The Routledge Handbook of Audio Description

Introduction

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Audio Description (AD) is no longer merely a niche interest in the much wider field of audiovisual translation (AVT), itself part of the now vast world of translation studies (TS), but has only relatively recently emerged as an independent field of study and a viable commercial reality in its own right. The time has therefore come for AD to warrant a sizeable volume in which the research work of specialist scholars, the practical applications of service providers, the views of audio description professionals and end-users around the world can come together and provide readers of this Handbook with virtually everything they need to know about the world of audio description. So although this is the first large volume entirely devoted to AD, it is becoming less and less necessary to explain the concept for readers, in the same way that it is no longer necessary to explain subtitling, dubbing, voice-over and other disciplines within the field of AVT (but see Bogucki and Deckert 2020 and Pérez-González 2019 for in-depth updated overviews). However, for the record, and according to the American Council for the Blind (https://accessibility.psu.edu/video/audiodescription), audio description is “either live or recorded information, provided by a trained describer that provides descriptions of visual components of an event to become accessible to those who are blind or of low vision”. Or for a more concise, more pithy definition, we turn to Joel Snyder of the Audio Description Project of the above-mentioned Council – “the visual made verbal” (see also Snyder 2008). These definitions, however, need a little filling out. Until recently, very few describers were officially or professionally “trained” (ADLAB PRO 2017, Chmiel & Mazur 2017, Perego in this volume). This situation is changing and several contributions in this volume address this question – the figure of the professional describer is definitely taking shape, and the sphere of action of audio description is growing. “Event” is a useful blanket term to cover a whole range of visual phenomena from film, television and many other
video products to theatre, to museums, to live events such as football matches or royal weddings. All of these receive attention in the Handbook. And while audio description remains a vehicle to provide access for “those who are blind or of low vision”, other end-users have emerged and continue to do so (see Starr in this volume).

Working on such a large number of chapters on the same core subject showed that, in spite of a great deal of shared specialized terminology, various ways to refer to the primary stakeholders of audio description, i.e., the blind and partially sighted community, still co-exist (see also Perego/Taylor in this volume). Several different acronyms are used by scholars and professionals to refer to the blind and partially sighted (BPS) and some appear in this volume: VIP stands for visually impaired persons, PSL for persons with sight loss, BVI for the blind and visually impaired. Other expressions used include “persons with low vision”, “the sight-impaired” and “visually disabled people”. We decided to maintain the various labels chosen by each author because they reflect the fact that a unitary and consistent terminology to describe a heterogeneous section of the population still does not exist.

The volume consists of eight Parts that gradually guide the reader from a theoretical perspective to descriptive case studies. The fundamental questions of accessibility and blindness are dealt with in Part 1 in order to set the scene and delineate two broad yet defining areas in the field of AD. Part 2 moves on to the theory of audio description, tackling aspects such as cognition, narratology, linguistics, cultural issues and the particular language of AD, as well as its reception by the blind audience. Part 3 is devoted to the main areas where AD is applied: theatre, opera and dance, television and cinema, museums, and architecture. From the overview of the sectors of audio description, the Handbook moves on to address the role and status of AD stakeholders (Part 4), describing the contribution of audio describers themselves, broadcasters, service providers and researchers. Part 5 is devoted to innovation and technology, which play a major role in audio description, especially today. Chapters in this part are ordered according to a rising scale of innovation beginning with currently available AD software and the way this can be exploited both in professional and didactic contexts. This is followed by an account of various receptor tools and the use of artificial voices and their respective impact on users. Finally the audio description of videogames is addressed, along with the latest advances in automatic AD and AD personalization. The detailed overview on AD technology is followed by a focus on diverse AD practices (Part 6) namely audio introductions, audio subtitling, AD translation and AD for the non-blind. University and in-house training (Part 7) then precede a number of instructive national case studies (Part 8) which trace the development of AD in the USA, Canada, Australia, Russia, Brazil and Slovenia, but
also provide insights into research work (Brazil), ways of dealing with the AD workflow (Slovenia) questions of definition (Russia) and the issue of discrimination (Canada). Both differences and similarities in terms of development, practical difficulties and general approach to AD in the various countries can be observed.

The volume thus begins with a chapter (Chapter 1, Gian Maria Greco) examining the key concepts of access and accessibility, the basis of all efforts designed to improve the lives of the differently abled in society, from the physically handicapped to the deaf and blind to those afflicted by any obstacle to participation in the full life enjoyed by other people. Greco, however, challenges the more restricted notions of access and accessibility, the so-called medical model, whereby a disabled person is considered abnormal and access is achieved through treating the abnormality and attempting to bring that person back to normality. The social model of disability, on the other hand, as Greco explains, “sees disability as the result of an interactive process between individuals with impairments and social environments, social structures, and social relations designed by the dominant ableist culture. Viewed in this light it can be seen that the drive towards accessibility for all has recently led to the promotion of the concepts of universal design and inclusive design, both of which will receive mention in many of the contributions to this Handbook. The idea that collective activities such as film and television production, theatre performances, museum visits and attendance at live events can be created from the outset with provision for the disabled is a target, not yet universally reached, but taken seriously into consideration in many fields. Audio description is one of those disciplines where research and practice are coming together to provide access to the blind and partially sighted, particularly in those areas mentioned above, with a view to eventually incorporating the idea of universal design in the provision of all such products.

Continuing the discussion on accessibility, Joan Bestard-Bou and Blanca Arias-Badia (Chapter 2) explore the social and, in particular, the legislative aspects of the question. Judicial pronouncements and the passing of laws at local, national and international level are essential to the development of, and promotion of, any initiative designed to provide assistance to the blind and partially sighted community. Indeed the legal question is discussed in a number of the chapters in this volume. Bestard-Bou and Arias-Badia conclude that, given the World Health Organisation’s prediction on the ageing of the world population and consequent increase in the number of people with sight problems, the principles of universal design will need to be promoted and enshrined in law.

Already in this introductory section, in Chapter 3, Elisa Perego and Christopher Taylor highlight the importance of the principal end-users, the blind and partially sighted community (BPS). The chapter illustrates the preferences, shared needs, wishes and dissatisfactions expressed by the BPS based on
survey results conducted within the EU project ADLAB PRO (2016-2019). The issue of language simplification in AD for audiences with special needs is also discussed with reference to the EU project EASIT (2018-2021), which has worked on the possibility to apply easy-to-understand language to audiovisual translation.

In Section 2, devoted to various aspects of the theory surrounding audio description, Jana Holsanova (Chapter 4) begins by discussing research on the cognitive aspects of AD. “Knowledge about the cognitive processes underlying AD (how we think, how we perceive information through different senses, how we formulate visual content linguistically, and how we represent things and events and create inner images) can lead to an understanding of how blind and visually impaired persons experience and visualise audio description”. Most importantly, Holsanova points out that research on cognitive aspects of AD can enhance AD quality and lead to the formulation of guidelines for optimised description.

Gert Vercauteren (Chapter 5) looks at the narratological, as opposed to the descriptive, approach to audio description. He explores how narratology can provide useful insights into the study and practice of AD. Particularly in the case of film, TV fiction and theatre, stories are told and narratology studies narratives in all kinds of media, therefore providing a useful tool for AD creation. Vercauteren sees narratology, which analyses not only how stories are created but also how they are processed by viewers, as an essential tool in “helping audio describers understand what information the audience needs to grasp the story that is being told”.

Iwona Mazur (Chapter 6), on the other hand, first provides an insight into the linguistic and textual features that mark out AD as a “special use of language […] characterized by its own idiosyncratic characteristics”. The author illustrates the main research approaches to the study of AD as a linguistic and textual construct, mostly restricted to the monolingual model, that is AD in the same language as the text being described (film, theatre, etc.), though she also considers the interlingual question of AD translation, suggesting that in future, studies based on large electronic corpora could be useful in determining similarities and differences between languages within this unique genre of audio description.

Anna Jankowska (Chapter 7) looks at the question of culture-bound references in the creation of audio descriptions. Descriptions of foreign films are often required, and dealing with what Pedersen (2011) called extralinguistic cultural references (ECRs) is as relevant in AD as it is in the translation of works from one language/culture to another. The particular feature of culture specific references
in AD, however, is that the cultural references are often visual or both visual and verbal. Jankowska examines her own work and that of other scholars in the search for a common taxonomy leading to a reliable classification of solutions to culture-specific problems.

‘Ut pictora poesis’, the closing chapter of Part 2, is the title of Loretta Secchi’s contribution (Chapter 8). Secchi is the curator of the Tactile Museum “Anteros” in Bologna, and often guides blind visitors herself in tactile tours. Her chapter stems from her experience as a tactile museum director, guide and researcher in the field of Special Pedagogy in the Arts. It begins with an exhaustive theoretical consideration of the role of metaphor in the rendering of visual images into words for the benefit of the blind, or “the rendering of an aesthetic artistic image in form and content”. Expanding on the notion that “a painting is a silent poem, a poem is a speaking painting”, Secchi illustrates in detail how the Anteros Tactile Museum in Bologna creates three-dimensional models of well-known artistic masterpieces so that blind and partially sighted people can “touch and listen” and appreciate such artefacts. Her descriptions of the creative process involved in making the models, and the skills required to provide the blind person with a satisfying experience, bring the notion of *ekphrasis* into a modern setting.

Part 3 is devoted to the various sectors where audio description has been adopted. In Chapter 9 Aline Remael and Nina Reviers discuss an area where audio description has already become well-established, that of live theatre. Extensive study and long experience in this field leads the authors to refer to theatre AD as “a research-based practice”. Taking into consideration the fast-changing nature and diversity of contemporary theatre, the chapter describes in depth the theoretical premises underlying dramatic performance, ranging from multimodal studies to functional translation to technological innovation. The authors provide a very informative case-study to exemplify their findings. Moving laterally from theatre to opera and dance, Joel Snyder and Esther Geiger (Chapter 10) explain how AD is provided for operatic productions and how dance movements can be successfully described. The authors have long experience in the respective fields and use authentic examples in their coverage. They also make reference outside the actual world of AD when, for example, assessing the relevance of the Laban/Barenieff Movement System to the audio description of dance.

Maria Valero-Gisbert (Chapter 11) looks at, arguably, the most common area of AD use (though this claim may be questioned in some countries and by some service providers), that of screen AD. Film and television material, by virtue of the massive amount available and in demand, was naturally one of the first areas to experiment with and then adopt AD (Fryer 2016; Perego and Pacinotti 2019; Perego 2020). Valero provides an overview of the current situation including within
the “screen” remit a whole series of other digitalized products from domestic videophones to advertising screens in shopping centres and even displays on cash machines. Apart from this contribution, and as this is such a wide field, many other chapters deal wholly or in part with audio description for the screen. There then follow three chapters on audio description in museums. Christopher Taylor and Elisa Perego (Chapter 12) first take a theoretical approach by discussing some of the critical issues that have been researched over the last twenty years or so, to then discuss some of the practicalities of AD production with particular regard to the findings of the European projects ADLAB PRO (https://www.adlabpro.eu/) and EASIT (https://pagines.uab.cat/easit/en). Matthew Cock and Anna Fineman (Chapter 13) concentrate exclusively on the practical side of museum AD as they illustrate what is actually involved in producing a quality product for various kinds of museum institution based on their extensive work as service providers at the VocalEyes organisation in London (https://vocaleyes.co.uk/). Rachel Hutchinson and Alison Eardley (Chapter 14) examine the question of museum AD from the perspective of visitor studies, thereby foregrounding the end-user viewpoint. As they explain, “the aim for museum AD research should be to develop ways to measure the full breadth of experience, capturing not only evidence of learning, but the social interactions, engagement, interest, emotional and cognitive responses” of visitors. The empirical findings they refer to can provide a new understanding of what museum AD can achieve for its end-users. Finally in Chapter 15 Ralph Pacinotti moves off at a tangent to explore the relatively under-researched field of architecture AD. In order to do so, he focusses on an important sub-section – places of worship – which “show recurring features and a high enough level of predictability to allow the creation of guidelines specifically suited to them”. With reference to the indications that apply to architecture AD in general, the author outlines a set of strategies that can be used as a framework to organise and standardise the description of churches.

In the section devoted to stakeholders in the world of audio description (Part 4), the first contribution (Chapter 16) concerns the stakeholder par excellence, that is the audio describer him/herself. Elisa Perego explains how AD has progressed to the point that audio describers today are not just willing and variously talented amateurs but can become serious trained professionals. To this end, the European project ADLAB PRO “aimed to define a curriculum for ensuring professional AD implementation in all cultural and media sectors, and to create flexible and customizable training materials to develop or upgrade the AD professional profile”. The author explains how necessary this training is, who actually provides it, to what extent universities should be involved, and what describers think would be most useful. The role of broadcasters is then
discussed by Janwillem van Hoof and colleagues (Chapter 17) from the national Belgian television and radio company VRT. The authors illustrate how broadcasters confront the reality of audio description, which often places them in a difficult position as they attempt to navigate between national legislation, internal or external obligations, societal responsibility and declining budgets. However, as awareness of the necessity for AD increases, the authors show how VRT, as a public broadcaster, creates and distributes accessible content for all, including audio description for the blind and visually impaired. Irene Hermosa-Ramirez (Chapter 18) focusses on service providers of audio description as the stakeholders who actually connect the creators of AD with the end-users. The author provides exploratory insights into the specialisations, internal tasks and applications of technology handled by AD service providers. By means of an online questionnaire, a snapshot of the AD market is presented focussed principally on the situation in the UK and Spain. Results reveal that theatre and museum, along with film and television AD, are the most common specialisations among providers and that user involvement is crucial for the quality control process. 

Nazaret Fresno, in her chapter (Chapter 19) on research in AD, observes how academic interest in the subject started to flourish in the early 2000s. Normally defined as a form of intersemiotic translation (Jakobson 1959), the study of AD has been traditionally approached by scholars working in audiovisual translation and, more specifically, by those interested in media accessibility. The chapter provides an overview of the existing research by focusing on both screen AD and non-screen AD delivered, for example, in museums and at live events. It should be noted, however, that although AD scholarship is growing rapidly, many areas of this discipline are still under-researched. Indeed Fresno points to the need for “more systematic product-oriented, user-oriented and process-oriented research” furthering our knowledge of AD text beyond English and Western languages, of how the BPS community receives and experiences audio described products, and how the minds of those creating AD scripts operate.

In Part 5, Innovation and Technology, Vincenza Minutella (Chapter 20) first looks at the situation regarding AD software. While software tools for creating subtitles have been available for some time, and indeed used by audio describers as they can, to a certain extent, be adapted for that purpose, software solely for audio description has been much scarcer. Minutella describes the products that have been made available thus far and takes a particular interest in some of the latest software with which she has had personal experience in creating audio description with her university Masters students. In a similar vein, Wojciech Figiel and Kamila Albin (Chapter 21) look at receptor tools. The authors are blind and consequently have a particular interest in the efficiency and usability of such instruments. They too discuss what has been available for persons with sight
loss (PSL) until recently and what the future may hold. They explain that “receptor tools, far from being mere technical instruments, are the gateway to receiving AD”. In providing an overview, the authors address the key issues of inclusivity, technological competences and power relations that are connected with receiving audio description.

Agnieszka Walczak and Gonzalo Iturregui-Gallardo (Chapter 22) discuss the question of artificial voices, and in particular the issue of human versus artificial. The authors emphasise the importance of the debate over this dichotomy by pointing out that “AD is always received aurally, together with the existing dialogue and soundscape”, a fact that is sometimes overlooked when discussing the creation of AD. It is clearly of extreme importance to the end-user, whose appreciation of the vocal rendering of AD in terms of intonation, pitch, volume etc. will depend on either the expertise of the voice talent or the technological prowess of synthetic voice software, which is constantly improving. The authors look at the state-of-the-art surrounding this debate and the preferences expressed by users.

Carme Mangiron and Xiaochun Zhang (Chapter 23) report on a new, and in fact still to be fully realised, development of AD, that is the phenomenon of videogames. As the authors point out, “video games have become one of the preferred leisure options for many and are also increasingly being used beyond entertainment in areas such as education, training, health and advertising”. The amount of material on the market is enormous and the number of users constantly on the increase. However, most video games are not accessible or fully accessible to people with disabilities. The chapter therefore seeks to provide an overview of game accessibility for visually impaired players, discussing that which is already available and what the future should provide.

Sabine Braun and Kim Starr (Chapter 24) look to the present and, more realistically, the future of AD in discussing the question of automatic audio description. With reference to a wide variety of technological gadgetry and bold initiatives, the authors concede that perfect automation of such a complex phenomenon as AD is still a long way off. However, while they explain how “the simpler tasks involved in video description, e.g. object recognition, action detection and character naming, remain either unreliable or elusive in automated approaches, the ultimate goal in the drive to automate video (and multimodal) captioning remains to achieve narratively coherent, contextually sensitive and fully sequenced computer-generated storytelling”.

Pilar Orero (Chapter 25) looks very much to the present and the future with a chapter on the personalization of AD choices permitted by advanced technology tools. Recalling the various areas of audio description that researchers have explored and what has now been made available as a
result of that research and its technological exploitation, she shows how users can now decide what type of AD they want to hear in terms of delivery, voicing, information explicitation, etc. As the author says, “technology is now enabling the delivery and user personalization of the many features that affect audio description reception with a view to heightening its enjoyment and understanding”.

The next section (Part 6) deals with Audio Description Practices connected to or surrounding the production of AD itself. First Pablo Romero-Fresco (Chapter 26) illustrates the content and function of audio introductions (AIs), a more recent addition to the “media accessibility family”. Originally designed for theatrical performances, AIs provided preliminary information about a play or opera as a way to prepare a blind or sight-impaired audience. Now they are also to be found in the presentation of some films, extending the use of this accessibility service. The chapter tackles the definition, content, main functions and linguistic aspects of AIs, and provides an account of how they have been approached so far from the point of view of both research and professional practice in the case of opera, theatre and film.

Anna Matamala (Chapter 27) focusses on the practice of audio-subtitling. While the audio description of video products (film, television, etc.) is still principally an intralingual service providing description to users who hear the soundtrack in their native language, in the case of foreign films containing subtitles, a further form of assistance is required. The subtitles are read by voice-talent(s), preferably not the same as the describer. Matamala provides a summary of existing research as well as a description of diverging practices across countries. The chapter also summarises the main recommendations and standards for this access service and points to future directions, with an eye to the generation of easy-to-understand audiovisual content explored while coordinating the EU project EASIT.

As mentioned above and elsewhere in this volume, audio description is still principally used to provide access to video content for blind and visually impaired persons intralinguistically. However, with the vast amount of material now available in all languages, the need for audiovisual translation in the form of dubbing or subtitling, for example, is now widespread. The translation of ADs has lagged behind this movement, but Estella Oncins, in Chapter 28, focusses on existing practices and research in the translation of recorded audiovisual content. This includes an overview of the current state of the art of AD translation and its relation to current legislation and standards. Current practices in the AD translation process are outlined and the future of current research and
innovation projects using new technologies and collaborative approaches are defined. Remaining in the field of AD translation, Irene Tor-Carroggio and Yuchen Liu (Chapter 29) provide a case-study, specifically focussing on the language pair Chinese-Spanish, a particularly interesting translation challenge. Audio description is still in its infancy in China, while well developed in Spain. The authors identify the differences and commonalities in terms of AD techniques and general style between these two languages to be able to localize the translated AD script, as Jankowska (2015) recommends. They detect and analyse said divergences and similarities qualitatively by applying an adapted labelling scheme to two audio described films available in Spanish and Chinese, reaching the promising conclusion that the translation of Spanish AD scripts into Chinese at least seems feasible.

Again, as mentioned earlier, AD is proving useful not only for blind and partially-sighted persons, but also for many non-blind individuals who value video descriptive resources for their intersemiotic mediatory qualities, finding them expedient, assistive, informative and educational. In Chapter 30 Kim Starr discusses the use of AD “for applications and audiences which reach far beyond the limitations of the original accessibility service provided for BPS. In the field of cognitive research, AD is now being used more widely to provide a new perspective on meaning-making, mental modelling, and concepts such as immersion and presence”. Starr also reports on how AD is being researched for the automation of video descriptions for the purposes of archive retrieval, content management and ultimately, greater access to information, entertainment and education resources for all.

Turning now to AD training (Part 7) and leaving aside the self-taught, of whom there have been many, the two principal arenas for the training of audio describers are the university and service provider’s in-house facilities. Agnieszka Chmiel (Chapter 31) presents audio description training in the academic context with an overview of the competences involved in the creation of audio description as mentioned in the literature. The chapter goes on to discuss the pedagogical approaches adopted by trainers and described in the literature leading to the presentation of the results of a survey conducted within the ADLAB PRO project among 57 trainers conducting 93 audio description courses “to verify to what extent the proposed competence model and pedagogical approaches suggested in the literature are reflected in the actual practice of AD training at universities”. As regards, on the other hand, in-house training, Bernd Benecke (Chapter 32), the head of audio description at the leading German television station Bayerischer Rundfunk (BR) devotes his chapter to illustrating the in-house training programme used at BR. The creation of
professionally trained describers is achieved through a well-tuned workflow in the production of AD. Those who complete the training process generally work as freelancers in the creation of the AD texts. The editing, recording and mixing of the description are then done in BR’s sound department with BR’s own voice talents and technicians. Benecke describes the various steps in the Bayerischer Rundfunk in-house training process with reference also to his doctoral thesis on the subject. The BR system, as a successful recruiter of AD talent, might well serve as a role model for future in-house training initiatives.

The final section (Part 8), Audio Description: National Case Studies, tracks the history and development of AD in six different countries. The chapters include contributions from north and south America, Russia and Australia. Many of the countries in Europe are covered in other chapters (UK, Germany, Italy, Spain, Belgium, Poland) while the inclusion of Slovenia in this Part (Chapter 38) provides a glimpse into the development and production of AD in a small emergent nation in the east of the continent. In Chapter 33, Joel Snyder, long recognised as the leading exponent on audio description in the United States, provides a historical account of the major milestones in the development of AD in America, complete with illuminating examples involving, for example, former presidents Ronald Reagan and Barack Obama. Staying in north America, Rebecca Singh, a professional audio describer, traces the development of AD in Canada through the highlighting of a series of “firsts” achieved across the vast country in the last twenty years, particularly in the field of “live” AD (Chapter 34). In addition she discusses what she terms the “Canadian dialect”, addressing the important issue of how to describe the various race, gender and disability groupings within a highly multi-cultural nation. This forms part of a discussion heralded in the first chapter of this volume on the topic of accessibility, where human rights are the rights of all humans and there is no justification for singling out, for example, the disabled or racial minorities, as people in need of normalisation. Remaining in the English-speaking world, Kari Seeley (Chapter 35) provides an overview of the audio description situation in Australia, where AD is less well developed. Nonetheless she paints a promising picture of present and future prospects, particularly in certain areas of the country, and also provides interesting and appealing anecdotes based on her personal experience as a professional audio describer.

Moving away from English language AD, Ivan Borshchevsky and Alexey Kozulyaev (Chapter 36) trace the development of audio description in Russia from a time when official channels claimed that there were no blind people in Russia, through the Soviet Union years, to the current situation where describers, including the authors, have embraced international AD guidelines, literature and workflows. This has not always been the case, as the authors refer to the transition that has taken
place from what was known as “typhlocommenting”, and the negation of the term “audio description”, to the present acceptance of AD as envisaged elsewhere. The authors also provide an AD example featuring their description of heavenly bodies and an eclipse of the sun. Moving to South America, Eliana Franco and Vera Lucia Santiago Araujo (Chapter 37) provide a thorough picture of the current audio description situation in Brazil where, as the authors point out, great progress had been made until the recent change in government and in government policy regarding, for example, culture. Nonetheless the authors illustrate how AD has developed in their country in terms of both theory and practice and particularly regarding the research work conducted in universities. The clock has been arrested but cannot be put back and the authors are optimistic about future prospects.

Finally, and returning to Europe, Veronika Rot and Mateja Vodeb (Chapter 38) provide an exhaustive account of their work in the audio description department of the national television and radio station in Slovenia. As partners in the European Union projects ADLAB PRO and EASIT they have brought their experience and competence to bear in the realisation of the aims of these initiatives – the profiling of the audio describer, the creating of curricula for the training of describers, the production of teaching materials, etc. In their chapter they concentrate particularly on the workflow and procedures they have created for the provision of AD to all those who require it in the country of Slovenia.

This reference work shows how much we can still say about a field of research which has now been studied in depth and from many diverse angles. Audio description is still a dynamic area, where the dialogue between theory and practice remains fruitful and necessary. The Handbook purposefully blends such perspectives in order to offer a comprehensive picture of the current situation, as well as to trigger fresh ideas and ways to proceed with such a flexible accessibility service. Notwithstanding some inevitable overlaps, though the collection of chapters are not meant to be necessarily read together, the book gives guidance in a much varied range of AD-related areas that are relevant to students, researchers and professionals looking for a solid reference or for new ways of approaching the discipline.

We hope then that this Handbook fulfils this purpose.


