Paradoxes in Education

Learning in a Plural Society

Rosemary Sage (Ed.)

Foreword by Geraint Jones

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Edited by

Rosemary Sage
School of Education, The University of Buckingham, UK

Cover photograph: Prince Philip greeting doctoral students at the College of Teachers' award ceremony in 2016. Photograph by Success Photography (info@successphotography.com).

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To Sylvia Anderson

Sylvia Anderson was a Careers Advisor, who gave valuable help to participants on the pilot Doctorate by Professional Record (book authors) researching education-workplace issues. She made her name with courses helping those made redundant or finding it difficult to obtain work. Sylvia was a sociologist, with qualifications in marketing and psychometrics, enabling her to assist people retraining for new careers when their roles were reduced by technology and economic cutbacks. She has had great successes with an on-line programme and book on: *Developing a Careers Programme in Schools* (www.prospectseducationresources.co.uk), published just before her sudden, untimely death. This is a huge, enduring legacy. Her work at the education-workplace interface reinforced the importance of effective communication, personal performance and presentation in obtaining and retaining employment. This issue was a major focus in her training programmes, as she was acutely aware of employer concern about this aspect of development and its effects on work performance.

To Brian Thorne

Brian Thorne is Emeritus Professor of Counselling at the University of East Anglia and formerly Professor of Education at The College of Teachers, London. He was co-founder of the Norwich Centre for Personal, Professional and Spiritual Development and believes strongly in the innate capacity of both children and adults (given the appropriate environment) to develop as spiritual beings and thus further the well-being of humankind. As a member of the Council of the College of Teachers, he was a strong supporter of the Doctorate by Professional Record and an inspiring mentor to candidates, studying in his field. Professor Thorne is a prolific and influential author and since 2005 has been a lay canon at Norwich Cathedral.

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FOREWORD

I am delighted to preface this book that takes an intensive look at many of the important issues influencing teaching today. This innovative text is the outcome of a pilot group of participants completing an Education Practitioner Doctorate by Professional Record, along with contributions by tutors and an examiner on the programme. It makes fascinating reading and includes a large number of topics that appear important for these professionals in their work roles. The authors represent a variety of educational professionals, such as a civil servant creating educational policy, along with others holding a wide range of different responsibilities in schools, colleges, universities and UK/International research organisations.

A strength of the text is the comprehensive background knowledge presented of today's world and its impact on education policies and practices. This assembles a range of political, economic and social information that enables close reflection of its impact on teaching and learning and provides the background to the range of individual topics discussed. A major issue, in educational institutions, is people mobility across the world, which means that teachers are increasingly instructing in a language that is not the mother tongue of their students.

Also, the rapid progress in technology, particularly *Artificial Intelligence*, is changing personal and working lives. It is estimated that within the next century most jobs will be taken over by robots! What will the robot teacher look like? Thus, preparing students for the future is a challenging job and this book gives much information to provide food for thought and suggestions for directions that need to be followed. It promotes discussion on the important aspects that will alter student lives in ways that we can only imagine.

Throughout the text, the issue of developing individual competencies is stressed, as the ability to communicate across cultures and cope with rapid change requires much more emphasis on personal development. Thus, communication is the linking theme and this clearly emerges in all the topics discussed, whether they be reflective, holistic and supportive practices, change management, ethical behaviour, motivation and performance as well as communication and relationships. The book, therefore, should appeal to anyone interested in understanding education philosophy and practice more clearly and from the benefit of a wide range of very experienced professionals. It is useful for both pre and post qualification development and gives practical examples as well as strong academic content on which to base practice. An example is a review of Japanese schools (*in connection with a UK-Japan project to develop the 21st century citizen*) where students do all the teaching. This, indeed, is a novel idea to those of us in the UK. The picture of a 7-year-old teaching science to a class of 60 seems daunting, but the boy looks very confident and in charge! I am sure it does not mean that teachers put their feet up in Japanese lessons, but they obviously play a different role to those of us teaching in the West!

The University of Buckingham is greatly committed to the development of relevant, engaging teaching in today's global world and is implementing the Practitioner Doctorate from 2017, for those in education and related professions, who are seeking to improve their knowledge and practice to the highest level. Education is the most important input for the future of students and those who teach, in any context, must seek to develop their competencies to meet rapidly changing world needs. The book supports this aim and inspires all of us to look forward to a future in a brave new world.

Geraint Jones
Dean of the School of Education, Whittlebury Hall
University of Buckingham, UK
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CHAPTER SUMMARIES

This looks at the political, economic, multicultural and social context in which present education functions and what stakeholders regard as relevant teaching. Technology is changing personal and professional lives, dispensing with traditional jobs and urgently requiring a refocus of educational approaches. Presently, these are based on models of teaching that were instituted for mass education and the needs of the industrial revolution. Chapter 1 outlines today's education in the context of globalisation and plural societies. Chapter 2 discusses teacher training issues and Chapter 3 looks at theories underpinning success abilities. Chapter 4 unpacks attention and motivation in learning while Chapter 5 examines change management and Chapter 6 considers the ethics in professional practice.

Chapter 1: The Educational Context: *Rosemary Sage*

The chapter presents student and teacher views on today's education, in the context of political, economic, multicultural and social philosophies. The present academic focus for passing tests devalues learners with practical talents and marginalises individual development. Examining how technology is changing life-styles suggests a stronger educational focus on personal competencies like *communication and relationships*, particularly as many are learning in a language other than mother-tongue.

Chapter 2: Teacher Training Issues: *Rosemary Sage*

Research suggests teachers are trained to implement a National Curriculum rather than in how learning occurs and strategies for *processing information*. This is unpacked to understand communication and *identity problems* of students, whose concepts, attitudes and values are often different from British education philosophy. The language and relationships in teaching and learning are vital aspects, with nations, like Japan, making this the school focus. A case study illuminates their communicative approach (Hansei strategy).

Chapter 3: Theories Informing Teaching of Success Abilities: *Rosemary Sage & Kim Orton*

When instructing students, one must understand how information is processed with strategies to help difficulties. Teaching mainly uses *auditory* and *visual* channels to input learning, but the *kinaesthetic* (*feeling, touch, movement, sense of space*

position) is fundamental, as the Forest Schools' *active philosophy* demonstrates. Research on information processing strategies of *successful* v *unsuccessful* learners suggests how content should be presented for maximum understanding. Theories of how communication is regarded across Europe are discussed to understand different teaching methods.

Chapter 4: Motivated Attention in the Multicultural Classroom: *Luke Sage*

A teacher challenge is to gain, sustain and maintain student *attention* to maximise learning and theories are introduced to understand its complexity. It is thought task-attention is determined by personal goals and the wider motivational environment. Research supports 4 types of motivational climate:

1. Mastery Approach – emphasis on learning to improve on one's own skills at a task (strongly encouraged)
2. Mastery Avoidance – emphasis on learning to avoid doing worse than previous attempts at a task.
3. Performance Approach – emphasis on outperforming peers at a task
4. Performance Avoidance – emphasis on avoiding doing worse than peers at a task

The Nuffield project (2012–2013) investigated these on tasks with primary, secondary and higher education students. *Confidence* was the main influence on task performance and attitudes, depending on successful communication to support this attribute. The chapter introduces *Social Determination* and *Personal Investment Theories*, highlighting the need to introduce these into a culturally-specific and more holistic approach to motivate learning. Implications and future directions conclude the chapter.

Chapter 5: Coping with Rapid Change: *Max Coates*

Culture and communication are the substrates in which organisations function and the prevailing one can support or impede change. To a significant extent, change is an imposed imperative from the global meta-context, which feeds demand and uncertainty. In schools there are huge pressures to create predetermined outcomes acceptable to many stakeholders. A way to analyse organisational culture is to interrogate prevailing narratives. While not providing the whole story, they give insights into the operation, communication and relationships. A contemporary narrative is about delivery of a reductionist curriculum, in a frame of high-stakes testing, so a model for change, which transcends implementation, is presented.

Chapter 6: Ethics and Professionalism: *Richard Davies*

Evidence shows that acute, communication and ethical problems recur for teachers, amongst learners, between them and within their communities and cultures.

With targets to meet and many students unable to reach them easily, professional standards may be compromised. How can the realities of difference and diversity be faced by teachers? Pedagogies of communication and resolution are vital, but integrity of practice and commitment must make a compelling contribution. The emphasis on regulatory *rules* and *principles* has meant that less attention has been given to the cultivation of personal virtues. Professions rarely reflect on the pedagogies applied in ethical education before and after induction, and about how revalidation could develop improved practice. Who benefits from initial and continuing education/training (ITT & CPD), with neither seen as currently effective, if educators do not engage with the virtues, and are denied the means to do so? Research now questions conventional assumptions about training outcomes. Practitioners will be unlikely to realise performance obligations to build ethical practice, culture and communication, unless professional development is structured to reinforce the virtues in application, and to provide the impetus to do so. It is supposed that different ethical norms arise from rooted attachments and identities that are of equivalent weight and value. However, work involving professions internationally suggests that, given space and time, agreement on ethical problems need not be blighted by relativism. Supported reinforcement with reflection is required, with ITT/CPD shaped and sustained as a seamless continuum to make it happen.

SECTION 2: INTERCULTURAL COMMUNICATION ISSUES

This section considers issues when interacting with those from different cultural and linguistic traditions. It has sections on defining cross-cultural communication, communication difficulties, culture, language and multicultural classrooms. Chapter 7 examines issues regarding cross-cultural communication; difficulties that occur and problems of language and cultural identity. Chapter 8 presents the multicultural classroom with strategies to help student integration.

Chapter 7: Intercultural Communication: *Rosemary Sage*

The chapter has 3 sections: *Defining Cross-Cultural Communication; Communication Difficulties*; *Culture and Language Styles*. '*Cross-cultural communication*' is defined as *sharing and distributing information between persons*, introducing issues arising, when those of different beliefs, attitudes, values, traditions and languages work together. Activities presented enable comparisons with your own and different cultures. School relations are considered within such dimensions as communication between persons, involving words and non-words, transmitted and processed to produce meaning within a specific situation. Communication across culture (*beliefs, values, behaviour of a specific community*) is easily misinterpreted because words and non-words are regarded differently, with Section 2 presenting scenarios to understand misunderstandings. It considers difficulties that occur

using real situations. Section 3 discusses different cultural communication styles producing specific identities and problems of translating across languages. Research illuminates the chapter, with suggestions for learning support.

Chapter 8: Communication in the Multicultural Classroom: *Riccarda Matteucci*

This chapter illustrates teaching in multi-cultural contexts across the world, from experiences of work in Italy, America and Africa. The focus is on classroom differences in attitudes, interests and values. Examples show how the hidden aspects of different cultures emerge and can be dealt with by the teacher in ways that facilitate group dynamics. The importance of building trust through relevant verbal and non-verbal communication, as well as passion for the subject taught, is stressed in the scenarios presented. Confidence to approach those in powerful decision-making roles is seen to pay off with a letter to the New York mayor when there was a threat to stop popular Latin lessons in a senior school. The chapter ends with a discussion of a project in Italy to teach *psychology* to children, with the goal of helping them understand the behaviour of themselves and others. This programme mirrors the Communication Opportunity Group Strategy which was sponsored by the UK Medical Research Council to support children failing in schools although normally intelligent.

SECTION 3: TEACHING SUCCESS ABILITIES

The section provides a rationale and description of how a communicative approach can be used in small/large group teaching for all ages, abilities and subjects. Topics are: the rationale for communicative teaching; understanding informal and formal communication; theories informing success/transferable abilities and teaching methods and resources. Chapter 9 looks at the evidence for focusing on communication in education and Chapter 10 presents a research study of a project in a Further Education College where issues of communication difficulty presented themselves amongst students and teachers. A strategy to assist communication had positive results using a test-re-test methodology.

Chapter 9: Rationale for Communicative Teaching: *Elizabeth Negus &*
Rosemary Sage

Teaching thinking and communication (*Communication Opportunity Group Strategy – COGS*) was researched at London, Leicester and Liverpool Universities, with support of the UK Medical Research Council, The National Council for Vocational Qualifications & Human Communication International. Japan's success in coping with globalisation is attributed to a focus on *communication and relationships* at home, school and work. The chapter provides a rationale, describing how COGS

can be used for all ages, abilities and subjects. Elizabeth Negus shows how literature develops knowledge and insight of interaction, across time, space and context, to provide a holistic perspective. This is essential for facilitating personal abilities and giving general understanding of the world.

Chapter 10: Evaluating Communicative Approaches in Education: *Kim Orton*

This chapter is based on a project in a Further Education College, with students studying child development, aiming to work in a variety of roles with young children. Observations and discussions identified communication problems between students themselves and with their tutors. The project evaluated a communication approach to teaching (*the Communication Opportunity Group Strategy – COGS*) with 2 different groups on various child development courses. Results showed significant differences between pre-and post-teaching sessions. Both sets of students felt more confident after practising a range of communication activities, designed to help both their informal and formal language to enhance personal and professional competencies. Tutors confirmed that their new abilities were demonstrated in other course modules and work placements, where they were able to pass on their knowledge and skills to others.

SECTION 4: HOLISTIC EDUCATION EXAMPLES

This section presents 4 very different examples of holistic education in practice. Chapter 11 describes a speaking competition for schools in order to facilitate their communication, confidence and coping abilities. Chapter 12 discusses a programme to develop the spiritual aspects of development for greater well-being of those concerned. Chapter 13 looks at how a practitioner doctorate provides a focus for personal and professional development that has real impact on policy and practice. Finally, Chapter 14 tells the story of Relational Schools which is an initiative to help all the stakeholders in education to work together effectively. Chapter 15 provides the epilogue to the book, reflecting on the information presented with a blue print for future directions in education.

Chapter 11: The MP6 Project: *Sera Shortland*

The chapter illustrates a holistic approach, the MP6, to assist a broader, more relevant education for students. This is a public speaking contest, with students presenting a current news issue that interests them, before an audience that questions them following the talk. This gives students a *voice*, with confidence to speak in a public forum and explain their views and feelings to others. The acronym MP6, refers to the fact that Members of Parliament support the project and 6 is the number of students reaching the final stage of the competition.

Chapter 12: Investigating Children's Spirituality: *Pauline Lovelock*

Pauline Lovelock's unique work, in developing the spiritual side of children and adults, is presented. The aim is to create greater personal awareness and help participants focus on the meaning of life and the contribution they can personally make. This results in a clearer idea of one's potential and role to pursue, providing the foundation for a greater sense of well-being and satisfaction.

Chapter 13: Holistic Education for Teachers: *Jonathan Adeniji*

Jonathan Adeniji discusses his practitioner doctoral programme, enabling him to acquire a more holistic view of education and understand that communication is the core process in learning and teaching. He suggests studying at this level has broadened views of education and helped the planning of his professional direction, giving confidence to promote changes in his place of work.

Chapter 14: Relational Schools: *Rob Loe*

The section finishes with a review by Rob Loe of a charity, *Relational Schools,* aiming to build improved relationships in educational institutions. This initiative is now much needed in plural societies, with less communicative opportunities to develop the competencies of connecting, cooperating and collaborating with others for many different purposes, because technology is reducing talk opportunities.

Chapter 15: Epilogue: *Jonathan Adeniji, Max Coates, Richard Davies, Rob Loe, Pauline Lovelock, Riccarda Matteucci, Elizabeth Negus, Kim Orton, Luke Sage, Rosemary Sage and Sera Shortland*

A summary of the main messages is provided. These support a broader curriculum and improved teacher training to cope with the complex challenges of multi-cultural classrooms and the changing work scene, now that routine jobs are being taken over by technology. This frees employees for higher-level activities, which need a re-focus of the school curriculum content to broaden the skill-base for future, new demands.

PROLOGUE

Paradoxes in Education

Rich country with poor educational outcomes for world needs.

Diverse population but a one-size-all national curriculum.

British Telecom (BT) ran a '*Good to Talk'* campaign with an invite to speak at a Manchester conference on *Communication in Education and Training.* At the event were Chicago University academics, who suggested that only 15% of what we learn is in a formal context (*e.g. school*) and the vital aspect of human development is ability to communicate with many others – asking questions, sharing knowledge and understanding a range of perspectives, for making effective relationships and decisions. This recalled a previous conversation with a sports coach about a young lad talented at cricket. His view was that the boy could make the top levels regarding technical ability, but his limited communication would hold him back, not only in seeking to better his skills by conversation and contact with others, but in presenting and promoting himself. When suggesting that he could have help with this, the coach shrugged his shoulders and said: '*That is not a British thing to do*'.

A project in England and Japan to develop the 21st citizen is relevant here. It soon became clear to the English team that Japanese parents are very aware of responsibilities to develop their child's communication in *dialogue* situations and make sure they can *follow the thread of a conversation, ask and answer questions, assemble and contribute ideas,* whilst demonstrating *maintenance behaviour* (*eye contact/smiling/nodding*). Japanese teachers know that these 5 conversational moves must be in place before starting school, when *monologue* communication takes over, with students expected to process and produce extended narrative talk/text in formal spoken/written activities. This involves receiving and giving instructions, listening to and retelling information, as well as negotiating with and persuading others in relation to tasks. Studies showed that Japanese students were 4 years ahead of British ones on cognitive-linguistic tests, academic performances and personal confidence and skills.

Narrative communication is formally taught in Japanese schools and viewed as priority over subject knowledge. Talking *with* and *to* others is encouraged in class, as externalising thinking occurs before internalisation is possible (*self-talk/ inner-language develops from 7–9 years*). Narrative speaking is necessary for action-sequencing – understanding a goal with steps to achieve it. Inner-language

is also important for controlling undesirable behaviour, through self-reasoning, to appreciate consequences of inappropriate actions. Most tasks in Japanese classes are accomplished in groups in order to learn how to work in a team and benefit from the knowledge, views and skills of others. It was strange to witness 7-year-olds working together in groups to complete a picture. Certainly it proves that 4 heads are better than one, as the perspectives and standards achieved are what you would expect of UK 11-year-olds, who generally tackle tasks alone. Group experiences enhanced abilities to give instructions, negotiate positions and persuade others to a point of view, which are all essential life skills. The English team were amazed at the relaxed approach in Japan and, over the years of the project, never witnessed inappropriate behaviour in any school context, as children had effective inner-language to think through actions.

The BT conference (*above*) bemoaned the fact that although English is internationally spoken, using twice the words of any other language, we spend little time in cultivating its *processing, performance* and *presentation* aspects in our culture. This inattention contributes to low educational standards, when compared with similar nations, and lack of employability, as inadequate communication tops employer complaints.

To improve ability to assemble and make meaning of information, Artificial Intelligence (AI) has now developed to do the job for us. A system called VALCRI has been produced to connect information for improved understanding. This is presently being used by British and Belgium Police to generate ideas about *when, how* and *why* a crime was committed as well as *who* did it. In this context, it scans police records, interviews, pictures, videos etc. to identify *connections* that it thinks are relevant. For example, interviews with 4 witnesses at 4 different crime scenes may describe a person present as *unkempt, dirty, scruffy* and *untidy,* so an analyst might consider that all 4 interviews were talking about the same person. VALCRI can make such links at the press of a button and do away with painstaking, lengthy searches by police experts. It frees them to focus on the case, provoking new lines of enquiry and possible narratives that have been missed.

This example not only illustrates the importance of narrative competencies in solving problems, but the need to skill people in higher-level thinking and communication to concentrate on characteristics that may have been missed in manual searches. VALCRI also counteracts human bias by making the process transparent. Things that normally would be left out, to make a case fit together, are included digitally, along with an explanation to make prosecution and defence assumptions evident. Of course, many people will be uncomfortable with computers determining the different narratives explaining a crime. A human analyst should always be available to judge the importance of different sets of criteria produced by a computer swipe, but the use of AI will mean they are expected to work smarter and faster. Education must understand how this can be achieved in a world where millions will be out of traditional work because technology has taken over routine procedures. Thousands of companies now use computer algorithms to scour data bases to predict how consumers and competitors behave. If supermarkets have a

quiet spell they might drop petrol prices to attract shoppers through their doors. If it is a busy time prices will rise. Generally we are unaware of how AI is affecting our lives.

This changing world needs a radical rethink of present policy and practice to produce people who can cope with rapid, new demands. Future, higher-level work will require flexible, personal abilities, but the present focus on academic performance, for standard tests, minimises opportunities for this aspect of development. The book looks at this issue in an increasingly complex, mobile, unstable world, which produces continuing challenges for education. It is particularly timely, as the Organisation for Economic Cooperation and Development (OECD) report (2016)[1] suggests the UK is near the bottom of the global league, because of inadequate basic skills of literacy (*spoken & written*) and numeracy. One in five graduates have only rudimentary command of these and are unable to read instructions on an aspirin bottle or estimate petrol left in their tank, the study suggests. It states that while the UK has more young people graduating from universities than other countries, many are unprepared for degree-level studies and 1/3 of students struggle. OECD warns that the inadequate basic skills of young adults can be traced to low standards of performance at the end of initial education.

Education, like other institutions, has to cope with the issues of globalisation. The internationalising division of labour has led to economic efficiencies, but also inequalities, demographic upheavals and cultural disruption. There has been insufficient discussion and reflection regarding the abstract doctrines of diversity and multiculturalism and the world-management of ethno-cultural questions to avoid hatred and violence amongst people living closely together with different attitudes and values. Guilluy (2016) has produced a ground-level look at the consequences of globalisation and the current emergence of populism. He suggests the rise of middle classes has led to the impoverishment of the proletariat (*unskilled workers*). He uses the term '*bobo*' (*bourgeois & bohemian)* to refer to those emerging in the tech-bubble, who have priced out working classes in cities. B*obos* are less troubled by conscience than their predecessors, with no place in the new economy for the abandoned, traditional, indigenous workers. This huge cultural shift means that immigrants have come in to service the *bobo class* in the economy citadels. In the UK, we now have an underclass of indigenous people, whose education has not developed the personal competencies needed to achieve higher-level work, since technology has taken over their routine activities in workplaces. Education must address this issue urgently.

The authors are from the first pilot group of UK *Doctorates in Education by Professional Record*. This initiative arose because the European Commission suggested the UK College of Teachers lead a project on teacher professionalism. Qualifications for educators vary across Europe and the 7 international project partners were asked to produce a policy on professional development, providing a clearer indication of individual knowledge, understanding, skills and attitudes. It was decided to pilot a group producing a professional record to Level 8 criteria

(*Doctoral level*), in order to enhance teacher status and develop greater knowledge and understanding about pedagogical practices. The Carnegie Foundation have promoted this model in America as having more impact on practice than a traditional PhD. Participants on the European doctoral pilot were required to submit a career narrative and choose a topic of work significance for a literature review. This provided the focus for *formal, informal* and *non-formal evidence*, according to cross-professional criteria – s*pecialised knowledge, continuing professional development, mobility* (*links nationally/internationally*) and *partnerships* with others.

The group's topics comprise *ethical* and *reflective practices, motivation, change management, holistic learning, special needs support, education-workplace mismatches* and *communication and relationships.* The issue of communication figures in all these themes and links them together. The UK College of Teachers was involved with European projects on *language, learning* and *employment,* as topics arising from population free movement impacting on education and jobs. They led investigations on *teaching intercultural communication* (*positively evaluated by 23 European states*) that form part of the text. The book has 4 sections: 1. *The Educational Context,* 2. *Intercultural Communication Issues,* 3. *Teaching Success Abilities*, and 4. *Holistic Education Examples*.

A wide range of information is presented for anyone interested in learning and has been gleaned from practice in a variety of education settings. We hope that it will be food for thought and assist in a greater understanding of educational processes and practices, with ideas of how these might be developed for the future. The paradox is that we are a rich nation with poor educational standards, when compared with similar ones and need to consider improvements if we are to participate effectively in today's competitive world.

NOTE

[1] *Building Skills for All. A Review of England*. 2016 OECD Report by M. Kuczera, S. Field & H. Windisch.

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SECTION 1

THE EDUCATIONAL CONTEXT

This section looks at the political, economic, multicultural and social context in which present education functions and what stakeholders regard as relevant teaching. Technology is changing personal and professional lives, dispensing with traditional jobs and urgently requiring a refocus of educational approaches. Chapters 1 and 2 concentrate on global, general influences on Education and teacher training. Chapter 3 looks at the theories informing success abilities. Chapter 4 considers the issues of attention and motivation, which are fundamental to effective learning. Chapter 5 pinpoints the issues about management coping with the frequent changes required in rapidly changing societies. Finally, Chapter 6 outlines the ethical and moral components of professional practice and how they are trained and implemented. The aim is to set the scene for what happens in classrooms.

ROSEMARY SAGE

1. THE EDUCATIONAL CONTEXT

'I Only Started Learning When I Left School'

ABSTRACT

Education is a 'marmite' system,[1] which students love or hate but have to endure. Complex issues underpin educational practice and are discussed by expert authors to provide evidence for planning future policy directions. Views on present education conclude that an academic focus for passing tests does not promote or produce useful, relevant learning and devalues students with practical talents, marginalising communication and creativity. We are a society whose ability to know has grown at the rate that ability to do has diminished. Examination of how technology is changing life-styles suggests a stronger focus on personal competencies, like communiation and relationships, to negotiate the modern world. Quality of exchanges is central to living successfully in diverse societies, as well as improving learning, now more is demanded of us in higher-value work, with technology taking over all routine procedures. Education is a communicative process that is instructive or destructive, causing satisfaction or stress, integration or division, if not handled well. Face-to-face communication is declining, so requiring a closer look at how learning is implemented and achieved. Present campaigning on student mental health issues, suggests much more has to be done to equip young people to deal with life today. Putting aside technology for more time to process and share ideas together is advocated. This theme threads through the present text, providing food for thought and evidence to support action.

INTRODUCTION

'I only started learning when I left school', reflected a stone mason, who has made an enduring, historic mark by having a gargoyle on a church carved in his image, showing he is a master of his profession. He considers much of his education was irrelevant, as it did not value and assist the interests and high-level competencies he obviously has, judging him a failure for being less adept at academic tasks. Only when succeeding at *prescribed academic* activities are you seen as *successful,* with a narrow definition of the concept adopted. This talented young man's legacy, however, will inspire generations to come with skills valued and admired on Britain's famous buildings. His views are common amongst those with practical and personal intelligences, which are marginalised in Britain.

Recently, 3 teachers were encountered who had left classrooms to become a train manager, a chimney sweep and a bird falconer – frustrated because they could not *easily* implement *relevant* teaching for *all* learners, so thought they should try something more personally rewarding. Supporting such views was a random selection of 134 teachers (*70 female, 64 male from all the world's continents*), who were asked on a UK, College of Teachers' *Advanced Teaching On-line Course* (2013) to define *relevant education in today's global society.* Participants gave varied answers, producing 3 common criteria and noting if their education system fulfilled these fundamentals (*% in brackets*). Aims are that teaching should:

1. Fit students for today's changing world (24%)
2. Take account of their ability, interests and background (45%)
3. Support values and attitudes of the society where they live (37%)

Fulfilment of aims: 1 = 24%, 2 = 45% and 3 = 37% (*no significant gender differences*).

Teachers, world-wide, think that continual, structural changes and diverse, mobile student populations mean that education has lost focus to help learners reach potential and fit them for a global future, alongside inducting them into society mores. Education is now more commonly skewed to memorising for passing factual tests, dividing participants into successes and failures. This means learners are not properly prepared for the challenges of different cultures, in close proximity, working together for advancing understanding and community security.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) report on *Education for All* (2013–2014) suggests that of 650 million primary age children, 250 million have no basic literacy and numeracy skills, attributed to inadequate spoken language levels for formal learning. One in six UK adults have literacy levels below that of an eleven year-old (McCoy, 2013). Also, a poor match between educational goals and workplace needs has been a strong message of the Confederation of British Industry (CBI), which constantly bemoans lack of employee abilities, like appropriate communication, initiative and ethical behaviour.

At the CBI/Pearson conference (2014) employers said that, in personal exchanges, communicative competencies had deteriorated amongst school leavers. The recent 2017 CBI/Pearson Survey: *Helping the UK Thrive,* bemoans the cost of employee ego-massaging and basic-training time which affects performance. Effective personal competencies are needed for higher-level work now that technology is taking over routine procedures. People need to communicate and collaborate effectively for solutions to problems. There is a plea from employers that education should recognise that *communication* is basic to advanced thinking, problem-solving, initiative, creativity and team cooperation. This complex, interactive process needs constant, consistent support throughout life. Changes between home and school communication require attention, as many students find shifting from *face-to-face dialogue* to *teacher monologue discourse* problematic, which impacts on progress (Sage, 2000).

TEACHING METHODS

Views that we should be establishing traditional, transmissive teaching methods more strongly are challenged, as predominately adult-led instruction does not help students develop and articulate ideas for acquiring higher-level thinking, or integrate helpful values and attitudes for independent minds. This is vital now more time is spent on *tech toys,* encouraging isolation, rather than *face-to-face talk,* promoting expression, sharing views and coming to common agreement. Also, 71% of the teacher cohort (*mentioned above*) felt a need for expert training to *convey information* more effectively to diverse learners, who often have a different cultural and conceptual background to them and are learning in a language other than mother-tongue. Making content meaningful for everyone requires knowledge, skill, practice and flexibility.

This sample echoes tensions and dilemmas often heard and seen in educational circles across the world. Teacher education has concentrated on implementing a prescriptive, arbitrary, academic curriculum rather than the art and science of relevant instruction. In the book: *Before it's too Late,* Ikeda and Peccei (1984) suggested teaching was at the level of *senses* (*how to*) rather than *imagination,* which encourages students to communicate, think, reflect and solve life problems. They state that learning this way is about *function* not *feeling* and seen in curriculum philosophies across the world, often resulting in narrow approaches to solving common problems.

Communication with students, therefore, makes them *compliant* rather than encouraging them to articulate, evaluate and express ideas independently, to perhaps reverse unhelpful opinions and make effective judgments and decisions. Twenty five years later, academics, like Professor Dottaire Riccarda Matteucci, celebrating the '*Holy Year of Mercy*' in Rome (April, 2016), suggested that nothing had changed, as less face-to-face communication today, (*because of technology*), means less mental interpersonal interaction is possible. Recently, Italian teachers complained to their government that needs to remain high on international league tables ensure that talk is ignored in favour of fact-based learning. They maintain that it is vital to facilitate oracy (*speaking & listening*) now that students communicate more by technology, which limits higher-level thinking and sensible actions whilst increasing isolation. The more we turn away from speaking with others, the lonier future we all face.

There is a growing sense that talking is fast becoming redundant – an ability we need to relearn ourselves and teach our children to maintain. The result of internet, rapid communication is that pressure groups easily influence big numbers, so increasing tensions between people. Such views are seen in Carol Bly's book: *Beyond the Writer's Workshop* (2001). *Group think* predominates in society and people are manipulated and persuaded into a particular viewpoint, because they do not have means to reflect independently. Why is this situation seldom considered? Some countries retain lessons in philosophy, communication and rhetoric to assist

personal development, encouraging broader thinking, evaluation, face-to-face discussion and more appropriate actions.

THE IMPACT OF THE TECH REVOLUTION

Experts urge preparation for a revolution in jobs and technology and a shake up for Education. Machines are taking over human jobs at phenomenal speed. Robots make cars, play chess, detect engine problems, till, plant, fertilize and harvest crops, pollinate flowers, buy and sell shares, serve food, stack shelves, clean rooms, iron clothes and teach students– carrying out assessments and procedures more accurately and reliably than people. Gita, the robot porter, operates in 2 modes. It navigates autonomously using GPS, or you can strap on a camera-equipped belt for this trusty friend to carry all your heavy burdens! Tesco supermarket, Just Eat takeaway and Hermes parcel delivery use robot couriers, with Amazon grocery delivery services employing flying drones. Pepper, the 4 foot, £26,000 robot receptionist at Brainlabs (*a London media agency*) is proving cheaper and more reliable than a person.

More than 300,000 ABB robots in factories and plants around the world drive productivity to new levels. They are part of an integrated ecosystem, the internet of TSP: *Things, Services & People*. The collaborative YuMi is propelling a manufacturing revolution, where people and robots work together creating new possibilities (abb. com/future). To assist this, Stanford University scientists are engineering a speedier, cleverer human mind and body, using nootropic enhancers for cognition, in order to keep pace with faster living and production (Woo & Brandt, 2017). At the Hay Festival (2017), Dr Critchlow raised concerns that professors were increasingly relying on smart drugs to cope with research and teaching demands. A 2013 survey, by *The Tab* student newspaper, showed that 26% of Oxford students used Modafinil to boost performance. A similar number are taking stimulants regularly at other UK universities. There is now a premium on thinking well and learning quickly.

In other developments, University College, London, with Sheffield, has produced a computer *'judge'* weighing up legal evidence and moral considerations. They found that the European Court of Human Rights' judgements are often based on non-legal facts rather than direct, legal arguments, resulting in possible prejudice and bias. Supporting the superiority of aspects of technology, a robot has restored a patient's sight at the Oxford John Radcliffe Hospital, operating inside the eye to remove a membrane less than one hundredth of a millimetre thick. Amputees can now use a system that translates neuron activity into computer signals to produce movements almost as good as normal performance. IBM claims the Watson computer diagnoses diseases better than doctors, with the Swiss CERN Institute experts suggesting this will be done soon on our phones! From 2017, NHS patients are being assessed by robots, using artificial intelligence (AI), to ease pressures on medical staff. More than a million people have an app access to consult with a '*chatbot*' rather than a person, deciding problem urgency and help needed. Military and civilian medics have developed a *CitizenAID* app, guiding first-aid for bomb

attacks or mass shootings. The *What The Bleep* website lists apps used by junior doctors to discuss cases with peers worldwide. Facebook employs AI to spot user on-line posts that suggest suicide. If you are a pregnant train-traveller, the app *Babes on Board,* helps to get a seat, sending an alert to other users within a 15 ft radius, sparing the anguish of asking whether you are expecting! The TraffickCam database is able to pinpoint people locations and is being used to rescue trafficked individuals. More than 150,000 hotel rooms in the US have been documented in this way using image recognition.

In addition, scientists from the Massachusetts Institute of Technology (MIT), using terahertz radiation, are developing a machine to read a book without opening it! In Japan, Toyota sells (for £305) a robot called *Kirobo Mini* (*10cm tall*) as a human companion. It carries out conversations, responds to emotions and addresses growing issues of loneliness in society. Similarly, a robot *Elli.Q* (*conveying emotion through different speech tones, lights, & body language*) converses with old people, reminding them to take medicines and be active. This was launched in January 2017, by Intuition Robotics, at the London Design Museum, to keep people connected with family and friends. *Mario* robot (*by Robosoft*) is being trialled with dementia sufferers to revolutionise care, by conversing to keep minds working, with a sensor to find lost items, like the TV remote control, glasses and keys – calling for help if required. Hong Kong produces *cuddly robotic seals*; America has *therapeutic mechanised cats* and Singapore the robot, *Nadine*, to provide support.

They act as human companions to combat isolation whilst monitoring physical and mental conditions. The reason for this loneliness epidemic is a problem with modern society, as individual freedom is prized more than community. Humans are social animals needing people, but the way we link with them, through social media, does not bring rewarding connections. Thousands of distant Facebook friends cannot make up for a real *face-to-face encounter,* with its heightened emotion and reciprocity of people together in a physical and mental bonding. Substitutions for human contact have led to *sex robots,* with 'doll' brothels operating in South Korea, Japan and Spain and the first robotic oral-sex coffee shop opening in Paddington, London, from 2016. The Foundation for Responsible Robotics (FRR) has warned that users of sex robots could become socially isolated or addicted to machines that can never replace human contact. You love an artefact that only fakes feeling. The FRR suggest that it may be necessary to criminalise '*robotic rape*' and build in '*handled roughly*' sensors to prevent users developing violent sexual tendencies.

Changes that technology are bringing to lifestyles are mind-boggling. MIT scientists have developed a wrist-band that warns if you are boring people – needed because we are limited at picking up social cues now that face-to-face talk is decreasing! Feedback, from all sides of a conversation, is analysed, showing how others respond to you. Also, the language and psychological traits of arguments are collected as data on wrist-band sensors worn by couples. The idea is that an app will act as a robo-relationship counsellor, sending prompts to de-escalte tension if people have blazing rows! Teachers now have body-cameras to document social disruption,

as evidence for disciplinary procedures and parents are offered the Gallery Guardian app to spot suspect images on their child's phone. In Wittenberg, Germany, a robot priest, Blessed-2, dispenses holy favours in 7 languages. Tohoku University, Japan, has developed a *dancing robo*t to take a learner through new routines, giving feedback on performance. It is also being used by therapists to help patients with strokes and other motor disabilities. Such rapidly-changing technology needs a suitably educated work-force to use this as *tools* for enhancing society rather than an AI *take-over.* Google's MultiModel deep-learning system is being developed to use knowledge of one problem to solve new tasks, which enables robots to learn as they move through the world. They are very likely to outperform human brains within a short time as they are not susceptible to the vagaries of people.

Critics are asking who will be liable if computers cause harm! For example, Robear (*sporting the face of a polar-bear-cub*) can lift patients from their beds so what happens if they crush them? The greater the freedom of a machine the more it will need moral standards. A virtual school, *GoodAI,* teaches robots to think, reason and act with moral integrity. Arkin, a roboethicist, teaches computer ethics at Georgia, Atlanta, developing software that makes robotic, fighting machines able to follow ethical standards of warfare. Riedl, at the same institute, is introducing thousands of stories to AIs, to draw up behaviour rules for scenarios, from a candlit dinner to a bank robbery! Positives, therefore, may have negative consequences and these are now receiving attention.

PROBLEMS OF ARTIFICIAL INTELLIGENCE

The Sayat.me app. invites users to post anonymous feedback about friends and has been criticised as a vehicle for cyber-bullying among children and blamed for the death of a teenager. Reliance on computer navigation (*satnav*) has resulted in drivers taking a route to trouble. Satnav users switch of the brain's *hippocampus*, involved in memory and navigation, as well as the *prefrontal cortex* dealing with planning and decision-making. No wonder a driver became submerged following the satnav into a flooded tunnel, as his thinking brain was asleep! Computer-literacy (*with some cynicism*) is required for everyone to attain skills and access technology competently. The Pew Center research (2017) suggests that only 17% of adults feel confident with complex technology and are nervous about its influence, especially with the concern about present fake news! It is said that technology enables a lie to get halfway round the world before the truth has got its boots on!

Furthermore, cyber-warfare makes technology vulnerable: examples are driverless cars, commercial drones, corporations, institutions and the internet of things. These have all been interfered with by hackers, who have an average age of 17 years-old! Major powers are involved in *digital espionage* and use this instead of negotiation, so encouraging unethical practices. Home Affairs Committee evidence, from City of London Police, reveals 2 million *cyber* and 3.6 million *fraud crimes* in England and Wales during 2016 – considered an underestimate and costing the UK over £11

billion. Police linked use of smartphone dating apps to more than 500 crimes such as rape, child abuse and murder in 2016. The Nuffield Council of Bioethics warns that unregulated technology could easily produce a bioterrorist attack to wipe out 30 million people and considers this likely because of continuing instability across the world. We need to take the downsides of technology very seriously.

Many reported crimes are now down-graded to warnings, as operationally it is not feasible to investigate such rising numbers. This is concerning, as we are *not* educating people to communicate and think at higher levels, with confidence to act against unsuitable, unethical or dangerous developments. This is becoming a worry, with children able to hack into systems as young as 12 years, regarding it as challenging fun without thought to the consequences.

The Astrononomer Royal, Lord Rees, has written on The Conversation Website (http://theconversation.com/uk) about our future, predicting that machines will eventually take over the world to make human dominance on Earth just a small transitional phase in the planet's history. He is pessimistic about human capacity to develop more intelligently, because of our individualistic, fickle, selfish nature; the dominance of naive politics, power and control; population tripling to strain and drain resources (*3 to10 billion in 100 years*) and dilemmas of globalisation, giving people greater expectations to satisfy wants rather than needs. His book, *Our Final Century* (2003), spells out starkly that the end is nigh unless there are *radical changes* in human priorities and perspectives. Lord Rees strongly advocates more enlightened education to prevent this possibility.

The world has become complex from globalisation and free-market capitalism,[2] depending on private ownership, profit and competition, so consequently open to attack. Enhanced communication and thinking are vital for safety – airing problems and providing solutions. Even just, congenial societies show a drift towards corruption and vulgarisation through consumerism, with more-and-more people continually shouting others down, blaming them for everything and bargaining for their own self-interest. The language of principle often has a sub-text of calculation and opportunism. Our social fabric has changed in post-industrial wastelands, with loss of traditional work resulting in economic despair and disintegration for many in previously secure jobs.

Communities struggle with feelings of futility and loss of an identifiable, shared idea of who they are and what connects them. They feel abandoned by history and governments, who treat them as ignorant or xenophobic, when showing concern about influxes of cheap, foreign labour in direct competition for less jobs. Experts predict this will get worse, as those from poorer nations flock to richer ones because technology rids them of routine work. There are differing, conflicting economic and social interests in free societies, where a producer's drive to maximise profits conflicts with consumer wishes to pay the minimum. We must find a new way of *talking* about political, economic and social realities to find compromises. Winston Churchill, a famous UK Prime Minister, always advocated it was better to *jaw, jaw* (talk) than *war, war,* but do we learn from history?

IMPLICATION OF JOB CHANGES

Oxford and Yale Universities (Grace et al., 2017) took the views of world AI researchers, finding that they all predicted that *every* human job will be automated within the next 120 years. However, the survey focused on the cognitive aspects of well-defined activities, but emotional ones go beyond this to question whether AI will surpass humans at being art and film critics! *The Oxford University Martin Programme on Technology & Employment* (Frey & Osbourne, 2013) says that half of present jobs will be fully automated within 20 years. The report by *Reform* (Hitchcock, 2016), a public think-tank, suggests that 90% of Whitehall's 137,000 Civil servants will be replaced by AI chatbots by 2020, saving £2,6 billion annually. Public sector workers will be affected, with 90,000 NHS administrators and 30% of doctors and nurses having duties taken over by smart machines.

Jobs for middle classes, such as banking and insurance, will also be automated, but new computer simulations could rejuvenate economic planning. Dispensing with routines allows people to focus on ideas, innovation and suggest higher-value work, but interpersonal communication (*resulting in advanced thinking*) is needed for this to occur. Greater value and attention is required for this, with 50 years of research showing that *specific* communication training and support is vital for optimum performances, giving opportunities to gain a broad skill-range (Sage, 2000). Why are we ignoring such messages and narrowing opportunities for students once they leave education?

Work-reducing technology, however, must result in everyone benefiting from gradual work reduction. This could help infrastructure demands and improve stress and anxiety, now for youngsters at an all-time high (Murphy, 2013; YouGov Survey, 2016). Reports cite 1/3 of students receiving treatment for stress with a 42% increase in 2016. Figures show that 10,000 under-18s were admitted to hospital for severe anxiety. *Childline* says 20,000 children now *self-harm* annually and a similar number contemplate *suicide*. Children (*age 6*) contact them, complaining they feel invisible, misunderstood and lonely.

The charity suggests children are suffering badly in the digital world, with busy parents and social media making many feel ugly and unpopular. Childline statistics indicate that they adminsistered 4,063 counselling sessions in 2016, with needs rising rapidly. Turbulent lives, abuse, identity crisis and school pressures are triggers for ending life, with even those under 10 years of age showing desperation. Mixing and communicating more effectively with people in the *real* rather than the *virtual* world of social media is needed for improvement and gaining perspective and support, say experts. Today, psychologists estimate that the average person makes about 35,000 daily choices, requiring inner-language (*self-talk*), which many do not fully develop. The pace and stress of life means we often deliver bad descisions for ourselves and others, carrying a sense of resigned fatalism into all aspects of daily life (Russell, 2016).

A *talking solution* is supported by the United Nations Children's (Emergency) Fund (UNICEF) report (2013) into *Child Well-being*, finding that the UK was at