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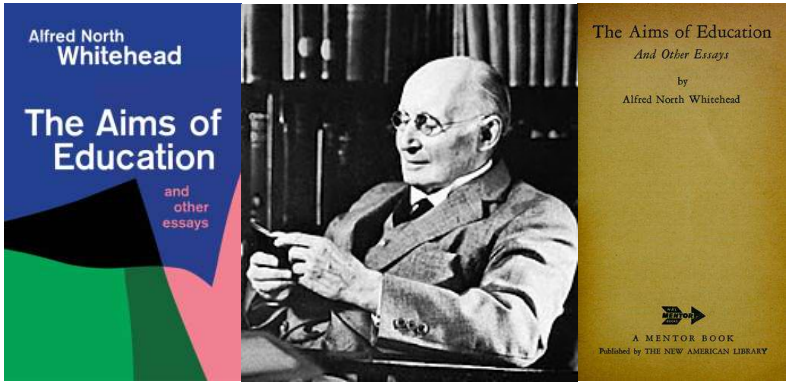
The Aims of Education in the 21st Century



Actuality, Relevance and Timelessness of A.N. Whitehead's Philosophy of Education

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Introduction

A.N.Whitehead

∗54.43.⊢((α,β∈1)⊃((α∩β=Λ)≡(α∪β∈2)))

∗54·43. $\vdash :. \alpha, \beta \in 1 . \supset : \alpha \cap \beta = \Lambda . \equiv . \alpha \cup \beta \in 2$

Dem.

$\vdash . *54{\cdot}26 . \supset \vdash :. \alpha = \iota`x . \beta = \iota`y . \supset : \alpha \cup \beta \in 2 . \equiv . x \neq y .$

[∗51·231] $\equiv . \iota`x \cap \iota`y = \Lambda .$

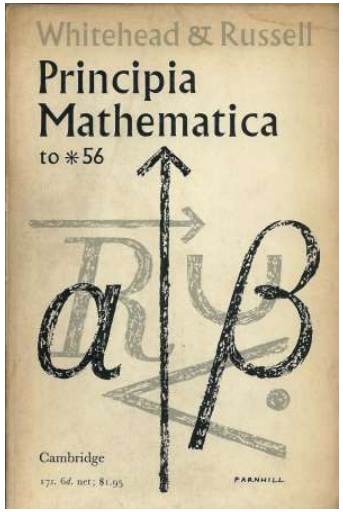
[∗13·12] $\equiv . \alpha \cap \beta = \Lambda \qquad (1)$

$\vdash . (1) . *11{\cdot}11{\cdot}35 . \supset$

$\vdash :. (\exists x, y) . \alpha = \iota`x . \beta = \iota`y . \supset : \alpha \cup \beta \in 2 . \equiv . \alpha \cap \beta = \Lambda \qquad (2)$

$\vdash . (2) . *11{\cdot}54 . *52{\cdot}1 . \supset \vdash .$ Prop

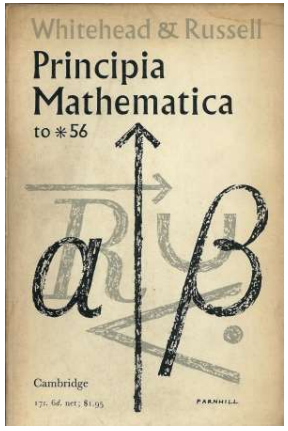
From this proposition it will follow, when arithmetical addition has been defined, that $1 + 1 = 2$.

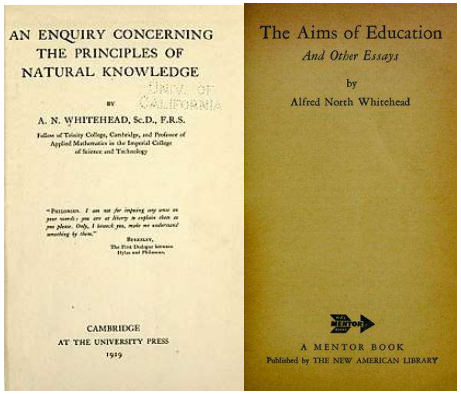


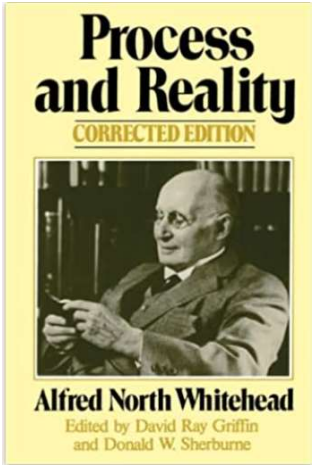
The proposition asserts that if sets α and β each have exactly one element, then they are disjoint (have no elements in common) if and only if their union has exactly two elements.

Alfred North Whitehead
(1861 - 1947)

Cambridge: Principa Mathematica
London: Education, Geometry, Logic
Harvard: Ontology







Preface

The general topic of this volume is education on its intellectual side. One main idea runs through the various chapters, and is illustrated in them from many points of view. It can be stated briefly thus: The students are alive, and the purpose of education is to stimulate and guide their self-development. It follows as a corollary from this premiss, that the teachers also should be alive with living thoughts. The whole book is a protest against dead knowledge, that is to say, against inert ideas. The separate chapters have, with the exception of Chapter IX, been delivered as addresses at various conferences of educational bodies and of scientific societies. They are the outcome of practical experience, reflections on the practice of education and some criticisms on the meaning of the topics constituting its content.

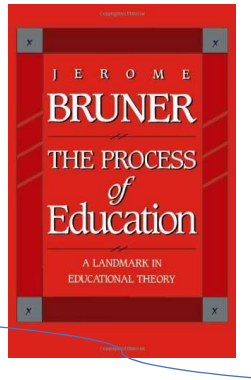
The references to the educational system concern England. The failures and successes of the system in that country are somewhat different from those in America. But such references are merely illustrative: the general principles apply equally to both countries.

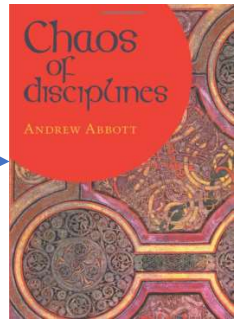
The earliest of the addresses was delivered in the year 1912 to the Educational Section of the International Congress of Mathematicians, meeting at Cambridge, England, and the latest in the year 1928 at the Business School of Harvard University, Cambridge, Massachusetts. Chapters I, IV, VI, VIII, IX, and X have been published in my book, *The Organisation of Thoughts* (Williams and Norgate, London, 1917). Chapter II, *The Rhythm of Education*, has been published as a separate pamphlet (Christophers, London, 1922). In this republication there are omissions but no other alterations. In particular, the three final chapters of the present book, with some omissions, stand as published in 1917. They are

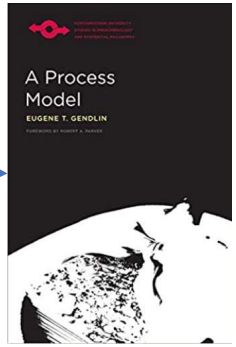
Contents

- (cyclic) stage theory (Bruner)
- Fundamental ideas (Bruner)
- Self similarity (Abbott)
- Here and now (Gendlin)
- Process (Gendlin)

- Humboldt
- Foucault
- Piaget







Whitehead:

- reality consists of processes rather than material objects,
- processes are best defined by their relations with other processes, thus rejecting the theory that reality is fundamentally constructed by bits of matter that exist independently of one another

→ see the world as a web of interrelated processes of which we are integral parts, so that all of our choices and actions have consequences for the world around us.

The use of knowledge of the past is to equip us for the present.
The present contains all that there is. It is the ground: it is the past and the future.
The pupil's mind is a growing organism.

Chapter I …

Concept of Education

Every intellectual revolution has been a passionate protest against inert ideas.

Inert ideas: ideas tat are merely received into the mind without being utilized, tested or thrown into fresh combinations.

Education with inert ideas is not only useless, it is harmful, leads to a mental dryout.

How can education work against this mental dryout:

- No large number of subjects in a setting of passive reception of disconnected ideas
- No vitality (stage of romance)
- Few and important main ideas, thrown in every possible combination -> FI
- Make out on ones own mind, here and now
- Exercise here and now
- In the circumstances of the actual life
- Joy of discovery

Utilising an idea: relating it to the stream, compound sense of perception, feelings, hopes, desires, mental activities, all which form our life.
Theoretical ideas should always find important applications within the pupil's curriculum, thus, keeping knowledge alive.

Education against inert ideas depends on several factors:

- "genius" of the teacher
- intellectual type of the pupil
- their prospects in life
- opportunities offered by the immediate surroundings of the school
- allied factors

We are dealing with living human minds and not with dead matter
The mind is never passive, "make them learn a textbook creates harmful dead knowledge"

Education

- Is a patient process of the cyclic mastery of details (minute/hour/day by minute/hour/day)
- There's no royal road to learning
- The challenge of education is to make pupils see the wood by means of the trees

The subject matter of education is life in all its manifestations → "The great fundamental ideas should all be there

- Subjects as lists cannot represent life in the midst of the living of it
- Fit everything into a connected curriculum
- The pupils should study something and not merely execute intellectual minutes

Education:

To give an intimate sense for the

- power of ideas
- beauty of ideas
- Structure of ideas

Together with a particular body of knowledge which has

"peculiar reference to the life of the being possessing it."

Aesthetics:

-> sense for style (literature, logic, science)

-> fundamental aesthetic qualities

"Style is the ultimate morality of mind."

Style

- makes the effect of educational activities calculable
- mind is not distracted with irrelevances

"Style is the product of specialist study, the peculiar contribution of specialism to culture." (p. 13)

General and specialist side of education

- The general culture is designed to foster an activity of mind; the specialist course utilizes this activity.

General

-> the great fundamental ideas should all be there

-> general culture

"Culture is activity of thought, and receptiveness to beauty and human feelings."

Specialist

-> special knowledge in detail

-> takes place at a more advanced stage of education

-> there's already material to work upon

-> is of peculiar interest to the pupil

Freedom and discipline

The aim of education is wisdom

- You cannot be wise without some knowledge
- Wisdom is the way in which knowledge is held, its selection for the determination of relevant issues

- The mastery of knowledge is wisdom
- The way to wisdom is by freedom in the presence of knowledge
- The way to knowledge is by discipline in the acquirement of ordered facts.

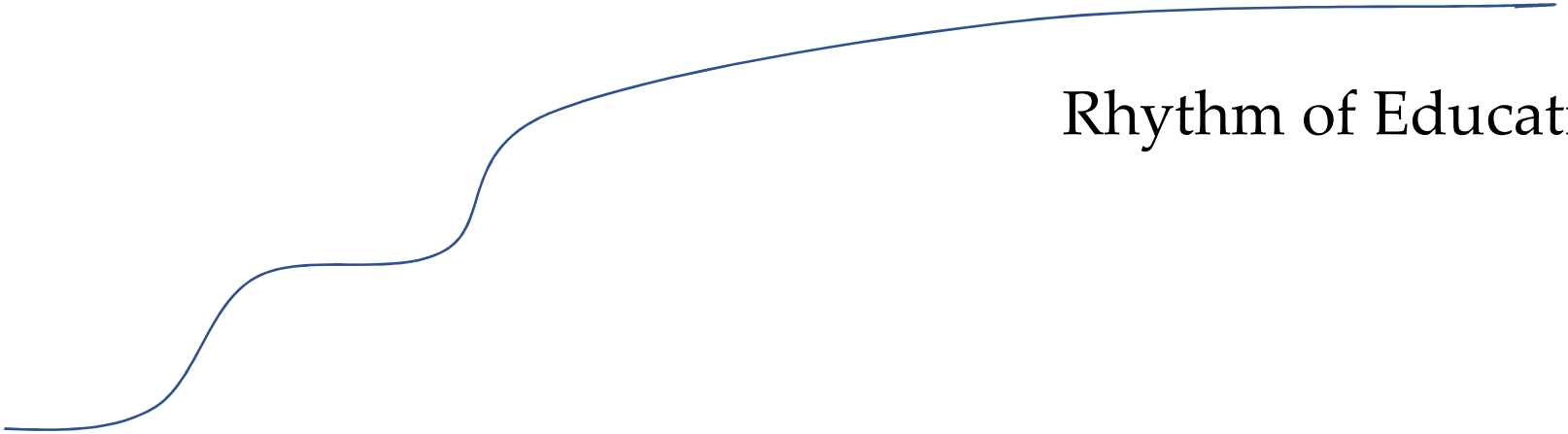
Freedom and discipline are the two essentials of education.
They should be adjusted in the pupils life that they correspond in a natural sway to and fro (see later)

Education is the guidance of the individual toward a comprehension of the art of life; that is the most complete achievement of varied activity expressing the potentials of that living creature in its actual environment.
Science, art, religion, morality, culture, humankind take their rise from this adventure of existence.

-> Humboldt

Chapter II …

Rhythm of Education



Rhythm and Education: the rhythmic character of growth

" […] different subjects and modes of study should be undertaken by pupils at fitting times when they have reached the proper stage of mental development." (p. 15)

Special "first stage" of infancy

1) Acquirement of spoken language: the correlation of meaning with sounds
2) Acquirement of written language: the correlation of sounds with shapes

-> we should cease talking nonsense about postponing the harder subjects (criterion of difficulty?)

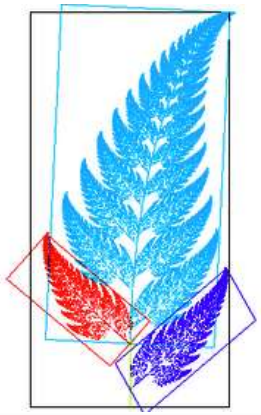
-> the necessary antecedence of some subjects to others has produced in education the dryness of the Sahara (criterion of subject sequence?)

Doubtfulness of linear progress in learning/development

"Life is essentially periodic. It comprises daily periods (work/spare time, activity/sleep,…), seasonal periods (terms/holidays, …), yearly periods
Periods of mental growth (with their cyclic recurrences)
The subordinate stages are reproduced in each cycle

rhythmic: the conveyance of difference within a framework of repetition

SELF SIMILARITY



Three stages of intellectual progress as a threefold cycle

- Stage of romance (freedom)
- Stage of precision (discipline)
- Stage of generalization (freedom)

Stage of romance (freedom)

Stage of first apprehension, “vividness of novelty”, possibilities, unexplored connections

Knowledge is not dominated by systematic procedure

Emotion: excitement on the transition from bare facts to first realizations of unexplored relationships

→ emotions, transition from information to knowledge

First procedures of a mind in a new environment:

- Discursive activity amid ideas and experiences
- Process of discovery
- Becoming used to curious thoughts
- Noticing what happens
- Shaping questions, seeking answers

-> support of teachers

- adapt to the state of pupils’ growth
- adapt to individual needs

The most possible freedom to explore the adventure of ideas

Education must essentially be a setting in order of a ferment already stirring in the mind.

“You cannot educate mind in vacuo.”

Stage of precision (discipline)

- An addition to/of knowledge
- With of relationship is subordinated to exactness of formulation
- The stage of grammar (of languages, sciences)
- New facts, that fit into the analysis

Predecessor romance is necessary: unless there are facts which have vaguely been apprehended in their broad generality, “analysis would be an analysis of nothing as a meaningless statement of bare facts.

- Time for pushing on, knowing subject exactly
- Sole stage of learning in the traditional way
- Balance between freedom (and romance) to keep the precise learning process going and discipline to get the details

“The only discipline , important for its own shake, is self discipline, and this can only be acquired by a wide use of freedom.” -> Foucault

Stage of Generalization (freedom)

- Return to romanticisms with added advantage
- classified ideas and relevant technique
- Research habit built upon romance and precision
- “The stage of generalization is the stage of shedding details in favor of the active application of principles.”
- The further growth of knowledge becomes progressively unconscious
- final success

Cyclic Process

- Education should consist in a continual repetition of such cycles
- Each lesson in its minor way should form an eddy cycle
- Longer periods form the starting grounds for fresh cycles

-> Spiral principle
-> Self similarity

Infancy:

first romance is the apprehension of objects and appreciation of their connections
First precision: mastering spoken language to classify objects, emotional relations
Generalization: use of language for a classified and enlarged enjoyment of objects
-> only cycle of progress which can be observed in its purely natural state.
-> later cycles are externally shaped by education
-> there tasks are set in an unnatural way without rhythm
-> coordinating the elements of instruction into subordinate cycles each of intrinsic worth for the immediate apprehension.

Adolescence

Cycle of infancy is succeded by the cycle of adolescence
Lines of character are graven
8-12/13: period of utilization of the native language, powers of observation/manipulation
11/12-15: concentration towards precise knowledge, mass attack upon language
growth of science: in the stage of romance
15/16: generalization in language, precision in science
16+: generalization in science, new cycle in language

The whole period of growth from infancy to manhood forms one grand cycle
0-12/14: stage of romance
12/14-16/18: stage of precision (secondary education)
16+/18+: stage of generalization at entrance into manhood

The valuable intellectual development is self development, and it takes place between sixteen and thirty

The **University training** yields a comprehension of a view general principles with a thorough grounding in the way they apply to a variety of concrete details.

-> FI

Def: a principle is a mental habit that becomes the way the mind reacts to the appropriate stimulus in the form of illustrative circumstances.

University: great period of generalization.

- "During the school period the student has been mentally bending over his desk; at the University he should stand up and look around."
- "At school one rises from the particular towards glimpses at general ideas; at the University one starts from the general ideas to study their application to concrete cases."

Summary:

The development of mentality exhibits itself as a rhythm involving an interweaving of cycles, the whole process being dominated by a greater cycle of the same general character as its minor eddies.

Romance , precision, generalization are all present throughout with an alternation of dominance, with constitutes the cycles.

The quality of teaching should be so adapted as to suit the stage in the rhythm.

- -12 romance & freedom
- 12-18 precision & discipline
- 18+ generalization & freedom

Mental development is composed of such cycles and cycles of such cycles (subcycles)

Minor eddies, each in itself a threefold cycle running its course (day/week/term)

Different subjects in a developmental order (language, sciences ,…)
Apprehension of some topic (vague possibilities, mastery of details, putting together)

"Without contradictions the world would be simpler, and perhaps duller."
(A.N.W., PoE, p. 10)