

BOOK AND EBOOK REVIEW

Book Reviews

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The following publication contains book reviews of these titles: Seth Giddings, (2014) *Gameworlds: Virtual Media and Children's Everyday Play*. New York: Bloomsbury Academic. 192 pages. ISBN-10: 1501318292. ISBN-13: 978-1501318290 Gibbons, A. S. (2014). *An architectural approach to instructional design*. New York: Routledge. ISBN-10: 0415807395. ISBN-13: 978-0415807395 Simone White and Michael Corbett (eds.), 2014. *Doing Educational Research in Rural Settings: Methodological issues, international perspectives and practical solutions*. Routledge: London and New York. 234 pages ISBN-10: 041582351X, ISBN-13: 978-0415823517 Jill Porter (2014). *Understanding and Responding to the Experience of Disability*. Routledge: London and New York. 170 pages ISBN-10: 0415822912 ISBN-13: 978-0415822916

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***Gameworlds: Virtual Media and Children's Everyday Play*, Seth Giddings (ed.), New York: Bloomsbury Academic, 192 pages, 2014, ISBN-10: 1501318292, ISBN-13: 978-1501318290**

Giddings in *Gameworlds* advocates that a true understanding of the nature of play can only be achieved through careful observations and descriptions of it, in direct contrast with "most of the dire claims made for children's game and Internet culture [that] are founded on assumption and not on research (p. 10). His aim is to investigate the impact of digital media on children's play patterns, as well as how play is, and can be, transformed through the interactions with such media. He also asks whether an increased understanding of play because of these newer media forms can be applied retrospectively, i.e. can modern perspectives be applied to historical play? (p. 15) Giddings sees his challenges as "not to separate out the continuities and ruptures in the cultural history of children's play; it is to question how play can be rethought in the light of popular digital technoculture." (p. 32)

His account draws from previous studies of children's play (such as Sutton-Smith, 1997) but also from his own observations of the play 'performed' by his sons and various friends over the years. In many ways, this book acts as both a longitudinal, ethnographic approach to the content, but is simultaneously almost biographical – in the sense that it charts his sons, Alex and Jo's play over the course of several years through field notes and transcriptions, photographs and Giddings' own memories of the events. This allows Giddings to chart the changes in Jo's play over time, and have an unparalleled awareness of

the contributing factors to these changes in the form of the various media that the brothers interact with. This is certainly an aspect of Giddings' book that is particularly appealing, as it includes a depth of ethnographic analysis that is seldom seen in other studies of play that are neither as personal nor on such a long-term basis. Although he may be criticised for using his study of only a handful of agents to justify larger claims, these smaller case studies allow attention to be paid to the contexts and momentary details of play, as well as, according Giddings, the ability to draw from a wide range of disciplinary approaches (psychology, game or media studies, for example) that serve to strengthen his arguments.

Chapter one, *Virtual and Actual Worlds* gives some clear and explicit contexts of how digital play and 'actual' play in the real world have begun to converge, blend and feed into one another, and that these different worlds have become permeable. Giddings links this to the term of *transduction*, i.e. play that crosses media domains in a non-linear and metamorphic fashion (p. 27-8) and uses multiple examples that demonstrate this observation, one of which is an instance of Jo's play, where he plays with actual Lego racing cars as if they were Lego race cars within a digital game: "They were, on one level, playing at playing a video game." (p.30).

Chapter two, *Virtual Media and Children's Everyday Play* outlines the language used in the context of the book and gives brief historical perspectives on the (changing) meanings and definitions of these terms. Giddings makes clear his awareness of the ambiguity of this task, and in his "Anti-glossary" sub-section instead suggests ways that these terms could potentially be employed, and how these terms will be investigated throughout the book. He outlines the reasons for his ethnographic approach to the subject under study, i.e. that of cultural enquiry and justifies this approach by the assertion that games are simultaneously

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“cultural practices (even rituals), media/aesthetic objects, toys and social (or solitary) events” (p. 43).

In Giddings' third chapter, *Microethology: Methods for Studying Gameworlds*, he describes the methodologies used throughout the book (video and audio documentation, photographs, field-notes) and his approach of “microethology”, a term he coined to study play that grew out of ethnography and where the researcher observes and interacts with the culture under study. He uses other theoretical resources up to a point, such as Actor-Network theory (ANT), highlighting the nature of the relationship between social groups and artefacts (p. 58), or Deleuzian philosophy, in his discussions of childhood as a process of ‘becoming’ (p. 40), for example, though these are only really mentioned in passing and as having informed his own theoretical approach to the research. Giddings points out the advantages of being a ‘parent ethnologist’ in terms of the attention that can be paid to the small-scale events in the wider context of a “life-long longitudinal study” (p. 64). It could be said that his role as a parent within this research means he lacks objectivity because of his intimacy with the bulk of the subject matter of the book – the play of his sons, though Giddings never at any point claims objectivity so it seems a spurious criticism to make, especially since (as previously stated) the work makes a valuable contribution to the field in many other ways that are few and far-between in game studies.

In Chapter four, *Media Worlds*, Giddings expands upon the arguments made previously in the book, that video games cannot be considered in isolation and that media ‘bleed’ into one another, whether actively (such as a video game recreation of a film or book) or in the mind of the child themselves (e.g. a television series inspiring play in reality). These different media forms provide a frame of reference for play; Giddings uses the example that one of the subjects, Alex, draws Pokemon (in reference to the video games and the cartoons) but creates a story from his drawings, from his picture like he would a comic book (p. 79-85). In his statement that he (Alex) “traced with his fingers across the paper *as if* pointing to comic book frames” (p. 82, my emphasis), it could be said that Giddings applies meaning and intent to Alex's actions here that may not have actually had this meaning, with Giddings seeing what he wanted to see, as it were. Although it is difficult to accuse him of this in one, isolated instance and not elsewhere in the work in its entirety, it is clear that the book is rigorously and meticulously researched and that Giddings' observations throughout are enhanced by his intimacy with the subjects and not clouded by them.

Giddings' fifth chapter, *Soft Worlds: Play with Computers* highlights how the video game, precisely because of the nature of the form, affects how children play with and within it. Play, whether digital or ‘analog’, has rules and laws. In a video game these are governed by the parameters of the technical system whereas in real-life play these rules may be social, but nonetheless rules are an inherent characteristic of play. He talks about the role of the avatar as a mediating device, similar to the protagonist in a film with the difference that the avatar goes beyond this role in that the player has direct control over it. However

Giddings highlights that this relationship is reciprocal, in that the player has control over the avatar and to an extent the game world, but is also controlled and bound by the rules of the game world. Different games play with this relationship between player and avatar differently, where the personality of the player affects their actions within a given game world. “The game is not a virtual tabula rasa on which to project an identity, rather a playing out of certain expectations and preferences through choices in the game, and the directing of those preferences into its algorithms and economies.” (p. 99)

With chapter five discussing play found in virtual, game worlds, chapter six focuses on play in the actual world, entitled *Play Grounds: The Material and Immaterial in Play*. Giddings returns to his earlier concern, that the “interpenetration of the actual and the virtual, the material and the tangible” (p.118) is a cyclical relationship, in that children's play can occur immersed **within** video game media, but also outside of video game and other media but **because** of the engagements with them. For example, Giddings cites an instance of this at a playground, where the boys are playing *Star Wars* using sticks as light sabres, though “evident throughout play is a flickering point of reference from the *Star Wars* films to the *Lego Star Wars* video games” (p.117). It is examples such as these that give a real richness to Giddings' book and aid the reader in their comprehension of the arguments he makes, giving weight to them. He goes on to outline other aspects of play in the real-world context such as the nature of space and time, of the physical body, the micro-carnival, and the flux of games, and uses these concepts as evidence that imaginative play is simultaneously real though “intangible and immaterial” (p. 135), similar to the play found in virtual worlds.

Giddings' concluding chapter, *Real Worlds: Realities Virtualities and the Protopolitics of Play* discusses the wider cultural contexts of play, the products that contribute to these contexts and the effect that it has on the nature of play in general. As part of this, he talks about, for example, the gendering of children's toys as well as the notion of ‘bad play’ and of the media effects of this perceived bad play such as the film/video game and violence debate. However, Giddings neatly and tactfully alludes to this without giving any weight to it, and stresses that these debates come out of the relationship between fantasy and fear in the imagination with violence in the real world (p. 140). His argument throughout the book has been that any and all media become inspiration for children's play and he demonstrates throughout an implicit awareness that digital games are not entities separate and distinct from other media, but are components in an entire multimedia system. Just as they cannot be considered independently of the wider media landscape, neither can they be separated from children's play that occurs outside the digital world(s) of a specific game. Giddings argues convincingly that the boundaries between these worlds are fluid, and that children's play in actuality is not constrained by these artificially erected boundaries and cannot be removed from the digital and actual environments in which it occurs. In the context of ‘bad play’,

the example he gives is of his children's awareness of the London riots that then informed their subsequent play – the media effects to which he refers – and that we should view imaginative play as “simulation, not imitation or representation” (p. 145). Although some topics are perceived to be too sensitive to play with, in either digital or actual worlds, Giddings argues that these instances should be looked at as inversions – as turning the order of the world on its head – and that “children *perform* media scripts rather than *living within*, or fully *identifying with* their fictional world” (p. 153, original emphasis).

Although many of Giddings' arguments are made with specific reference to children, they are often equally applicable to adult play, so the work has further reaching implications than may be evident in the title. He advocates that rather than trying to decrease certain types of play (e.g. video games or 'bad' play) or shortening school playtimes, we should instead reduce the surveillance on children's play and allow them the space and time for game worlds to emerge in multiple spaces and locations, virtual and actual. “We need a politics of opening up symbolic and material resources for boys and girls, towards a rendering of difference as malleable, insignificant, meaningless, not a policing or closing down of disapproved different types of play” (p. 159). These playful microworlds follow children into adulthood, and as such we should allow them the space to explore virtual worlds as they choose and see fit, to aid them in becoming precisely the types of adults that are desirable in the actual world.

***An architectural approach to instructional design*, Gibbons, A. S. (ed.), New York: Routledge, 2014, ISBN-10: 0415807395, ISBN-13: 978-0415807395**

This book presents a structured and informed approach to Instructional Design. It raises and answers questions about the nature of Instructional Design, and describes a way of approaching design problems that can be applied to a variety of different educational contexts. It is targeted at students: the aim of the book is summarised on the back cover as a “powerful and commercially relevant introduction for all students of instructional design”. The author (Andrew Gibbons) takes a systems approach to design, in which instructional designers play the role of architects of complex systems involving technologies, design theories and practices, learning theories and practices and teaching theories and practices. To help Instructional Designers manage their design activity in the face of complex multi-faceted design problems, the author presents an approach of design in layers, identifying and drawing on work in the field of building design (Brand, 1994; Schon, 1987) and work in other fields including (of course) education (Silvern, 1972, Romiszowski, 1981).

The book is divided into three parts. The first part, 'Fundamentals' outlines the basis on which the following parts build on. Within it Gibbons introduces the power and utility of the idea of conversation as the basis for education, and outlines a layered approach to design involving seven layers. The second part includes a chapter on each of these layers, and describes approaches to design

appropriate to the layer of interest. Part 3 examines the implications of a layered approach to instructional design in terms of modularisation of production, and of the role of a designer within an organisation. This part serves to emphasise that design for Higher Education, i.e. JIME's domain, is not a focus for this book. That said, the approach described is applicable to design for University teaching and learning, although this is not emphasised. The book contains 5 useful appendices, which provide useful information for a student of Instructional Design; they help to give a complete picture of issues associated with implementing Instructional Design within an organisation.

Gibbons asserts that there is 'no “given” or “true” set of layers'; layers are a design construct, that designers can employ to 'confer advantage on their designs', be it economic, practical, or theoretical advantage (p. 28). Gibbons usefully identifies motives and factors that others have used to create layers, including functionality, production issues, for a particular product form, and for maintainability. The author has selected the set of instructional design layers presented in part 2 on functional grounds i.e. on the basis that “they represent functions carried out by virtually every instructional artifact” (p. 34), and that each layer represents “an independent functional element of design”. The seven layers that Gibbons has chosen are:

1. A Content layer “that supplies knowledge elements during instruction”
2. A Strategy layer “that manages strategic interactions with the learner”
3. A Message layer “that carries out strategic plans through conversational exchanges”
The message layer is semantics that are expressed by the instructional system to the learner through 'conversations'. The learner takes part in these conversations through the control layer.
4. A Control Layer “that expresses the learner's side of the conversation”; it enables the learner to take action
5. A Representation Layer “that provides information and meaning in sensory form”
6. A Data Management Layer “that records, analyzes reports and stores learning data”
7. A Media-Logic Layer “that executes the operations of all of the other layers”.

Although it is a well structured presentation of a well thought out approach to design, there are several things that would improve the book. The first is that although there are many 'Application Exercises' for the reader throughout the book, and the exercises are mostly well thought out and valuable, there are no solutions of any kind included. The inclusion of some form of answer, or guidance towards a solution, for some (or all) of the exercises would increase the value of the book to the reader, particularly students.

Secondly, some of the concepts that appear in the early chapters are repeated, and developed in more detail in

the later chapters. However, there are no cross-references to the related introductory material which appears earlier in the book. This makes the book more confusing and less easy to use than it could have been. Also, some of the phrases used to describe concepts, including the various layers, are to my mind difficult to interpret. In contrast, some clear and succinct descriptions of the seven layers are present in journal articles (e.g. in an article co-authored by Gibbons: (Boot et al., 2007); this however may be due to the fact that this article is in a UK journal, and the editors and/or co-authors have influenced the style of writing to something that is closer to what I am used to.

Thirdly, there is no reference to, or mention of, Laurillard's conversational framework for the effective use of learning technologies (Laurillard, 2001, first edition published 1993). Although Gibbons refers to Pask (Pask, 1976) when discussing conversation theory, he includes no reference to, or Laurillard's work in which she applied Pask's theory to teaching and learning in a higher education context and related it to the use of a variety of different media within education.

In conclusion, this book presents an informative and structured approach to the field of instructional design that lives up to the promise of being a "powerful and commercially relevant introduction for all students of instructional design". If you are coming to this book as a newcomer to the field, I recommend you also consult Laurillard's work on conversational approaches. If you are approaching it with knowledge of the (mostly Europe/Australian based) field of Learning Design, I suggest that consulting some of Gibbons' journal papers that summarise the layer approach (e.g. Boot et al., 2007) may help you appreciate the detailed treatment provided by this book.

***Doing Educational Research in Rural Settings: Methodological issues, international perspectives and practical solutions*, Simone White and Michael Corbett (eds.), Routledge: London and New York, 234 pages, 2014, ISBN-10: 041582351X, ISBN-13: 978-0415823517**

As rural areas become increasingly less distinguishable from urban areas, the reasons for carrying out rural research become all the more important. This is the premise behind Simone White and Michael Corbett's edited collection of stories and reflections from educationalists living and working in rural communities in the United States, Canada, Australia and Northern Europe.

There is much of interest to reflect on in this book, and I intend that the main focus of this review is on these insights. But the reader has to work hard to see the volume as a 'practical guide' for postgraduates, as it has been marketed. Each chapter is written from a personal – sometimes deeply personal – standpoint. Many are thoughtfully and originally constructed. However, it is a challenge to map out a path through the book that might be useful to a (very) early career researcher. Despite being grouped into three parts, and despite the obvious collective theme

of rural education research, the thirteen chapters move between continents, theorists, disciplines and focus with no guiding hand from the editors. The situation is not helped by the erroneous index in which many of the entries are absent from the listed page numbers. White and Corbett's short introduction to the volume is engaging and inviting – they admit that the collection is 'diverse' – and I wanted to read more from them. While I am not in favour of spoon-feeding students, the book's aims of 'practicability' and 'applicability' would be more successfully met if the editors had more of a presence between the three parts of the book, and a concluding chapter would strengthen the volume considerably. I enjoyed the book more when I read it a second time, ignoring the listed order and picking chapters out individually. I would recommend the book to my students, but I would suggest they also read it this way.

A greater editorial presence would also help to mediate the more acute of the personal views for junior academic readers. In chapter one, for example, Craig Howley and Aimee Howley suggest that the committed rural researcher needs neither funding nor tenure. This is a reflection on two long, successful careers, and from a position of security which enables a negative critique of the tenure system. It makes for interesting and provocative reading, but is not practical (and is perhaps even insulting) 'guidance' to offer to students working in menial jobs for minimal pay to cover their fees, let alone fieldwork expenses, or early career researchers necessarily preoccupied with the insecurity of back-to-back, short-term contracts.

Nevertheless, Howley and Howley open the book with a clear and convincing articulation of the need to actively privilege rural lives through research as a challenge to the more mainstream view of the rural as in need of reform. This view is shared across the book, and the authors collectively reject and seek to 'unpack the unexamined dominance of research methodologies as mainly metropolitan' (Introduction, p.1). The chapters each, through a range of approaches, promote a view of the rural as distinct yet diverse, different but not deficient. Through the conviction of its authors on this point, the book makes a valuable contribution to the education research literature.

A key question addressed through the book is whether a researcher needs to live (or have lived) in a rural place in order to research it. In the shared reflexive style, all authors take the opportunity to describe their personal experiences with rural environments and how these experiences relate to their work, but emerge with subtly different answers to the question. Howley and Howley, in chapter one, suggest that prolonged engagement with the 'substantive rural' is essential if researchers are to 'see beyond the ignorant reformist logic of the mainstream' (p.8-9). In chapter four Pamela Bartholomaeus, John Halsey and Michael Corbett argue that it is not 'impossible or inappropriate to do research in a rural setting if you live in a city', but that a researcher's location should be 'acknowledged', 'accounted for' and 'rendered visible' (p.59). Zane Hamm follows this advice in chapter six, in which she critically reflects on the methodological implications of not being an insider in the specific community

she selected for her study, despite considering herself an ‘insider in a rural context’ (p.90-91). I would recommend Hamm’s chapter to students in particular, and chapter twelve (Maija Lanas and Paulina Rautio) for the same reason: both present honest and thoughtful depictions of isolation and awkwardness in rural fieldwork, of research journeys not going to plan, but being richer studies for it.

Two chapters stand out for their novel writing style. Chapter four (Pamela Bartholomaeus, John Halsey and Michael Corbett) and chapter eight (Robyn Henderson and Sherilyn Lennon) are constructed as conversational narratives between the authors. These chapters reminded me of my days as an undergraduate and being allowed to sit in on the postgraduate seminars – they are rich with collegial warmth, critical reflections on practice, and respectful debate – and will be accessible to and rewarding for readers.

Overall this book will be of interest to anyone planning to (but also those looking to reflect on) research in rural settings. However, another recurring theme – the ‘footprint’ or what researchers leave behind and how our work might make a difference in the lives of those we encounter in our work – makes for important reading for those planning to (or looking to reflect on) research in any setting.

***Understanding and Responding to the Experience of Disability*, Jill Porter (ed.), Routledge: London and New York, 170 pages, 2014, ISBN-10: 0415822912, ISBN-13: 978-0415822916**

This book belongs in the “inclusion and special educational needs” series by Routledge, it is based on empirical research and sheds light on the current state of how disability is understood in schools. The book explores the different ways of collecting data on disability and how it can be useful to understand the reality of this experience in educational environments. There is an evident problem: that schools seem to be very clear on how information about special educational needs (SEN) is collected, but they do not know how to collect information properly in terms of disability (p. 2). The book sheds new light on this issue via a study by the author that aims to identify the best way to get this information through the results obtained by her research.

“Understanding and responding to the experience of disability” focuses on three distinct elements: the conceptual understanding of disability, an empirical illustration of the development of materials to support an understanding of the process of disability data collection and some illustrative case studies to show how the materials can be used to enhance the participation of children. The book is divided into seven chapters that take the reader through the reasons for and the context of the study; and by gaining an understanding of these, the ways in which they can then be applied to the methodology and the results.

The first part focuses on the following question: “Why the need for disability data?” This question recurs throughout the text in trying to understand the need

to take note of disability and the differences between disability and SEN. The problem currently is that half of students with disabilities are being deprived of basic care because research studies focus on the special needs related to learning and not on the actual needs related to disability.

The author does not neglect fundamental rights such as the UK legislation and policies in terms of accessibility and the book aims to aid policy makers to understand the term disability and to enable them to respond proactively to remove organizational practices that disadvantage and marginalize disabled children (p. 15). The next chapter consists of “understanding disability”, from the perspective of the different models of disability, for example, the social model, biopsychosocial approaches, relational and interactive models and the capability approach. The author discusses cultural values and the implications of using these models in schools. She critically highlights the different perspectives focusing on the implications to be considered for disability data collection (p. 33), in order to respond to the legislation in a way that promotes social justice and counters simple compliance and performativity.

The second section of the book focuses on collecting disability data and on technical considerations that help develop methods for obtaining disability data. The methodology is to review previous research that focuses on the Equality Act (2010) in order to obtain various indicators. When preparing the disability data in the questionnaire, the starting point in the collection is clearly taken into account: establishing the purpose of the research and knowing what data are needed. The questions are focused on health conditions, activities and participation, degrees of impact, barriers and supports, while highlighting the role that language and phrasing play – emphasising that “disability” is in itself never a neutral term (p. 49) and that the language used is important in determining the effects when answering the questionnaire.

Porter next discusses “what data tell us about the support parents value”, with qualitative data obtained from parents (p. 62) who completed the questionnaire, in order to establish whether that data are considered especially helpful for their children. The importance of individual support to children is highlighted, i.e. in order to promote a positive emotional climate where workers can offer encouragement (p. 79), there is a need for students to work with different groups of people and with different disabilities. The data related to the students themselves: “what data tell us about children’s experiences” provides examples of tools used in schools and how they should be adapted to obtain data in different scenarios and overcome information barriers and support participation (p. 103). Drawing on interviews with professionals and local authorities, the author draws conclusions from these experiences about what schools have learned using this type of data.

Finally, the results of the research have implications for the relationship between school policies and practices. The author claims that, despite the challenges of disability data collection, schools are better prepared to engage with the meaning of disabling experiences and

are enabled to respond proactively to offset these. She argues that collecting disability data allows schools to move beyond the rhetoric laid down in schemes and provide evidence that they are meeting the needs of students.

This is a very research-focused book, which strongly encourages the need for more studies like it and the methodology it uses. Unfortunately, Porter has not taken into account the role that technology can play in mediating disability in educational contexts, and the possibilities that technology could offer students with disabilities. It was interesting to understand more about the need to study disability in primary education, but it may be difficult for this to be exported to other educational sectors. This research undoubtedly may help the reader to realize the poor way in which data about users' disabilities is collected currently, and where the correct use of this information could help to enrich the quality of the education received by students with disabilities.

Competing Interests

The authors declare that they have no competing interests.

References

- Boot, E W, Nelson, J, van Merriënboer, J J G and Gibbons, A S** 2007 Stratification, elaboration and formalisation of design documents: Effects on the production of instructional materials. *British Journal of Educational Technology*, 38(5), 917–933. DOI: <http://dx.doi.org/10.1111/j.1467-8535.2006.00679.x>
- Brand, S** 1994 *How buildings learn: what happens after they're built*. New York: Penguin.
- Equality Act** 2010 Advice for School Leaders, School Staff, Governing Bodies and Local Authorities.
- Giddings, S** 2014 *Gameworlds: Virtual Media and Children's Everyday Play*. New York: Bloomsbury.
- Laurillard, D** 2001 *Rethinking university teaching, a conversational framework for the effective use of learning technologies* (2nd ed.). London, New York: Routledge Falmer.
- Pask, G** 1976 Conversational techniques in the study and practice of education. *British Journal of Educational Psychology*, 46, 12–25. DOI: <http://dx.doi.org/10.1111/j.2044-8279.1976.tb02981.x>
- Romiszowski, A** 1981 *Designing instructional systems: decision making in course planning and curriculum design*. London, UK: Kogan Page.
- Schon, D** 1987 *Educating the reflective practitioner: toward a new design for teaching and learning in the professions*. San Francisco, CA: Jossey-Bas.
- Silvern, E C** 1972 *Systems engineering applied to education*. Houston, TX: Gulf publishing.
- Sutton-Smith, B** 1997 *The Ambiguity of Play*. Cambridge, MA: Harvard University Press.

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