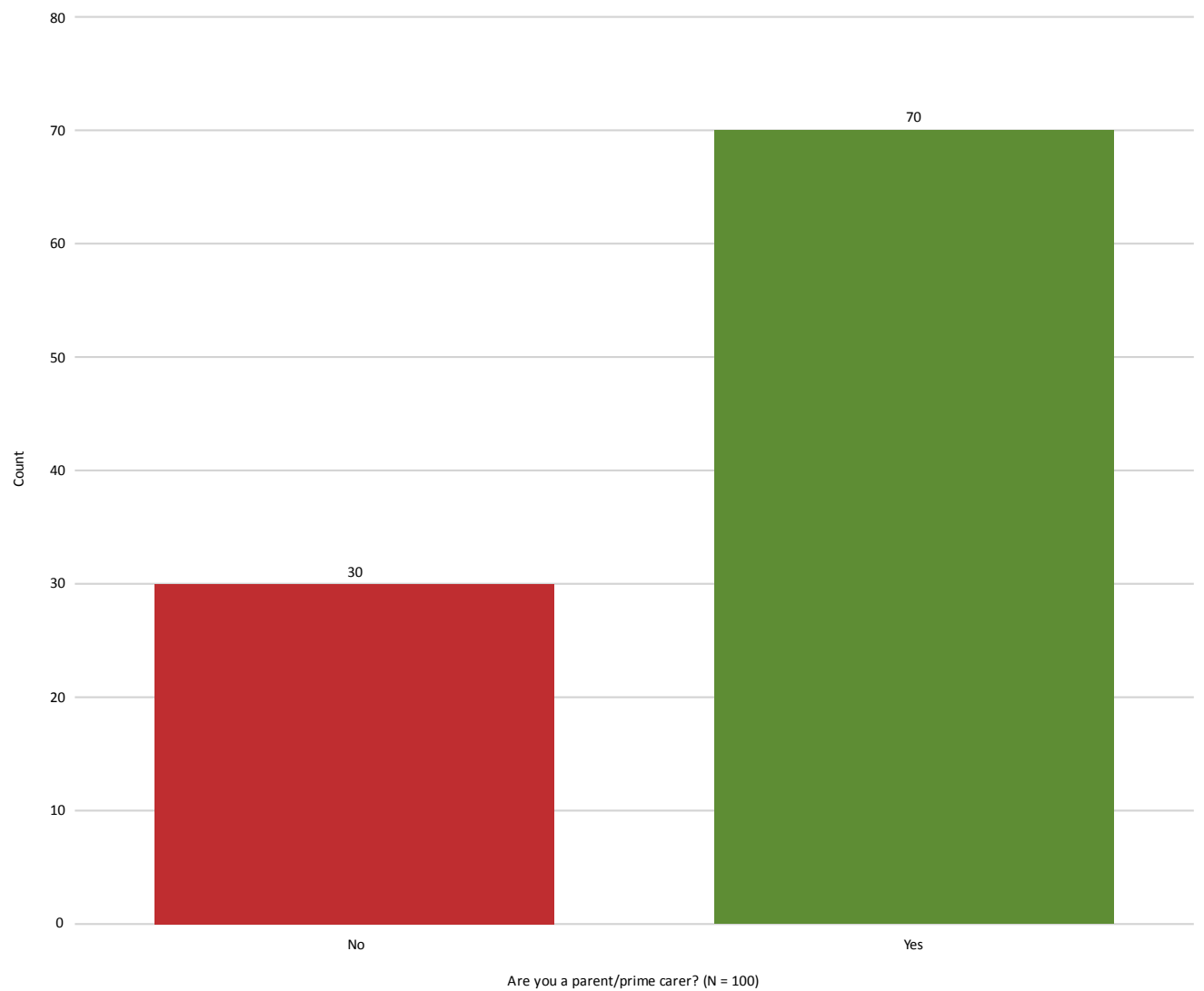


7. Have you ever worked as a teacher? (please mark highest)

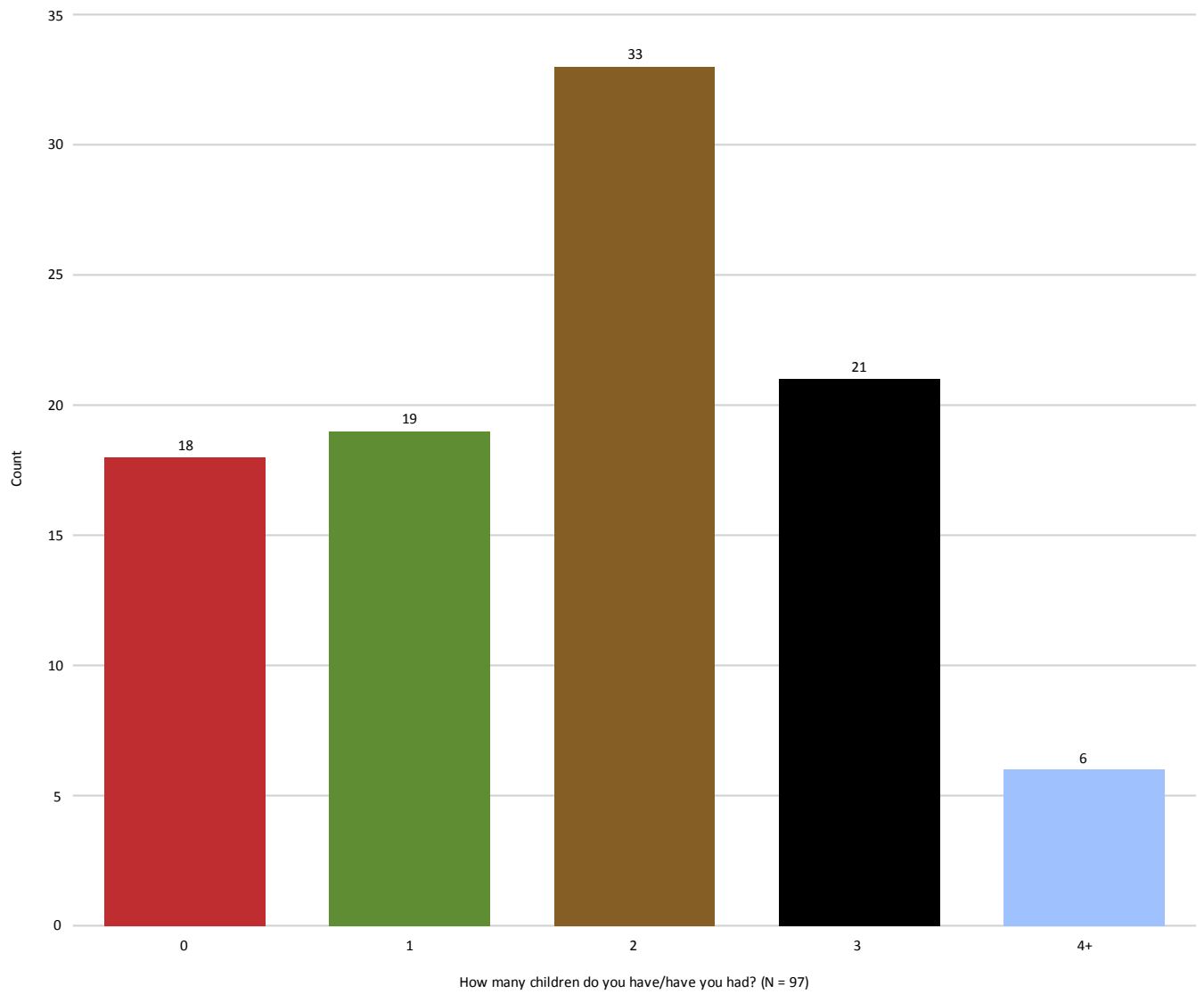


Have you ever worked as a teacher? (please mark highest) (N = 97)

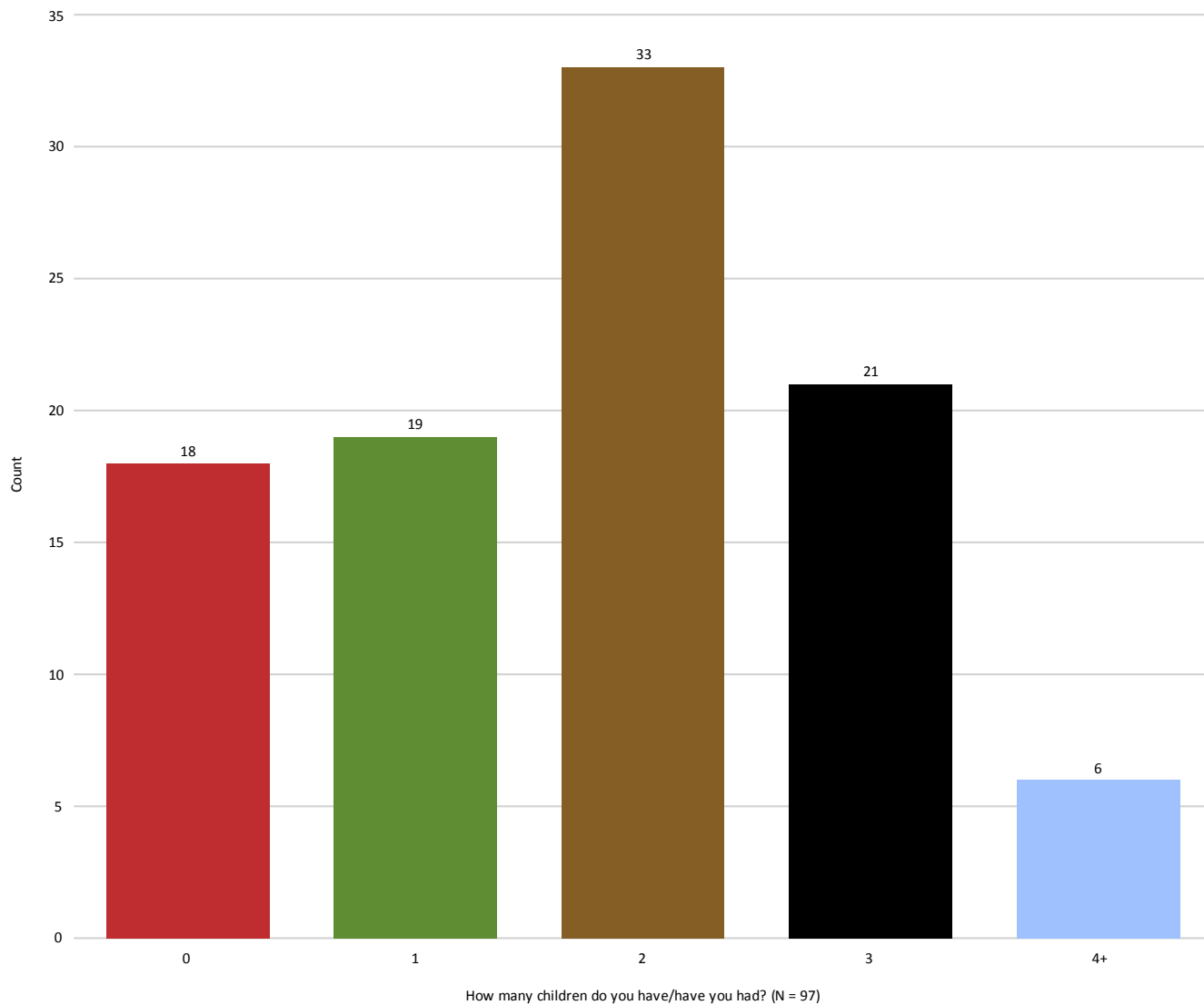
8. Are you a parent/prime carer?



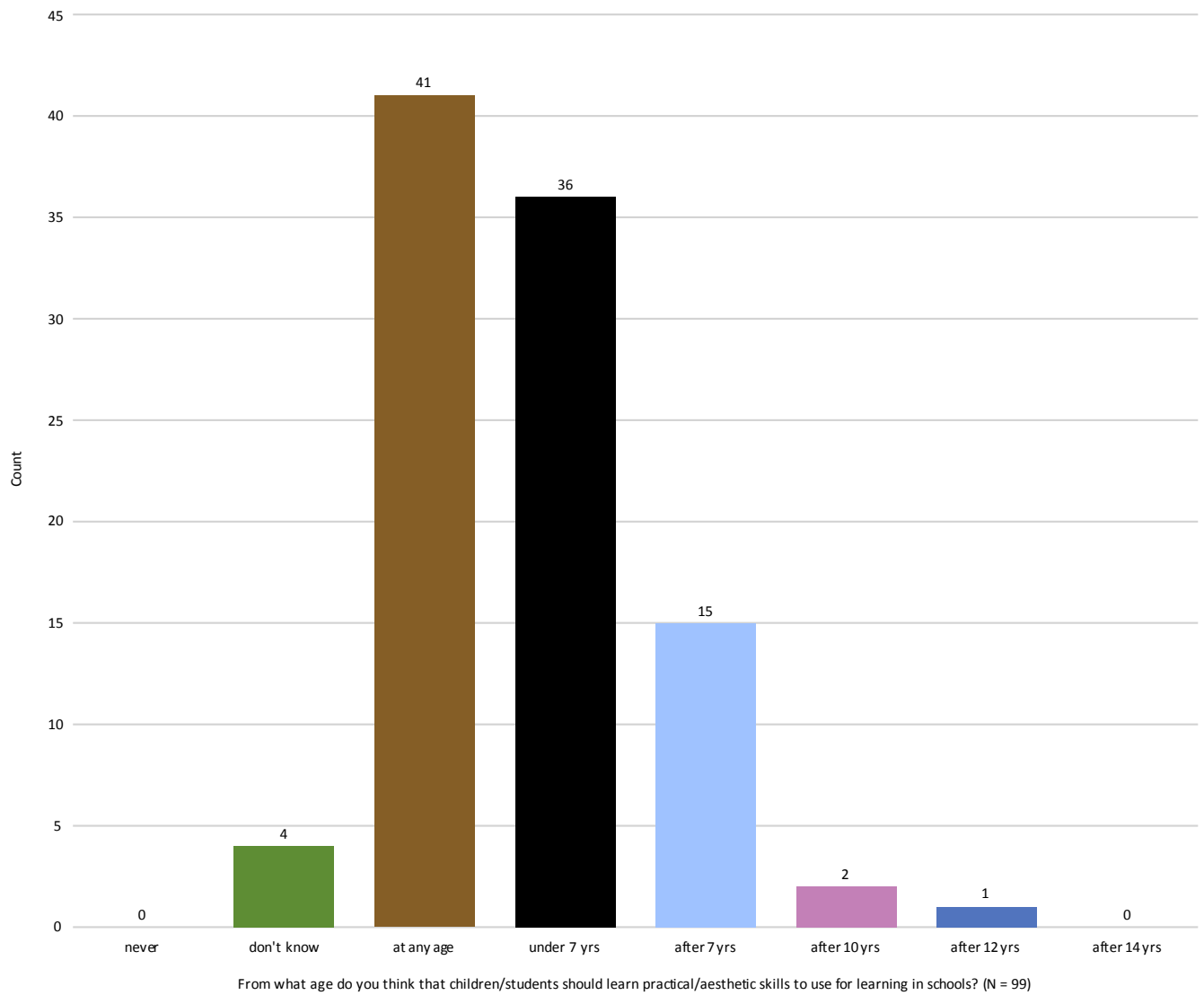
9. How many children do you have/have you had?



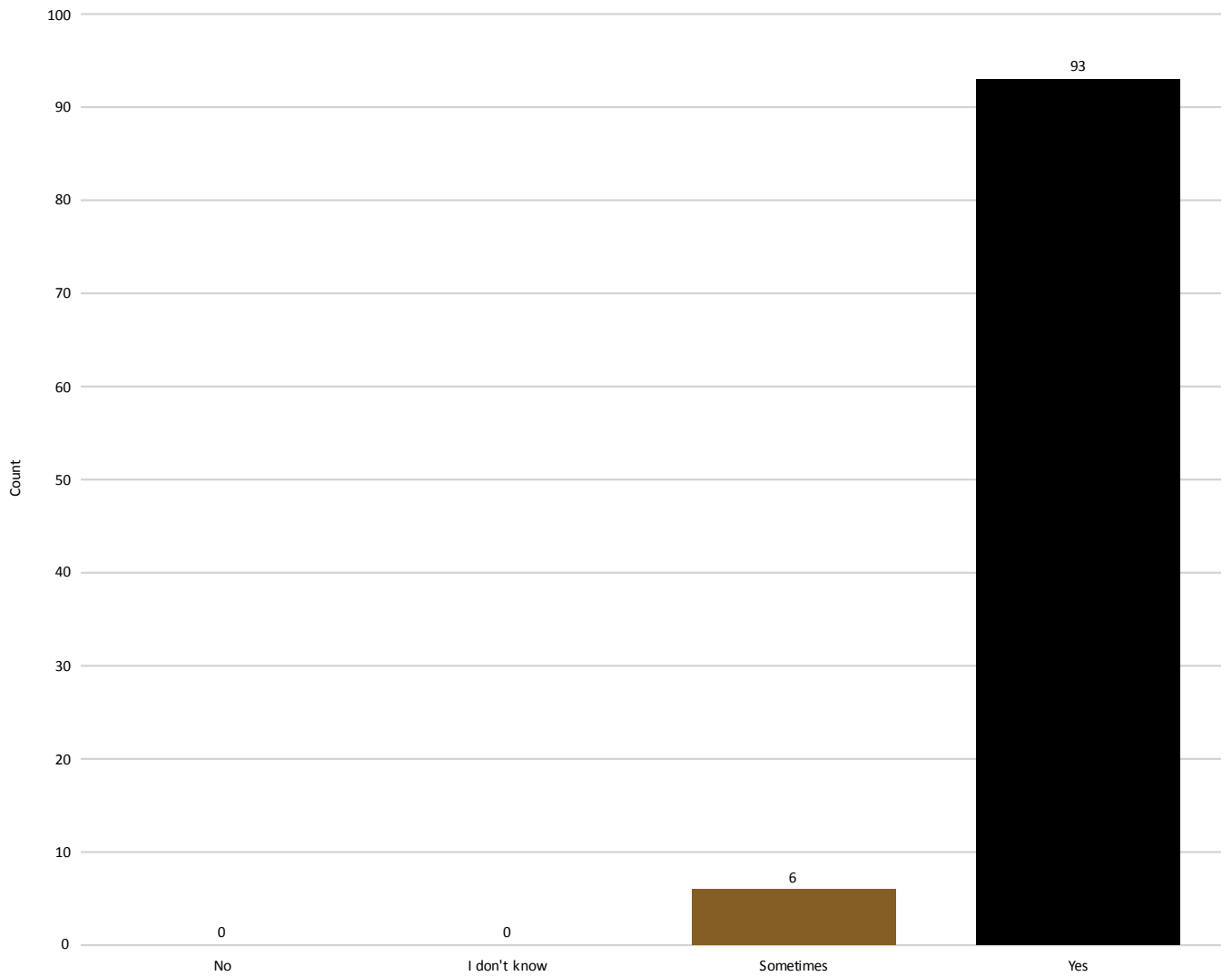
10. From what age, in general, do you think that children/students should learn to use digital technologies for learning in schools?



11. From what age do you think that children/students should learn practical/aesthetic skills to use for learning in schools?

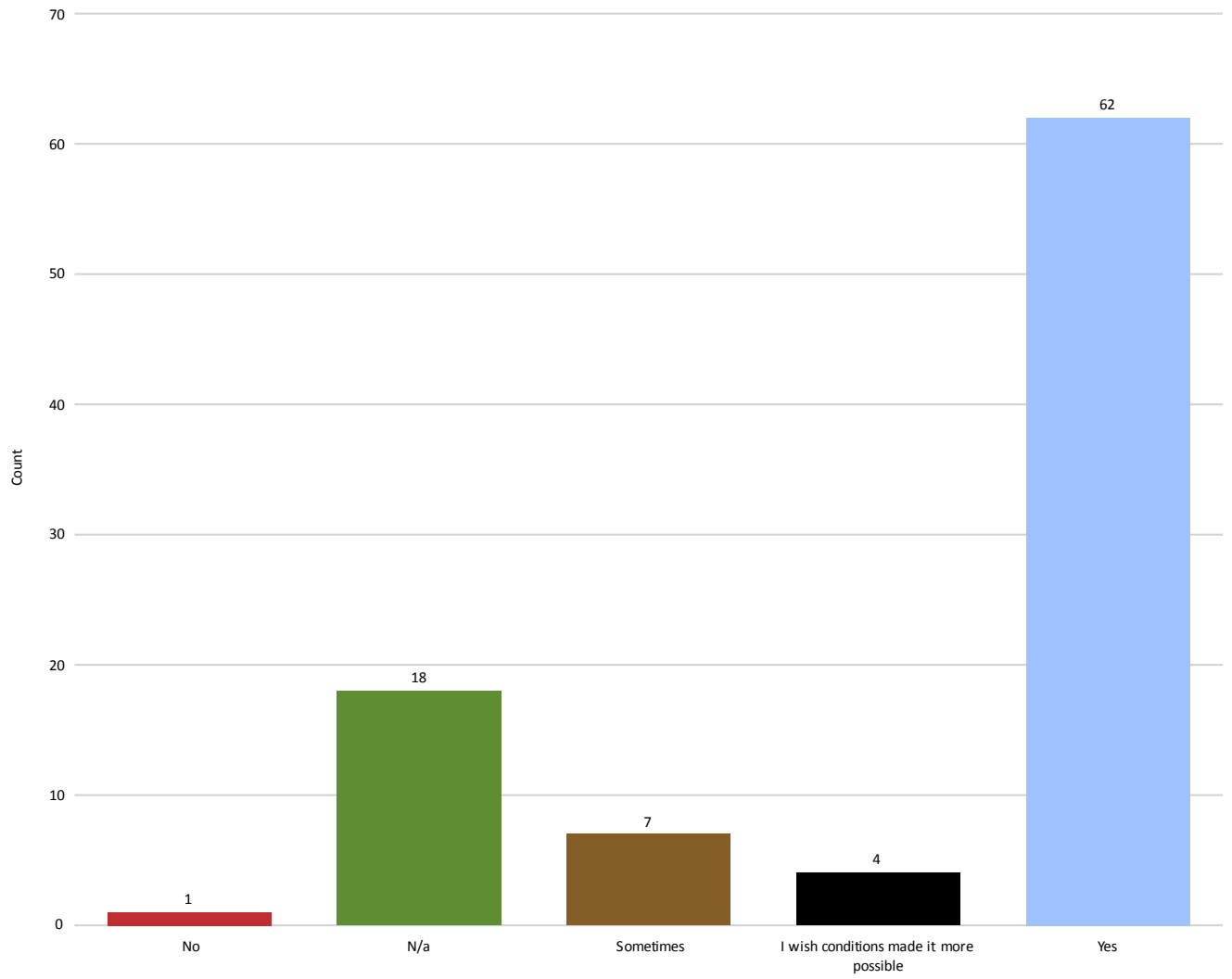


12. When sure of personal safety, do you find natural surroundings enhance your sense of well-being?



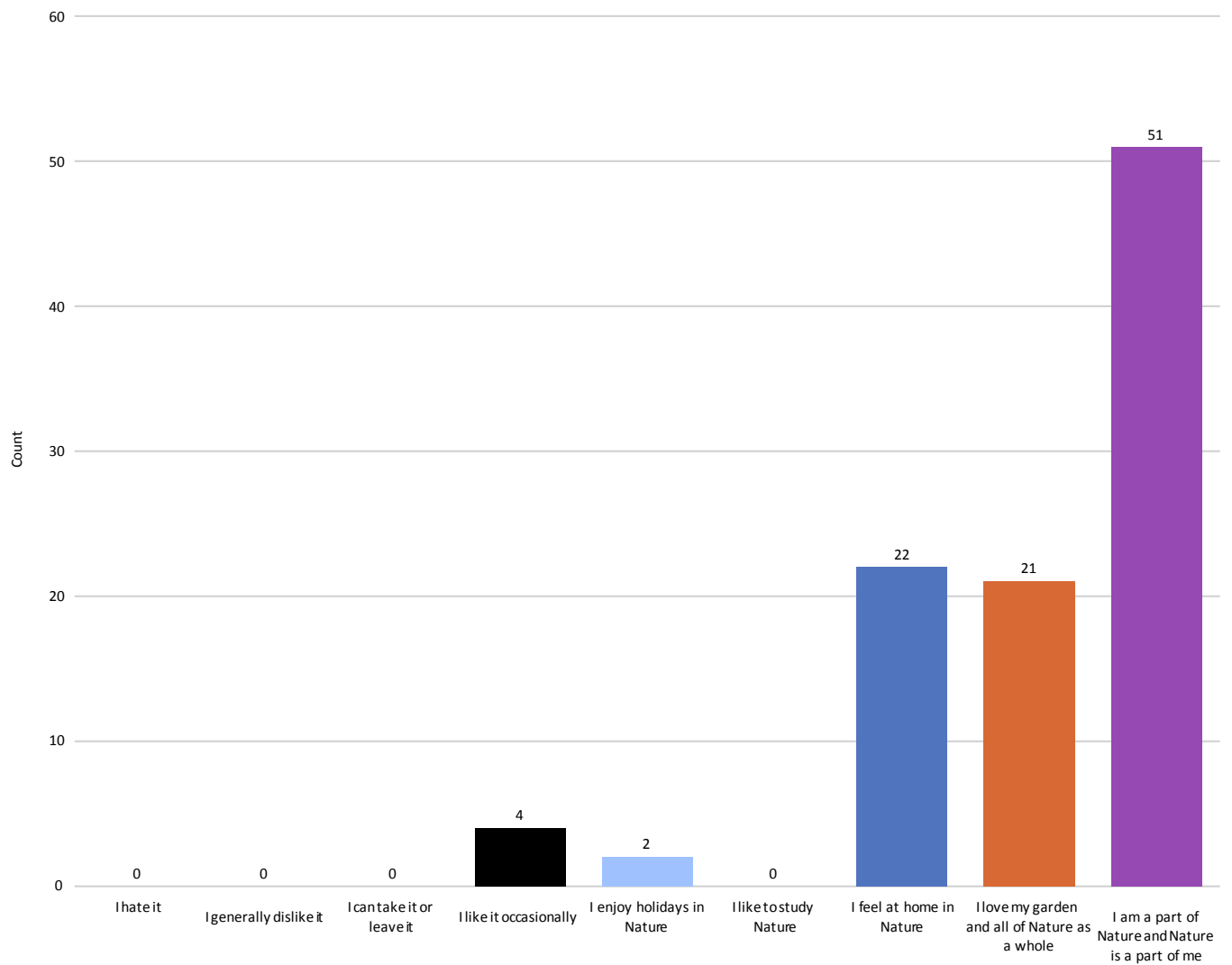
When sure of personal safety, do you find natural surroundings enhance your sense of well-being? (N = 99)

13. If a parent/prime carer, do you make conscious efforts to enable your children to have hands-on access to Nature and nature-based activities?



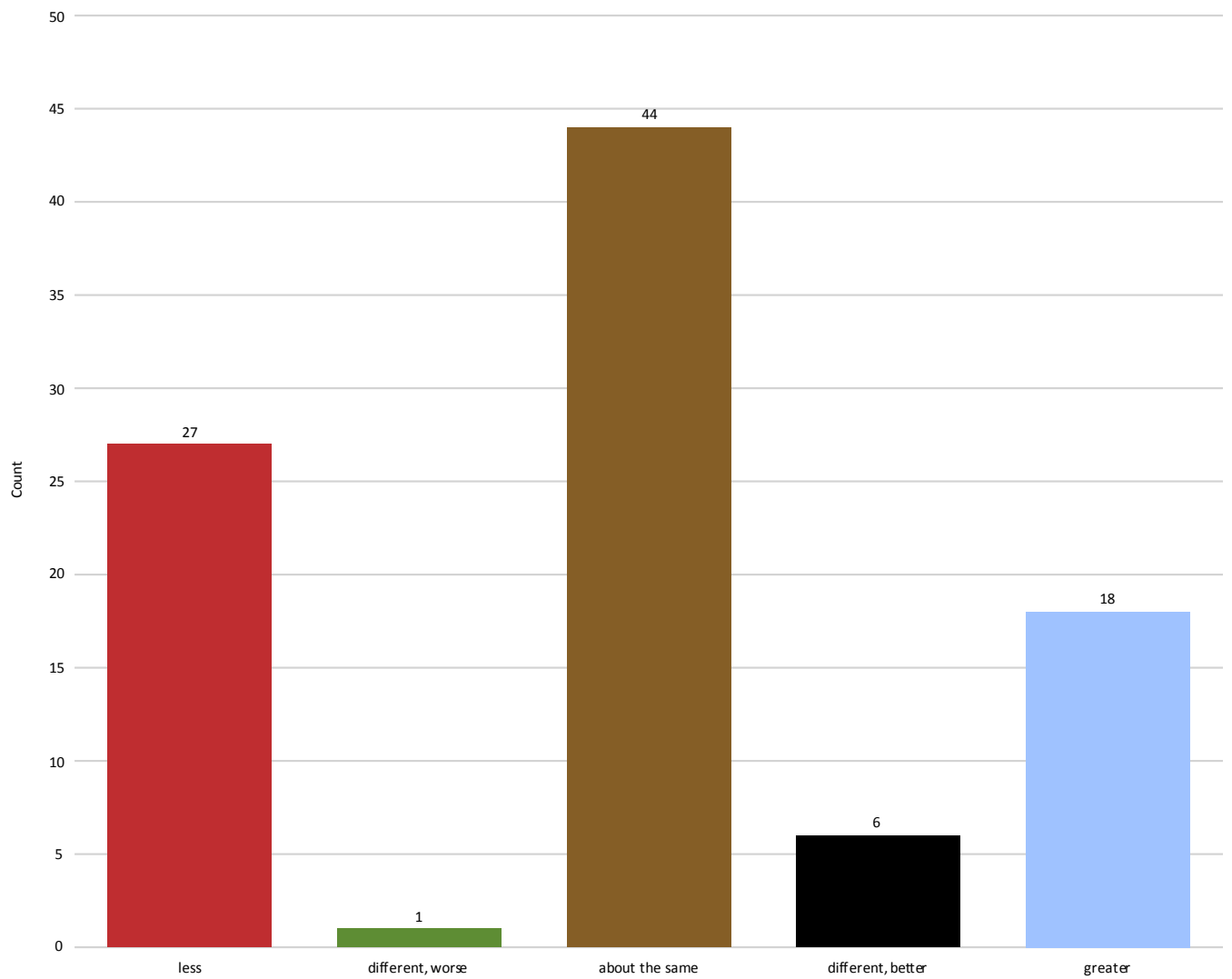
If a parent/prime carer, do you make conscious efforts to enable your children to have hands-on access to Nature and nature-based activities? (N = 92)

14. How would you describe your personal relationship with Nature?



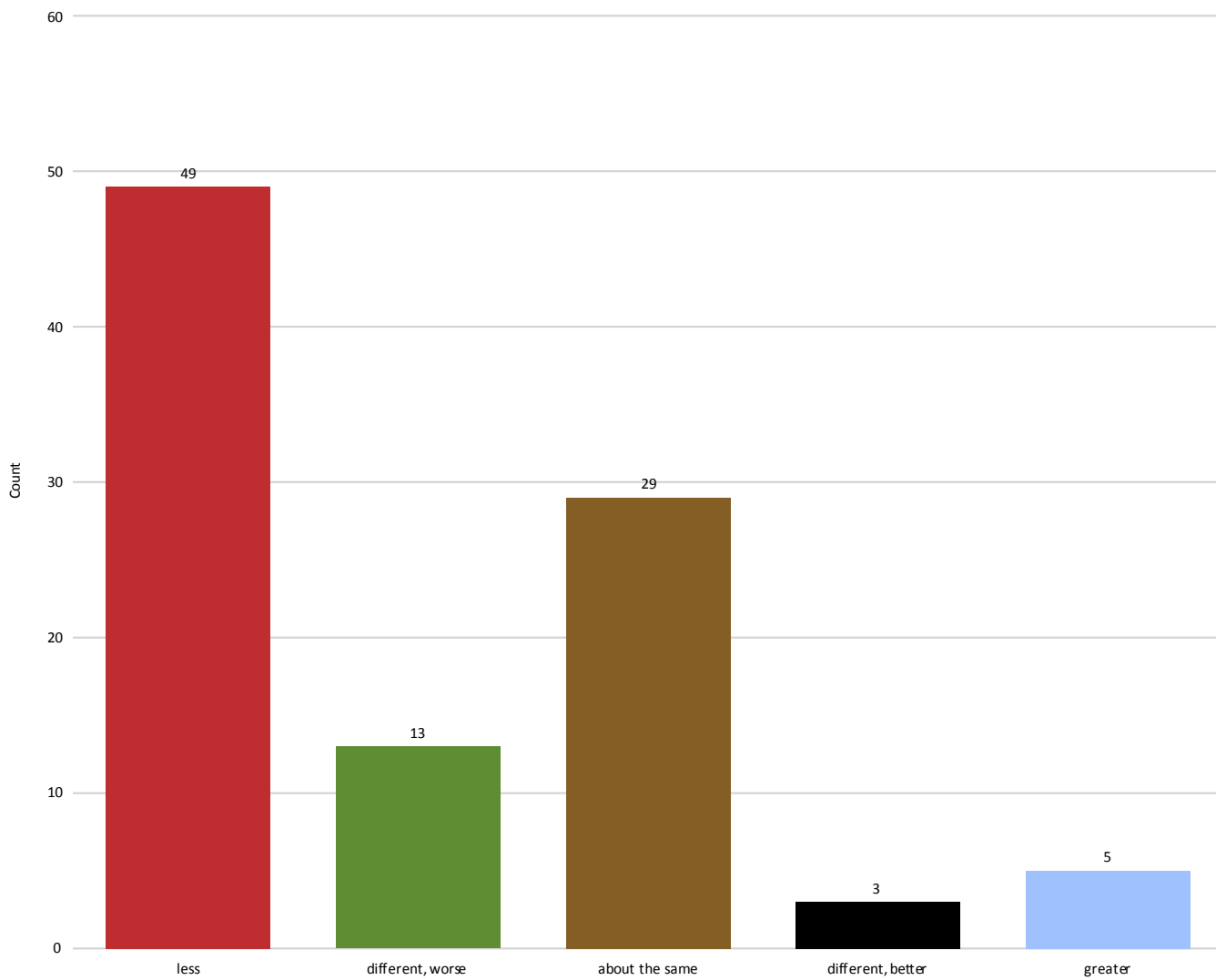
How would you describe your personal relationship with Nature? (N = 100)

15. As a child (under 13yrs), was your relationship to Nature greater or less compared to now?



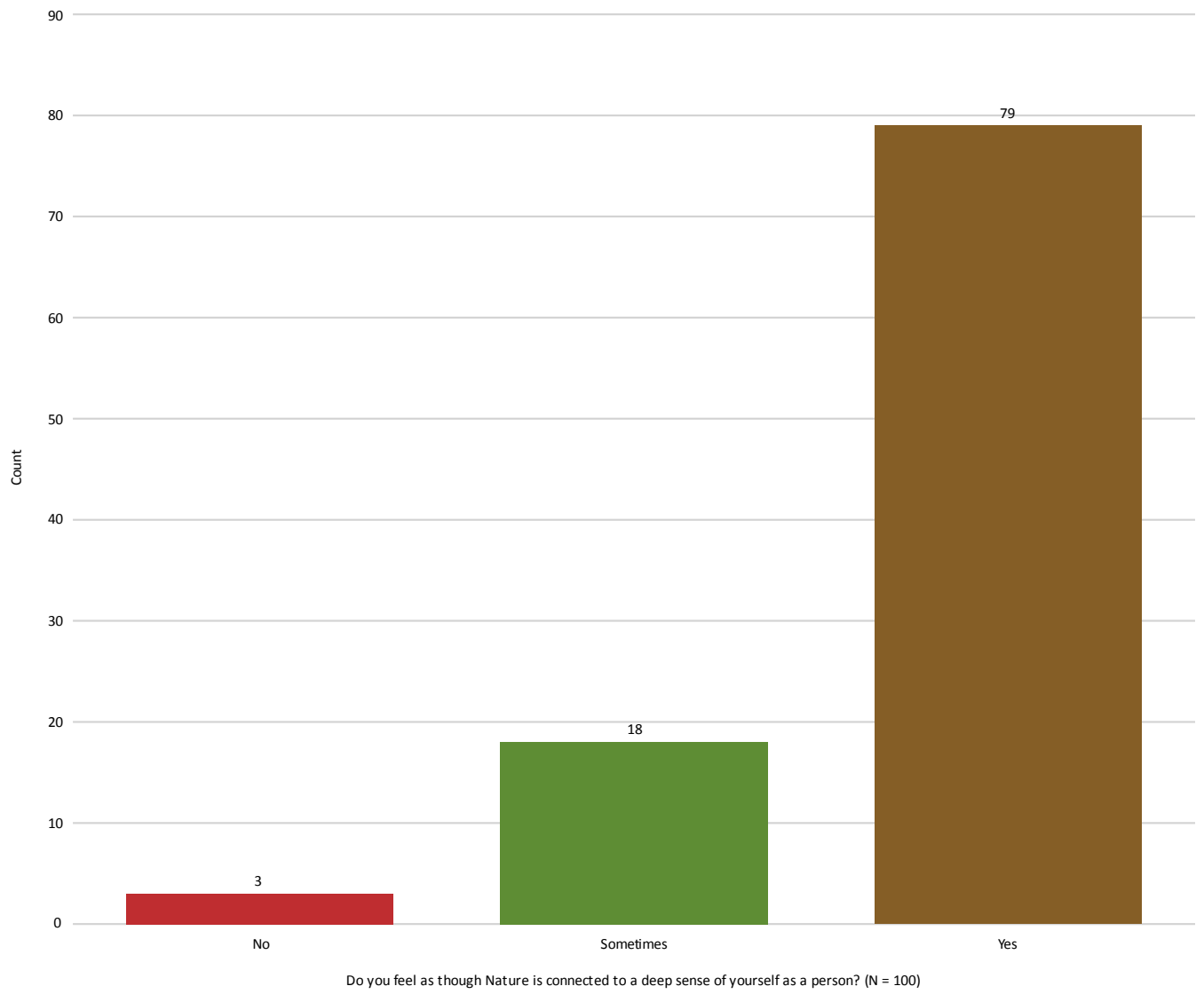
As a child (under 13yrs), was your relationship to Nature greater or less compared to now? (N = 96)

16. As an adolescent (13-16yrs.), was your relationship to Nature greater or less compared to now?

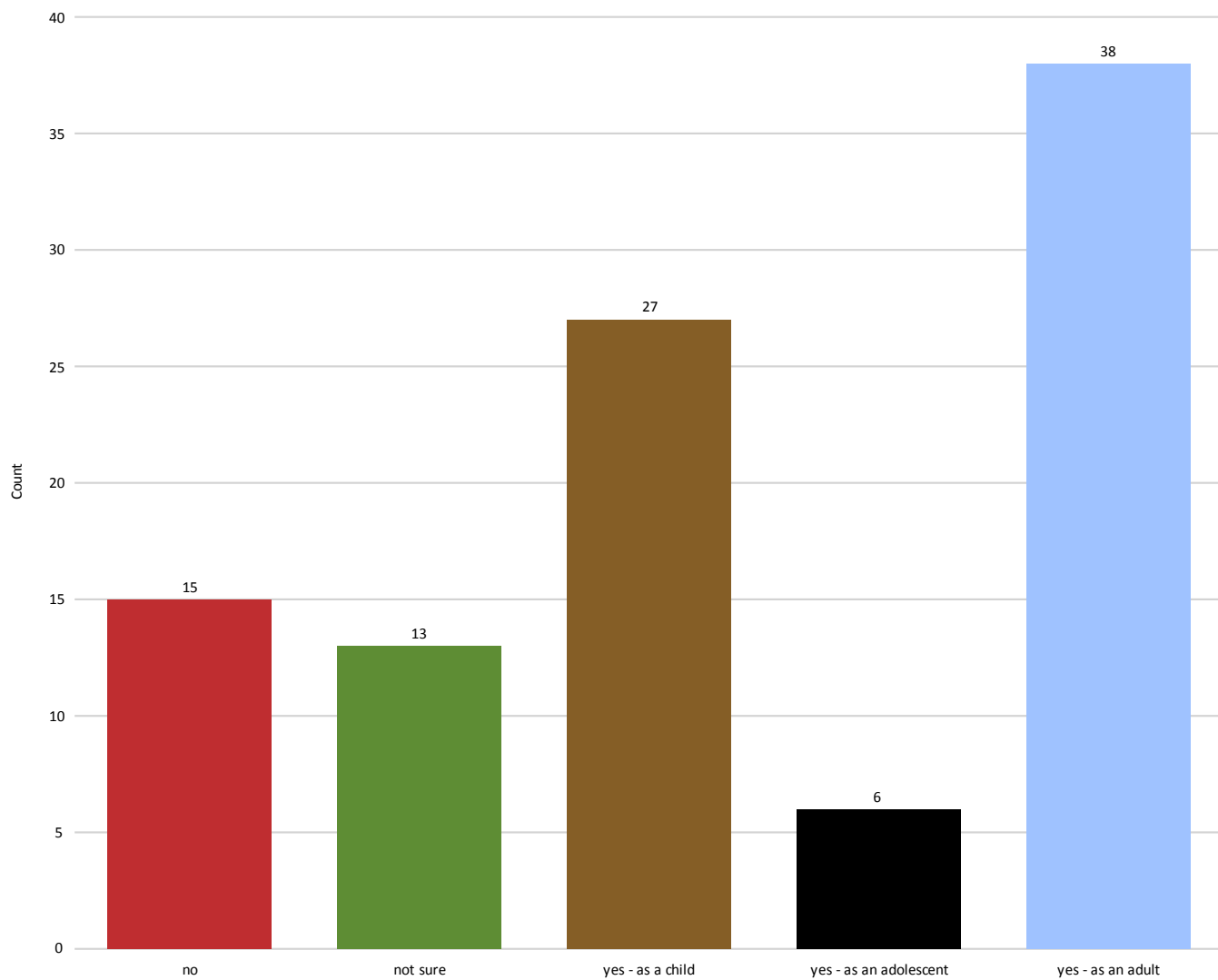


As an adolescent (13-16yrs.), was your relationship to Nature greater or less compared to now? (N = 99)

17. Do you feel as though Nature is connected to a deep sense of yourself as a person?

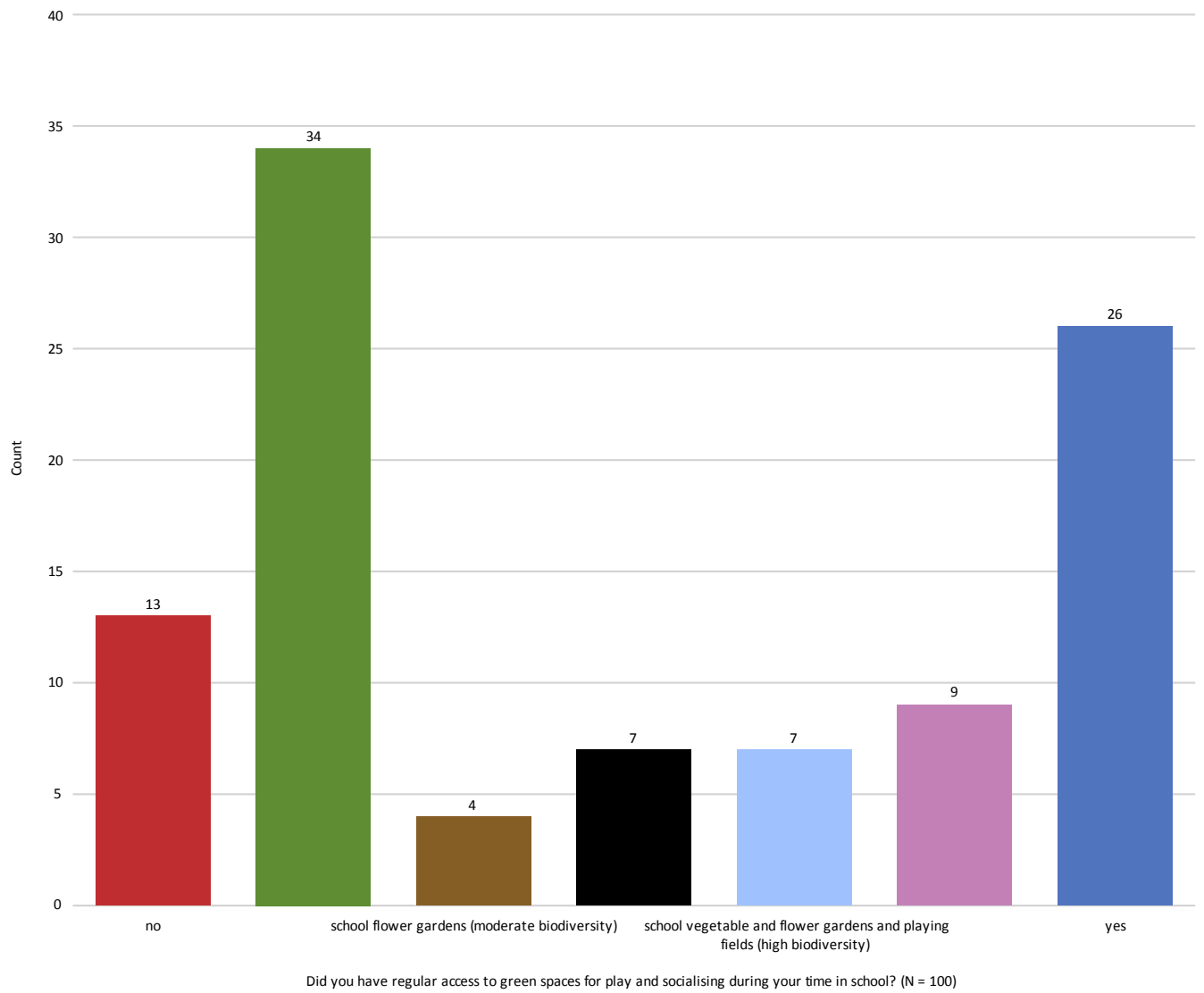


18. Have you ever had an experience that has affected your attitudes towards our environment and Nature as a whole?

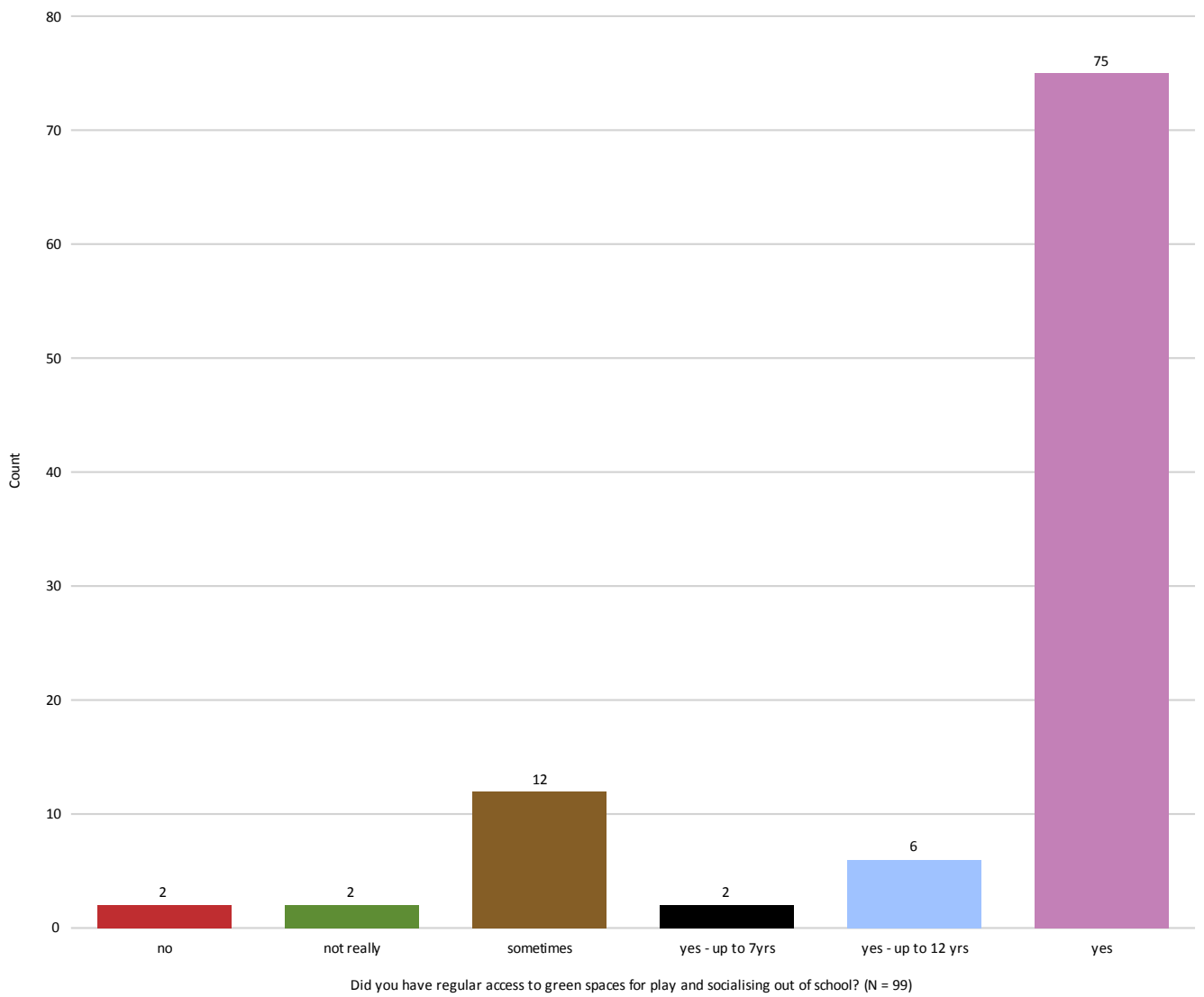


Have you ever had an experience that has affected your attitudes towards our environment and Nature as a whole? (N = 99)

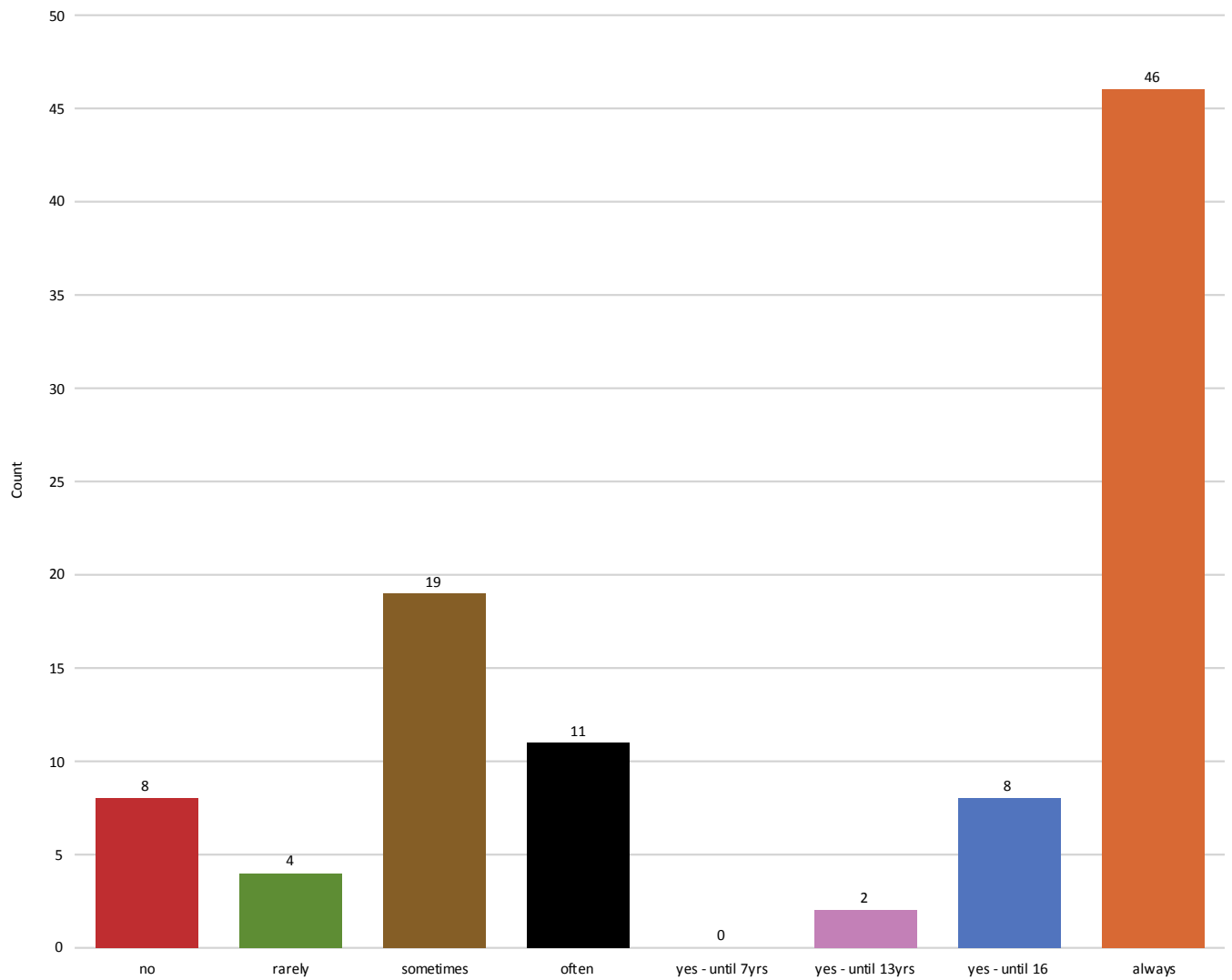
19. Did you have regular access to green spaces for play and socialising during your time in school?



20. Did you have regular access to green spaces for play and socialising out of school?

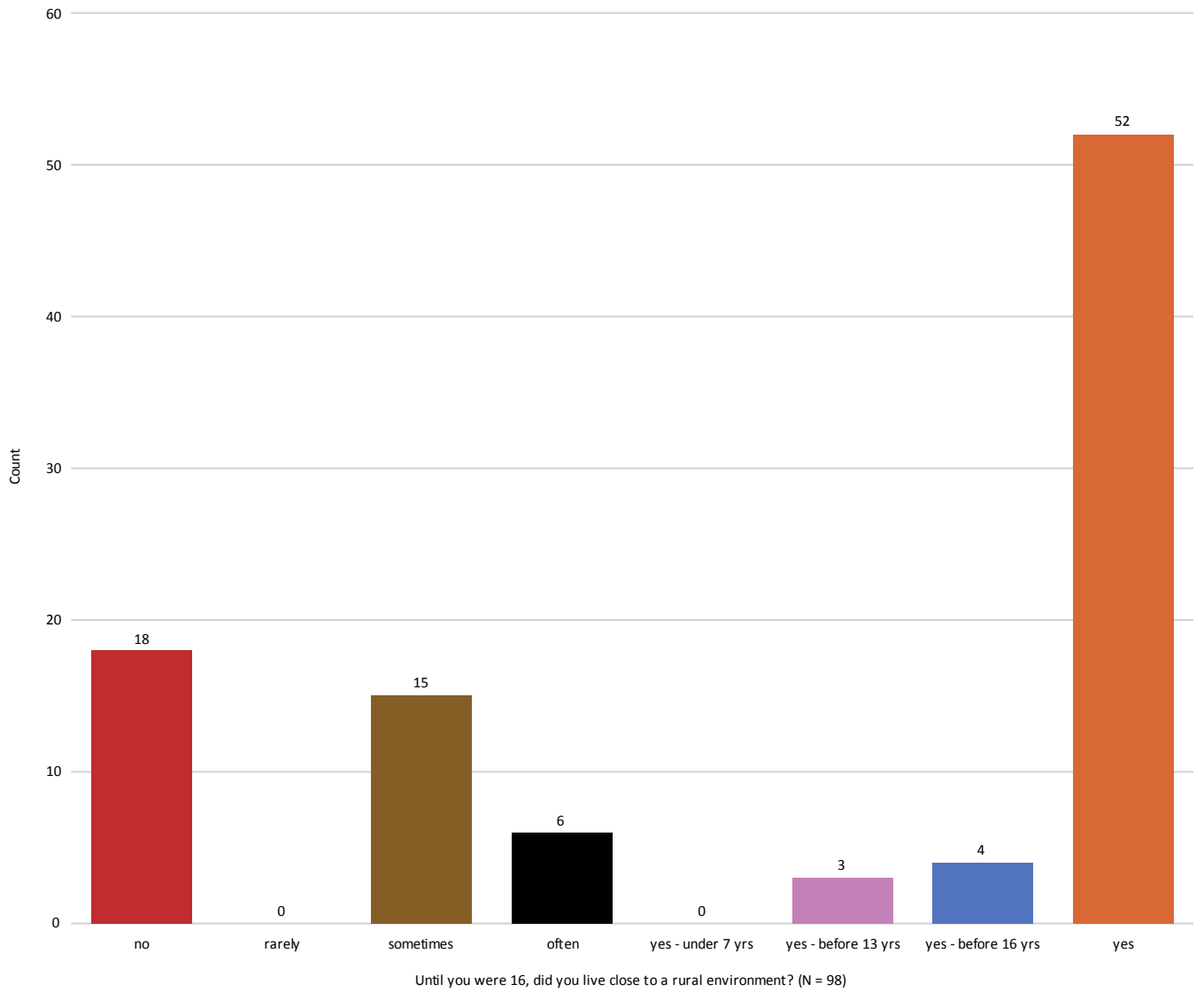


21. When you were young, did you have access to natural water courses etc. for play (streams, rivers, ponds, lakes and/or the sea)?

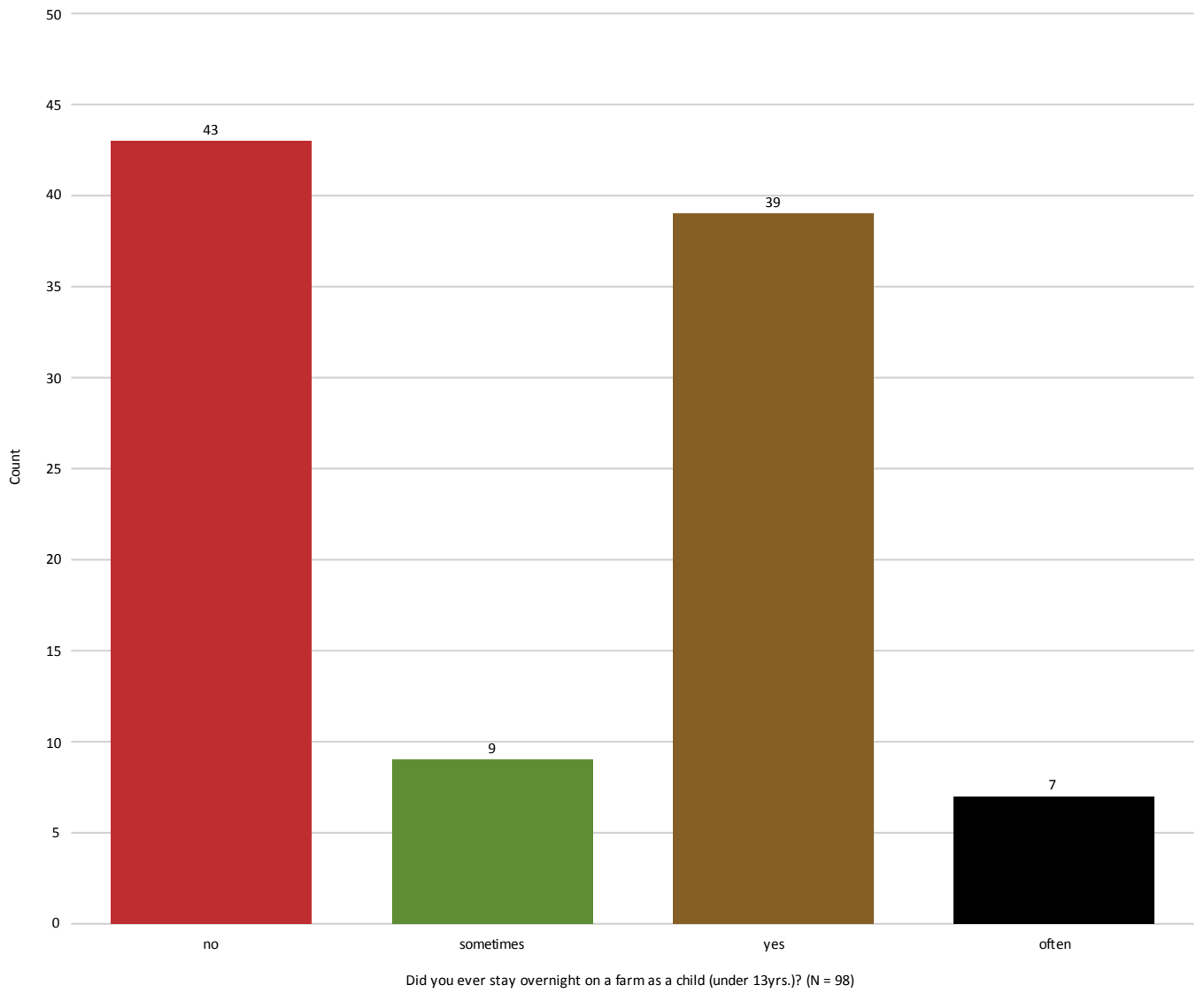


When you were young, did you have access to natural water courses etc. for play (streams, rivers, ponds, lakes and/or the sea)? (N = 98)

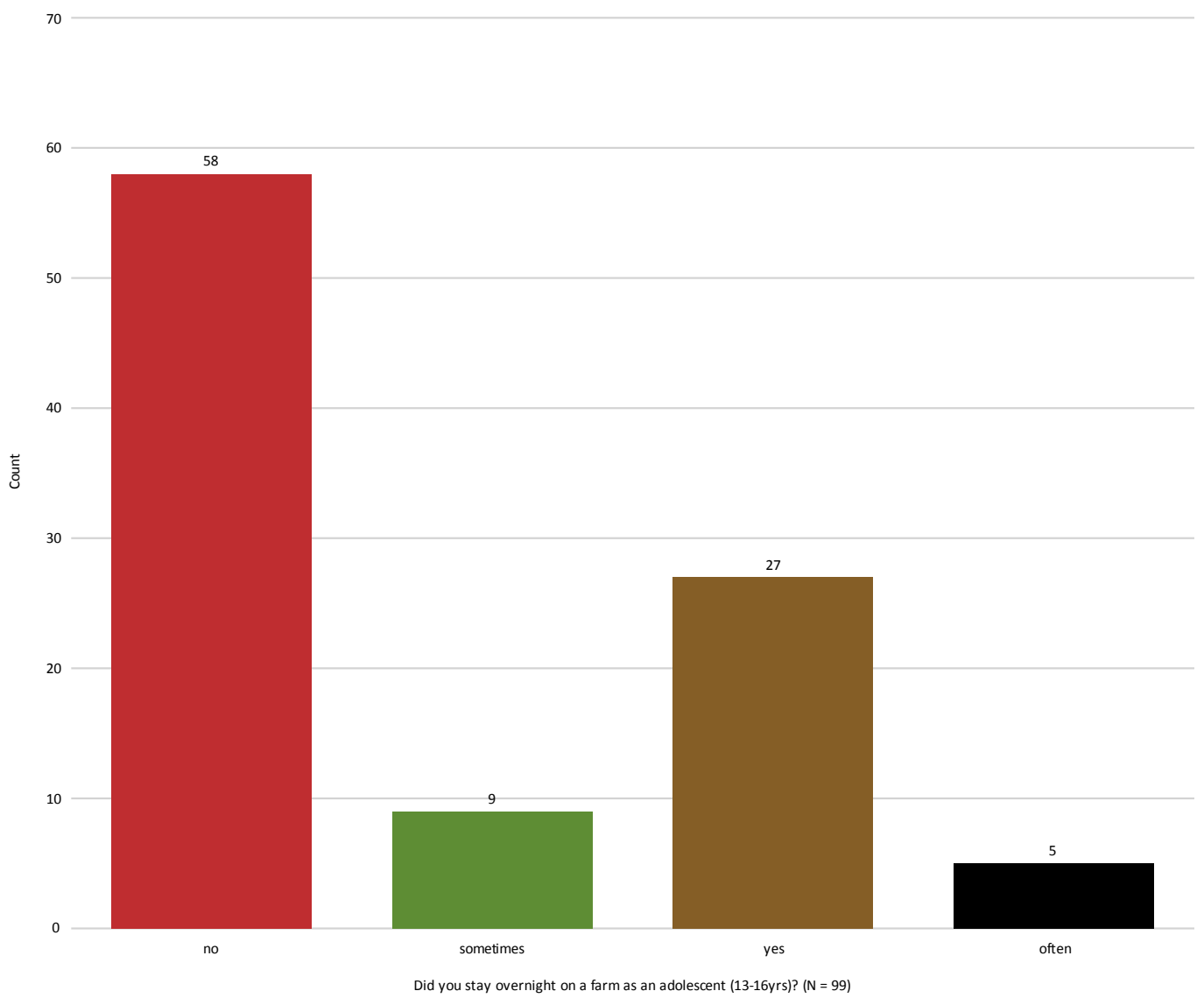
22. Until you were 16, did you live close to a rural environment?



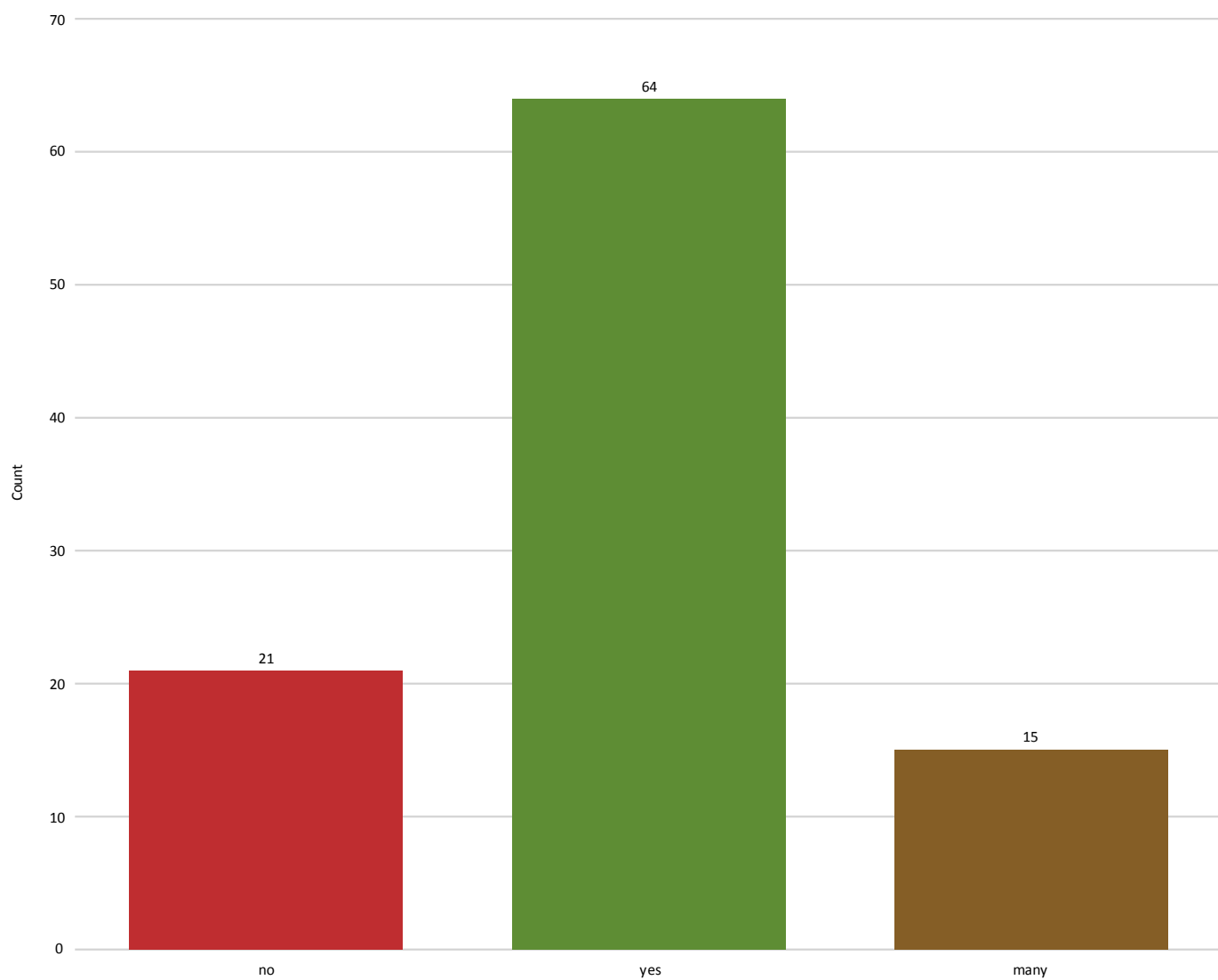
23. Did you ever stay overnight on a farm as a child (under 13yrs.)?



24. Did you stay overnight on a farm as an adolescent (13-16yrs)?

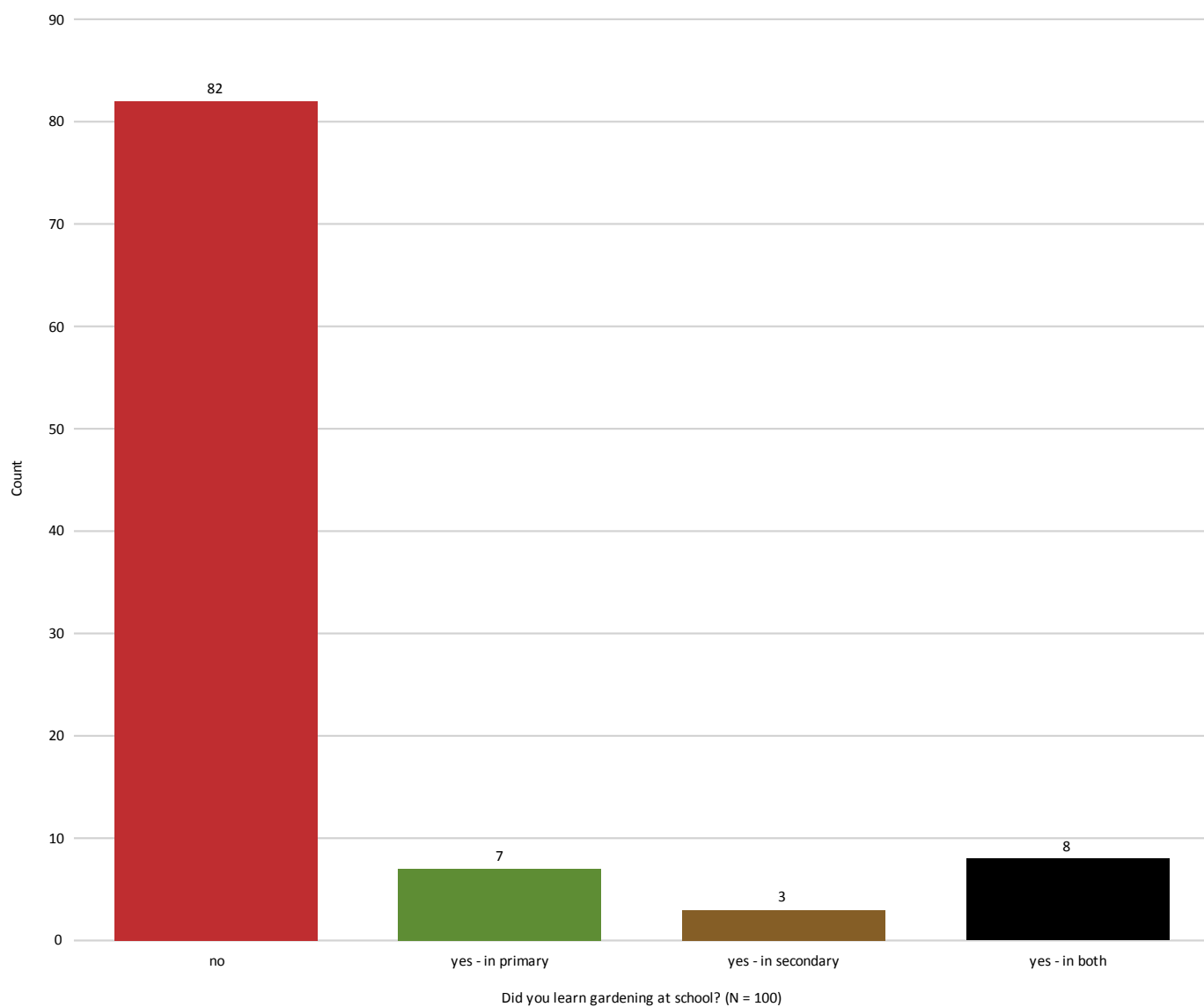


25. Do you have any positive memories of adult figures from your childhood that were gardeners or had an allotment?

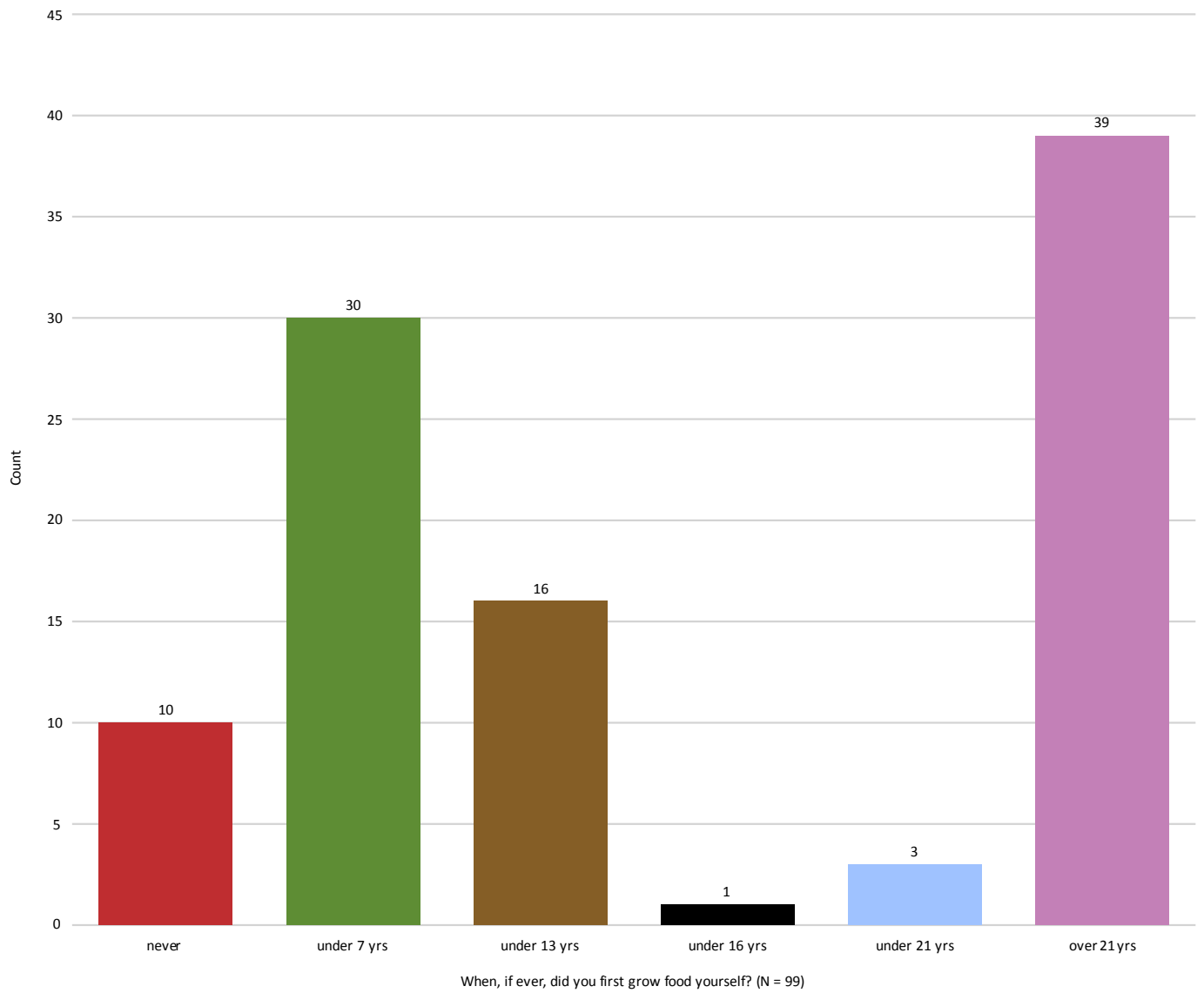


Do you have any positive memories of adult figures from your childhood that were gardeners or had an allotment? (N = 100)

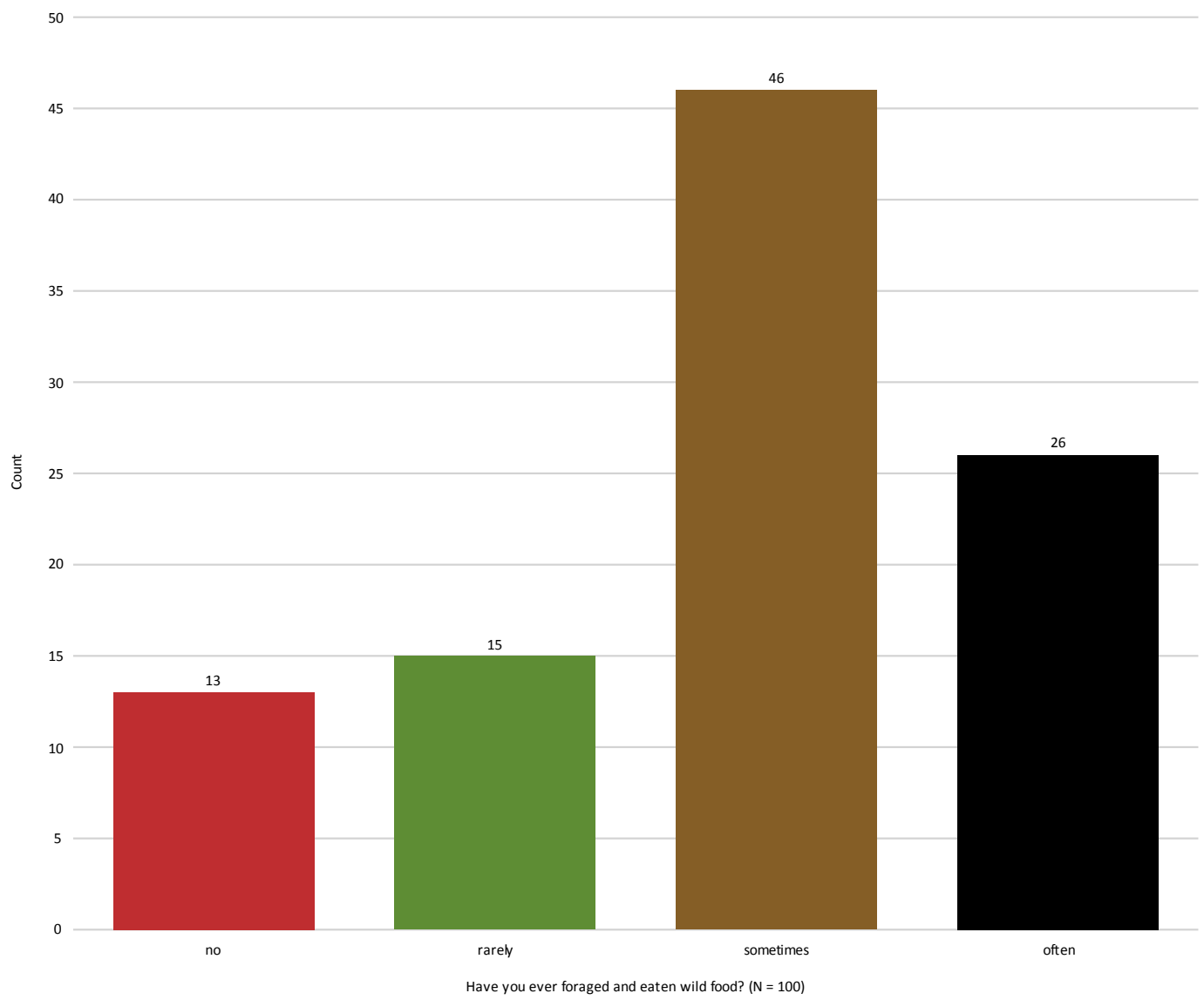
26. Did you learn gardening at school?



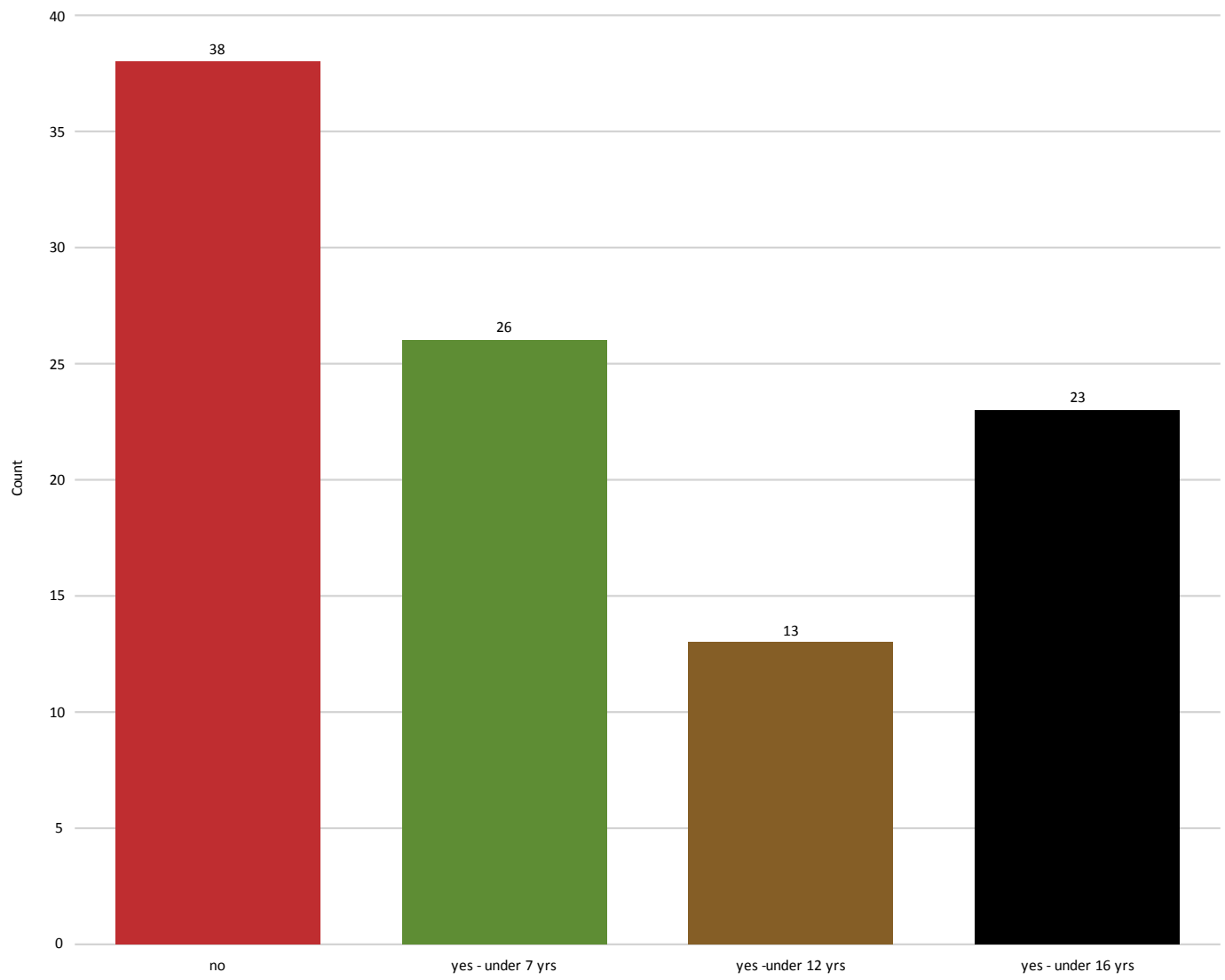
27. When, if ever, did you first grow food yourself?



28. Have you ever foraged and eaten wild food?

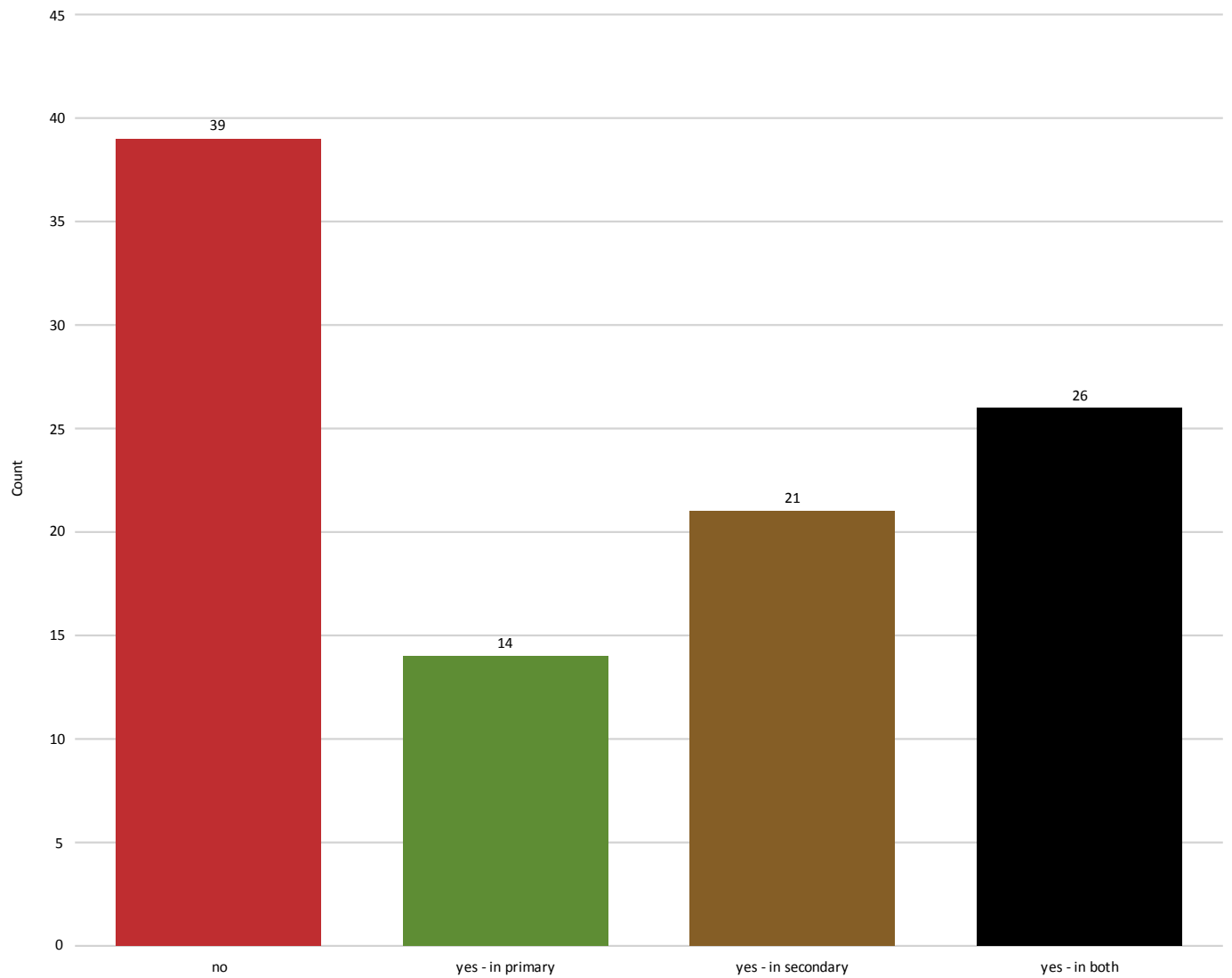


29. Do you have any significant memories of encountering working farmers or local crafts people as a child?



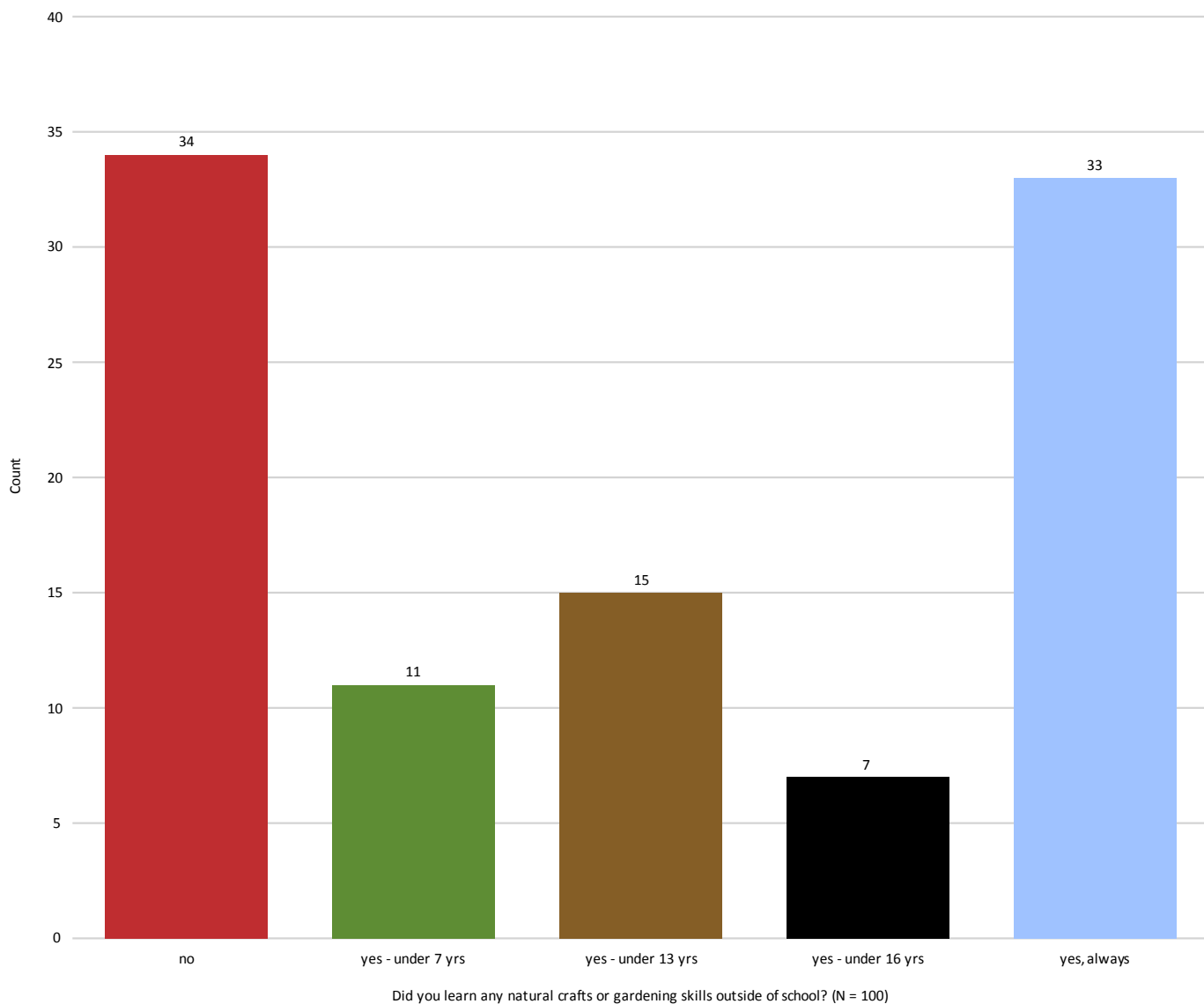
Do you have any significant memories of encountering working farmers or local crafts people as a child? (N = 100)

30. Did you learn any natural craft skills at school (e.g. basketry, woodwork, textiles, pottery etc.)?

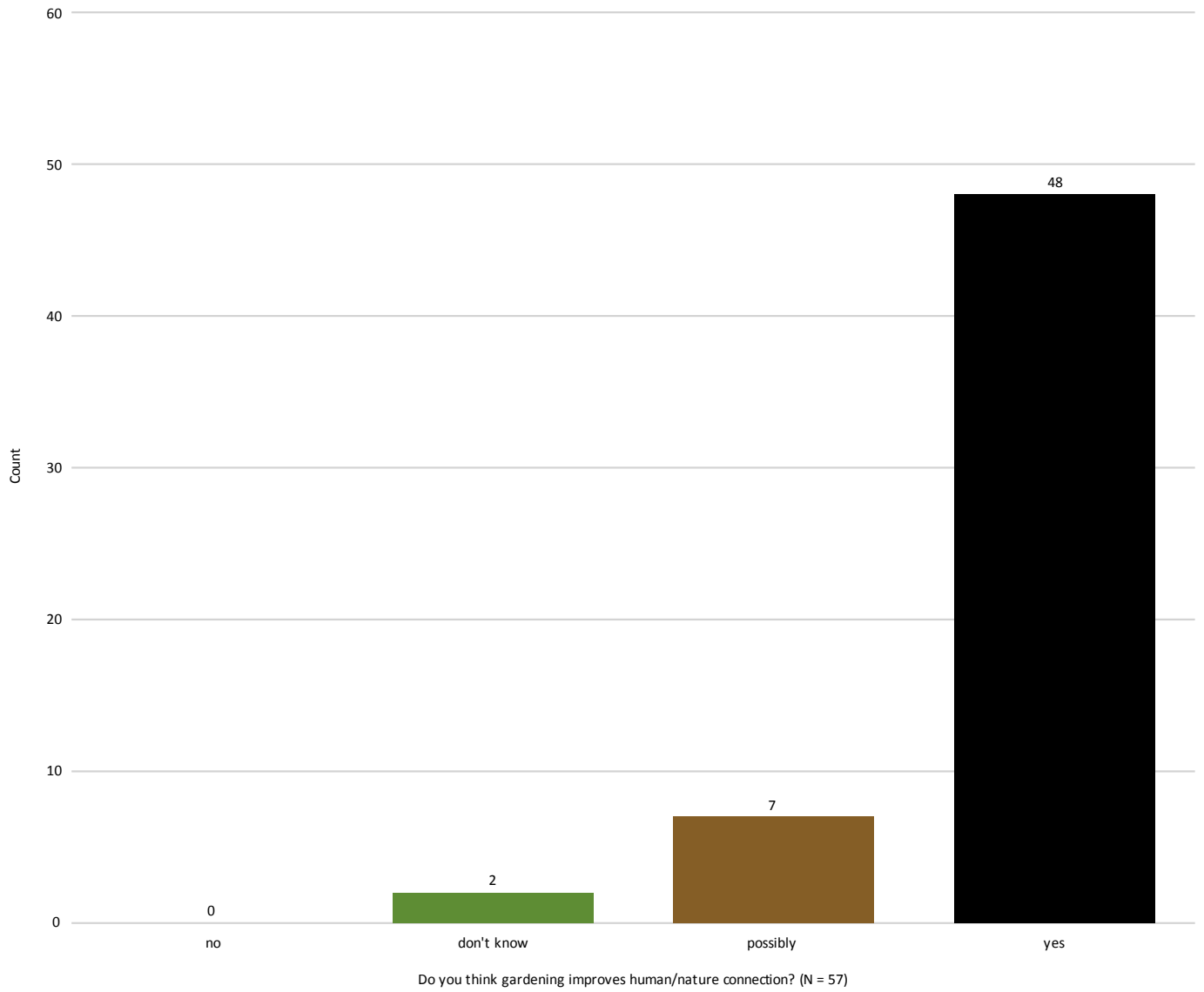


Did you learn any natural craft skills at school ? (e.g. basketry, woodwork, textiles, pottery etc) (N = 100)

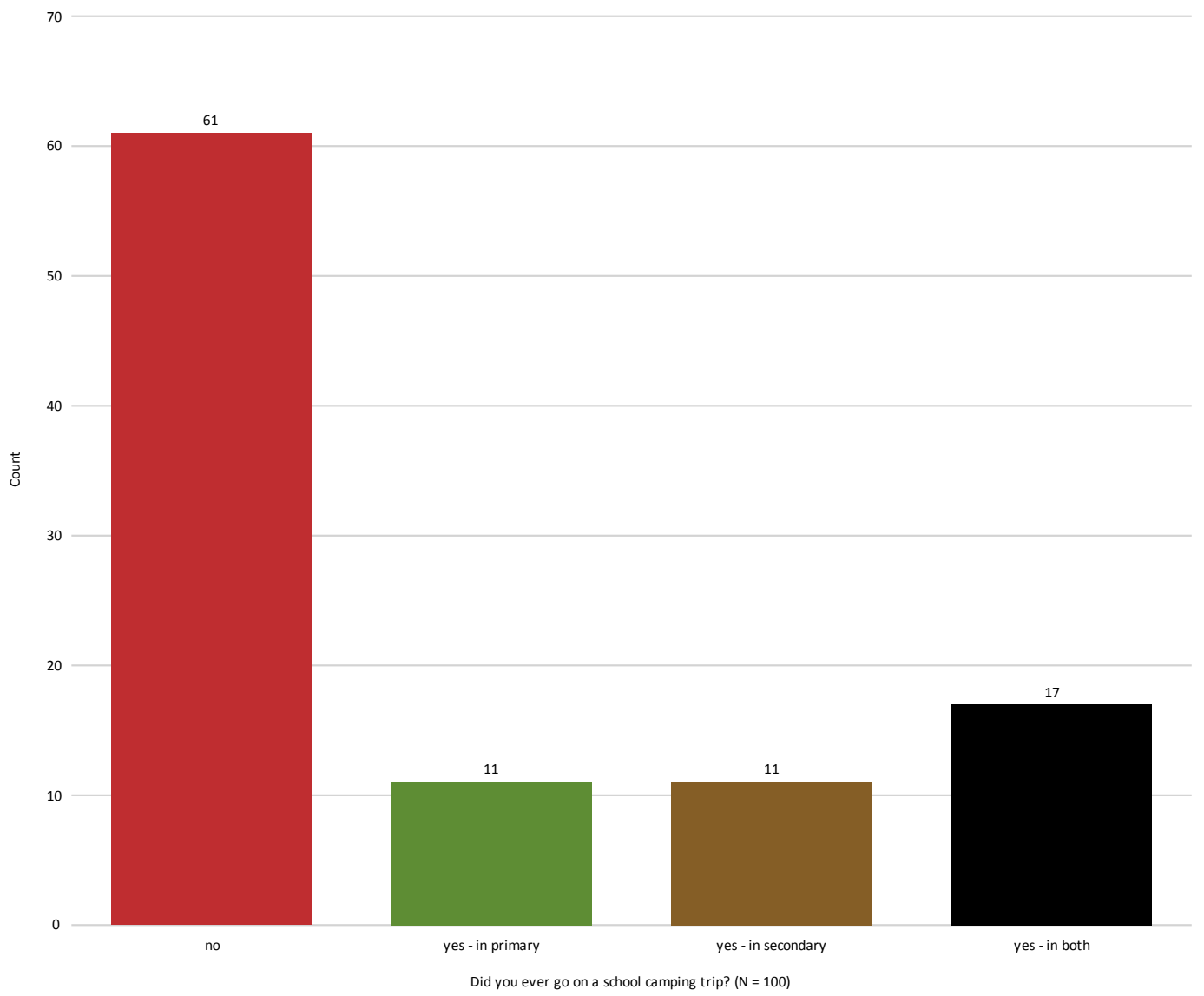
31. Did you learn any natural crafts or gardening skills outside of school?



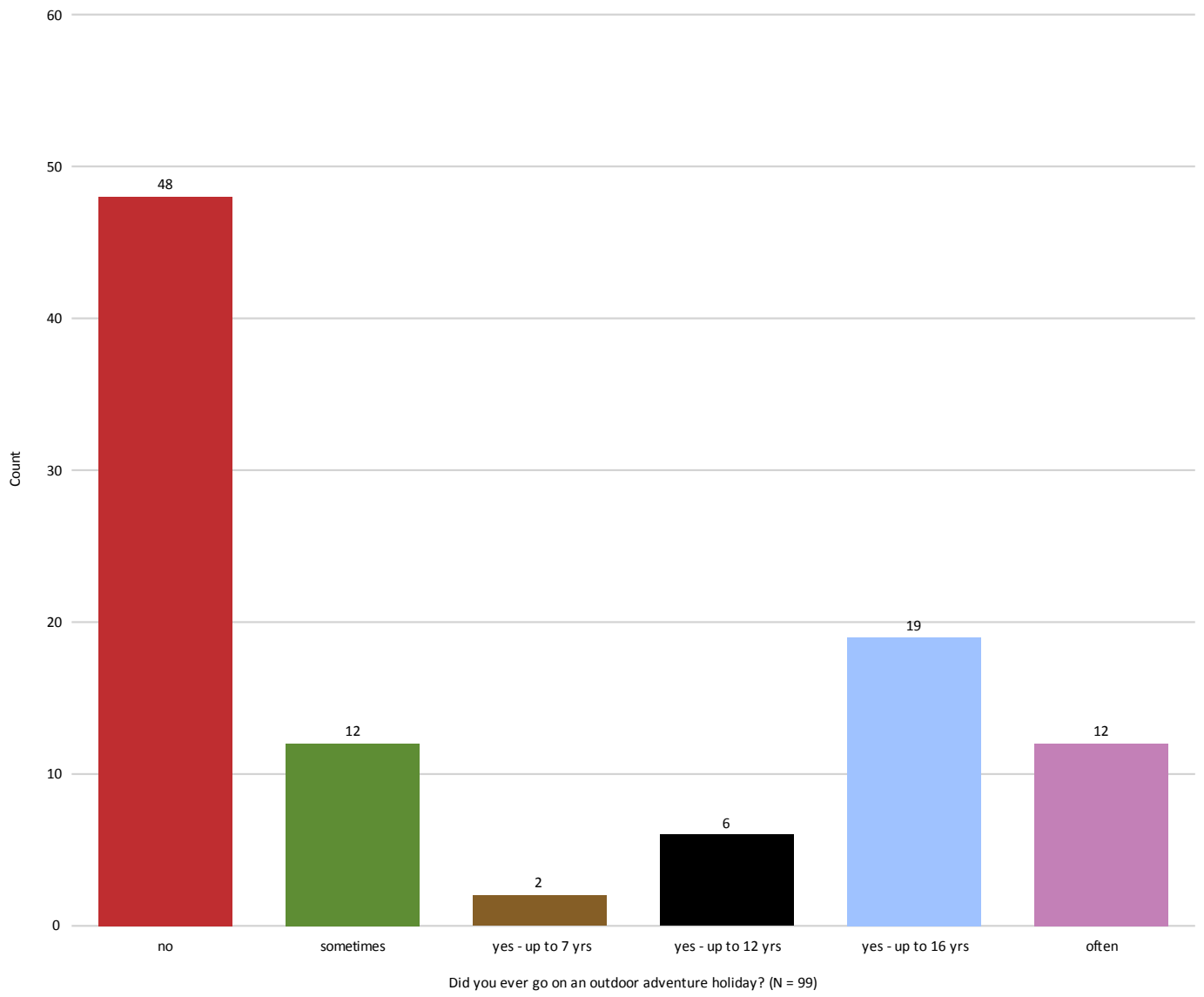
32. Do you think gardening improves human/nature connection?



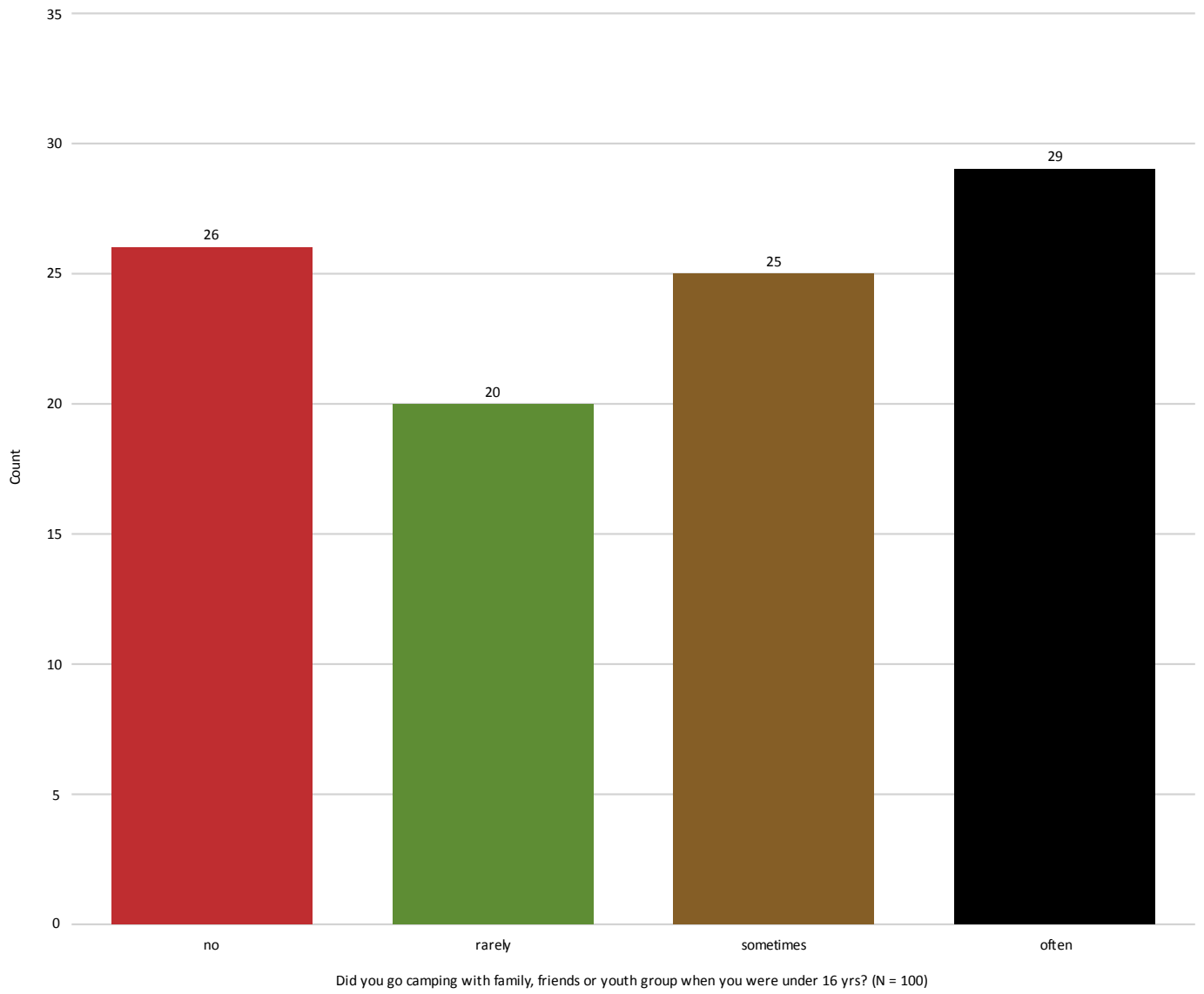
33. Did you ever go on a school camping trip?



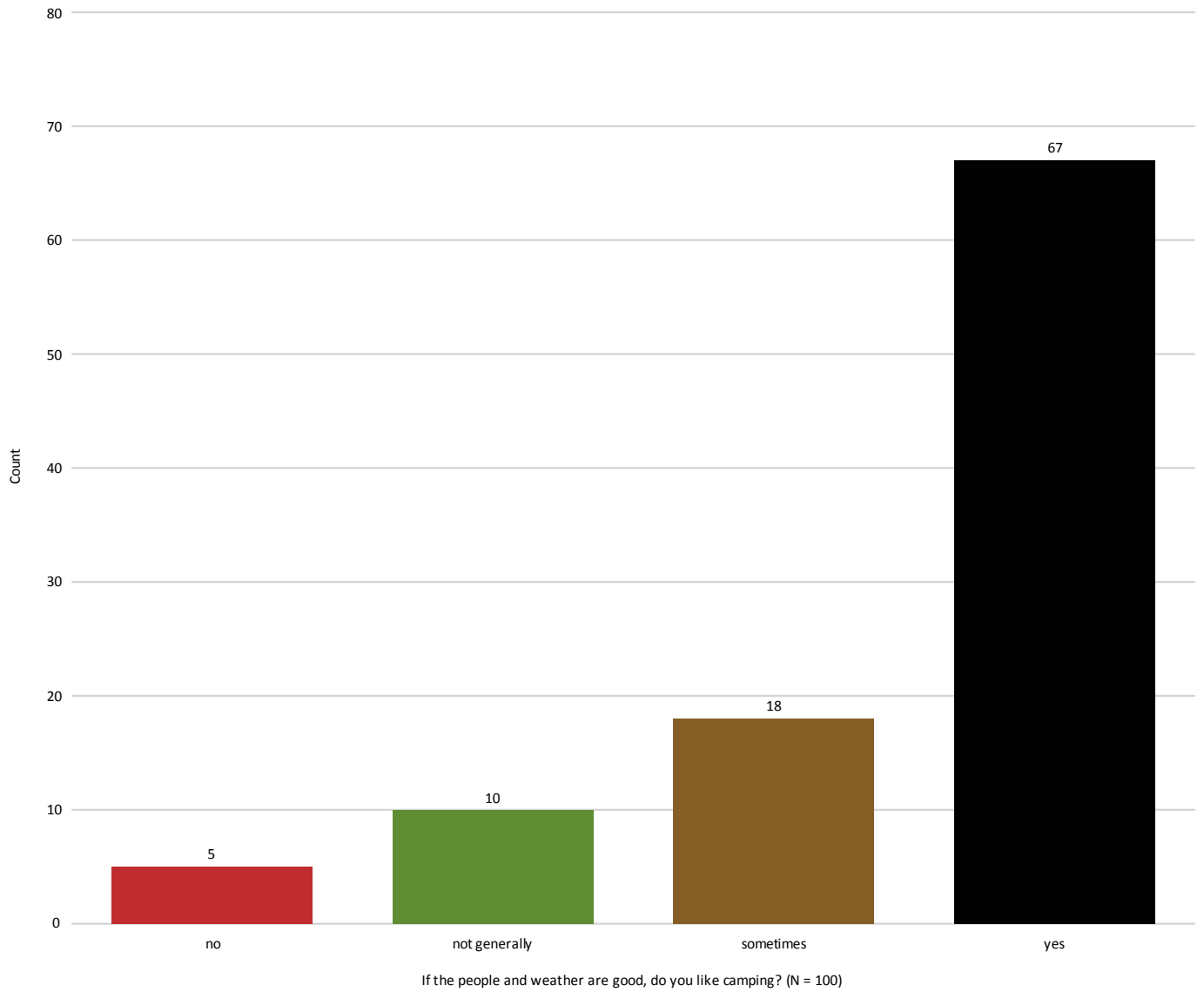
34. Did you ever go on an outdoor adventure holiday?



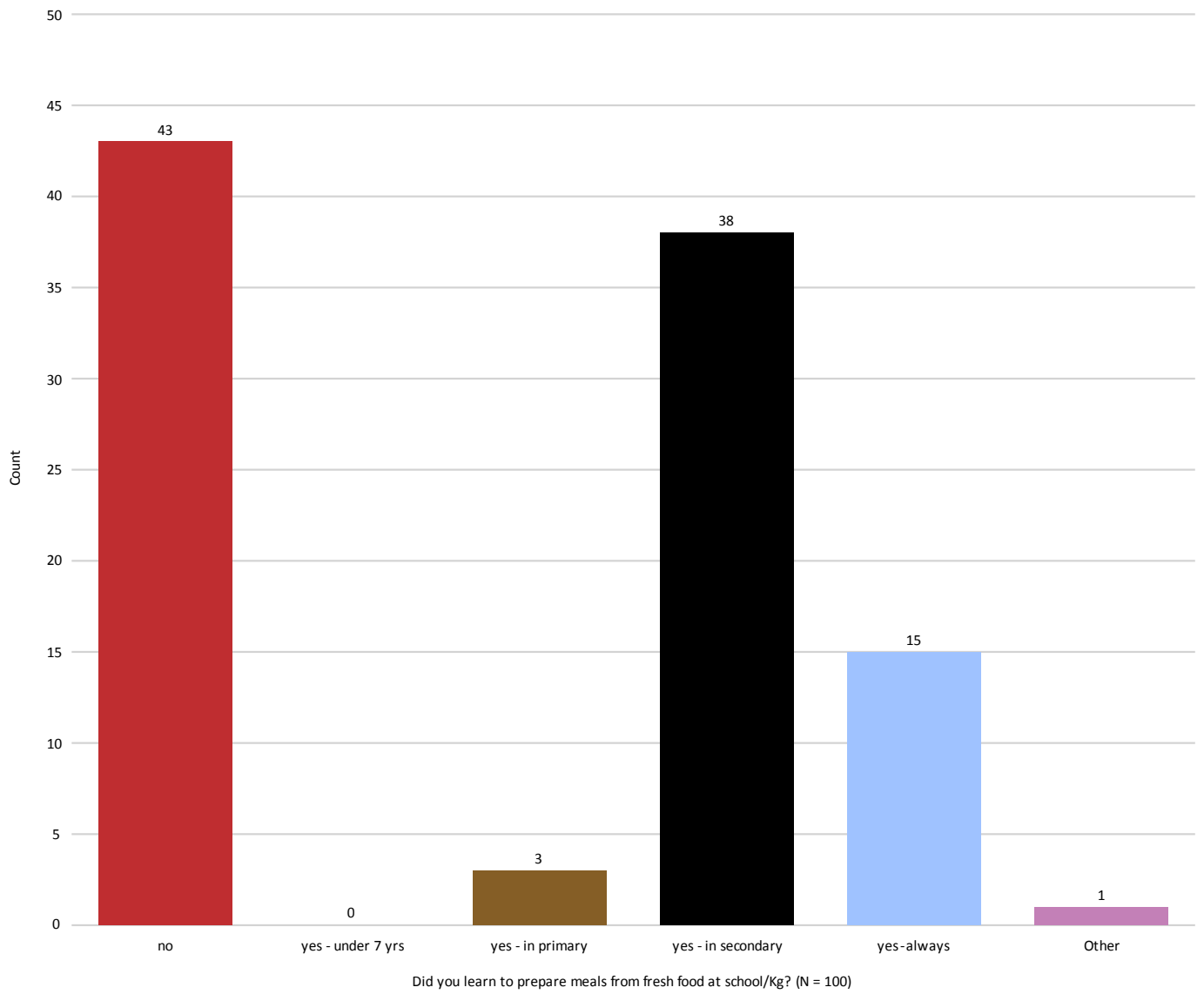
35. Did you go camping with family, friends or youth group when you were under 16yrs?



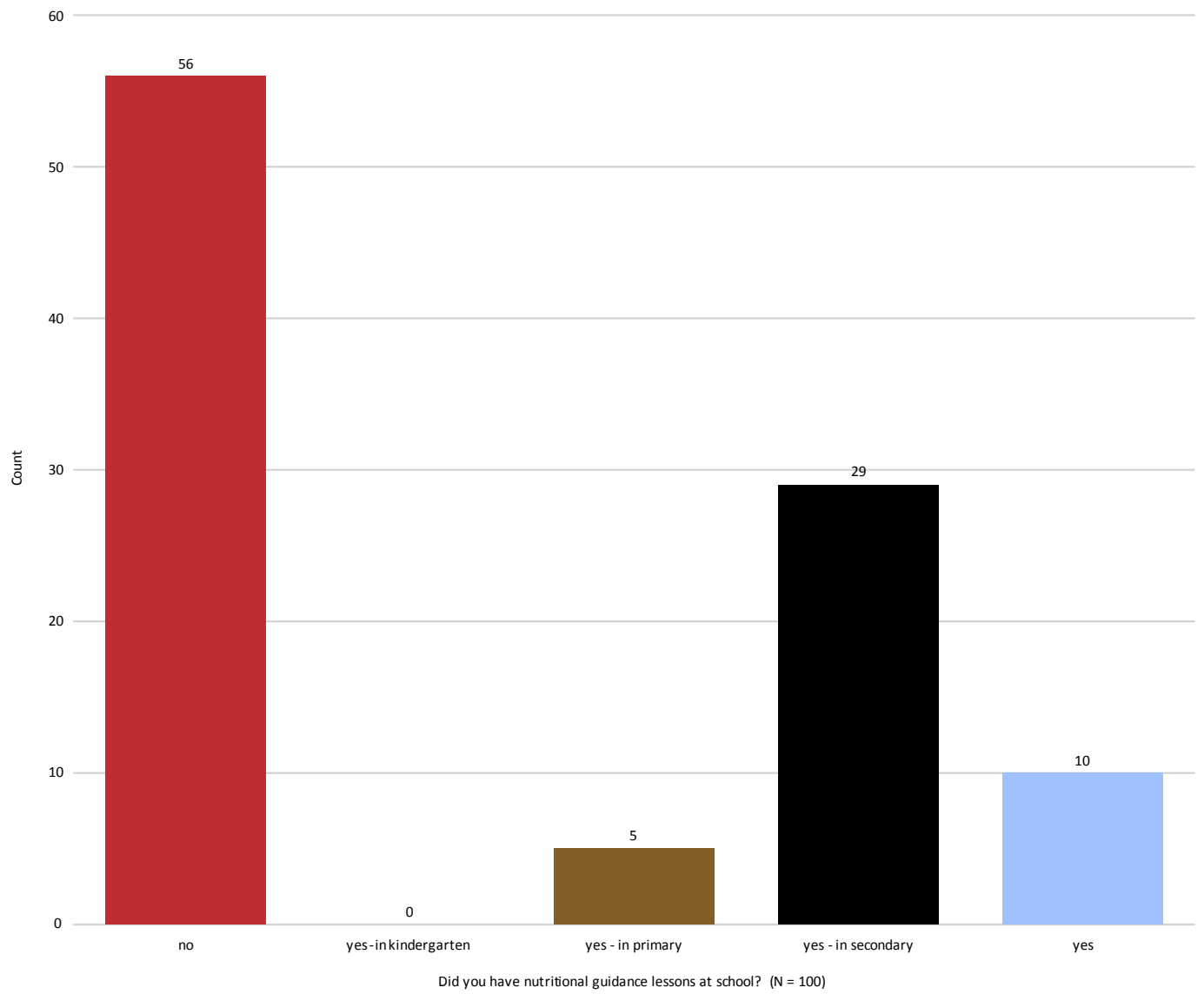
36. If the people and weather are good, do you like camping?



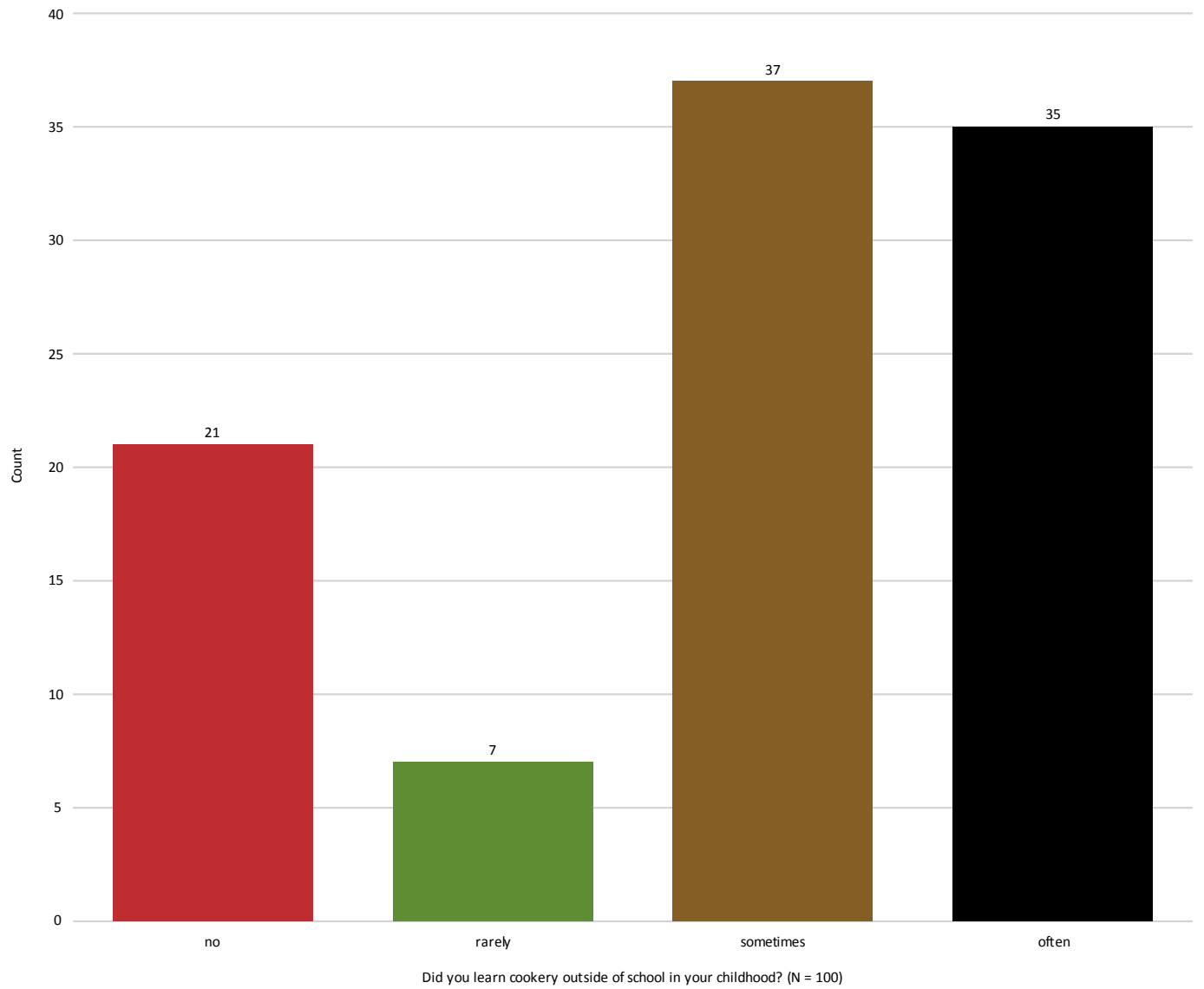
37. Did you learn to prepare meals from fresh food at school/Kg?



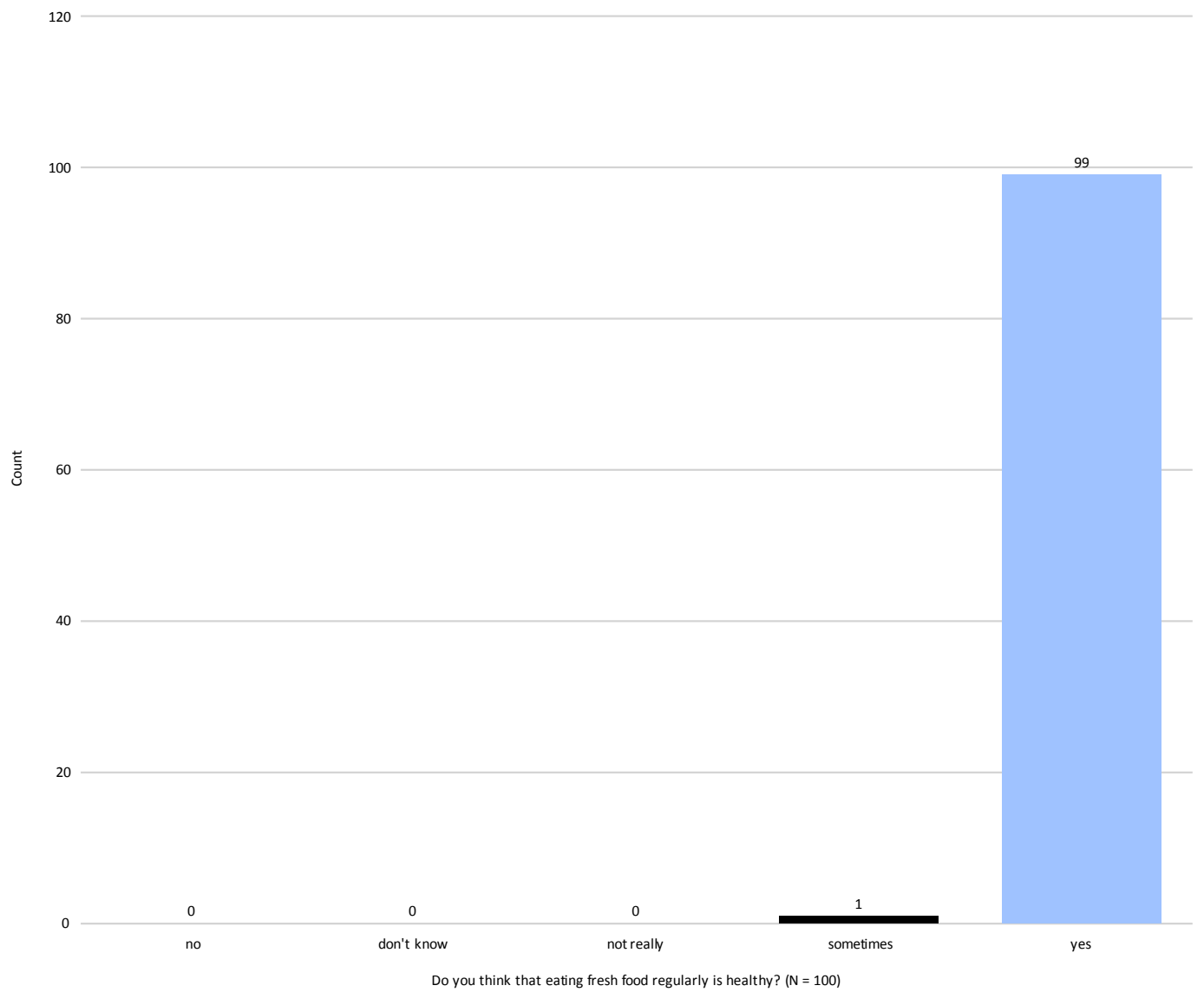
38. Did you have nutritional guidance lessons at school?



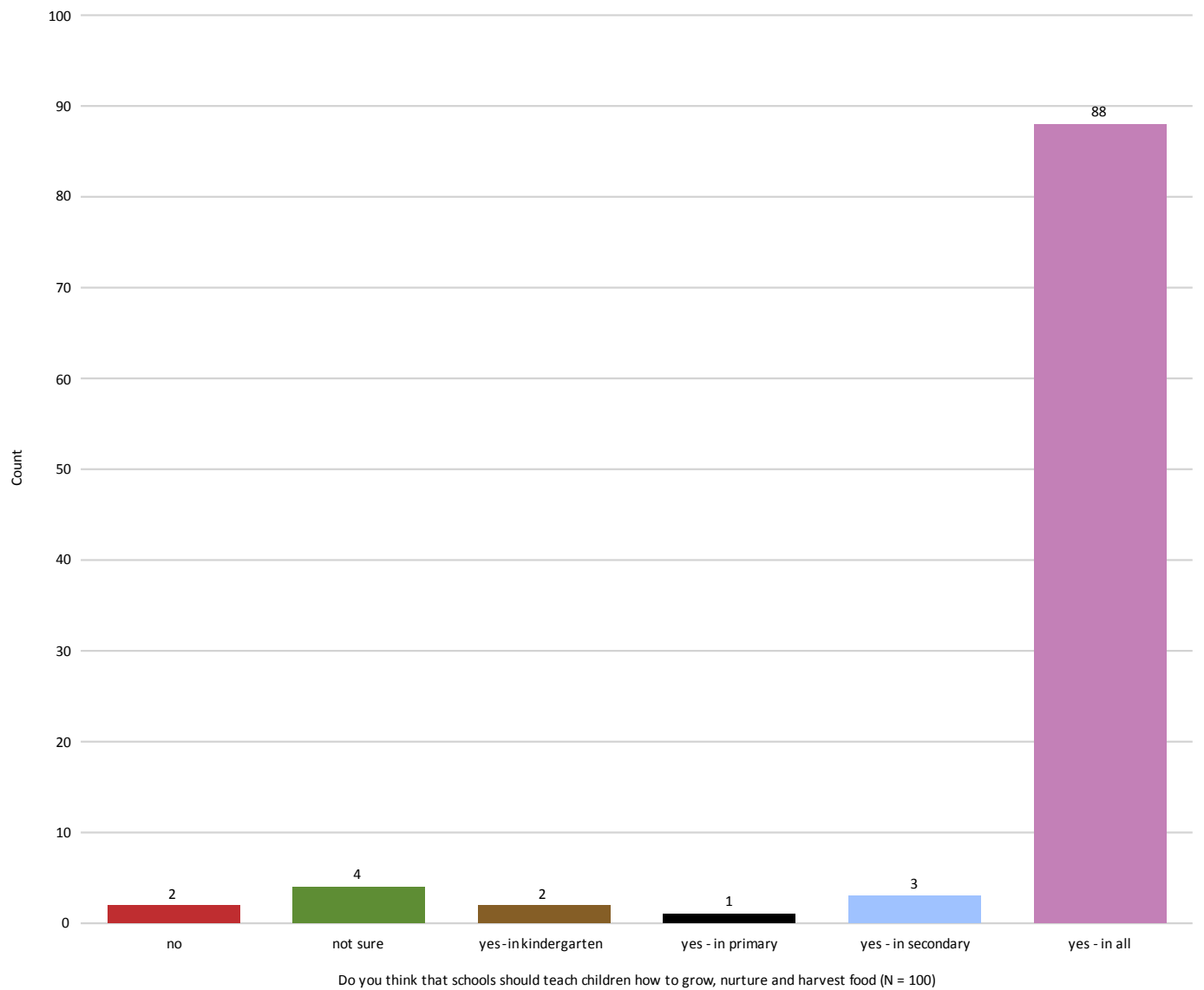
39. Did you learn cookery outside of school in your childhood?



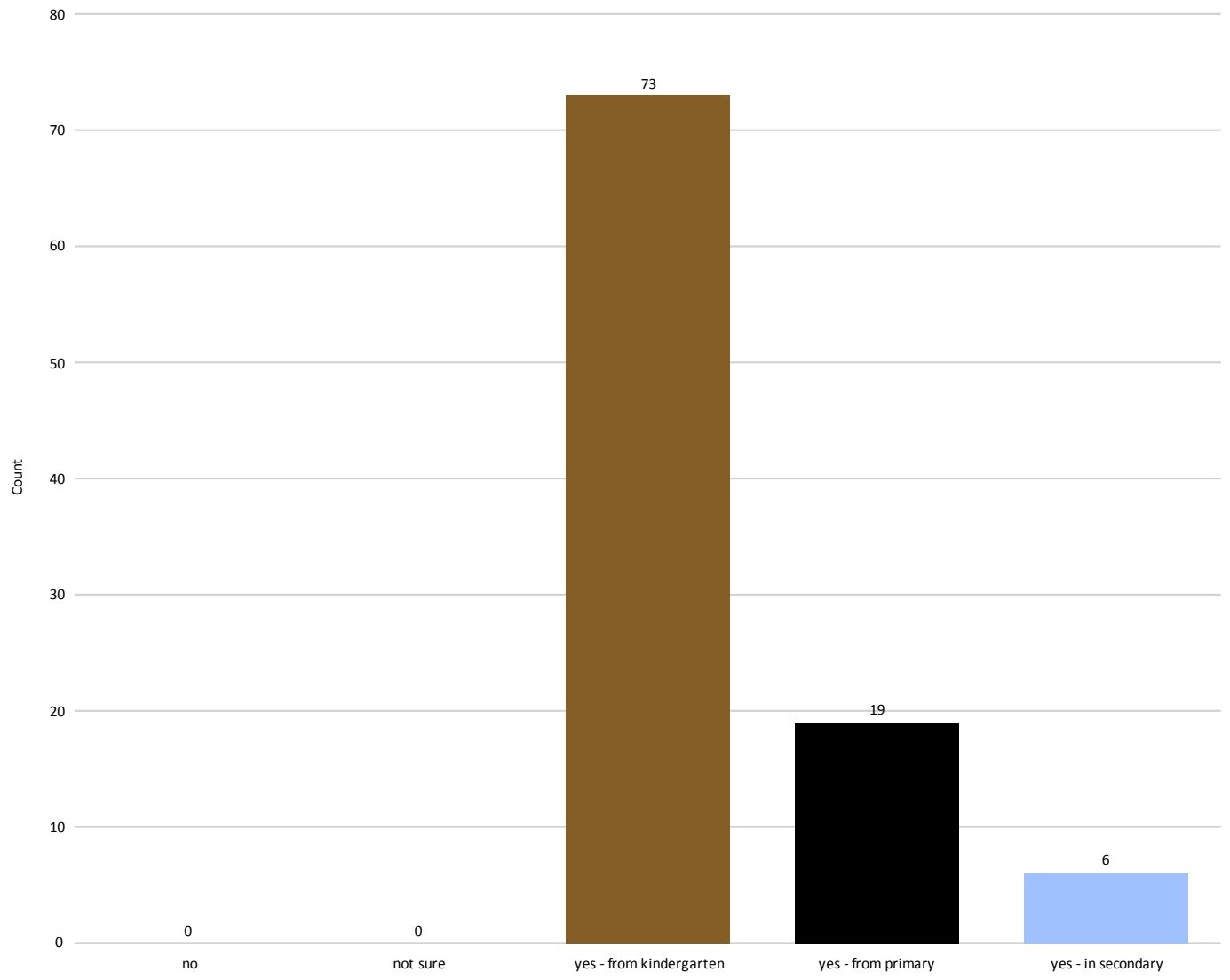
40. Do you think that eating fresh food regularly is healthy?



41. Do you think that schools should teach children how to grow, nurture and harvest food

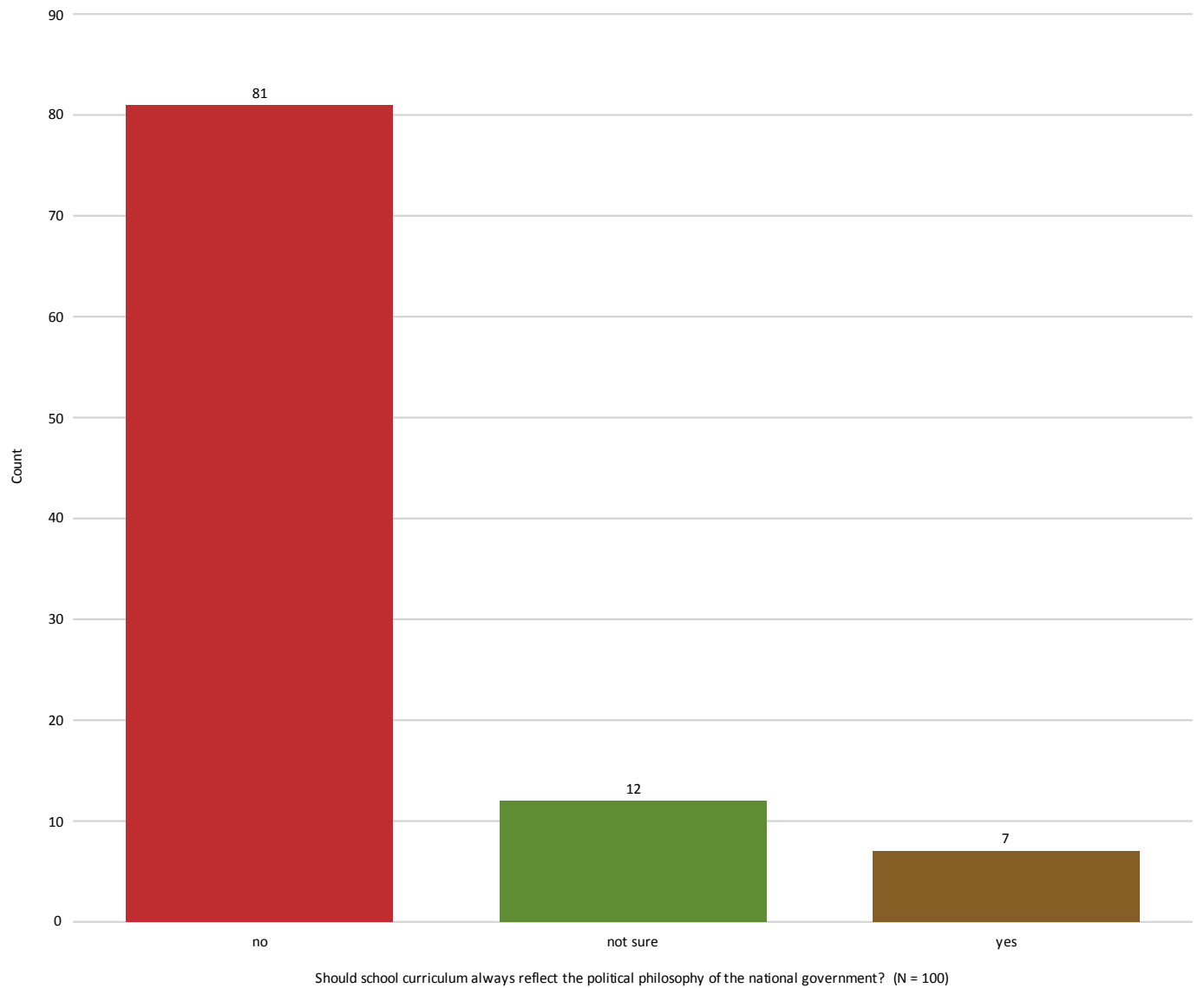


42. Do you think that schools should teach children about our environmental challenges, in age appropriate ways, and encourage 'green' behaviour?

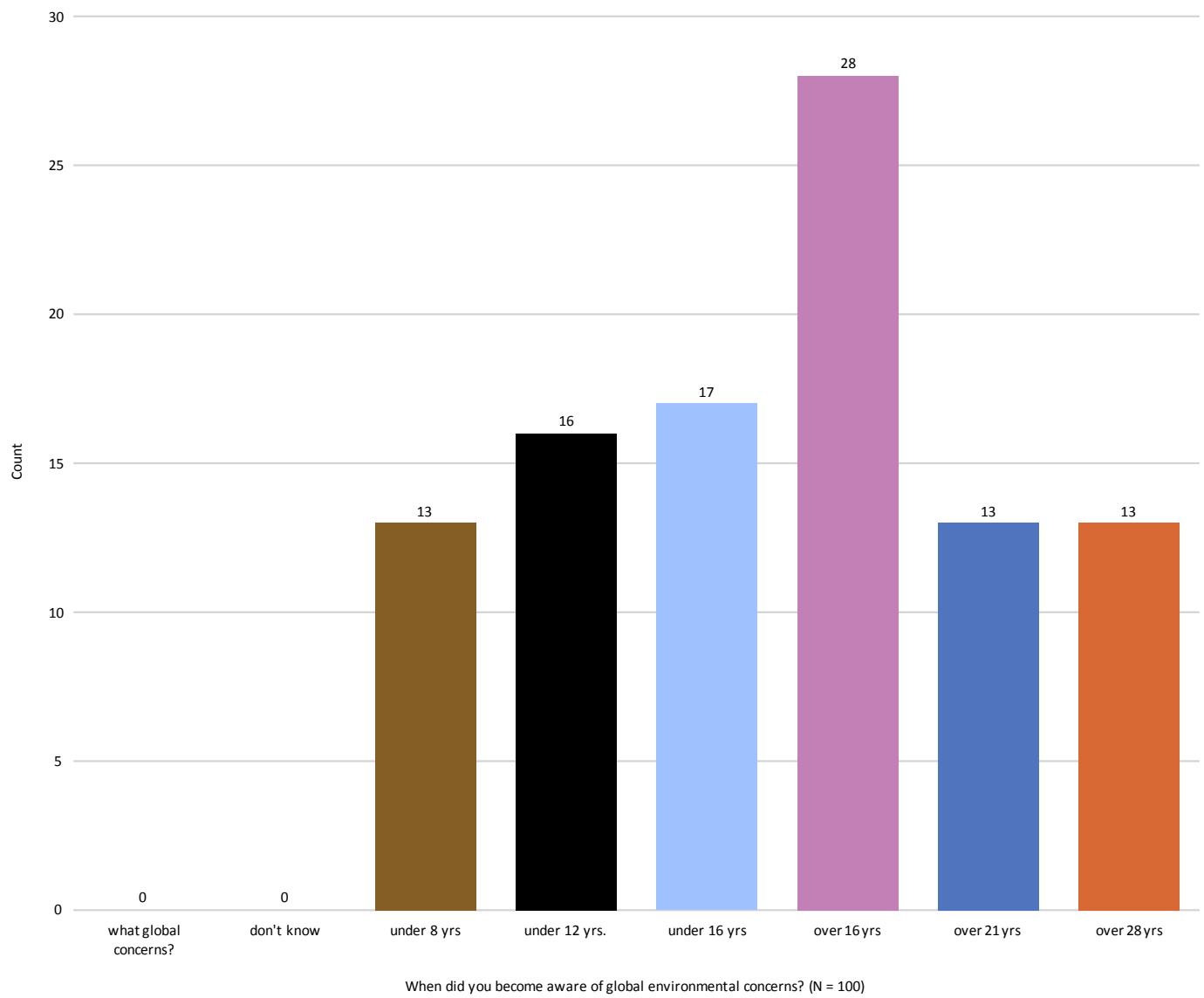


Do you think that schools should teach children about our environmental challenges, in age appropriate ways, and encourage 'green' behaviour? (N = 98)

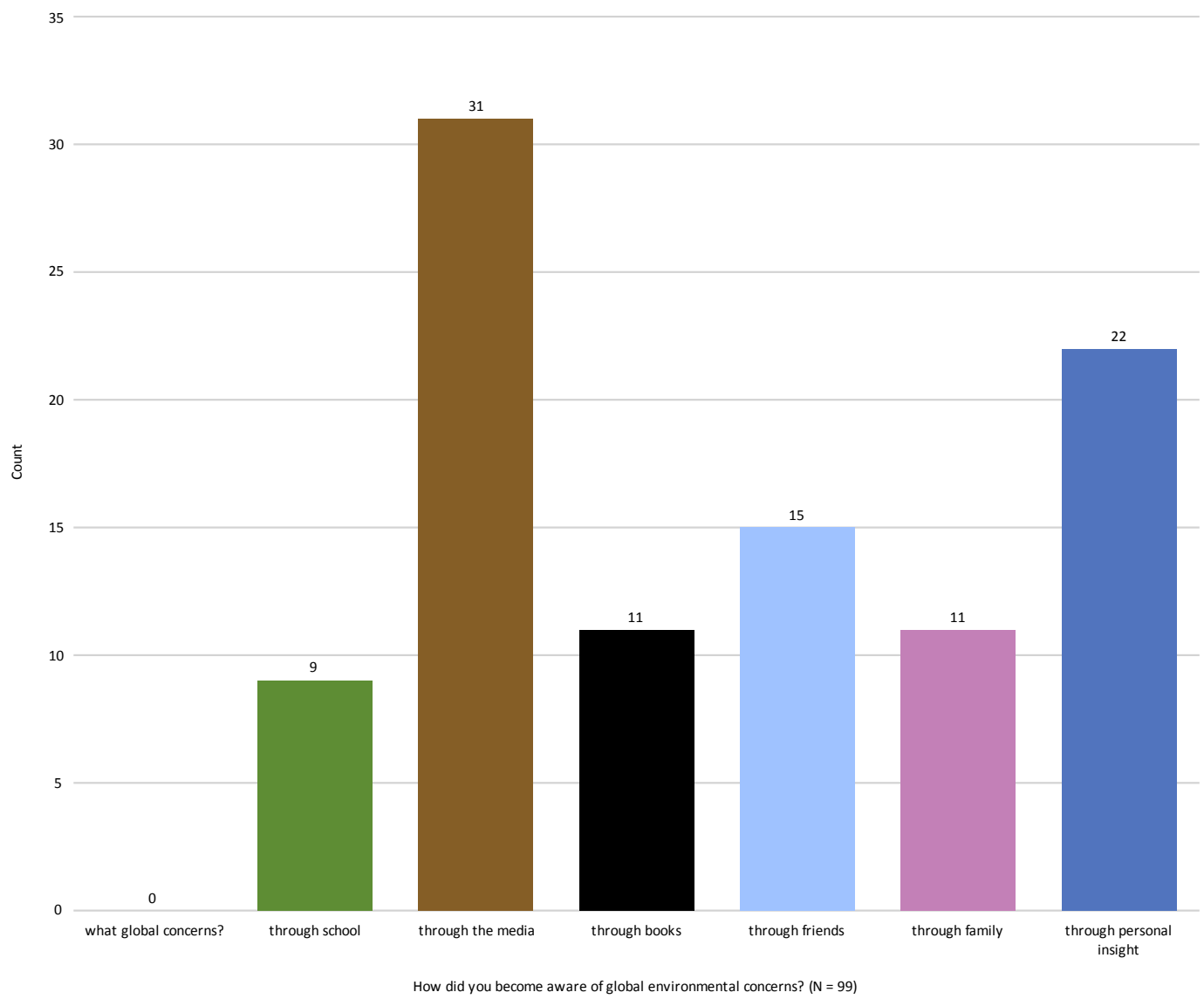
43. Should school curriculum always reflect the political philosophy of the national government?



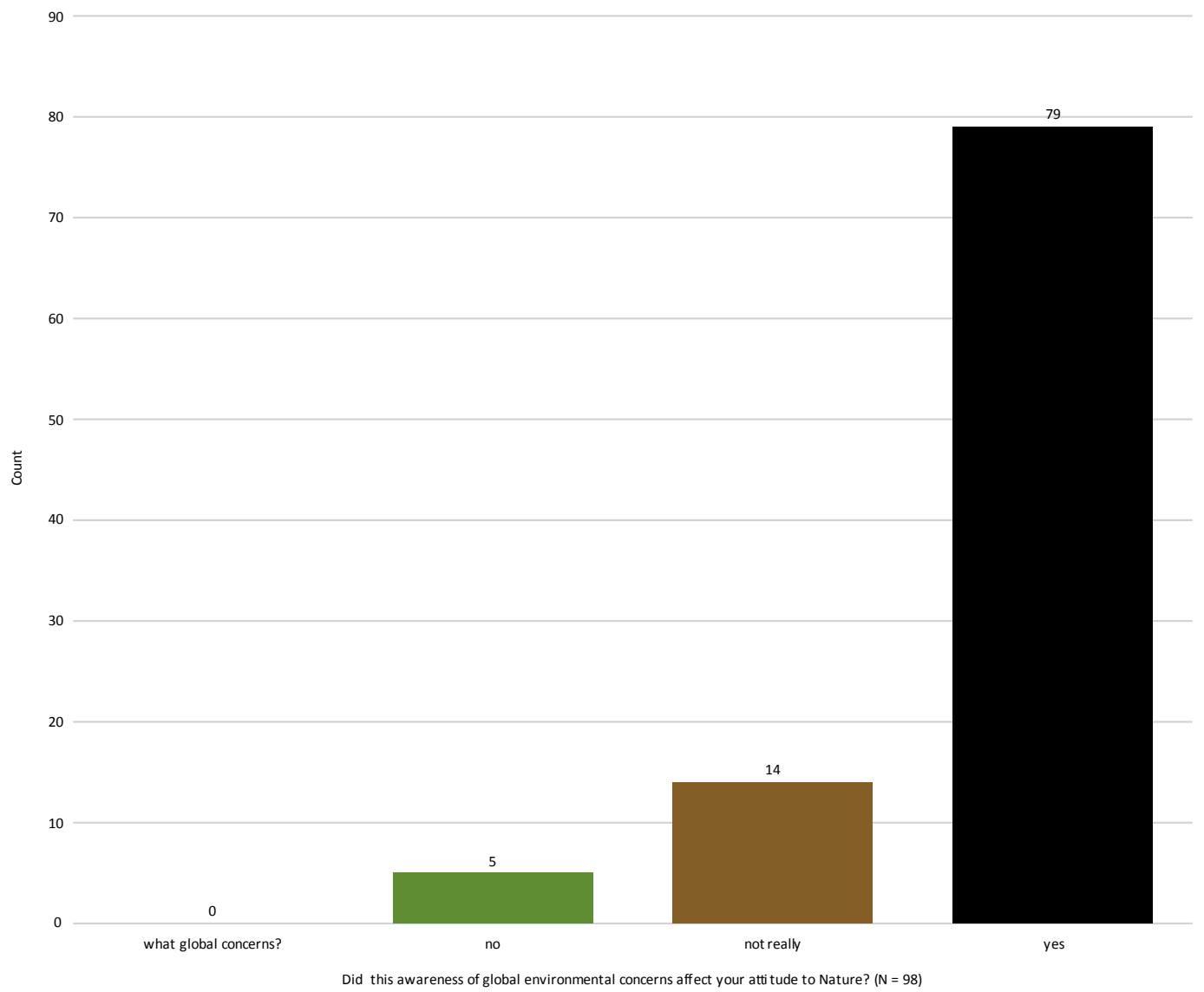
44. When did you become aware of global environmental concerns?



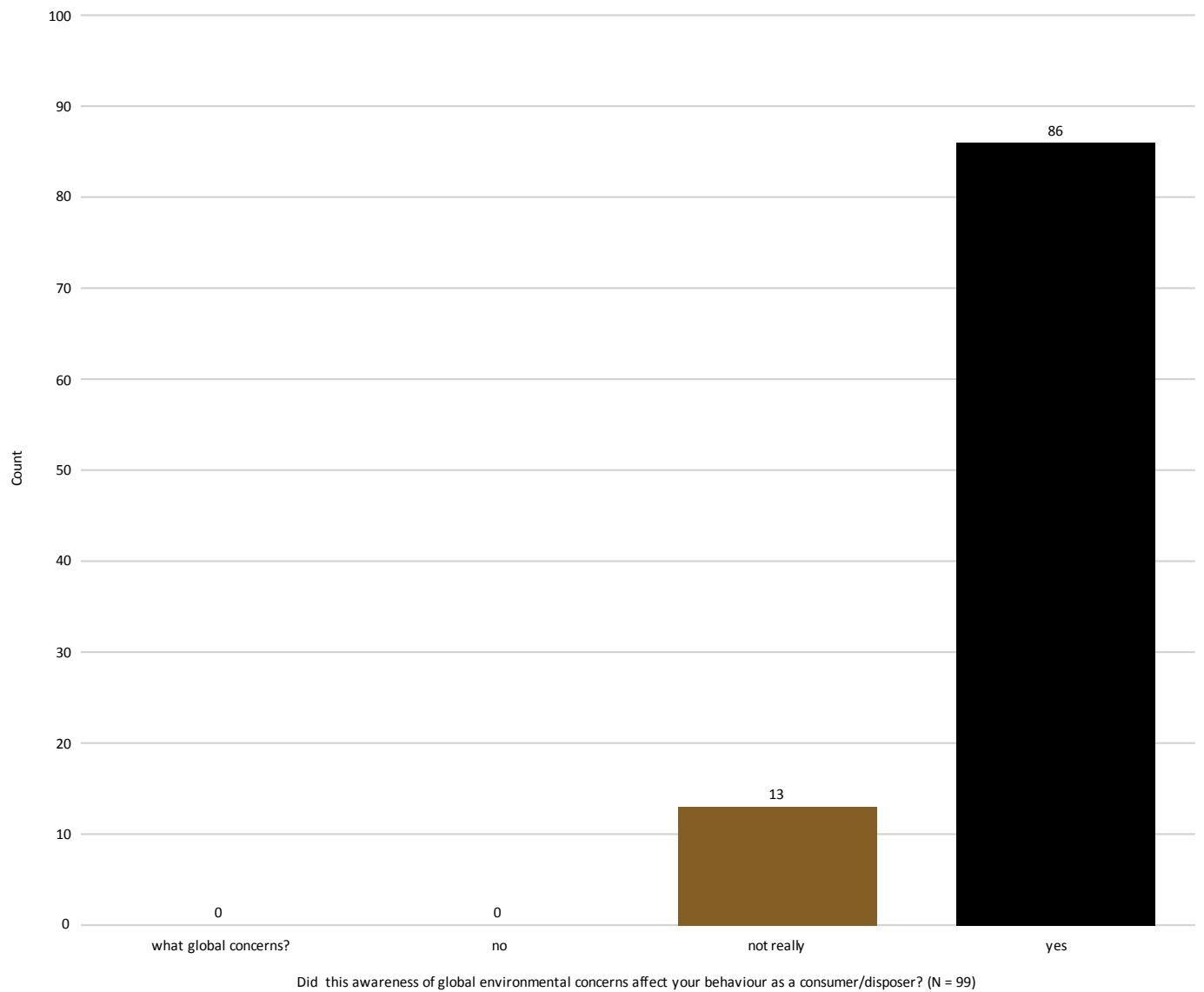
45. How did you become aware of global environmental concerns?



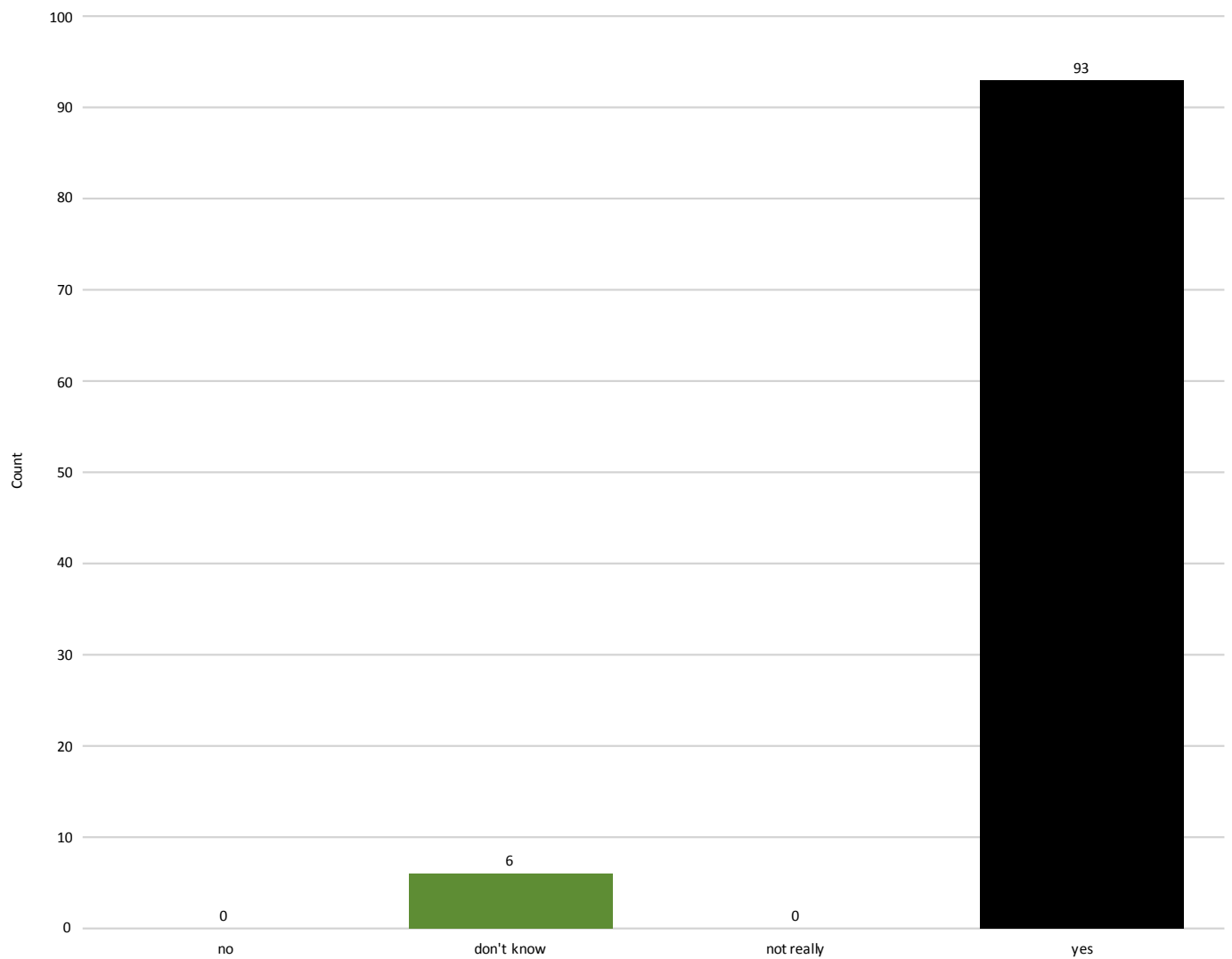
46. Did this awareness of global environmental concerns affect your attitude to Nature?



47. Did this awareness of global environmental concerns affect your behaviour as a consumer/disposer?

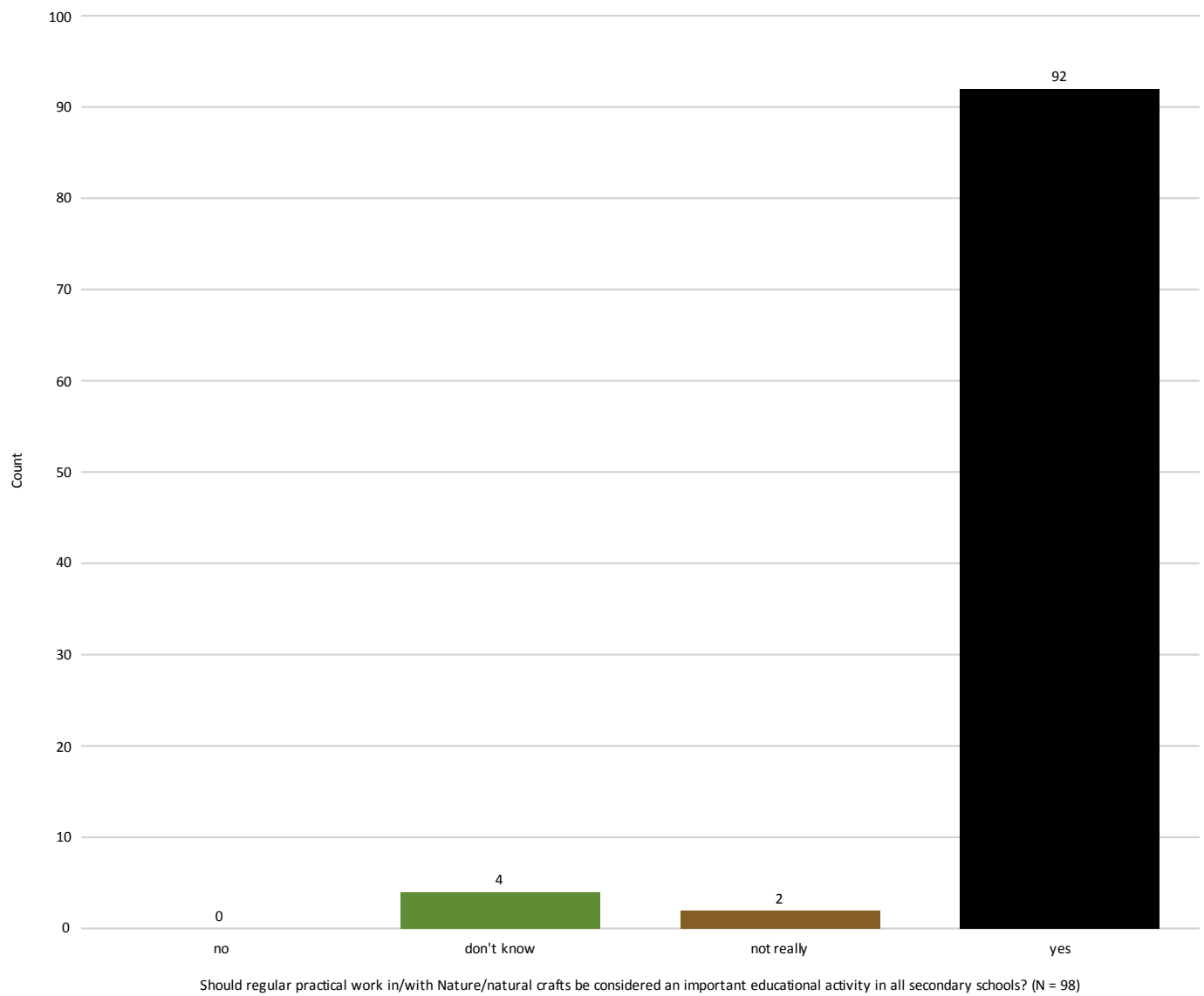


48. In order to encourage 'green' behaviour and attitudes, do you think/feel that regular imaginative play in Nature be considered an important educational activity in primary schools?

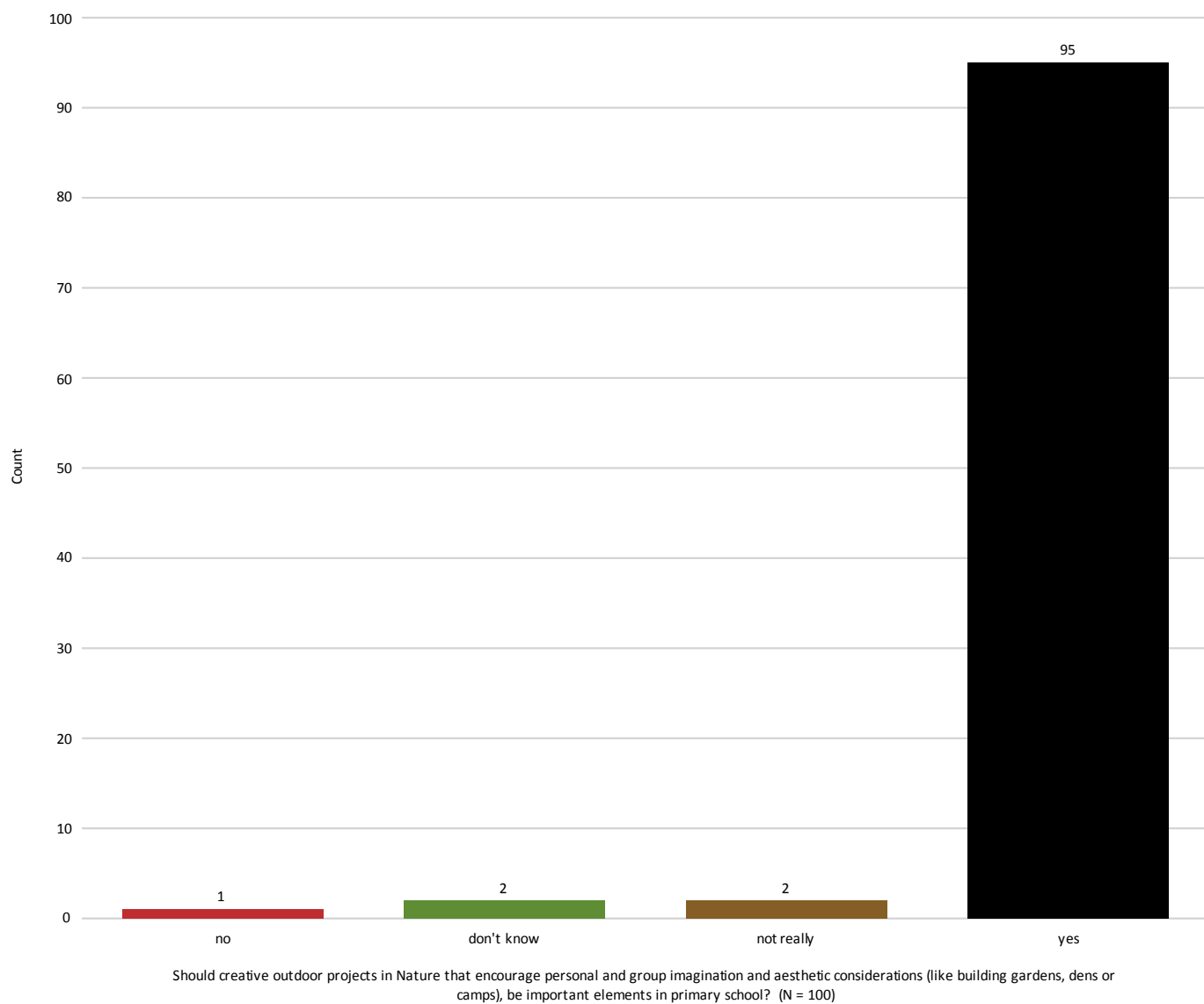


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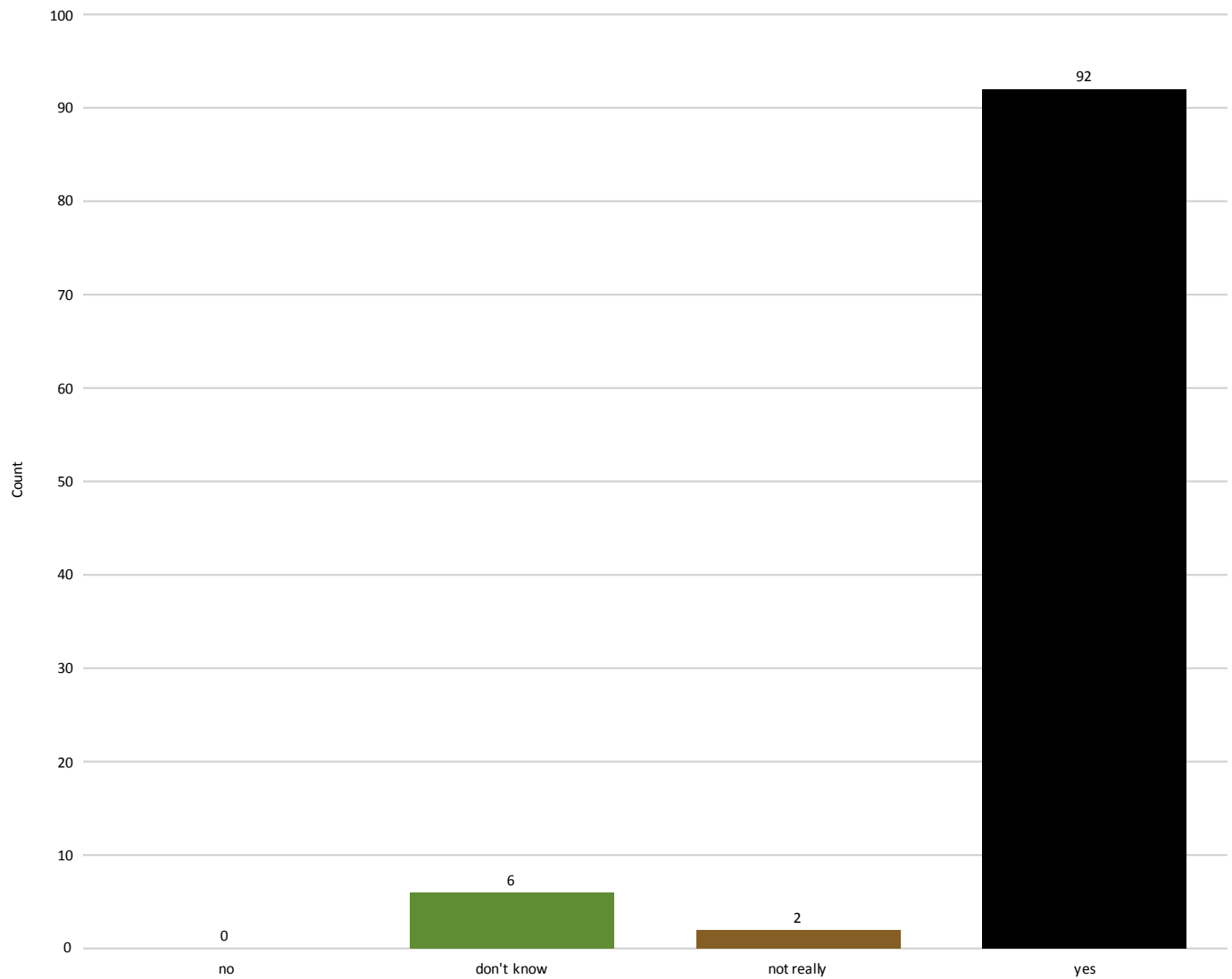
49. Should regular practical work in/with Nature/natural crafts be considered an important educational activity in all secondary schools?



50. Should creative outdoor projects in Nature that encourage personal and group imagination and aesthetic considerations (like building gardens, dens or camps), be important elements in primary school?

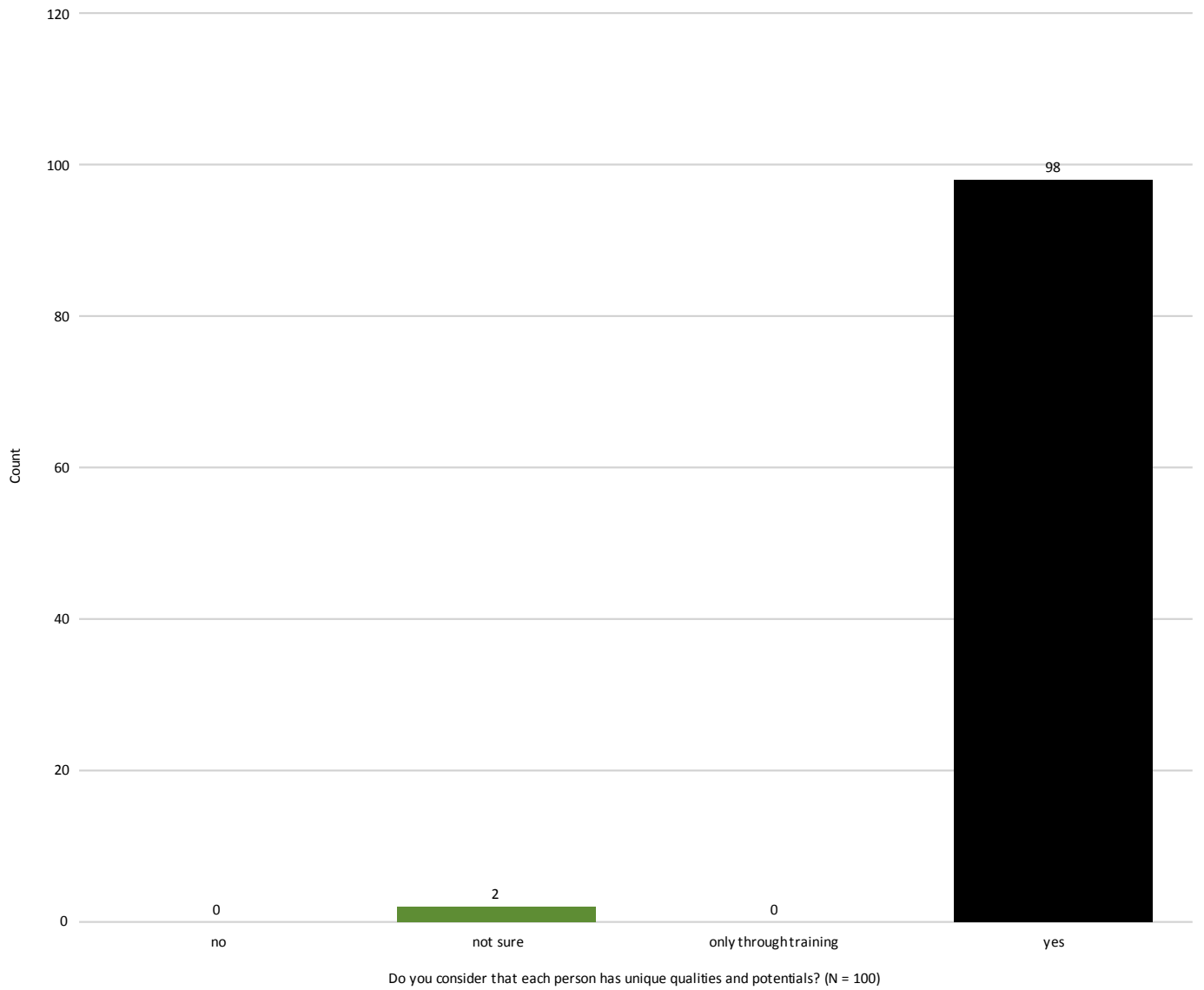


51. Do you think/feel that working as a group on nature-based practical projects in school, can strengthen the group and develop individuals.

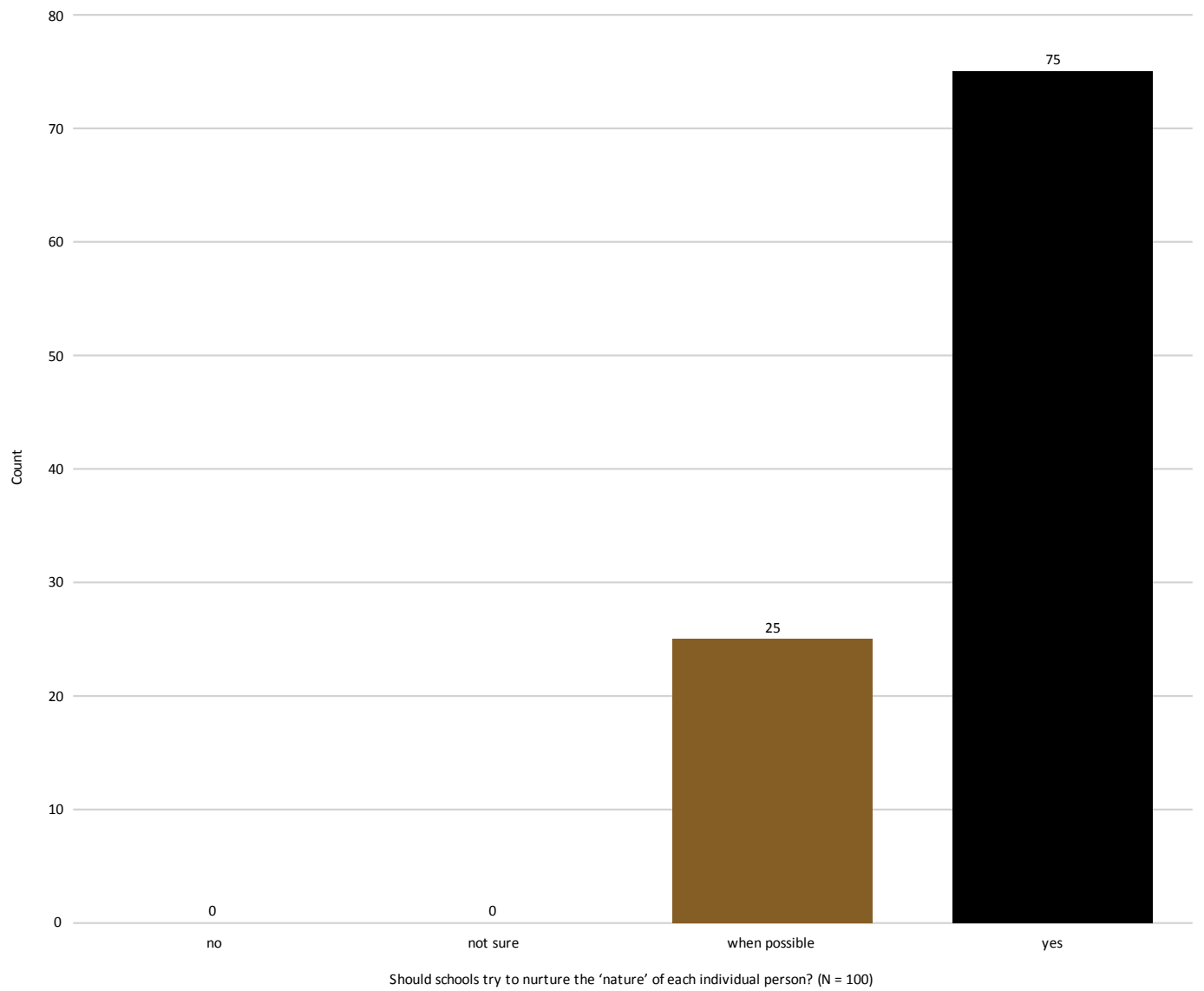


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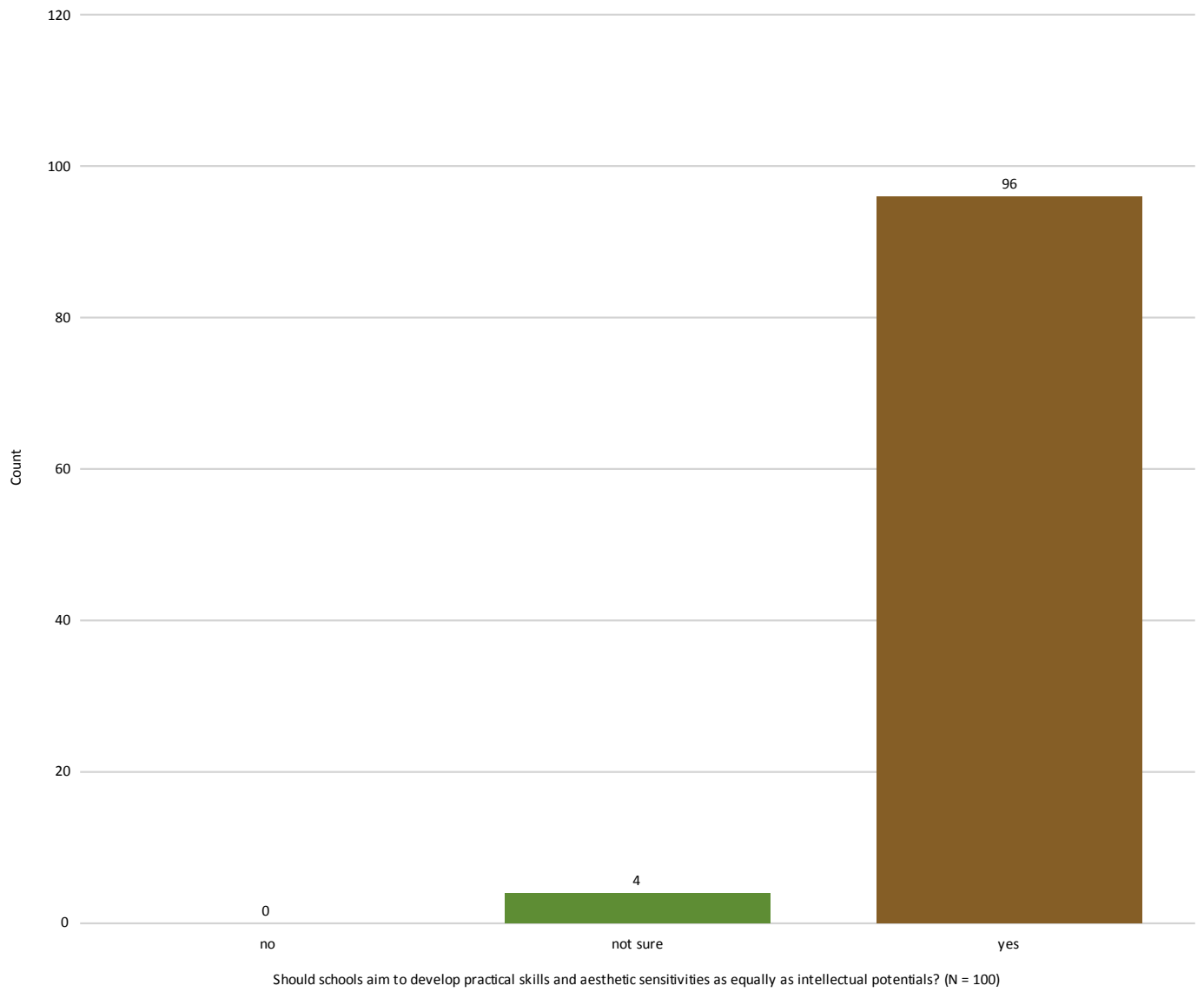
52. Do you consider that each person has unique qualities and potentials?



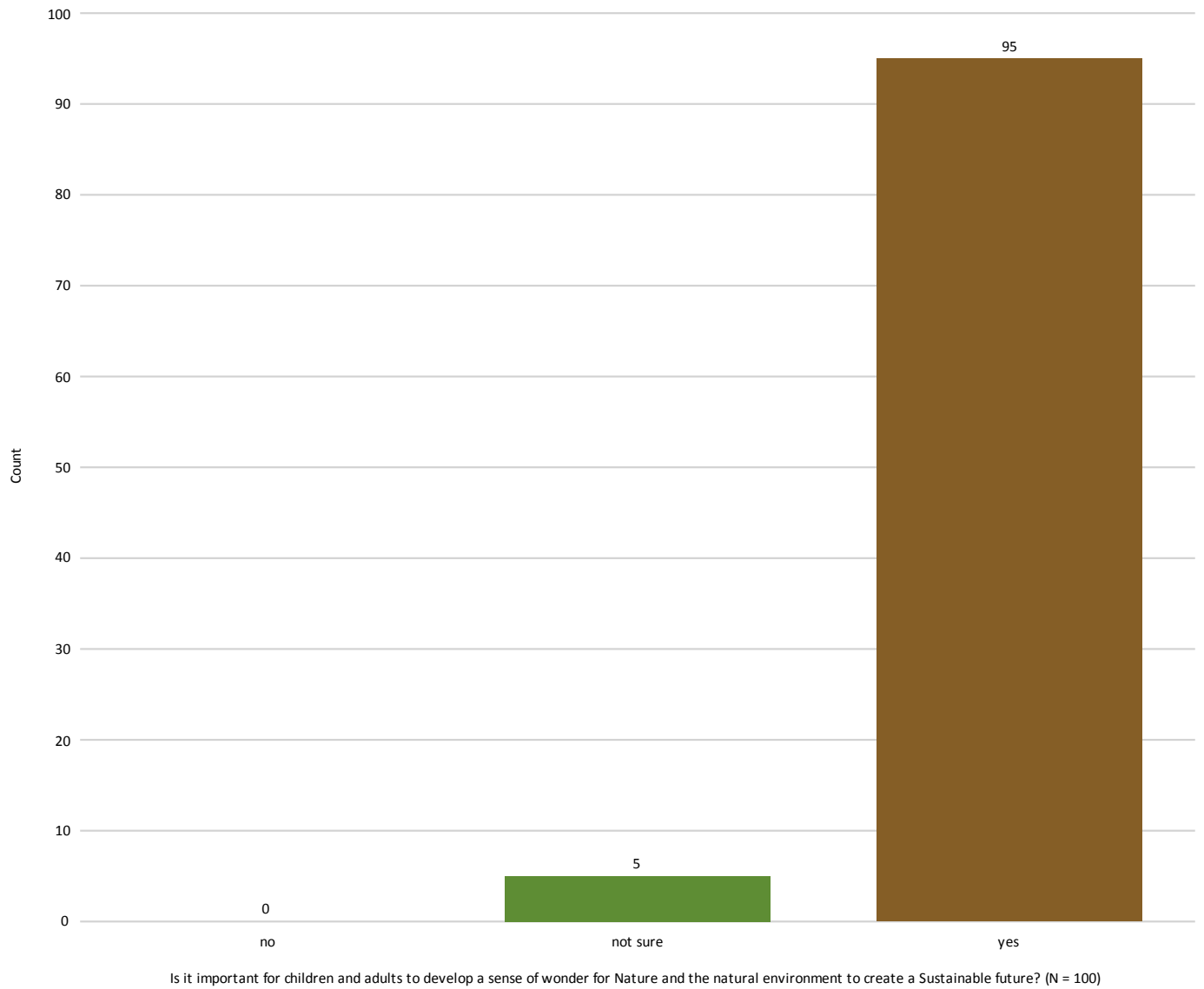
53. Should schools try to nurture the 'nature' of each individual person?



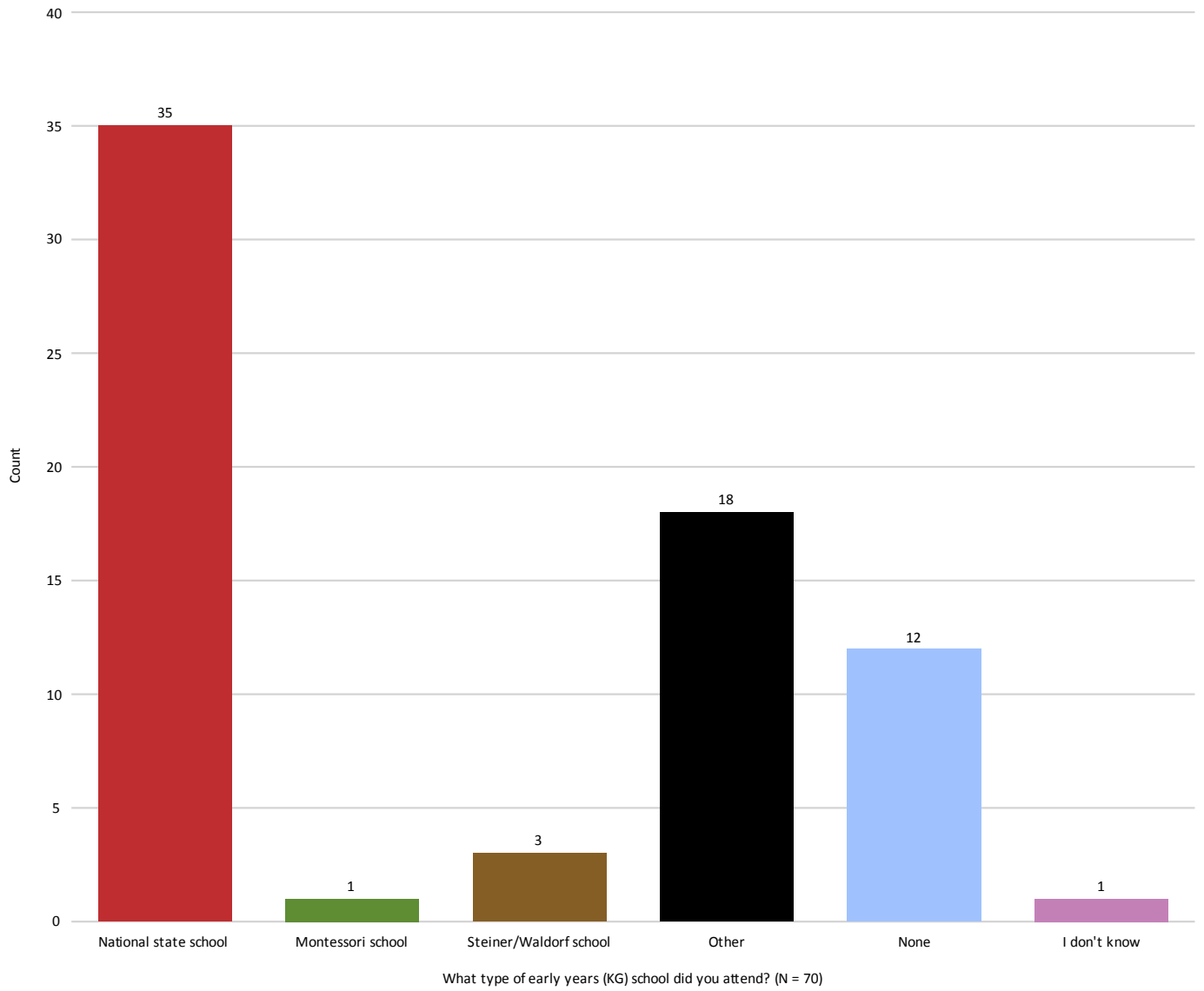
54. Should schools aim to develop practical skills and aesthetic sensitivities as equally as intellectual potentials?



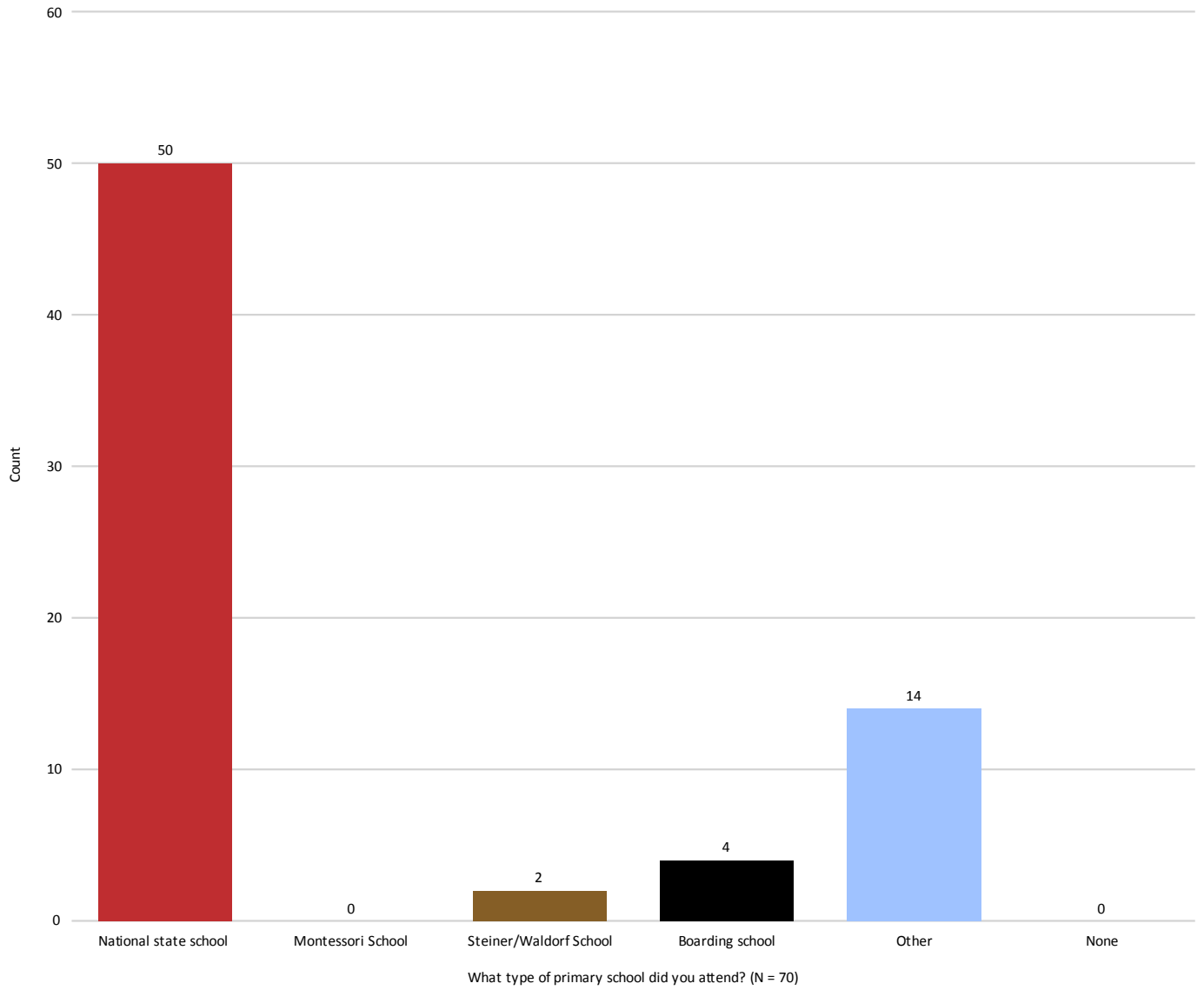
55. Is it important for children and adults to develop a sense of wonder for Nature and the natural environment to create a Sustainable future?



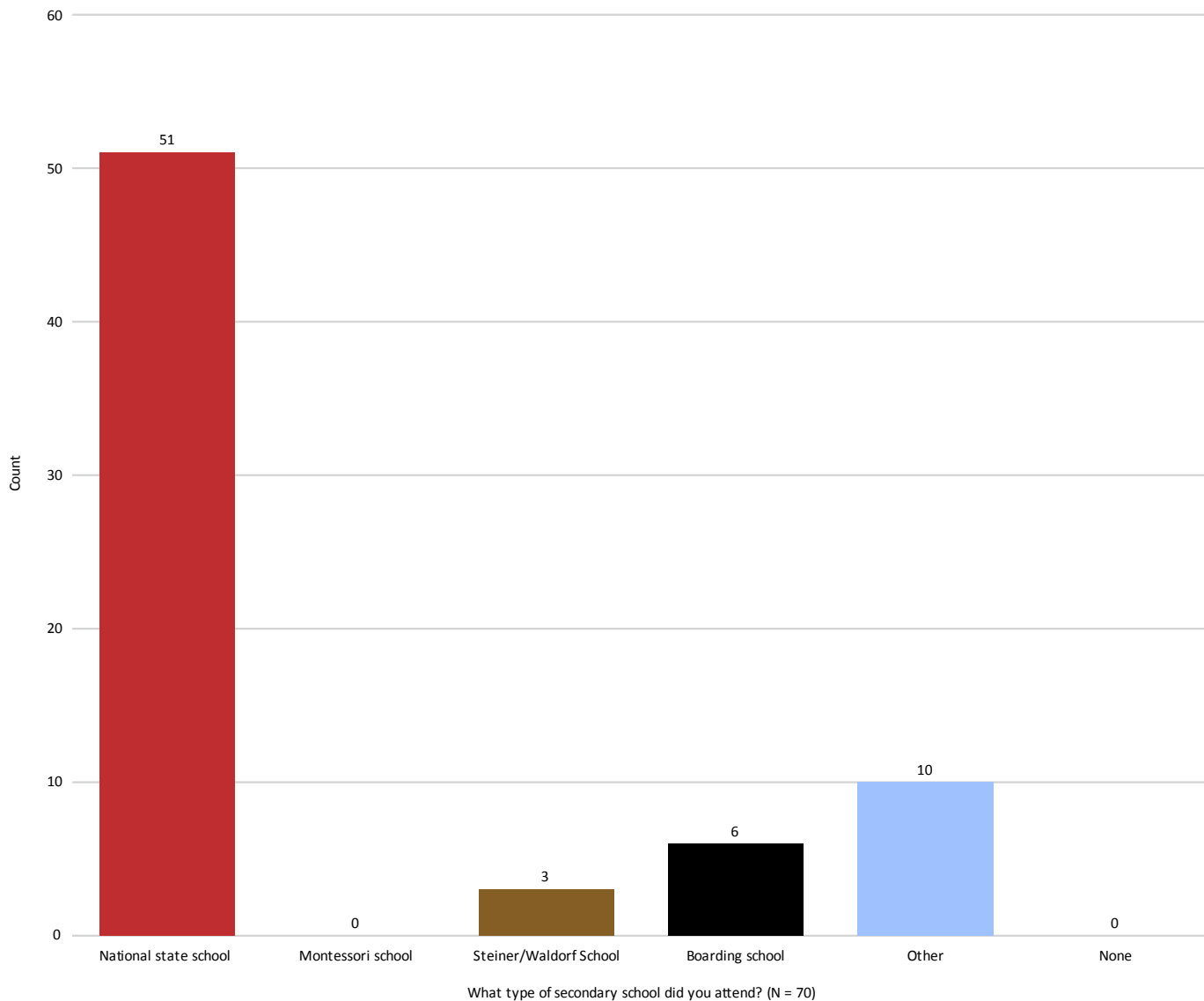
56. What type of early years (KG) school did you attend?



57. What type of primary school did you attend?



58. What type of secondary school did you attend?



59. Please add any other relevant comments, observations etc.

Everyone needs to learn a skill with their hands..

We all need to learn how to grow food and learn to grow in many different ways..

I work with homeless young people in a residential home... they seem to have learned very little about how to survive physically or emotionally through main stream education or their home lives, probably because their parents are barely surviving..

I believe that we have to keep the abilities of our children open to connect to people/ Creatures/ Nature. I believe that it's the basic human need/ ability to connect and that cultures have developed that stop that. So any training needed shows that what you want to train into peoples isn't naturally there...

We're writing a project to stimulate personal development for secondary school students with a link to vocational education and the real world. Interested?

Our school is lucky to be surrounded by farmland and mature trees. We are currently training staff in forest skills to teach children from age 5. Knife, fire, den/camp making, tree id to name a few.

I have worked in Field Studies, and on Nature reserves with many hundreds of children, the experience of the outdoors can be seen to be liberating and enriching by the way the children and young people respond to both their environment, and each other, when giving stimulating educational experiences, and peaceful time/space to wonder.

As a child i was often on farms and the Waldorf education gave a lot of gardening classes. Also playing was as a child always in nature in the natural park close by our residential area. Later i did scouting and sailing.

As an adolescent i was studying and working on universities: all life, home, work and food was disconnected from nature. I was always surprised that all you eat in a city is only coming out of a shop, packages and commercial advertising. And there is no connection to nature at all.

I think that if you want to bring people back in connection with nature: elements of the food you buy should be made to understand that is all comes from nature.

Let's #Conspire !! <https://adinfinitum.motd.org> adinfinitum@disroot.org

I am too long out of the school educational loop. However respect for nature I feel should be encouraged but gently.

A persons understanding and appreciation of how nature works should definitely affect how they view and interact with nature.

I believe animals should play a big role in young children's lives wherever possible. I was a step mum but there was not a tick box for that.

I think most of what I was taught at school was fairly useless. Everything useful I have learnt since leaving school and from reading books of my own choice. I believe that children should be taught practical skills as well as the 3 R's. Skills like foraging, cooking, building, crafts, languages and also philosophy.

Having attended a national school triggered my wish to live life differently. So in a way I am grateful for all the chances I missed.

If anything is to be done to improve the state of the world we must educate children about nature, environmental issues and their place in the world as early as possible. Teaching children of all ages about nature is of Benefit to them and the world.

All ages for life changing natural experience

I was lucky enough to be educated before national curriculum so on sunny days many of our lessons and daily stories happened outside under Oak trees. We had frequent walks along the river banks and did pond dipping, identified wild flowers and found joy in finding snake skins, dragon fly larva skins, broken bird shells, skeletons of various creatures etc. etc.. We went apple picking, bramble picking, we picked up leaves, identified them and in different season's their flowers, fruits or nuts which we then drew or painted once back in class. It was heaven.... In the snow we would find out which methods would melt it the quickest or simply appreciate that snow has different qualities in different states, for example it either took the shape of a container if powdery or impossible if compacted and icy unless force was used....

Have always been into the countryside and nature. I'm lucky where i live with a good sized garden have planted lots of trees and we have red squirrels owls curlews calling from the fell tops. I don't use chemicals in the garden. My dad grew nearly all our veg and that gene has been passed on and my children have had an up bringing in the countryside and small village primary school. The younger years are very important when children absorb all kinds of influences and what they see around them. I have a granddaughter now and she nearly 2 so she'll be sowing seeds with me this week!!! Schools should teach more crafts, art, gardening, looking after the soil and more green issues. The oceans and seas are polluted the land is poisoned in some areas with chemicals and radiation. Children need to be taught to be responsible about not being wasteful. Im a make do and mend kinda gal. So much waste today.

I was lucky enough to be brought up in a rural environment, my grandfather was a farmer and I spent many happy hours building camps in the woods, discovering life in the ponds and developed an early fascination and respect for nature. At pre-school aged three I can still remember the wonder we felt when we were introduced to a hedgehog in the garden; and again when learning Nature Study in Primary school. I never felt as if I was separate from nature. It saddens me when I hear that many adults as well as children have no idea where our food comes from and feel no responsibility for the natural world. It is vital that our children are educated and know that we are all responsible for looking after our planet and the many ways we can do this. An early engagement and respect has lasted me a lifetime, the wonder never ceases.

I grew up on a farm, became very aware of animal welfare as father was beef farmer - I am now vegetarian. I would adore a garden but cannot afford to rent property with one. We visit parks and walk canals regularly and take trips in our camper to nature when possible. Natural environment has always been a huge part of my life.

I think schools should emphasise the importance of getting on with other people whoever they are as opposed to academic achievement. Also I think they should help children appreciate doing simple things not just things that boost their self-esteem and are essentially more to do with glamour. Everyone competing on the glamour scale is not a good thing.

Through my own experiencesborn and growing up in Zimbabwe, Africa and only leaving my country (returning very regularly) I feel such gratitude being brought up in a nature. Not only growing and nurturing my own vegi patch and gardening, collecting and planting seeds, but also very importantly knowing how the animal species of all types are a necessity and complement our environment! Being fortunate to be close up with the bigger animals, Elephants, lions, rhinoceros, giraffes, buffalo, wild pigs and all the smaller and even tiny animals, and creatures made me not just like them but love them and their natural surroundings. I wanted and have my son the same and he too had now at the age of 27 the passion for passing this on. We both went to schools that nurtured our own inner gifts instead of wasting such valuable time sitting in classrooms constantly wishing we were outside or doing what we were born to nurture our passions. Fortunately each individual is different, therefore where would we be without our professions.....with the added ingredient of nature nurture. Fiona

I went to a very progressive state primary school in England.

I also studied Botany and Zoology to Higher in a very good and progressive state secondary school in Scotland.

Children are being separated from 'real life' and left with few practical skills. We have children now who know nothing about food production and cannot cook - hence IMO the current obesity crisis. We also have a generation 'encouraged' to put children into nursery etc. from an early age - again IMO- we will produce at least one generation without the skills to care for and raise their own children. On many levels society is heading for a cliff edge.

I attended a private primary school until I was 12, in the 60's. It was very traditional and unimaginative in how it taught. My green time came at home. I worry that today's children often do not get the chance to run around, build den's, get messy, climb trees etc. We didn't watch TV or do endless organised activities. We played with other children in and out of each other's garden's, houses. It was a freer life in many ways, less sophisticated but the trees, bushes and gardens were our play areas.

I grew up in a English New Town which had Green Spaces within large residential areas intrinsic to its design& continuing development. I always had access to green open spaces (woods in fact)right next to my home since I was tiny although when I was 7 I lived right in the centre of town but the access to the woods & stepping stones was a gate from our family garden. So outdoor playing was a daily thing. There was also a growing awareness that others did not have this . I also remember at school, at Church & on TV from very early on being aware of Famine in Africa which I think was very important & kick started my own learning about global political & environmental development & I was very aware of our lack of aesthetic in school & what horrible people that made!! Although we only had 1 family camping holiday during my childhood we had an annual skiing holiday which I LOVED & gave me access to another natural world which i suppose i dreamed of being part of my adult world .It must sound ironic but is true for me. Although my general education did not give me any garden or growing education "domestic science" until I was 13 it informed me a bit and we had a productive garden on a v. modest scale and we went strawberry picking at a local farm 1 a year! When I was 18 I went to work on a kibbutz in Israel for almost 3 years. So lots of farming and being in nature Then back to living in London for 7 years before moving to the country which I have lived in ever since now half my life time! ,(either in UK or Spain).My children grew up in the countryside and had their early years in Waldorf education because of its emphasis on rhythms in nature and not formal classroom learning which prolonged their childhood as I saw it.

I have been a scout and cub leader encouraging nature and the outdoors Also taught for 30 years children with special educational needs Good luck with your work

I myself have always been in touch with nature and I always dreamt of growing my own kids in nature. But later years of my life I had to switch to city life during my education years and I always had to find a way out to nature but was not enough. Now finally I run out of system and was able to set up a natural environment for me and my kids but I have to work hard for sustaining and it is not an easy thing as people think. I mean system is pulling people out of nature and force people for nylon lives. I will use it as a tool maybe sometimes but my focus is to be in nature and try to save it as much as I can.