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PAPERCRAFTING UTOPIA

Gaming Literacies from Bauhaus to Nintendo Labo

Hanns Christian Schmidt

ABSTRACT

What does the Bauhaus have to do with Nintendo Labo and the Maker Movement? The text represents a media-pedagogical investigation. It explores the question of the extent to which material studies at the Bauhaus - especially in the preliminary course, the "Vorkurs" - were understood as a field of experimentation in order to test and further develop reform pedagogical approaches. Certain ideals and values are inscribed in this process, which we can still identify today not only in so-called pioneering communities such as the Maker Movement, but which are also a central component of an educational game such as Nintendo Labo in which we are supposed to use cardboard kits to assemble the components of the Nintendo game console in a new way. These considerations are followed by ideas about play and game literacy, which is outlined here in general terms. Three aspects come to the foreground: (1) a rejection of traditional pedagogical approaches; (2) a fundamental re-evaluation of the possibilities and a radical simplification of the artistic material; and (3) an experimental, playful approach that has an explicitly constructive character.

Keywords: Nintendo Labo, media education, Maker Movement, Bauhaus

1. INTRODUCTION

> "I want you to pick up the newspapers now and make more of them than they are at the moment. I also want you to respect the material, to make sense of it. If you can do that without tools like scissors or glue, even better." (Albers, cited in Neumann 1996)

Josef Albers was no friend of paper collages. According to an anecdote attested by the Bauhaus Archive, Albers is said to have turned up at the legendary Bauhaus "preliminary course" with a pile of newspapers in his hand, laid it on the table and asked his students to redesign it. If one believes this story, then Albers reacted downright rejectively to all the pictorial works that were created in the process. Things only became interesting for him when the newspapers developed into expansive sculptures made of paper through elaborate folding techniques. In this way, the material, which at first glance seemed simple, was not only respected, but virtually transported into new spatial spheres by embracing its full potential.

The material on which Nintendo LABO is based also demands a certain amount of respect from the person playing. In addition to the software module for the Switch console, which is about the size of a postage stamp, we have to deal with a collection of several oversized construction sheets that need to be punched out, folded and inserted into each other (see Figure 1).

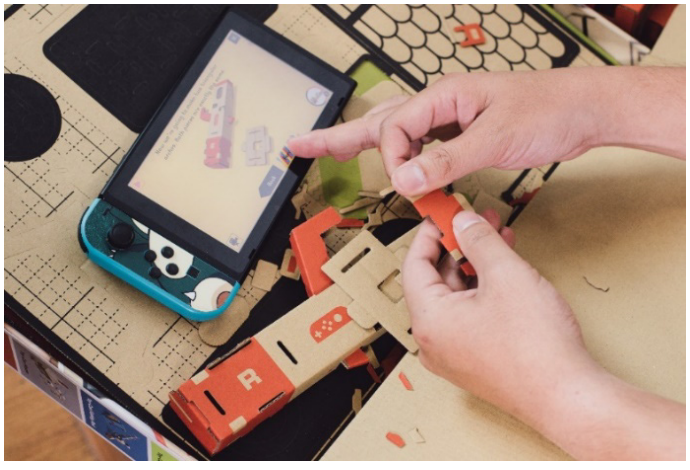

Fig. 1: Assembling the Nintendo LABO kit. (Used under CC0 license, Tinh tếPhoto)

The so-called Multipack, with which Nintendo LABO was launched in April 2018, contains five such kits: a house, a fishing rod, a piano and a remote-controlled car (which is more reminiscent of a robot beetle or a Bristle Bot). After each building process, the Nintendo Switch and its peripherals are inserted into the cardboard construction to bring the models to life, meaning connecting a nearly endless number of little folded boxes and plugs that not only become a physically tangible and playable object, but that also create a transition from a material game to a digital game. But this transition is by no means seamless: The physically existing seam that holds together the analog materiality and the digital immateriality is an essential element that is fundamental to the experience of play. An example of such a seam is the physical nylon thread that leads out of the fishing rod we have constructed (see Figure 2): It slides into the cardboard casing that encloses the screen of the Switch tablet and continues on the screen by a virtual counterpart that reacts to the movements of the actual fishing line with surprising precision. Manifesting before our eyes (and in our hands) is a fairly simple fishing game that invites us to explore and catch digital fish.

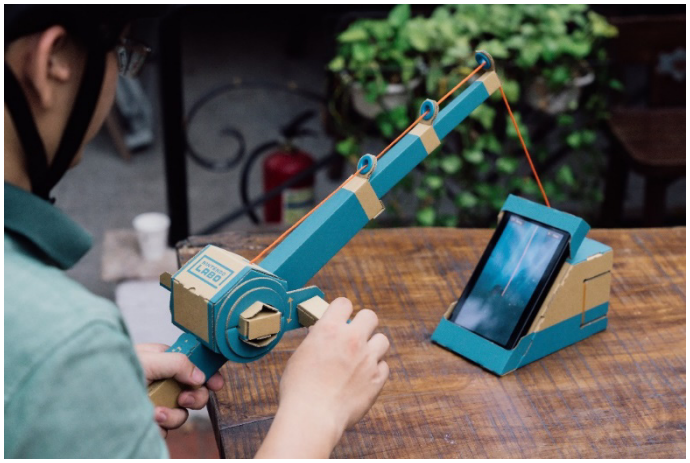

Fig. 2: Using the Nintendo LABO fishing rod. (Used under CC0 license, Tinh tế Photo)

Using the Nintendo LABO playing material as a case study, this essay attempts to trace an esthetic idea through cultural history that was formulated by the legendary "hochschule für gestaltung" Bauhaus in an almost

exemplary manner. At the same time, this study also represents a media-pedagogical paper trail[1] that leads up to the present: In addition to the respect for the material mentioned above, there seem to be certain artistic design principles at play that manifest themselves in the cardboard sheets of Nintendo LABO - principles that, in turn, can be read as serving a socio-political function. These aspects primarily concern learning and educational implications that aim at a practical, playful form of autonomy and, using the terms of reform pedagogy,[2] could make people "learning and thinking beings" (Röhrs 2001, 23). Linked to this is the idea that we must abandon well-trodden teaching and learning routines and experiment with entirely new educational methods in order to lay the foundation for a holistic social reorientation; a reorientation that is appropriate for contemporary demands. This is also directly reflected in the concept of the Bauhaus:

> "The responsibility of the Bauhaus is to educate people who recognise the world in which they live and who, out of the combination of their knowledge and their acquired skills, conceive and design typical forms that symbolise this world."
>
> (Gropius, cited in Friedewald 2016, 29)

The basic ideas postulated by the Bauhaus have been experiencing a kind of revival for years now, which is continuing in certain areas of work - such as the so-called creative industries and the excesses of "late-modern aesthetic capitalism," (Eikmeyer et al. 2019, 3). where the motto of Bauhaus master Johannes Itten "Play becomes festival - festival becomes work - work becomes play" (Itten/Rotzler 1978, 69) is being undermined by the

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1 This search for traces is based in significant parts on the carefully selected exhibits of the exhibition BAU [SPIEL] HAUS, which took place at the Neues Museum in Nuremberg from March 22 to June 16, 2019 and was curated by Prof. Dr. Thomas Hensel and Prof. Dr. Robert Eikmeyer - my heartfelt thanks go to both curators for their work, to whom I owe the idea for this text.

2 Röhrs divides the work of reform pedagogy into different phases: from 1890 to ca. 1912 he sees the "first phase [...] of the critique of the old school", ca. 1912-1924 as a phase in which "individual reform attempts emerge from their isolation and discover in the discussion what is common in their basic pedagogical attitude" and 1924-1933 as a phase of theoretical clarification and preparation of the "yield" for "broad pedagogical work" (Röhrs 2001, 23, author's own translation).

motto "Work Hard - Play Hard." Bauhaus principles can also be found at the core of a social "pioneer community," (Hepp 2018) to which LABO seems to link directly with its concept of the maker movement (Gershenfeld 2007; Anderson 2012). Making closes the gap between craft and art, Bauhaus and experimental games, and finally between the process of DIY and Nintendo LABO. The fact that this approach repeatedly leads to commercialization and commodification in both the Bauhaus, the maker movement and Nintendo LABO is by no means without a certain irony, which we will return to in the conclusion of this contribution.

2. PAPER-FOLDING TOWARDS A BETTER WORLD: THE PRE-COURSE AND PLAYFUL DESIGN AT THE BAUHAUS

Without taking into account a fundamental need for social orientation in the corresponding epochs, the aforementioned media pedagogical paper trail that is traced here would hardly be conceivable. This concerns not only the history of the Bauhaus, of which many writings emphasise that the need for orientation became increasingly palpable after the catastrophe of the First World War and the collapse of the German empire before the Weimar Republic: It equally concerns our present (albeit for completely different reasons), which is often described as post-digital (Berry/Dieter 2016) – and in which numerous questions are repeatedly raised about the meaning and appropriate use of new information technologies. One point of reference here would be the high-profile Dagstuhl Declaration in Germany, which was adopted by the Gesellschaft für Informatik (Society for Computer Sciences) in 2016. In this political declaration, it can be read that

> "the core tasks of general education, such as the promotion of a sense of responsibility, the ability to judge, creativity, self-determination, participation and the ability to take part in working life under the changed conditions [of digitalisation, HCS], must be redefined. In order to cope with these tasks, the contents and competences of computer science and media education must be linked and made compulsory in the curriculum of all types of schools."
>
> (Brinda et al. 2016)

So where in the current discourse - regarding socio-political issues as well as in media studies - new media formations and phenomena of digitalization are directly linked to educational issues, Herzogenrath, for example, writes that in the 1920s, "most intellectuals [hoped] for a fundamental change" and "artists [saw] the time for the realisation of new ideas." (Herzogenrath 1988, 19).

Now as before, this spirit of renewal is mixed with educational reform ideas formulated in Germany at the end of the 19th century and in the early 20th century, especially by influential educators such as Pestalozzi, Fröbel and Montessori. They also included a rejection of established ideas about how young people who were responsible for shaping everyday life should be educated. While the ideals of such an education are clearly evident in Gropius' Bauhaus Manifesto of 1919,[3] the concrete implementation of these new forms of teaching can be seen through the preliminary courses already mentioned above, which "remain one of the most important innovations in Gropius' Bauhaus teaching structure to this day." (Droste 2018, 16).

The preliminary course was significantly designed by the Swiss artist Johannes Itten. Itten was not only a painter and art theorist, but as a former school teacher, he also incorporated many reform pedagogical approaches into his teaching concept. According to Herzogenrath, Itten was concerned with "exorcising all previously learned art skills from the students, throwing them into chaos, [in order] to create the basis of a new order. The playful element was to replace tradition." (Kraus 1988, 53) This preliminary course was compulsory for all new students, and only those who passed it could continue their studies at the Bauhaus. However, Itten was not only concerned with "cleansing the students of the dross of formal conventions and traditional, academically entrenched aesthetic ideas

3 After the programmatic sentence "the final goal of all artistic activities is the building!" Gropius emphasizes in the short document the importance of overcoming the "self-sufficient peculiarities" of architects, painters and sculptors and a unification of the arts to be pursued from this; the return to craftsmanship as well as the abolition of "class-separating pretensions" between artists and craftsmen in order to create "the new building of the future", which should function as a "crystal symbol of a new coming faith" (Gropius 1919, cited in Droste 2018, 14).

and practices," (Wick 2019) but also with re-evaluations and playful approaches to artistic material in which there were apparently no taboos. Excursions to landfills and junkyards were the order of the day - here, experimental assemblages, collages and sculptures were constructed from *objets trouvés* and unconventional material. In 1931, Bauhaus student Hans Keßler remembers:

> "you learn to play like a child again, you learn to get properties out of a material that you didn't recognize before - that's what the inventor does [...] and in order to represent this material, anything goes: use excrements, for all I care! Only one thing is forbidden: being stupid [sic]."
>
> (ibid., 19, author's own translation)

After Itten left the Bauhaus in 1923 following lengthy conflicts with Gropius, the Hungarian painter and photographer László Moholy-Nagy took over the direction of the preliminary course. In contrast to his predecessor, who incorporated a nature-loving, spiritual and partly occult affinity into his teaching, (ibid., 36) Moholy-Nagy had a particularly positive attitude towards mechanical and technical processes. He pursued the goal of "providing students with insights into elementary design categories [...] and [...] a fundamental understanding of the properties and characteristic behaviour of different materials through their own experimental activity (the principle of 'learning by doing')." (Wick 2019). While Itten constructed illustrious sculptural buildings with his students from an eclectic mix of materials, Moholy-Nagy's approach was also more formalistic and minimalist. This is expressed not only in his weight studies, which are reduced to the necessary and filigree, and the conceptual distinctions he established 'objectively', such as "structure (inner composition [innerer Gefügeaufbau]), texture (epidermis natural) and facture (epidermis artificial)," (ibid.) but also in the choice of supposedly simple materials - such as paper or cardboard.

Josef Albers, cited at the beginning of this article, was the third and last preliminary course teacher at the Bauhaus to consistently continue the minimalist approach to materials. In doing so, he further developed many pedagogical ideas that had already been shaped by Itten and Moholy-

Nagy. Similar to Moholy-Nagy, he propagated "an educational concept that can be reduced to the brief formula 'learning through experience'" (ibid.) and forced creative material exercises with paper. This is how Albers describes it in 1924:

> "Example: Paper is used outside (in craft and industry) mostly lying and flat and glued, one side of the paper usually loses its expression, the edge is almost never used. This gives us the opportunity to use paper upright, uneven, plastically moved, on both sides and with an emphasis on the edges. Instead of gluing, we will bind, tuck, sew, rivet, i.e. fasten it differently and examine its performance under tensile and compressive stress. The material treatment is therefore deliberately different from outside, [...] not to imitate, but to search for ourselves and to learn to find things ourselves – constructive thinking."
>
> (Albers, cited in Wick 2019)

"Constructive thinking" - not unlike what many years later the educator and mathematician Seymour Papert would call constructionism - represents a core idea of Bauhaus teaching. With Papert, it could be said at this point that the actual construction activity thus also gives rise to ideas and models in the learners' minds with which mental constructions can equally be built, repaired and "mended." In Albers' work, paper therefore actually becomes not so much a collage as a bricolage - Papert borrows a core idea from Lévi-Strauss here - and "the main principles of bricolage as a methodology for mental activity are: Take what you have, improvise, make do" (Papert, cited in Fütterer/Jonas 2012, 239). Albers, however, was not only concerned with a more "practical" form of teaching, but with nothing less than making a contribution to a better world; a world in which teaching content is not blindly learned by heart and "regurgitated" in exams, but in which new things are "created" and old things are no longer merely "shuffled around" (Albers, cited in Wick 2019). The act of folding paper can thus not only be understood as a creative restriction to a simple material, in which extremely complex and elaborate arrangements can be produced by supposedly simple hand movements. Paper folding represents an act of manipulating three-dimensional space, to which Friedrich Fröbel - the inventor of the kindergarten and most likely a decisive initiator of teaching at the Bauhaus - had already attached great importance in his concepts

on pedagogical gifts of play. It is thus a symbolic act with which an ostensibly playful process is taken seriously as a means to an end in order to actively participate in shaping society.

In summary, these spotlights on the conception of the preliminary course make three things clear: The Bauhaus embraced (1) a rejection of traditional pedagogical approaches, (2) a fundamental re-evaluation of possibilities and the radical simplification of artistic material, and (3) an experimental, playful approach that is explicitly constructive in character. Michael Siebenbrodt therefore notes that "the Bauhaus [thus] became the first state university in which creative play/creativity training and teamwork became part of the pedagogical programme and a classroom reality as early as 1919." (Siebenbrodt 2004, 25). This playful impulse can be traced throughout the history of the Bauhaus by looking at the actual toys designed by Alma Siedhoff-Buscher, for example, which made her famous; such a line of tradition could also be continued with the history of the building sets that Lionel Feiniger made privately for his children, for example, and that can be understood in art historical terms as "the architect's favourite game" (Noell 2013) - and which in turn lead in a direct ancestral line to Lego bricks. However, it is not only the building blocks, the shipbuilding kits, the modulable children's rooms and the doll houses on which the Bauhaus had (and still has) a formative influence. Rather, the influence can also be found in current developments in (computer) game culture, which manifests itself, for example, in unusual products such as Nintendo Labo - although there is yet another cultural phenomenon that needs to be highlighted first.

3. DESSAU, MEXICO AND BACK: MAKING AND MEDIA LITERACY

Amor Muñoz, who studied law and is an artist, developed the project *Yuca_Tech: Energy by Hand* in the Mexican state of Yucatán. The project is a kind of "community technology lab" in which traditional handicrafts are combined with the principles of the maker movement at the level of citizen engagement. The focus is on economic and social development as

well as on promoting the realization that everyone is capable of developing technologies in a simple way without having to go through years of formal educational institutions. In Muñoz's project, indigenous materials - such as dried agave leaves - are used by former seamstresses of a textile factory to equip sun hats and sandals with solar panels, batteries and LEDs. The result is "smart" textiles that generate a vital resource in the infrastructurally disadvantaged Mayan areas of Yucatán: electric light based on renewable energy.

> "This project is all about collaboration and participation. The intention behind it was also to combine traditional arts and crafts with the do-it-yourself spirit, with the maker movement, and to bring arts and crafts and technology closer together."
>
> (Muñoz in Ranke 2019)

An important starting point for Muñoz is the work of Anni Albers, Josef Albers' wife, who taught with him at Black Mountain College in North Carolina after the Bauhaus closed and who, during her travels, began to take an interest in the traditional weaving techniques of Central and Latin America. Muñoz draws a parallel between her own work and that of Annie Albers, who, during her stay at Black Mountain College, had to

> "cope with the conditions on site. There weren't very many materials. That's when she started using natural materials. Pasture grass, bushes, eucalyptus, jute... She interwove them with industrial materials. Just like we do at Yuca_Tech. [...] Bauhaus is present in many parts of Latin America. There is a strong connection. And here, in this little utopia, in these little experiments, you see that. Albeit on a small scale. But that's what the founding of the Bauhaus was all about."
>
> (Muñoz in Ranke 2019)

According to publicist Chris Anderson, the so-called "maker movement" is characterized by three main features: the use of modern hardware and software to design products independently by means of private fabrication and to produce their own prototypes; the tendency to share in online communities; and the use of standardized file types that radically simplify the production and scaling of prototypes. Anderson sees the emergence

and proliferation of typical maker tools - 3D printers, laser cutters and micro-controllers - as an opportunity to bring the spirit of the do-it-yourself movement into the sphere of entrepreneurship. In his book, he thus develops nothing less than the idea of a global economic-political redevelopment, which is underlined once again in his last chapter "The West can rise again" (Anderson 2012, 298).

However, Muñoz's Yuca_Tech project clearly shows that Anderson's vision of Making can also have quite different ideological implications. In the case of the seamstresses of Yucatán, making does not mean a renaissance so much as independence from large corporations, expressed through simple forms of infrastructural and communal autonomy. Making thus also builds a bridge between the social utopian ideal of the Bauhaus and the emancipatory potential of the maker movement: both movements not only appropriate simple and industrial materials and try to improve daily life through creative design drafts; they also share certain political ideals, which, for example, is summed up by Andrea Baier et al. in the succinct formula 'repairing the world' (Baier et al. 2016) in their anthology of the same name.

Which ideological attributions Making actually undergoes remains a process of negotiation between the actors. But the fact that Making has a significant pedagogical meaning can hardly be denied when examining the secondary literature. Neil Gershenfeld, for example, who offered one of the first Making courses ever in his MIT seminar "How to Make Almost Anything" in 2001, writes that he was surprised not so much by his students' willingness to learn, but above all by their needs and motivations:

> "Virtually no one was doing this for research. Instead, they were motivated by the desire to make things they'd always wanted, but that didn't exist. These ranged from practical (an alarm clock that needs to be wrestled into turning off), to fanciful (a Web browser for parrots), to profoundly quirky (a portable personal space for screaming). Their inspiration wasn't professional; it was personal. The goal was not to publish a paper, or file a patent, or market a product. Rather, their motivation was their own pleasure in making and using their inventions."
>
> (Gershenfeld 2007, 12-13)

Unlike in the Bauhaus preliminary course, where traditional ideas about the artistic and craftsmanlike possibilities of a supposedly simple material like paper had to be laboriously overcome in the students' minds, Gershenfeld's students were literally burning to let off steam with the new possibilities of supposedly familiar materials - simple, but now self-programmable electronic parts. Their driving force was a need for personal expression in the everyday objects of their everyday lives; a desire for individuality rather than conformity. However, the three characteristics of the preliminary course highlighted above remain: the rejection of earlier pedagogical approaches, the re-evaluation of possibilities and the simplification of material, as well as an experimental, playful and constructive approach. Simply put, one could also say that "der neue Mensch," or the new person, who blossomed at the Bauhaus in the 1920s through the advantages of serial fabrication and functional formal language, is once again a playing human of the early 21st century, a kind of Homo Ludens 2.0 (Raessens 2012) who constructively and experimentally gains access to areas that are normally inaccessible to him.

According to Gershenfeld, this manifests itself in a completely new form of perception and expression - a literacy that is not "merely" artistic, scientific or craft-related, but overcomes this division in the best Bauhaus manner:

> "I began to realize that these students were doing much more than taking a class; they were inventing a new physical notion of literacy. The common understanding of "literacy" has narrowed down to reading and writing, but when the term emerged in the Renaissance it had a much broader meaning as a mastery of the available means of expression. However, physical fabrication was thrown out as an "illiberal art," pursued for mere commercial gain. These students were correcting a historical error, using millions of dollars' worth of machinery for technological expression every bit as eloquent as a sonnet or a painting."
>
> (Gershenfeld 2007, 14)

If the artistic production of (technical) things actually also presupposes a playful form of literacy in the broadest sense - a "mastery of the available means of expression" - then it also requires, not least, a place where this literacy is learned and developed. Where the media educators Henrike

Boy and Gerda Sieben consider a formalization through workshops desirable, it can be equally attested that such a literacy could also be initiated by a process of playful learning from a completely different place.

4. LEARNING BY PLAYING, LEARNING FROM PLAYING: NINTENDO LABO AND LUDIC LITERACIES

> "To go ahead and share my impressions up front: I think that *Nintendo Labo* beats the pants off of something like *Maths Blaster* [sic]. I grew up during an edutainment boom that had my school equipped with *Maths Blaster* [sic], *Carmen Sandiego* and *Oregon Trail*. And while I can't confidently testify that those games managed to educate me about their subject material I candidly say that they sure did get me used to using computers."
>
> (Weidman 2019)

Journalist and YouTube creator George Weidman is visibly impressed by Nintendo Labo. The reason for this is that he not only sees a didactically meaningful continuation of so-called educational games such as *Math Blaster* at work here, but he primarily sees an opportunity for children to learn the basics of how closed systems work - using a very simple material such as cardboard. However, Weidman's video is particularly informative for the topic of this essay precisely because it does not represent a typical review. Instead, Weidman draws a direct historical line with Nintendo LABO to educational toys, or more precisely: to the Froebel gifts already briefly mentioned above.

According to Claudia Marquart, these play materials aim to convey abstract forms in a sensual way - through "play gifts" such as cylinders, spheres and cubes, which are to be handed out for play in a fixed sequence at certain stages of child development. Fröbel, a trained crystallographer who was accustomed to paying attention to internal compositions instead of external forms, thus designed a system in which certain laws of nature and certain material properties were to be made intuitively comprehensible. In this way, a rotating wooden ball on a string becomes an illustration for centrifugal and rotational forces. "The system of 'play gifts' that build on one another stands out from the construction kits of the time above all

because of its reduced form and manageable number of elements," (Marquardt 2019, 22) writes Marquardt - and emphasizes that "the harmonious relationship to the whole was to be taught through division and combination." This is also particularly evident in Fröbel's pedagogical "Instructions for Paper Folding," (Fröbel 1862) which, in the spirit of this essay, almost inevitably finds a continuation in Nintendo Labo. Weidman further notes about the connection between the Froebel gifts and Nintendo Labo:

> "No instructions were supposed to be included, just simple enough pieces to get kids discovering how the toys work on their own. Likewise, Nintendo Labo has kids punching out basic sheets of basic shapes that gradually turn into complicated moving interactable 3-dimensional in real life objects with weight and texture and moving parts that all make a brilliant kind of sense that you learn as you snap it all together. Even as an adult the steps where all these strange looking pieces finally come together to look like something that's on the cover of the box triggers a 'Oh, so that's how it works!'"
>
> (Weidman 2019)

Nintendo LABO thus appears to be not only a construction kit for aspiring makers ("Make it your own!" is written in large letters on the box), but also a construction kit that teaches certain technical processes through the medium of computer games. Of course, the question is whether Nintendo LABO actually promotes a playful literacy - or even a literacy of video games and their computional hardware.

Terminologically, such a judgement would be too hasty. José Zagal, for example, points out right at the beginning of his study "Ludoliteracy" that such literacy must at least be understood as multidimensional in order to do it justice. Consequently, Zagal concentrates on only one aspect of ludoliteracy, which he then breaks down into smaller components: the ability "to understand meanings with respect to games" (Zagal 2010, 23). Zagal divides such an ability to understand the meaning(s) of games along four axes: (1) Games in their cultural context (for example, as adaptations of esthetic and narrative topoi), (2) Games in the context of other games (for example, the extent to which classic "war games" or pen & paper role-playing games function as precursors to digital games), (3) games in the context of the status quo of technology and how this predetermines and

frames the game experience (graphical limitations, complex or less complex interfaces), and (4) games in the context of their game mechanics (such as the constant progression through the combination of new items in a game of the Zelda series) (Zagal 2010, 32).

To speak of cultivating that kind of ludoliteracy does not seem particularly adequate in the case of Nintendo Labo. Rather, the term should be understood in Gershenfeld's sense: less as a literacy of (digital) games, but rather as a constructionist, playful literacy. Such a literacy would consist of the ability to reveal technical processes, to understand their systematic connections and to be able to manipulate them in a playful way. Since the Nintendo LABO kits are primarily about the construction of pre-designed models, however, it initially seems diametrically opposed to the approaches of Fröbel and the preliminary course at the Bauhaus. At first glance, a typical construction process in Nintendo LABO resembles the simplest and most memorable Ikea building instructions imaginable (including interactive 3D animations accompanied by funk melodies that can not only be paused, rewound and accelerated, but also rotated and zoomed in). However, the game's modes, which can be unlocked after the construction of the first models, lose none of the complexity that Albers would have admired in the paper folds of his students. The "Discovery" mode deserves special mention here: It allows players to take a look behind the workings of the models that are to be built. For example, it is shown step by step how the (actually invisible) infrared camera in the Joy-Con game pads receives signals through the reflective light strips in the cardboard piano that react to the pressing of the piano keys. In addition, the so-called Toy-Con Garage offers a rudimentary programming language to control the sensors and output devices of the Switch console with simple "if-then" commands. Here, kids are able to step out of the realm of pre-designed models and unlock other possibilities: From homemade roulette tables to a recreated Fire game of the legendary Game & Watch handhelds of the 1980s to a solar-powered accordion, the examples of self-creations are manifold (Vincent 2019). "And just like that,"

Weidman sums up, "children are gonna realise that their entire perspective of their entire world that they've known their entire lives has been limited by their inescapable human senses." (Weidman 2019).

The ludic literacy, as exemplified by Bauhaus, the maker movement and Nintendo Labo, is thus less a "Ludoliteracy" in the sense of José Zagal - that is, a literacy that is needed to be able to "read" and understand the content-related meaning of digital games as cultural artefacts - but much more a "Gaming Literacy" in the sense defined by Eric Zimmerman. With this term, Zimmerman is already playing a game on the level of terminology itself: he uses it to denote a view behind systemic processes and their appropriation through play. In the context of the anthology "(Re)Searching the Digital Bauhaus," Zimmerman describes gaming literacy as

> "exploiting or taking clever advantage of something. Gaming a system, means finding hidden shortcuts and cheats, and bending and modifying rules in order to move through the system more efficiently – perhaps to misbehave, perhaps to change that system for the better."
>
> (Zimmerman 2009, 182)

The connection between the three areas of Labo, Bauhaus and Making is thus less the clear and functional formal design language for which the Bauhaus has mistakenly (Herzogenrath/Kraus 2019) become famous. Neither in LABO nor in the products of the maker movement will we find a holistic abandonment of historicism or ornamental decoration. Instead, the overview provided here can be read to highlight the emancipatory, reformist and democratizing ideas - and ideals - that are articulated precisely through the way the material is treated, always requiring a playful, experimental approach. With the act of folding paper in Nintendo Labo, we not only create something new from the supposedly familiar; we also learn how the (technical) things around us work. We open black boxes and are invited to play with them.

Whether concrete, glass, microcontrollers, laser cutters, paper or cardboard: through the process of playing with the material, attributions and instructions for action emerge; ideas manifest themselves in it, they become impulse drivers and "ignition aids" (Marquardt 2019) for the work on

social utopias. The fact that these utopias have their - literal - price is another matter: just as the Bauhaus products advanced to become real luxury goods and sought-after design objects despite (or precisely because of) their claim to being different from other consumer products, it must also be said for the maker movement that it is not an (exclusively) grassroots movement, but also has the characteristics of a carefully "curated" franchise model protected by a high level of corporate law. Its threads come together in the Maker Media Company, which decides where, how and by whom so-called "Maker Faires" may be held (Hepp 2018). And so, despite his great enthusiasm for Nintendo Labo, Weidman also judges that "this stuff ain't cheap" (Weidman 2019) - and such 21st century Froebel gifts cannot be made available to all homes or schools on a large scale. But just as the Bauhaus utopias conceived early on and the educational potential of the maker movement find actual realization in unforeseen places - such as Yucatán - the cost factor alone should not be a reason not to be more optimistic about the future of these promising play materials:

> "Having a versatile suite of skills to survive the changing times is so important, and education is the golden ticket to learning those skills, to break out of poverty and achieve financial security. So, I want to see Nintendo try and strike some deals to lower this price enough to get it into classrooms, because as cheesy patronizing entertainment videogames are becoming a thing of the past, then hopefully slick playful and respectful demo kits in which kids create actual electronics in real life will be the future of edutainment."
>
> (ibid.)

REFERENCES

Anderson, Chris (2012): *Makers. The new industrial revolution*. London: Random House.

Baier, Andrea u.a. (Eds.) (2016): *Die Welt reparieren. Open Source und Selbermachen als postkapitalistische Praxis*. Bielefeld: transcript Verlag.

Berry, David/Dieter, Michael (Eds.) (2016): *Postdigital aesthetics. Art, computation and design*. London: Palgrave Macmillan.

Boy, Henrike/Sieben, Gerda (Eds.) (2017): *Kunst & Kabel. Konstruieren. Programmieren. Selbermachen. Bausteine für pädagogisches Making in der Jugendmedienarbeit und Ergebnisse aus dem Praxisforschungsprojekt „Fablab mobil“*. München: kopaed.

Brinda, Thorsten et al. (2016): „Dagstuhl-Erklärung: Bildung in der digitalen vernetzten Welt“. Online: https://gi.de/fileadmin/GI/Hauptseite/Themen/Dagstuhl-Erkla__rung_2016-03-23.pdf [Accessed 20.10.2019].

Droste, Magdalena (2018): *Bauhaus. 1919-1933 Reform und Avantgarde* (Kleine Reihe 2.0). Köln: Taschen.

Eikmeyer, Robert et al. (Eds.) (2019): *BAU [SPIEL] HAUS*. Wien: Verlag für moderne Kunst.

Friedewald, Boris (2016): *Bauhaus*. München: Prestel.

Fröbel, Friedrich (1862): „Kinderbeschäftigung. Anleitung zum Papierfalten“. In: Lange, Wichard (ed.): Die Pädagogik des Kindergartens. Gedanken Friedrich Fröbel's über das Spiel und die Spielgegenstände des Kindes. Berlin: Adolph Enslin, S.371-375.

Fütterer, Martin/Jonas, Kristina (2012): My Video Game: Konstruktionistisches Erfahrungslernen in der Schule. Die Entwicklung von Computerspielen als Projektpraxis. In: *Magdeburger Schriftenreihe zur Medienbildung*, no. 2. Stuttgart: Ibidem.

Gershenfeld, Neil (2007): *Fab. The coming revolution on your desktop–from personal computers to personal fabrication*. New York: Basic Books.

Hatch, Mark (2014): *The maker movement manifesto. Rules for innovation in the new world of crafters, hackers, and tinkerers*. New York: McGraw Hill Professional.

Hepp, Andreas (2018): "What Makes a Maker?". In: *Nordisk Tidsskrift for Informationsvidenskab og Kulturformidling*, vol. 7, no. 2, pp. 3–18.

Herzogenrath, Wulf (Ed.) (1988): *Bauhaus Utopien. Arbeiten auf Papier*. Stuttgart: Cantz.

Herzogenrath, Wulf (1988): Die fünf Phasen des Bauses. In: Herzogenrath, Wulf (ed.): *Bauhaus Utopien. Arbeiten auf Papier*. Stuttgart: Cantz, pp.19-31.

Herzogenrath, Wulf/Kraus, Stefan (2019): *Das bauhaus gibt es nicht*. Berlin: Alexander Verlag.

Itten, Anneliese/Rotzler, Willy (1978): *Johannes Itten. Werke und Schriften*. Zürich: Orell Füssli.

Kraus, Stefan (1988): Vorkus Itten. In: In: Herzogenrath, Wulf (ed.): *Bauhaus Utopien. Arbeiten auf Papier*. Stuttgart: Cantz, pp.53-59.

Marquardt, Claudia (Ed.) (2019): Accompanying booklet *BAU [SPIEL] HAUS*, March 22 – June 16 2019.

Neumann, Eckhard (Ed.) (1996): *Bauhaus und Bauhäusler. Erinnerungen und Bekenntnisse*. Köln: DuMont.

Noell, Matthias (2013): Des Architekten liebstes Spiel: Baukunst aus dem Baukasten. In: *Figurationen*, vol. 5, no. 1, pp. 23-40.

Papert, Seymour (1994): *Revolution des Lernens. Kinder, Computer, Schule in einer digitalen Welt*. Hannover: Heise.

Raessens, Joost F. F. (2012): *Homo Ludens 2.0. The ludic turn in media theory*. Utrecht: Utrecht University Repository. Online: https://dspace.library.uu.nl/handle/1874/255181

Ranke, Lydia (2019): bauhausWORLD 3/3: Die Utopie – 100 Jahre Bauhaus. Online: https://youtu.be/OkoVpIHiAjE [Accessed 22.01.2020].

Röhrs, Hermann (2001): *Die Reformpädagogik. Ursprung und Verlauf unter internationalem Aspekt*. Weinheim: UTB Beltz.

Siebenbrodt, Michael (2004): *Alma Siedhoff-Buscher. Eine neue Welt für Kinder*. Weimar: Stiftung Weimarer Klassik und Kunstsammlungen.

Vincent, Brittany (2019): The coolest Nintendo Labo creations we could find. Online: https://www.popsci.com/cool-nintendo-labo-builds/ [Acessed 22.01.2020].

Weidman, George (2019): Nintendo Labo and Theories of Edutainment. Online: https://www.youtube.com/watch?v=1h8_Pj2DRmQ [Accessed 22.01.2020].

Wick, Rainer (2019): Dreimal Vorkurs: Itten, Moholy-Nagy, Albers. Online: http://www.bauhaus-imaginista.org/articles/5176/three-preliminary-courses-itten-moholy-nagy-albers/de?0bbf55ceffc3073699d40c945ada9faf=fc19b7153cb0ed2c17cd836f47295102 [Accessed 22.01.2020].

Zagal, José (Ed.) (2010): *Ludoliteracy: Defining Understanding and Supporting Games Education*. Pittsburgh, PA: ETC Press.

Zimmerman, Eric (2009): Gaming Literacy Game Design as a Model for Literacy in the Twenty-First Century. In: Binder, Thomas et al. (Eds.): *(Re)searching the digital Bauhaus (Human-Computer Interaction Series)*. London: Springer, pp. 179–190.

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NINTENDO LABO (2018), Nintendo.

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