Kucirkova, Natalia. "The 5As of Personalization." *Digital Personalization in Early Childhood: Impact on Childhood*. London: Bloomsbury Academic, 2017. 83–98. *Bloomsbury Collections*. Web. 26 Apr. 2023. <<http://dx.doi.org/10.5040/9781474290838.ch-006>>.

Downloaded from Bloomsbury Collections, www.bloomsburycollections.com, 26 April 2023, 09:30 UTC.

Copyright © First published 2017© Natalia Kucirkova 2017. Released under a CC BY-NC-ND licence (<https://creativecommons.org/licenses/by-nc-nd/3.0/>). You may share this work for non-commercial purposes only, provided you give attribution to the copyright holder and the publisher, and provide a link to the Creative Commons licence.

The 5As of Personalization

Personalization is often used as a convenient peg in educational practice, leading to many contrasting and vague definitions of what it actually means. A historical account and a summary of the many types of personalized books currently available to children can provide an insight into the changes to the *form of delivery* of personalized education. However, they do not specify what personalized education really is, which pedagogical elements it encompasses and which theoretical constructs it builds on. Addressing these gaps is what drives the present chapter.

In the preceding chapters, I described the key theoretical frameworks that have been developed for digital education (by Kearney et al.), for personalization behaviour (by Oulasvirta and Blom) and for technology-enhanced personalized learning (by Fitzgerald et al.). I also outlined a rubric for assessing children's personalized books (Chapter 4). These distinct works influenced my thinking concerning personalized education, and in this chapter, I synthesize them into a theoretical framework of the 5As of personalization. These 5As respond to the question of 'what is personalized education' from a more theoretical and philosophical point of view. The framework pulls together the key five themes that run through the personalization research and discussions: authenticity, authorship, aesthetics, autonomy and attachment. I describe these 5As in relation to the context of learning that I'm most familiar with and that guided the development of the framework: children's personalized books. I also summarize the humanist orientation of the 5As as it is embedded in Todorov's philosophy and provide examples from my studies to illustrate their humanist nature and importance in early education. I conclude with a working definition for personalized education, applicable to both technology-based and non-digital forms of personalized learning.

Origin of the 5As of personalized education

The '5As' presented in this chapter are five elements which I consider to be the five higher-level themes in personalized education more generally, and in education with personalized books more specifically. They are: autonomy, authorship, aesthetics, attachment and authenticity. The themes are based on my previous theoretical discussion of personalized books (Kucirkova, 2016b), and the literature review that

I conducted as part of writing this book. More specifically, in Kucirkova (2016a, b), I argued that the ‘personalized’ essence of personalized books is rooted in children’s authorship of the books and the application of their own aesthetical criteria to the creation of the books and stories. The notions of authorship and aesthetics build on Oulasvirta and Blom’s theory of personalization behaviour, and are closely linked to attachment. Attachment proved to be an important variable in empirical research that followed Oulasvirta and Blom’s taxonomy and examined adults’ relationship to their own personalized objects. Attachment was also a key feature in understanding children’s behaviour in my research with children and touchscreens, as described later in Chapter 10. From Kearney et al.’s framework (see Chapter 5), I adopted the importance of authenticity for personalized education. Although the Kearney et al.’s framework presents authenticity as integral to personalization, I see it as a separate variable. I agree with the authors that authenticity is key to the development and implementation of technology-enhanced personalized education. The fifth A in the framework – autonomy – was derived from the review of commercially (mass-) and home-based- (self-) produced personalized books (Chapter 4). It relates to the agency of the personalizer in the book-making process or, more widely, to agency in the design and use of the educational resource developed specifically for an individual.

The 5As acknowledge the importance of the six dimensions proposed in the Fitzgerald et al. framework. The 5As focus on the child and the resources created for, or by, the child, with the aim of supporting the child’s learning. This focus implies that the framework accommodates the micro-level (the individual) of Bronfenbrenner’s ecological system theory, in that it centres on the individual and on the resources created by or for the individual (rather than the school or whole community). The framework speaks to both digital and non-digital personalization, which builds on the approach adopted so far: as explained in Chapter 4, digital and paper-based personalized books are often part of one educational experience and of one product (such as the stories and books created with the Mr Glue Stories app for example). The actual format of personalized education is therefore only one of many possible dimensions impacting on child’s learning and parent–child dynamics (see Chapter 8).

All the 5As imply audience awareness and I therefore do not include it as a separate element. Given the socio-cultural orientation of my work, I entangle tools and people within the 5As and consider their joint influence on children’s learning. For example, an object authored by a child is authentic and it generates feelings of authenticity to the life of the child – the two cannot be neatly separated. This orientation is closely linked to the key aims of the framework.

The key objectives of the 5As framework

The creation of the 5As has been due to the convergence of three key influences: the empirical insights gained from my work on personalized books; the theoretical frameworks related to personalization and digital personalization currently available; and the lack of precision in personalization research. My aim was to create a conceptual base upon which to build a theory of personalization, not a theory per se. The

framework is intended to guide present and future research on children's personalized education. It is also intended to act as a critical reflection tool for practitioners, as a lens for them to interrogate children's contribution to a learning situation and the extent to which that context honours children's agency, autonomy, aesthetic choices, ownership (attachment) and genuine (authentic) contribution.

The humanist orientation of the 5As

Before I detail the essence of the individual elements, I present a brief summary of the philosophical work of Tzvetan Todorov, whose humanist moral philosophy parallels my own thinking about the foundations of the 5As. In his books *Imperfect Garden: The Legacy of Humanism* (2009) and *On Human Diversity* (1993), an earlier treatise of the subject, Todorov applies the humanist reasoning to answer the perennial questions of free will and human autonomy. The author covers all key aspects of human existence, including liberty, social life, love, self, morality and expression, and outlines how humanism (as conceptualized by French philosophers) can be, or should be, our reasoned response to free will. This is a key point to me: in the pursuit of a definition for personalization, one could all too easily become focused on individualism and subjectivism. Todorov's writings remind us that personalization and individualization do not exist in the subjective reality, neatly separated from the influence of others. Unlike conservatism, scientific determinism and existential individualism, humanism does not predicate a separation from God, other human beings or self – it is a unifying approach to solidarity, integrity and morality. This understanding of self and the society is now new; the key ideas of human universalism and diversity were developed between the end of the sixteenth century and the beginning of the nineteenth century. What Todorov contributes is a renewed interest in these ideas and a unified view on the works of Rousseau, Montesquieu and other humanist thinkers in France. I believe that we can find the enactment of humanist thinking in several contemporary practices, including in the early years pedagogy of democracy outlined in Chapter 11 and the innovative projects I describe in Chapter 12. I thus argue that my 5As are not narrow specifications of isolated cases of personalized learning, but broad themes that run through personalization and through Todorov's philosophical enquiries into the nature of being. More specifically, the humanist philosophy affects the 5As in the following key ways.

First, for autonomy, the humanist philosophy (as interpreted by Todorov) does not propose an individual or individualistic autonomy. Rather, it asserts that collective autonomy frees human beings from the state and from God, and is the kind of liberty that individuals need in order to truly feel free in the society they live in. An individual is free and independent only if she/he does not act as an isolated agent and if she/he is part of a community. Similarly, for authenticity, Todorov (2009, p. 204) writes: 'Authentic man, who wants above all, to be faithful to himself, is neither alone nor simply egoistical: to be truly oneself, one must go through others; without his attachments, man is no longer truly man.' This implies that an individual's genuine and authentic participation in activities and authorship

of resources need to be negotiated with others' experiences and expectations; they cannot happen in isolation. This negotiation is not confined to the intellectual realm; it is about whole-body attachments: 'Our existence is made up of the whole of our attachments' (Todorov, 2009, p. 90). It follows that the aesthetical criteria we apply to others and self are about whole person engagement. Todorov describes this thesis in relation to people who strive for beauty in all aspects of their lives (these people were called 'dandy' in the nineteenth century): 'It is the entire person of the dandy, and not just his body, that must subject itself to this aesthetic ideal, rejecting any other requirement as meaningless, either because beauty automatically produces a higher good or because it excuses evil' (2009, p. 175). A humanist view is a positive or optimistic view of the humankind; it portrays people as ethical and egalitarian, striving for change and understanding. It is my wish that this view is inhabited by all stakeholders (designers, practitioners, caregivers and children) when conceptualizing and applying personalization to children's learning.

On a more practical level, I note that the humanist orientation implies that authoring and sharing personalized books is not politically or socially independent. The relational socio-cultural practices in authoring personal and personalized texts have been followed by some of the key researchers I mentioned in Chapter 4: Professor Short and colleagues with socio-culturally sensitive personalized stories and, more recently, Professor Debbie Rowe and colleagues (e.g. Rowe & Miller, 2015) with bilingual digital story-making, who have emphasized the collaborative and participatory nature of personalized texts. Also, the RealeBooks project (Harrison, 2011) points to the need of recognizing the entire book cycle, which consists not only of creating and producing but also of distributing, sharing and valuing books. Thus, the research with young children and personalized books involves creating opportunities where children can appreciate and critically evaluate their own contribution to content production in relation to the contribution of others. The latter can be constraining or empowering, depending on the context.

In the next section, I narrow down the broad philosophical perspective of the 5As to their specific application to personalized books. I focus on personalized books as an example of personalized education. The reader is invited to consider my examples in relation to other personalized resources.

Autonomy (or agency)

In her book *Young Children's Behaviour: Practical Approaches for Caregivers and Teachers* Louise Porter writes, 'Children's autonomy will flourish when they have: freedom to make choices – that is, to work towards self-selected goals; intrinsic motivation to achieve mastery or competence; self-efficacy, which is the belief that one can control events' (Porter, 2007, p. 77). Autonomy has different meanings in different families and educational contexts. Autonomy is often used synonymously with children's agency (e.g. Connell & Ryan, 1984). In book-making and story creation with technologies, autonomy refers to the choice children have when they select the content and format for their own stories. When story-making with the Our Story app, for

example, children can choose if they audio-record their story or take pictures or write a piece of text, or use all these different media together. The choice of the presentation mode encourages children's active participation and opens up spaces where children of various skills and confidence levels can actively contribute their own content. The text-, sound- and visual modes of presentation give children opportunities to display their competence and practice their skills. Some children might be very apt at writing, some at audio- or video-recording, some at drawing and some at the combination of the three. Leaving the choice up to the child is important because it gives children the space to demonstrate their skills, apply their knowledge and, thus, create a sense of autonomy.

The learning benefits of autonomy are well established. Autonomy (understood as to encompass choice, control and agency) is implicated in children's intrinsic motivation, which, in turn, influences their willingness to take part in an activity and express their thoughts and feelings. I saw this process first-hand in one evaluation study of the Helicopter story-telling project. This study was conducted with Professor Cremin (principal investigator), Dr Rosie Flewitt, Dr Dorothy Faulkner and Professor Joan Swann from The Open University (see Cremin et al., forthcoming, for details). One of the aims of the evaluation was to examine children's enjoyment of the story-making curriculum delivered at the preschool. To understand how children felt about sharing their personal stories in the classroom, we asked them to first retell the story and then tell us what they liked about it. Researchers typically interview children in a one-to-one setting, audio-recording or videoing children's answers. This method may seem daunting to some children, especially to those who are naturally shy or not comfortable with talking to strangers. In our study, we presented the children with the Our Story app, which allowed them to re-create the stories they originally shared in the classroom or to tell us new stories, depending on how strongly they felt about their original stories. There were many possibilities available to children to share their stories with us: they could use the digital pictures we took of them in the classroom or take their own new pictures; they could arrange the pictures in a sequence or focus just on one picture; they could audio-record their experiences or type a short text. The choice was entirely up to them, and we saw a huge variety in approaches among the individual children we spoke to. I remember an episode with a young boy who did not tell us much, despite several gentle prompts. However, when we showed him a picture from the storytelling session and asked him what he enjoyed about it, the boy's eyes lit and he audio-recorded a loud 'Wraaaaaaaaaaaaaah' sound with the story-making app. The story this boy shared in the classroom was about a dinosaur and the main plot evolved around the scary sounds this dinosaur made. The teacher told us that this boy was new to the classroom and English was not his first language. The use of the multimedia app in this instance supported the young boy's expression preferences, offered him a choice and eliminated the threat to his autonomy (and language barrier) by giving him the freedom to express his story in the way he felt most comfortable with. The key elements of the story that he had shared earlier – a dinosaur who was scary – were both delivered within a simple sound and gave the boy ownership of his story. For other children involved in the study, autonomy meant that they wanted to take new pictures of the entire class and create new digital stories with the Our

Story app. This example illustrates that when it comes to children's agency, what works for some children may not work for other children. To this boy, a seemingly small possibility to record their own dinosaur sound can make a difference to their sense of achievement and agency. This episode illustrates that some children need a structured environment to exercise their agency, while other children feel constrained by templates and guidance. In this respect, younger users can be conceptualized as non-expert users, who welcome guidelines and predefined usage options (as explained in Shneiderman & Plaizant, 2010 in the book *Designing the User Interface*). For children who are less confident in using technologies, for example, more control means less confidence, and they need guidance and support to be able to use a given resource effectively. Other children need to have the freedom to explore to be able to create something new and creative. For all children, however, a sense of autonomy is essential for children's intrinsic motivation (see, for example, Deci, Vallerand, Pelletier, & Ryan, 1991). It follows that personalized education which is spoon-fed, or simply delivered to children without their own input and control, is not truly personalized. Children's autonomy needs to be at the core of personalized education, irrespective of whether the resources are digital or non-digital. A concept related to autonomy, but distinct in the context of personalized learning, is the concept of authorship.

Authorship

Designers and book publishers of children's personalized books often claim that children are the books' 'authors,' even though the authorship options vary greatly in these books. For some personalized books, children can only add their name to the book, which constitutes a very minimal authorship, if any at all. For other personalized books, children decide on the content and can make changes to the format of the book, thus *authoring* their own texts. Genuine authorship is an important consideration for personalized education. If the book's author is the app designer or book publisher, then children's engagement is not about authorship but about compliance and ability to fill out story templates predesigned for their input. Children will go through different cycles of creativity, literacy practices and feelings of empowerment and self-confidence if they genuinely author their own book or a story.

In Kucirkova (2016b), I argued that children's authorship is one of the primary applications of the Oulasvirta and Blom's personalization theory to early literacy and personalized books. I argued that children's authoring needs to involve avid as well as reluctant readers, children of any age or gender, and children from all socio-economic backgrounds. Children's authorship concerns personalized books/stories with traditional paper-based resources as well as digital tools. Such diverse and multifaceted authorship decreases the likelihood of the continuance of dominant contents and increases the likelihood of diversification of children's literature. I could reference a lot of literature in support of my argument: there are several studies and projects that document the learning benefits of children's own authorship of books and stories (see, for example, Gundlach, 1982; Cowie, 1989; Barratt-Pugh, 2003). There are

many programmes and initiatives, which support children's book-making at home: for example, The British Library Learning Centre offers the practical *Make a book!* workshop to primary schools for years three to six. While previous work has focused predominantly on children's *writing*, the range of possibilities for children's authorship expand with new technologies, such as augmented reality games or authoring possibilities connected to digital art and transmedia products.

I studied children's authorship in Spanish preschools, where children created their own digital stories with the story-making app Our Story (see Kucirkova, Messer, Sheehy, & Panadero 2014). In this study, we noted that children's sense of productive and enjoyable authorship was a result of being able to draw on the multimedia options of the Our Story app *and* the knowledge of their peers, who helped with writing the text and choice of the pictures for children's stories. The research illustrates that authorship does not need to be individual to count as personalized. Indeed, there are many exciting options for collaborative authorship afforded by new technologies. As long as the child is the primary author for crafting their own contribution to a piece, we can consider it to be part of their personalized learning journey.

Aesthetics

Another aspect closely related to autonomy and authorship is aesthetics. With the late Steve Jobs's vision of 'beautiful' technology impregnating the thinking of contemporary technology design, aesthetics are of great interest to the designers and developers of children's digital technologies. People like beautiful things and often follow arbitrary, idiosyncratic choices in adjusting the visual appeal of their possessions and local environments. Yet, although individuals' aesthetic preferences are diverse, many believe that this diversity is not random: some writers claim that our aesthetic choices are linked to some inherent human universals, and others maintain they are linked to our socio-cultural milieu (e.g. Bourdieu, 1984). With young children's authorship, we therefore need to consider the extent to which they personalize their possessions and environment to satisfy their own intrinsic aesthetic values and the extent to which they comply with scripts and templates of official or currently popular aesthetic trends. Modern philosophers (e.g. Scruton, 2009) consider aesthetics and sense of beauty to be relational, that is, something which has the quality of being shareable with others. This is aligned with the psychological account of personalization by Oulasvirta and Blom (2007), who researched the importance of aesthetics in adults' personalization behaviour. They write: 'Personalization can also be operationalized at an interpersonal level, through its appearance function. Such function pertains to the need of relatedness and benefits such as identity, social status and acceptance, and inclusion by others' (p. 10).

In my own research, children who had created books and digital stories that they considered 'pretty' and 'cool' were extremely motivated to share these with their friends or family members. Conversely, if the children were not entirely satisfied with the final look or feel or sound of their stories, they wanted to change it or discard it. I remember vividly a case in one study (described in detail in Kucirkova & Sakr,

2015) where a young girl scribbled through her drawing because she did not want others to laugh at it. In Kucirkova (2016b), I argued, 'Agency and aesthetics, endowed with reciprocity, can encourage the practice of children's meaningful book production which can make a deep and lasting contribution to the development of intrinsically appealing books' (p. 19). In supporting the expression of children's idiosyncratic aesthetic choices, I argued for less template-based educational resources, so that children can fully explore and act upon their own aesthetic and stylistic choices. This is an essential mantra for effective and humanist personalized education.

Attachment

Attachment can be understood as an emotional response to an object or experience, but also as a perceived, or actual/physical, ownership of an artefact. This is particularly important in the case of personal digital devices, ownership of which has become almost ubiquitous for increasingly young children. I revisit the importance of attachment/ownership and children's self-created books at several points in this book. For a quick example, take this study, conducted with my colleagues Dr Rosie Flewitt and Professor David Messer at The Open University in 2014 (outlined in detail in Flewitt, Kucirkova, & Messer, 2014). Through ethnographic methods, we observed how children treat their digital devices and how physical touch and haptic engagement influence these children's relationship with their touchscreens. When evaluating the results, we made the following observation:

Indeed, we observed many instances of digital touch offering students fun ways to learn, which were often linked to affective responses. For example, following a word recognition and phonics activity with conventional flashcards in the EY classroom, the teacher handed iPads to three young children seated around a small table, and to a further three children with complex disabilities seated in supportive chairs, each with a key worker alongside. As the children waited for the teacher-directed phonics activity to begin, they cradled the iPads lovingly in their arms, stroked them and smiled happily at each other. (p. 112)

Young children develop an affective bond with many resources that adults or teenagers consider unimportant. However, when it comes to touchscreens, young children seem to be as much attached to them as adults or teens. For instance, Geven et al. (2008) observed that teenagers were very attached to their mobile devices, and adult literature (e.g. Vincent, 2005) cites that adults get physically frustrated and emotional when their mobile phones are taken away. As always, before adopting conclusions from adult studies to children's studies, the children's needs and abilities should be considered. Clearly, for adults and older children, the reasons for such a response are linked to the unique capabilities of mobile phones, which today act as wallets, typing machines, data recorders or work computers. Young children are unlikely to be aware of the multifunctionality of mobile devices; their emotional attachment is more likely to be based on a strong positive experience from the past

(e.g. remembering that they played a cool game with the phone before) or it could also be imitation of adult behaviour.

In all my studies with digital personalized stories and personalized books, children were very attached to them, regardless of whether they created them themselves or received as a gift. I have received many emails from the parents I have worked with in my studies, in which they shared with me the positive emotional responses of their children to the personalized books. Similarly, the producers of commercial personalized books report children's great and prolonged enjoyment of their products and often share children's enthusiastic responses as case studies on their social media (e.g. a child taking the book to bed or carrying it for trips). In view of children's attachment it should be noted that they get attached to their personalized books/digital stories only if these artefacts aesthetically agree with their preferences. If the children, for some reason, don't like their personalized stories, they have no, or very little, emotional attachment with the artefact. This relates mostly to the stories children create themselves – in my studies (e.g. Kucirkova, 2014a), a personalized story could easily end in the digital bin if the audio recording or pictures were not quite right. Thus, aesthetics and attachment are very closely linked.

Authenticity

The concept of authenticity might open a can of worms for those who seek precise and practical solutions. To simplify the matters, I define authenticity in terms of originality and unique value, acknowledging of course the difficulties in establishing what can count as truly original and unique.

In the last ten years, authenticity has become a buzzword in education, especially in relation to the use of digital technologies, which, arguably, offer children more 'authentic' learning experiences than those delivered through physical books and the oral explanation of the teacher. This is partially true. Reality is, arguably, more authentic than a piece of paper. New technologies represent the reality in multimedia, that is, videos, photographs or sounds. Through their multiple representation options, new technologies thus have more possibilities for capturing reality. Multimedia can imitate real experiences by engaging more senses than single function technologies. A video, for example, can capture more authentic clues than a photograph. I hasten to add a caveat here that in drawing these conclusions, the context is crucially important. While technologies and multimedia can be conducive to the authentic quality of a product or experience, in some contexts less is more. Notably in supporting intimate discussions or deep emotional processing, single-mode artefacts are more effective (Eraut, 2009).

As mentioned earlier, Kearney et al. (2015) considered authenticity to be a concept separate from personalization. There are many learning situations where this is the case. Notably, there are educational programmes that use authentic scenarios as contexts for children's essay writing, but these are not necessarily personally meaningful to them. For example, the Word Generation Project (a project run as part of the Strategic Education Research Partnership initiative, see <http://wg.serpmedia.org/>) for middle

school students uses authentic learning scenarios but does not claim to support personalized education. In the Word Generation Project, the objective is to teach pupils critical, widely useful academic words through specific subjects, such as language arts, math, science and social studies and thereby motivate their interest and facilitate understanding of these subjects. The words are all-purpose academic words that cut across the Common Standards curriculum content – for example, verbs such as ‘infer’ or ‘to hypothesize’ or adjectives such as ‘sufficient’ or ‘diverse’. Students are exposed to these words in contexts that promote successful vocabulary acquisition (including repetition, explicit instruction and morphological analysis). What is interesting from the authenticity/personalization perspective is that students are exposed to the words in authentic hypothetical scenarios. For instance, students are encouraged to discuss possible censorship of rap music, a topic that is close to many teenagers. However, it could well be that in the classroom there are many students who have no personal connection to rap. It is very likely that rap is more relevant to the majority of US students than, for example, ballet and that through the possibility of adding their own insights, they can personalize the topic. In this approach, authenticity is therefore used as a way to personalization.

If we consider another example – that of personalized books, the relationship between authenticity and personalization becomes more intertwined and less sequential. First of all, authenticity is a component of personalized books, but an authentic book is not necessarily a personalized book. For instance, recall the cameo in Chapter 1 – imagine that you could get your niece Lucy an original book, based on the experience of a girl who is growing up in similar circumstances as Lucy and who is of the same age and has similar background as her. Such a book would be considered ‘authentic’, but the book could well have no personal relevance to Lucy, because she might be a child with special educational needs, coming from a difficult home environment and not liking ‘girly’ things. Conversely, a book specifically designed for Lucy (such as one created by you for her) would be original and unique (i.e. authentic), as well as personalized.

Subsuming or separating personalization and authenticity is a complex issue, and I admit that my appraisal of the intertwined relationship between authenticity and personalization rests more on a theoretical rather than practical foundation. In the short overview possible here, I limit myself to the explanation provided by Arthur Frank (2002), professor emeritus of sociology at the University of Calgary in relation to Charles Taylor’s take on authenticity. In Taylor’s book *Malaise of Modernity*, he argues (and Frank interprets for us) that ‘personal authenticity is not, strictly speaking, personal at all; authenticity is a dialogical achievement’. The core of Taylor’s argument is this:

I can define my identity only against the background of things that matter. But to bracket out history, nature, society, the demands of solidarity, everything but what I find in myself, would be to eliminate all candidates for what matters. Only if I exist in a world in which history, or the demands of nature, or the needs of my fellow human beings, or the duties of citizenship, or the call of God, or something else of this order *matters* crucially, can I define an identity for myself that is not trivial.

Figure 6.1 The relationship between authenticity and personalization and between personalization and authorship

Authenticity is not the enemy of demands that emanate from beyond the self; it supposes such demands. (p. 40–41 in Taylor’s book, cited in Frank, 2002, p. 112)

In other, largely simplified words, an object or experience is authentic because of their relationship with other objects and experiences. Our awareness of something as authentic is based on our awareness of everything else that is not authentic. It follows that unless we follow an a priori set of criteria, the judgement of what counts as authentic is essentially personalized and subjective. Personalization and authenticity overlap; authenticity is not subsumed by personalization. This might be more clearly understood if represented graphically, together with a counterexample. In Figure 6.1, I present personalization in relation to authenticity and authorship; I selected arbitrarily from the set of 5As, purely for illustration purposes:

The relationship between authenticity and personalization is not straightforward, but, actually, the relationships among the 5As are not straightforward either. An analysis of the interrelationships among the 5As will be an important direction for future research, and I summarize a few signposts in the next section.

The relationships among the 5As and directions for future research

I recommend that future empirical research concerned with personalized books and personalized education, more broadly, considers the 5As as five interdependent variables. Further work will be necessary to establish whether personalized education

lies in the *relationship among* the 5As or *is the* sum of the individual 5As. Even in the context of personalized books, the presence of all 5As is not crucial at all times – the context of reading, creating and sharing the books influence whether some, or all the 5As, are needed for the experience to count as personalized.

In the future, researchers working in the quantitative tradition might wish to operationalize the 5As into quantifiable variables. A scale of the same magnitude (e.g. aesthetics evaluated on a scale of 0–10; authorship evaluated on a scale of 0–10) could be applied to each of the 5As, and checklists could be developed to establish a quantitative value for each. This would enable researchers to study their correlational or cause-and-effect relationship to each other in more detail and facilitate the design of personalized resources. However, no matter how attractive and perhaps practical a quantifiable version of personalized education might be, we must not forget that in some contexts the value of a specific personalized experience is very hard to pin down numerically.

Future research and practice will need to establish the contexts for which the five elements apply exclusively and the contexts for which a few might be enough to make the child's learning experience personalized. For instance, we might find that authorship and aesthetics are key to children's positive experience of personalized books, while authenticity and autonomy play a key role in creating multimedia content. In these endeavours, I recommend following the proximal processes described by Bronfenbrenner in the bioecological theory and the PPCT model (see Chapter 1). The application of the bioecological theory to the future of the 5As' research would mean that complex interactions among the 5As can be studied over time as well as simultaneously in relation to diverse contexts.

All things considered, the 5As build on the ideas expressed in the previous chapters, which defined personalization as a spectrum that is difficult to quantify and definition of which varies from context to context and from resource to resource. There is no mathematical formula to define personalized education, and these five elements are not to be understood as an exclusive set of concepts for 'capturing' personalization. The intensity of the different elements will be different in different contexts; and there will be contexts where some elements don't apply. Consider, for instance, the scenario in which a child receives a nicely illustrated, rich personalized book that was created for her by her parent. Such a personalized book might score high on authenticity, aesthetics and the child's attachment to the physical artefact. However, because the story was personalized for the child by their parent, the authorship and child's autonomy in the process are missing.

In other contexts, one element might impact on the intensity of another element. For instance, authorship of a story can be superficial (e.g. the child copies the text from an online source) or it can be genuine and original (e.g. the child composes the text all by himself/herself). The 'depth' or strength of an individual's involvement in authoring the story affects the strength of the other elements (e.g. authenticity of the final product), but not always in a positive correlation). The aesthetics of a plagiarized text might be superior to the text created by the individual, which might be partly the reason why she/he decided to copy the work (e.g. they don't trust their artistic abilities and prefer the predesigned format of an online story). In this hypothetical example,

the strengths of authorship and authenticity are lower, but the strength of aesthetics is higher.

Furthermore, the interrelationships among the 5As will vary in relation to the context but also individual children. We could, for example, imagine a scenario where a child co-authors a book together with their parent, and where the child has the choice of the book's aesthetics, where she/he is free to own the book and share it with others. However, would the combination of all 5As contribute to a more powerful effect of personalization? Or could it be that the child's authorship negatively affects the authenticity of the content (if, for example, the child chooses to follow a particular 'story script' based on a popular story rather than invent their own)? Child's individual characteristics and his or her educational background and history are likely to influence the relationships here. I therefore conclude that instead of ticking all the five imaginary boxes of the 5As framework for personalized education, we need more research which would usefully try to disentangle the strength and nature of the relationships among the individual As.

Future research could also usefully integrate the dimensions listed in Chapter 4 in relation to personalized books and examine how these dimensions affect the expression of individual As. If we consider the issue of diversity, for children's story-making, for example, there are many 'authentic templates' that they can choose for their stories. These templates have been designed with children in mind and often draw on popular culture or generally agreed view on what children of a certain age group and culture like (e.g. templates specifically designed for Asian 3-year-olds). Surely, for some children these templates might capture their unique experience, and they might consider them original and authentic. For other children, however, the templates are foreign and inauthentic, and a tokenistic representation of their heritage. Researchers need to consider the ways in which autonomy, authorship, aesthetics, attachment and authenticity are implicated in the development and implementation of socio-culturally sensitive and empowering educational resources and spaces.

In addition, it will be important to find out how the presence of several media – texts, pictures and sounds – impact on child's effects. Which mode of representation might be most effective for child authorship and for joint parent-child co-authorship of personalized books? Is there a difference between wordless, picture-based stories and audio stories in terms of child-related aesthetics, attachment and authorship?

It would be also interesting to study how the strength or depth of the individual elements changes in relation to the agent, that is, the person who personalizes the education (e.g. a child or his parent). For instance, we could imagine a scenario where the aesthetics of a picture are largely determined by a picture-making software programme rather than the child's own making. Or there could be a situation where the personalized book is not authored by the child but by the child's parent. How would the increased involvement of adults influence the child's experience of attachment and authorship of a personalized book? And what about instances where the distance between the receiver of personalization (the child) and the creator of personalization (the teacher) is largely mediated by the technology, such as is the case in algorithm-based models of personalized education?

Figure 6.2 A multiset of 5As relevant for personalized books

As yet, we do not have the answers to these questions. While we wait for research to identify the relationships among the individual As, I recommend using the 5As as a multiset of elements, which are contingent on the *context* of their application. If we apply the 5As as a multifaceted lens to explore current models of personalized books/stories, we get a rich matrix, which is graphically captured in Figure 6.2. This matrix contains elements which are relevant for the content and format of personalized books and which influence the level or depth of the individual As in this context. All together, they amount to a ‘multiset’ of practical and empirical possibilities in relation to a particular context of personalized education.

Summary

This chapter provided a theoretical definition of personalization in relation to children’s educational engagement with personalized books and stories. When we apply the 5As more broadly to personalized education, we get the following definition:

Learning and teaching are personalized if they support children’s authorship and autonomy, if they honour children’s aesthetic choices and employ resources that children feel emotionally attached to and consider authentic.

This definition is kept deliberately broad, so that it can be usefully operationalized in specific research studies and contextualized in practice. The definition encompasses autonomy without privileging intra-psychological (self-focused) processes over relational aspects of personalization. It includes the process of learning and teaching as well as the resources necessary to support this process.

Through the twenty-first-century conceptualizations of children's education, the narratives of authenticity, autonomy and authorship run strongly, perhaps more strongly than the importance of aesthetics and attachment. All 5As overlap with the key theme of education – creativity – and the key theme of psychology research – identity. Therefore, the relationship between the 5As and creativity and identity is considered in detail in two separate chapters later in this book. Overall, the 5As framework is intended to serve as a reference point from which to review and critically evaluate the technology-mediated models of personalized education presented in earlier chapters, as well as to appraise the empirical studies presented in the subsequent chapters of the book. The first opportunity is in the next chapter, which presents a summary of research with personalized books.