Bimi Boo®
Where Learning Begins

Pedagogy of Bimi Boo

Theoretical foundations and practical application of the approach to the development of children from 2 to 5 years old

May 2024

The pedagogy of Bimi Boo is a comprehensive approach to the early development of children aged 2 to 5 years, manifested in the following aspects:

1 The Bimi Boo product line was developed in accordance with the guiding principles of Bimi Boo pedagogy. The product line includes both digital products (educational apps and media content) and traditional toys and teaching materials.

2 Teaching methodology in preschool education centers, organized under the aegis of Bimi Boo, is based on the principles of Bimi Boo pedagogy (the project is under development).

Theoretical foundations of the approach

The child is the central object of Bimi Boo pedagogy. In our understanding, the child is seen as a protagonist; we endow him in advance with the ability nd interest in exploring the surrounding world. This resonates with the approach to children in Reggio Emilia pedagogy. The child as protagonist, according to Reggio Emilia's founder, Malaguzzi, is viewed as "rich in potential, strong, powerful, and competent" (Malaguzzi, 1993, p. 10). We agree with this point of view, integrating it into our philosophy and drawing inspiration from it in outlining our guiding principles. The approach of Maria Montessori (Montessori, 1967) also places the child at the center, emphasizing the importance of freedom of choice in activities and gaining knowledge through individual practical experience. Thus, the Bimi Boo approach is child-centered. This means that we are also focused on the importance of each child's personal and social development and well-being.

There's no doubt that the age range of 2 to 5 years is a time of great opportunity. Numerous studies show that it's a period during which children rapidly develop the basic abilities that form the foundation for further positive probabilities of high achievements in academic studies in school years (Duncan, Dowsett, Claessens, Magnuson, Huston, Klebanov, & Japel, 2007). This applies to cognitive functions, behavior, social, emotional, and self-regulation abilities, as well s physical development (Institute of Medicine, 2000; Richter, Daelmans, Lombardi, Heymann, López Boo, Behrman, & Bhutta, 2012).

The importance of play in early childhood cannot be overstated, as there is a significant body of scientific data supporting its role in various development areas. This data underscores the necessity for parents and educators to prioritize play as a central component of development and learning approaches for preschoolers. Piaget (Piaget, 1962) asserts that play is crucial for cognitive development. Through play, children experiment, make discoveries, and learn about the surrounding world. According to Vygotsky (Vygotsky, 1967), play is necessary for social development, allowing children to refine communication skills, understand the nuances of social norms, and learn interaction with peers and adults.

Gray's research (Gray, 2013) unites the studies in the field of play and self-directed learning, where the child takes a leading role, proving the importance of giving children the freedom to steer their own knowledge process in a playful spirit.

The environment in which Bimi Boo pedagogy works is predominantly the home setting and the child's familiar surroundings. We strive to relieve parents of the need to adhere to complex rules for properly organizing the environment, making all our products have potential we call Ready-to-learn. In practice, this means that Bimi Boo's product can be provided to the child as is—install and launch the app, turn on media content, or give a toy without a complex game instruction and without mandatory adult assistance. Furthermore, digital products can be actively used by the child not only at home but also outside of educational institutions. For example, parents often give gadgets to children when they need to wait in line or when the child is on the road. In the last two cases, the "useless" time, from the perspective of the inability to organize a directed and manageable educational process, is filled with learning possibilities. This concept is defined as a range of educational opportunities and experiences that can potentially support and enhance the development and learning outcomes of young children. Learning possibilities can include both structured and unstructured activities, integrating learning into play, and creating an environment that facilitates learning and development. Often, the search for learning opportunities involves exploring the characteristics and hidden potential of a certain environment, primarily the natural environment (for example, in The Ngahere Project by Kelly, Sacker, Del Bono, Francesconi, & Marmot, 2013). Instead, we propose to find opportunities not in a special space but in time, offering children simple and always available applications and media content. Another type of environment where Bimi Boo pedagogy finds its application is the managed and controlled setting in educational centers created under the aegis of Bimi Boo (the project is under development).

Regardless of the environment type, we are proponents of the approach that already has a stable name in the scientific literature as "responsive caregiving." We also create all our tools and products with the goal of supporting early learning for children from 2 to 5 years old.
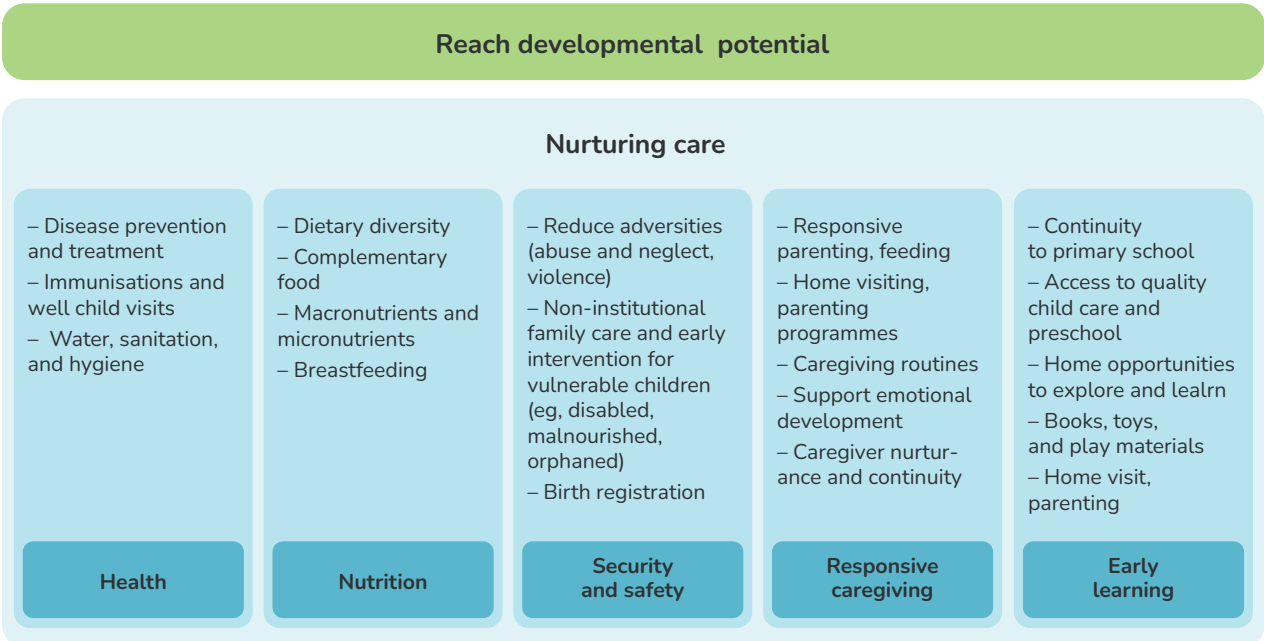
Black et al. (Black, Walker, Fernald, Andersen, DiGirolamo, Lu,... & Grantham-McGregor, 2017) presented their "Life course conceptual framework of early childhood development," according to which early childhood development requires nurturing care defined as health, nutrition, security, and safety, respon-

sive caregiving, and early learning, provided by parents and supported by the environment. In this context, Bimi Boo pedagogy is ready to become part of this environment, creating tools and space for realizing the rich innate potential of every child.

The importance of the home environment is clear—it definitely influences what a child can learn, his or her expectations and attitudes, and his or her attitude toward others during the early years (Institute of Medicine, 2000:389). Hereinafter, we adopt the acronym HLE (home-learning environment), infusing it with the meaning of a quality home environment filled with materials and tools that support early learning as part of the "responsive caregiving" approach. Bimi Boo pedagogy exists so that parents have more opportunities to provide their children with a more stimulating HLE. Research shows that various activities induced by parents and guardians encourage early development and are associated with positive developmental outcomes (Black et al., 2017; Bradley, 2002; Melhuish, Phan, Sylva, Sammons, Siraj-Blatchford, & Taggart, 2008a).

According to the aforementioned framework, an important part of early learning also includes home opportunities for exploration and learning, as well as books, toys, and play materials (see Fig. 1).

Figure 1. *A fragment of the conceptual framework for early childhood development across the life course (Black et al., 2017).*

Reach developmental potential				
Nurturing care				
– Disease prevention and treatment – Immunisations and well child visits – Water, sanitation, and hygiene	– Dietary diversity – Complementary food – Macronutrients and micronutrients – Breastfeeding	– Reduce adversities (abuse and neglect, violence) – Non-institutional family care and early intervention for vulnerable children (eg, disabled, malnourished, orphaned) – Birth registration	– Responsive parenting, feeding – Home visiting, parenting programmes – Caregiving routines – Support emotional development – Caregiver nurturance and continuity	– Continuity to primary school – Access to quality child care and preschool – Home opportunities to explore and lealrn – Books, toys, and play materials – Home visit, parenting
Health	**Nutrition**	**Security and safety**	**Responsive caregiving**	**Early learning**

The availability of relevant learning materials in the home environment supports children's language skills and reading skills (according to Purcell-Gates, 1996; Sénéchal, LeFevre, Thomas, & Daley, 1998; Tabors & Snow, 2001). Research has confirmed the relationship between the presence in the home environment of certain types of toys for symbolic play (such as cooking sets) and toys for fine motor skills (such as blocks) and the early development of a child's language skills (Tomopoulos, Dreyer, Tamis-LeMonda, Flynn, Rovira, Tineo, & Mendelsohn, 2006), as well as intrinsic motivation to learn (Gottfried, Fleming, & Gottfried, 1998).

Furthermore, there are many studies confirming that specially designed educational games can significantly improve the level of a specific skill among preschoolers. For example, in their study, Siegler & Ramani (2009) found that by playing a stimulating game for just 1 hour a day, preschoolers from low-income families were able to significantly improve their mathematical skills. In turn, Chin & Zakaria (2015) also found a significant improvement in mathematical skills when preschoolers used a specially designed game. These and similar educational games can potentially be used not only in the process of organized learning in preschool classrooms but also as an important part of a quality, stimulating Home Learning Environment (HLE). Thus, we approach the creation of Bimi Boo products with the goal of potentially improving the HLE and enriching it with additional stimuli aimed at early learning.

Among our products, digital products, i.e., those that are played (reproduced) on digital equipment (ICT equipment—tablets, televisions, smartphones, computers) available in families, hold special significance. Nowadays, numerous studies show that the use of smartphones, televisions, and other digital devices by preschool-age children is very significant and continues to grow. For example, a study by Kabali, Irigoyen, Nunez-Davis, Budacki, Mohanty, Leister, and Bonner (2015) showed that children as young as 2 years old use some device daily and spend a comparable amount of screen time engaging with televisions and mobile devices. Most three- and four-year-old children use devices without any outside help, and one-third of them are involved in media multitasking. No connection was found between a child owning their own device and their daily use of it and their ethnic background or the social status of their parents. As for the reasons that prompt parents to provide their child access to a mobile device or television, in the same study, 70% of parent respondents were found to indicate "housework," 65% needed to "calm the child down," and 29% used devices when preparing for bed.

The approach to up brining of very young children (2–5 years old) in modern society, which is impossible without online services, digital products, mobile applications, and computer devices, is contradictory. There are a huge number of educators who talk about the dangers of using digital applications, media content, and digital products, i.e., those that are played or reproduced on digital equipment (ICT equipment). Bimi Boo Company does not abandon traditional pedagogy and methods of education; it is necessary to read to children, tell stories, sing, play with household items, and use complex speech. At the same time, the company looks forward to a radically changed world, providing free educational children's games and software (with science fiction and a fictional world in them) in practical applications. The online pedagogical methodology of Bimi Boo is positive for early development because children are motivated to independently use the built-in opportunities for game-based learning on gadgets, the number of which is steadily growing. The latter cannot be denied.

In the context of the prevalence of educational mobile applications, according to Chatzopoulos, Karaflis, Kalogiannakis, Tzerachoglou, Cheirchanteri, Sfyroera, & Sklavounou (2023), over the last 10 years, more than 50% of them have been targeted at preschool-aged children, which is associated with the explosive growth in smartphone ownership and use by children of this age group. It is impossible to refuse the modern structure of the world, so that is why Bimi Boo products include both digital products (educational applications, media content) and traditional toys and educational materials.

 The number of studies documenting that preschool-aged children actively use mobile devices in their home literacy learning is steadily increasing (Marsh, 2014; Rideout, 2013; Stephen, Stevenson, & Adey, 2013). For example, Wong (2015), in his study "Mobile Digital Devices and Preschoolers' Home Multiliteracy Practices," demonstrates how exactly a 5-year-old user anticipates the potential of his own capabilities—even without having formed writing skills, he still uses text search on his iPad to achieve his set goal.

Many researchers in their studies advocate the effectiveness of mobile devices and mobile applications in the context of their positive impact on children's education (Vaiopoulou, Papadakis, Sifaki, Kalogiannakis & Stamovlasis, 2023; McManis & Parks, 2011). In particular, in the last mentioned study, the authors highlight three main directions where mobile technologies promise potential improvement:

1. Approaches to learning (i.e., creativity, curiosity, perseverance, flexibility of thinking).
2. Cognitive development (i.e., natural sciences, mathematics, literacy, language, and social sciences),
3. Improved social-emotional skills (i.e., collaboration, cooperation, and emotional intelligence).

Some researchers have even recorded the superiority of digital technologies over their traditional counterparts. For example, authors Lin & Chen (2016) showed that a specially designed digital puzzle game helped improve both spatial visualization skill and mental rotation ability in elementary school students, whereas traditional puzzles contributed only to the improvement of mental rotation skill.

Children invest their time and energy in play, and this creates numerous opportunities for learning during play (Smith & Pellegrini, 2023). Summing up these two factors (children love and want to play and also actively use gadgets in everyday life), we understand that digital devices and, in particular, games on digital devices, become a promising platform for pedagogy that creates opportunities for learning.

Summarizing all of the above, we come to the following conceptual framework, which underpins our approach: The child protagonist, endowed with innate potential and interest in play and learning, takes a proactive stance. Based on this, we believe that the most optimal type of educational play activity for a child aged 2 to 5 years is child-led (child-initiated) play and learning. It is through child-led play and learning that the child gains an invaluable foundation for further achievements, including success in academic learning. Parents need to heed current recommendations from reputable organizations and educational researchers regarding appropriate amounts of screen time for young children.

To assist the child in his educational play activities, it is recommended for parents, guardians, and educators to use an approach called responsive caregiving. The most important parts of this approach are:

1. For the home environment, providing an HLE (stimulating the home environment);
2. For the environment of the organized educational process (educational children centers): compliance with modern criteria defining Good Quality Preschool (the project is in development).

Figure 2. Conceptual framework of the Bimi Boo pedagogy.
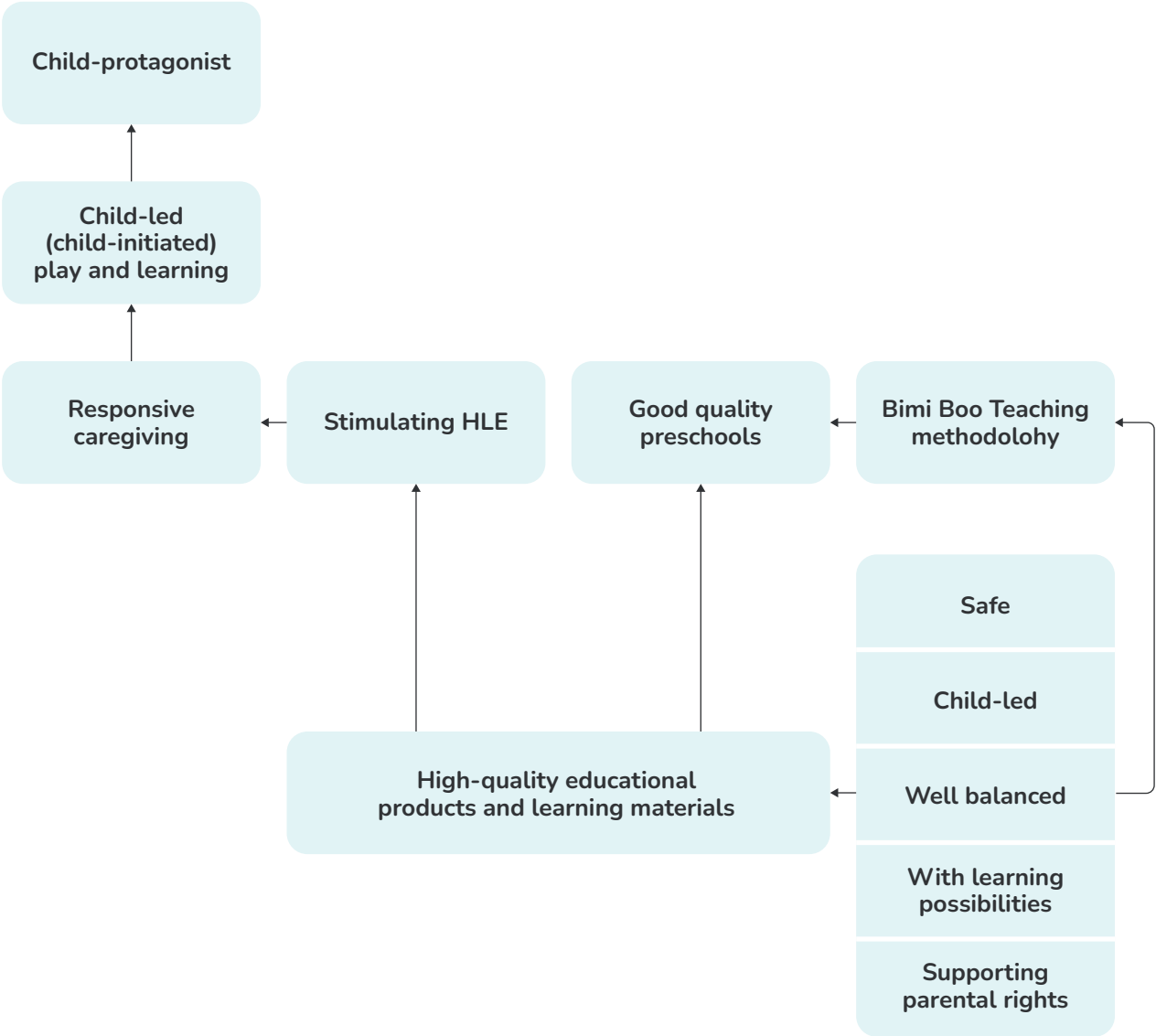
We hope that the products we are developing at Bimi Boo in the context mentioned above can become an indispensable part of a quality and stimulating HLE, as well as being used as play and educational materials in educational institutions.

To meet our stated goal, all Bimi Boo products are designed according to our guiding principles, detailed below. We use these same principles to develop practical and methodological guidelines for teachers working with children in our preschool educational institutions (the project is in development).

Bimi Boo's Pedagogical Guidelines

1. Safety

Safety is the top priority for all our products. We firmly believe that all products (including digital content), methods, and tools designed for use by children must not contain any potentially harmful or dangerous elements. In every Bimi Boo product, adherence to the safety principle is manifested in one or several appropriate contexts (see Table 1).

Table 1. *Safety in Bimi Boo Products*

	Products/Product Elements	Context
1	Products/Product Elements	No ads. Presence of a parental gate (a controlled area in the app's settings protected from independent access by the child user). There is no possibility for the child to independently navigate from the app to the app store or mobile device browser. Smooth operation of the app without errors or glitches.
2	Media content	No media violence. There are no examples of dangerous behavior by characters.
3	Toys	Compliance with current European and American safety standards in terms of materials, dyes, and design characteristics of the toy elements. All toys exceed international safety standards and are certified in the USA (ASTM F963-17) and the EU (EN71).
4	Educational institutions (project in development)	A safe environment within the premises. Safe toys and educational materials.

The issue of media violence in content directly or indirectly consumed by children has already undergone a wave of heated social and scientific discourse, with many authoritative organizations issuing their own statements and recommenda-

tions aimed at maximum protection of young people and children from the detrimental effects of displayed violence. A significant body of research has confirmed that violence propagated in media content can be associated with various physical and mental health issues in children, including aggressive and violent behavior, bullying, desensitization to violence, the emergence of fears, depression, nightmares, and sleep disturbances. More than 2000 studies have been dedicated solely to one of the mentioned aspects, specifically the relationship between media violence and aggressive behavior in children (American Academy of Pediatrics, 2009). This argumentation is considered more than sufficient to establish it as an unwavering rule: that in Bimi Boo products, no scenes of violence, cruelty, or abuse should be displayed. Furthermore, in support of a culture of peace, we also avoid depicting weapons, military equipment, and war-themed games in our content.

Children tend to imitate what they see in cartoons and on television. The study by Marsh et al. (2005, as cited in Kondo & Steemers, 2007, pp. 5-7) specifies this observation. According to parents, children show great interest in songs and dances shown on television, as well as in copying the behaviors of characters and imitating them in role-playing games. Considering this factor, and despite the actions in the world of Bimi Boo belonging to a completely fictional reality, we believe that our characters should also not demonstrate any dangerous behavior in a domestic context that can be copied and reproduced by a child in their real games. Therefore, we strive to portray Bimi Boo characters as not playing with household chemicals and medicines, not climbing to dangerous heights, not playing with poisonous insects and dangerous animals, and the like.

2. Child-Led Learning

The pedagogy of Bimi Boo is inspired by the concept of child-led learning. The idea of giving children more freedom and initiative is far from new and has a multitude of compelling arguments to its credit. For instance, the study by Vaisarova & Reynolds (2022) suggests that spending on average more than 60% of learning time on child-initiated activities can contribute to improving school readiness among three- and four-year-old preschoolers. We define child-led (child-initiated) play and learning as a single activity where play is inseparable from learning, and learning is inseparable from play. It is understood that

depending on situational conditions (environment, available materials, the role of the parent/guardian or teacher, and other smaller-scale factors), the balance between play and educational activities may shift, or it may be difficult to differentiate. However, following this idea means that any educational component must either be delivered in a playful form or be surrounded by playful elements to maintain the child's interest and keep their motivation high.

Relying on this principle, we trust the child protagonist: they can play and learn independently, choosing those tools from the ones available to them that they find most appealing in a particular situation. In particular, in our products, we strive to provide opportunities for children to navigate through all the material at their own pace (according to their choice). An exception is the specially designed Learning Path in the Academy app, which we relate to the Complex Curriculum Apps (more about our own typology of Bimi Boo educational apps will be discussed later, in the section dedicated to the practical application of Bimi Boo pedagogy). However, this app also offers the option of free passage without following the Learning Path – going through the latter is optional and remains just one of the possible interactions with the app.

3. Balance

Balance, in our understanding, is the search for a necessary equilibrium between two polar contexts, sides of the same phenomenon, or between two options that are in some way opposite to each other. We can call this principle multidimensional, as it finds a wide variety of expressions in the pedagogy of Bimi Boo. The multidimensional model of balance we have developed, presented in Figure 3, integrates all the aforementioned expressions.

Figure 3. *Multi-level model of the principle of "Balance" in Bimi Boo pedagogy.*

	Balance between fun and learning	Balance of representation	
Balanced curriculum	**Content**		Balance between fantasy and reality
Balance between challenge and pleasure	**Process**	**Esthetics**	Balance between beauty and necessity

3.1. Challenge and Pleasure

In the dimension named "Process," we can find an expression of balance between challenge and pleasure, on which the organization of educational material in products is based, and in a narrower applied sense, the design of Bimi Boo games. This principle is not innovative either in the context of game design or in the context of approaches to children's education; however, adhering to it in practice turns out to be not as simple a task as it may seem at first glance.

From the point of view of scientific reliability, a vast array of literature can be found to confirm its feasibility and legitimacy from many different perspectives. An example of one particular case of such balance might be the so-called "Goldilocks Effect," which is experimentally confirmed as a dependency between the level of infants' attention and the optimal complexity of the material being viewed (in terms of the uniqueness and unpredictability of the events occurring in it). Kidd, Piantadosi,& Aslin (2012) define this effect as an implicit tendency of infants to maintain an intermediate pace of information acquisition and not waste cognitive resources on events that are either too simple or too complicated.

In game design terms, we always strive to make our games neither too easy nor too difficult for our target audience. Thus, the child enjoys solving a task that does not require the engagement of too many cognitive resources but is not too easy for them.

3.2. Balanced Curriculum

At the junction of the dimensions we called "Process" and "Content," we placed the concept of a "Balanced Curriculum." It's important to understand that the pedagogy of Bimi Boo considers the entire range of Bimi Boo products as a unified, complex system. And it is in this collective understanding that we strive to cover as many different types of activities as possible that fill the time of preschoolers and ideally bring maximum benefits to their development.

The question of which Curriculum for ages 2 to 5 years old to consider as the "ideal model" in the context of balance remains open for discussion and further scientific research. For example, in the IECEI study published by UNICEF, one of the goals of the authors Kaul., Sankar., Bhattacharjea, Chaudhury, & Froerer (2017) was to find a Curriculum sample that would most closely correspond to the principles of DAP (developmentally appropriate practice). The DAP approach

is designed by the National Association for the Education of Young Children (NAEYC), the leading global authority on early childhood issues. To a large extent, we find this approach to be an inspiring guideline for Bimi Boo pedagogy. A specific example of such inspiration and inheritance of DAP ideas is this sample of a potentially good practical Curriculum for disadvantaged communities among the three types of preschool educational institutions analyzed in the IECEI study (see figure 4).

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Figure 4. *Sample of a balanced Curriculum within the DAP framework. The specific image is taken from the research by Chaudhary & Kaul (2019).*

Outdoor play 12%
Routine activities 16%
Rhymes and action songs 4%
Free and guided conversation 12%
Story telling 12%
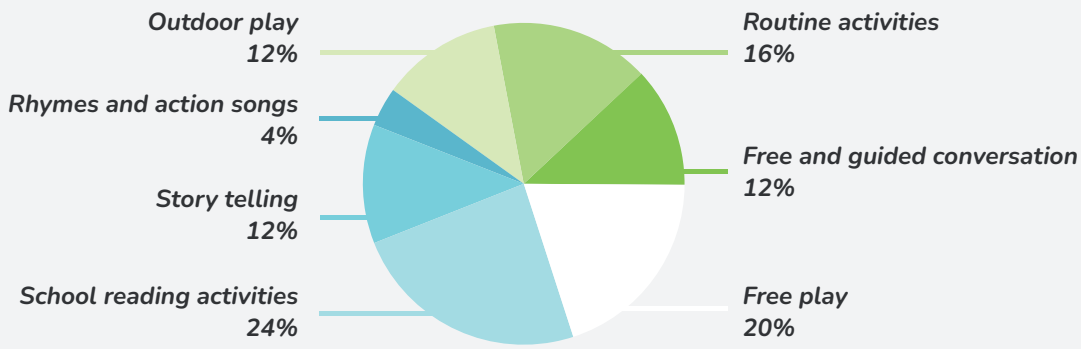School reading activities 24%
Free play 20%

Figure 4 depicts a day in the life of a preschooler actively engaged in various types of activities in an educational institution setting. It is clear that the percentage distribution in practice can be highly variable due to a multitude of factors. However, it becomes apparent that a more modern Curriculum, that meets the real developmental needs of early-aged children and is not focused solely on traditional activities aimed at school preparation and training of specific academic skills (such as reading and mathematics) is recognized. It allocates a significant cumulative percentage of time to conversations, free play, listening to and retelling various stories (storytelling), and also includes designated time for children's songs.

3.3. Education and Entertainment

The concepts of Education and Entertainment are primarily associated in the scientific literature with educational products that have an inherently entertaining nature, such as children's television and radio broadcasting, educational games, and software. The term Edutainment, which represents a hybrid genre combining learning and fun, is no longer new to science. It largely relies on visual materials, narrative or game formats, and a more informal, less didactic style of presentation (Buckingham & Scanlon, 2000). From our perspective, the term Edutainment excellently represents the balance between learning and entertainment that we place in the "Content" dimension of our multidimensional balance model.

The foundation for Edutainment begins in the essence of educational software, making it one of the most important principles for us, yet one that requires the least detailed formalization. Presumably, when creating our products, we are always "tuned" to seek this balance by default. It's hardly possible to create a completely un-entertaining mobile game that would consist entirely of "learning," hence this principle is continuously implemented by us, In our opinion, without its mandatory presence, the existence of such a product as a children's educational app for the age group of 2 to 5 years is impossible.

3.4. Balance of Representation

In the dimension called "Content," we have also included the so-called "Balance of Representation." Due to the specifications of our fictional world, we face some obvious limitations in the context of demonstrating diversity of races, ethnicities, and cultures. Striving to create as neutral but still inspiring a narrative platform

for children as possible, we have chosen anthropomorphic animals as the main speaking and acting protagonists of the Bimi Boo world. However, in some products, where there may be supplementary images of people or some cultural items (such as musical instruments, clothing items, decor items, residential settings, etc.), we strive to respectfully and accurately reflect the diversity of races, ethnicities, and cultures, as well as the diversity of physical attributes and body shapes. But it should be understood that in no product are such images central to the pedagogical impact, so we do not consider it our mission to systematically facilitate the representation of racial, ethnic, and cultural diversity.

The world of Bimi Boo has given more detailed attention to a narrower but undoubtedly necessary aspect of diversity: the representation of persons with disabilities. Among the main characters of the Bimi Boo world, there is a character named Steve, a talking fish who is almost always found and actively operates on land, engaging in any group activity alongside other characters. However, for a full life outside the aquatic environment, Steve requires special equipment. This is an aquarium on tracks, equipped with a pair of mechanical arms. According to our creative concept, this aquarium can be perceived as a symbolic representation of a wheelchair or a "smart" prosthesis. Steve actively uses it on the screen, and it becomes clear to the viewer that he always needs this fantastic technology when he is on land. By drawing an analogy, active use of a wheelchair and clearly indicating its purpose in a cartoon or game gameplay is very important; otherwise, such representation cannot be considered full and sufficient, particularly as discussed by Madej (2024), analyzing the representation of disability in children's video games.

In our view, the character Steve is a symbolic reflection of a person with a disability in the world of Bimi Boo characters. We can use the features of this character to demonstrate in our games and stories the importance of inclusion and aspects of social interaction involving a person with a disability in a positive educational manner. Using the terminology of Shell (Shell, 2021), such an approach to representing disability in video games is called "tech can overcome." It is expressed in the presence in the game world of a character who uses technical devices (possibly of even the most fantastic nature) necessary for supporting existence and at the same time being a significant part of the overall narrative. From this perspective, the presence of the character Steve can be seen as an act of support for the representation of people with disabilities in Bimi Boo products.

3.5. Reality and Fantasy

In the dimension named "Process," we can find an expression of balance between challenge and pleasure, on which the organization of educational material in products is based, and in a narrower applied sense, the design of Bimi Boo games. This principle is not innovative either in the context of game design or in the context of approaches to children's education; however, adhering to it in practice turns out to be not as simple a task as it may seem at first glance.

 From the point of view of scientific reliability, a vast array of literature can be found to confirm its feasibility and legitimacy from many different perspectives. An example of one particular case of such balance might be the so-called "Goldilocks Effect," which is experimentally confirmed as a dependency between the level of infants' attention and the optimal complexity of the material being viewed (in terms of the uniqueness and unpredictability of the events occurring in it). Kidd, Piantadosi,& Aslin (2012) define this effect as an implicit tendency of infants to maintain an intermediate pace of information acquisition and not waste cognitive resources on events that are either too simple or too complicated.

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3.6. Beauty and Necessity

Finally, we have assigned the balance between beauty and necessity to the dimension named "Esthetics." The interdisciplinary discourse on the esthetic abilities of early-age children remains open; this topic can be called "delicate" for various reasons, primarily due to the controversial interpretation of the essence of esthetics as a phenomenon (Blank, 2012). Addressing this dimension, we do not aim to enter the territory belonging to aesthetic education as a system of purposeful pedagogical influence.

There are studies dedicated to specific aspects of the positive influence of beauty in its broad understanding on learning outcomes. In the study by Chou, Cheng, & Cheng (2016), a positive relationship was found between the esthetically organized environment in the classroom and the level of children's motivation to read. Sousa (2006) attributes an important role to art (even in the form of passive

listening to music) in developing thinking skills and believes that art helps, among other things, to teach children a thoughtful understanding of the world.

Generally speaking, as creators of educational children's products, we pay quite a lot of attention to designing their artistic components. We believe we cannot offer children something conditionally "ugly," sloppy, with disharmonious combinations—be it visual material, sounding music, or unthought phrases in dialogues. However, the concept of "beauty" is not viable without recognizing the deep subjectivity of this concept. That's why we need a special balance—between a certain "beauty" to which we aspire as creators and artists and the necessity prompted by both pedagogical and practical needs. In other words, we do not overly spend resources on making esthetically refined and "beautiful," in our opinion, those parts of products that can be designed in a minimalist and simple artistic manner.

The effectiveness of this principle is easily traceable by looking at the example of toy design development. We strive to apply images to the wooden parts of the toy only if they carry meaningful content and/or are needed for proper interaction with the toy in an educational context. Parts that could be decorated with images serving solely an esthetic purpose, we prefer to leave unpainted, thus preserving the texture and natural pattern of the wood.

In addition to the above, we tend to believe that a sufficient (but not excessive) filling of children's products with beautiful, esthetic content ultimately contributes to the formation of what can colloquially be called "good taste" in children. Speaking in more scientific or philosophical terms, this could be referred to as "esthetic literacy," understood as the ability to see beauty in the surrounding world and derive pleasure from perceiving it. For the same purpose, many pedagogical practices involve decorating playrooms with esthetic paintings placed at children's eye level or playing classical music for them to listen to.

4. Learning Opportunities

An important practical mission that we, as creators, set for all Bimi Boo products is the continuous search for and effective use of so-called "learning opportunities." By this, we mean potential types of activities that can contribute to chil-

dren's learning and development. Because most of our products are primarily intended for use in a home environment, a feature of the sought-after opportunities is that they must be deeply, yet subtly, integrated into a child's everyday life. Children's free play itself is seen as a field containing an endless number of potential opportunities. In a series of books dedicated to this topic (Woods, 2017), the authors point out that countless learning opportunities for children can be planned and directed by parents and educators through actions such as: a) organizing diverse and carefully structured "safe" spaces (both inside the home and outside); b) organizing activity zones; c) providing children with access to a variety of resources and materials; d) facilitating safe relationships between children and society and the surrounding world; e) following children's interests; f) expanding the time allocated for free play.

By offering our products to the child protagonist, we see in them the very tools that could potentially prompt self-discovery and use of these opportunities. Most of our applications are structured to be a sort of digital equivalent of free play. We do not force the child to follow a certain path; we try not to direct them in any particular direction with many hints and instructions, and we always strive to offer a sufficiently large (but not too large) selection of settings and themes so the child can choose their own unique path based on their interests. We also try to enrich all games with educational elements; however, in many of them, the integration is done as subtly as possible to preserve the child's natural engagement in the gaming process. More about this will be mentioned later in the section "Practical Application of Bimi Boo Pedagogy: Educational Apps.".

In regards to using gadgets, children often turn to them on their own or at their parents' initiative, particularly in moments when they need to "kill time"—for example, during a long trip or while waiting in a queue. With access to educational apps created in the spirit of free play and open for independent exploration, seemingly "useless" pastimes can transform into a field of endless opportunities for learning.

Following the idea of endless opportunities, ready to be discovered and used by the child, lends the Bimi Boo pedagogy such an important property, in our view, as flexibility. We can describe our approach as extremely flexible and capable of compatibility with other popular methodologies without any conflict. For instance, we can support a child's development and learning at home and during the aforementioned "useless time," while at other times, the same child might attend an educational institution that operates according to the Reggio Emilia approach or Montessori method.

Another principle supporting the direction towards searching for and effectively using opportunities in Bimi Boo pedagogy is also our endeavor to create all products ready for immediate use by children (the previously mentioned Ready-to-learn concept). We do not impose on the parent or guardian the responsibility for painstakingly organizing the environment. All our digital products do not require mandatory observer or assistant intervention, are maximally safe, and are ready for use immediately after launching on a device. Games and toys never contain complex instructions that a child couldn't potentially handle on their own. Whether to intervene in the process, help and hint to the child, or watch the content together with them, we offer the parent or guardian to find answers to these and similar questions independently, not forcing any of the answers and counting on the fact that the parent or guardian's choice will be dictated by both internal attitudes and momentary circumstances. If, at some point in time, a parent cannot engage due to circumstances or consciously chooses not to engage in the child's interaction with the Bimi Boo product, they can be reassured about its safety.

5. Parental Rights

In this section, which considers the last of the foundational principles of Bimi Boo's pedagogy, we wish to express our own position. It pertains to the moral messages that can be transmitted through the content of our products. The capacity of children to absorb moral messages from media products, such as cartoons or television shows, is not fully understood but is presumably assessed as moderate (Hardy & Calaborne, 2007). Researchers also agree that a variety of factors beyond those related to the content itself and the messages it includes influence these capabilities. Clearly, such factors should include both the individual characteristics of the child recipient and the characteristics of the environment in which content consumption occurs.

If we delve into the meaning of the concept of "moral messages," one can find significantly differing interpretations of its essence in the scientific literature. Some moral messages, for example, can be attributed to "universal human morality" (social morality, the morality of fairness). For instance, these are messages about the importance of friendship, honesty, mutual assistance, care, respectful treatment of others, and their belongings. Such moral messages are usually

considered positive and are found universally in all stories, cartoons, fairy tales, and other products created for the child audience, and Bimi Boo's products are no exception in this regard.

A completely different type of moral message, in our view, are those that can be associated with any hidden or explicit religious and political motives. We are convinced that the choice of political and religious position is exclusively the responsibility of parents and guardians. Thus, we have no moral right to transmit messages of this kind through our products.

Following the same principle, in the educational part of our products, we intentionally do not address issues of gender and sex. We do not want to cross what we see as the inviolable right of parents to independently convey these nuances to their young children according to their own beliefs and values. To minimize the possibility of inadvertently facilitating the adoption of gender stereotypes through our content, we take certain measures. For instance, we deliberately make all our products as gender-neutral as possible in the context of their potential perception by children. That is, we want both children and parents to perceive the world of Bimi Boo as a world (such as a cartoon, such a story, such an application, etc.) that could equally appeal to children of any gender and sex without undue emphasis and without dividing content into being created specifically "for boys" or "for girls.".

Practical application of Bimi Boo pedagogy

1. Educational applications

As already mentioned, we consider the use of applications to be promisingin terms of their potentially positive impact on early learning for at least two main reasons: children are motivated to independently use the built-in features for learning in games, including those presented in the form of applications; and also because the use of gadgets (in particular, smartphones and tablets) by young children is steadily increasing. Moreover, the latter trend is equally stable for many families with very different social statuses and is widespread everywhere.

In the critical study "Putting Education in 'Educational' Apps: Lessons From the Science of Learning," numerous children's educational applications are examined and identified as having a number of features called "pitfalls," and it was suggested to avoid them in developing. What the authors call "the fire-alarm syndrome" (distracting a child's attention with unexpected bright stimuli, sometimes even unrelated to the essence of the application) is, in our view, caused by the presence of suddenly and unexpectedly appearing advertising from third parties. In Bimi Boo applications, advertising is completely absent. The next "pitfall" is "the abundance of choice." Following our own principle of balance, we avoid excesses in everything, trying to offer the child only what is necessary and not overload the presented material. Applications that turn out to lack educational content despite an educational "cover" are termed by the researchers as containing "empty calories." Our own approach to assessing educational content will be discussed further.

All Bimi Boo applications can be conditionally divided into different types based on the level of expected educational load. A high educational load implies the following mandatory parameters: a) Full coverage of the complex of themes recommended by the Early Learning Guidelines for children aged 2 to 5 years from leading global organizations involved in early learning and development;

b) The presence of Learning Path, designed with age appropriateness and arrangement of educational material from simpler to more complex in mind. Applications with an "Above Average" level of educational load are distinguished by a large richness of various activities related to themes recommended by the Early Learning Guidelines. However, they are distinguished by the absence of Learning Path, as well as a narrower focus on studying one or several similar aspects of a particular theme. We classified applications with a "Medium" level of educational load as those in which the educational element is in maximum balance with the entertainment. Typically, they generate great interest from the child and are designed considering the casual presentation of teaching assignments and educational material. Finally, some of the educational applications of Bimi Boo can be conditionally characterized as having a "low level" of educational load. Although they contain many pure game elements, the greatest possible gaming activities involve gentle, hidden teaching of simple topics and skills.

Table 2. *Classification of Bimi Boo's apps by educational load level (as of 2024).*

	App Type	Type Meaning	Educational Load	App Name
1	Complex Curricula Apps	Full Curriculum Apps	High	Academy
2	One-skill Apps	Apps focused on a single skill or a set of related skills. Suitable for practicing certain skills.	Above Average	Numbers First words Tunes Drawing pages
3	Play & Learning Apps	Designed to maximize a child's interest while offering a set of educational activities. Children are free to choose activities with no learning path. Only visual hints are provided; apps are intended for intuitive navigation and mechanism understanding by the child. The absence of voice navigation makes these apps independent of the child's language environment.	Average	Shapes & Colors Counting Coloring puzzles Episodes Adventure Puzzles Birthday Mysteries Baby Phone Coloring Drawing Super puzzles
4	Games with Learning Hints	Engaging games that include educational elements.	Low	Runner Cooking Sandbox

It is also worth noting that all Bimi Boo applications, regardless of the education-al load level, are presumably aimed at developing general cognitive skills, the training of which occurs during the user's interaction with the application inter-face and with any available game functions (visual-motor coordination, attention, and the ability to follow visual, auditory, or mixed instructions with the aim of successfully completing a task).

Another crucial aspect of the applied use of Bimi Boo's pedagogy in the produc-tion of educational apps is their safety.

2. Media Content
(Videos, Cartoons, Stories, Songs)

The unique media content produced by Bimi Boo includes a variety of products. This range of products includes songs and cartoons, videos from the series Facts for Kids (included in the Academy app), as well as any other products that express the so-called Lore of the Bimi Boo world in some way. By Lore, we understand the collection of rules, laws, and characteristics belonging to the fictional characters of the world, describing the nature of their relationships, preferred lines of behavior, and any other details of their existence related to homes, locations, tools used, household items, and socio-economic structure. Lore even regulates the details of purely fantastical things like magic or time travel.

We identified four main principles that we apply to all created media content and, primarily, to its textual part (scripts and story plots, lyrics of children's songs) (see Table 3).

As the first two principles have already been detailed in previous sections, the discussion will continue on the remaining two principles. The importance of Social-Emotional Learning as a targeted pedagogical intervention in early child-hood is confirmed by numerous studies and recognized by leading organizations and government institutes as a priority area for further in-depth educational work with preschool institutions, parents, and guardians. Particularly, it emphasizes the importance of the connection between successful social-emotional develop-ment and future school (academic) and cognitive success. In the long term,

Table 3. *Practical Principles Applied in Creating Bimi Boo Media Content.*

	Principle	Meaning
1	Absence of Media Violence	No scenes of violence or cruelty were demonstrated.
2	Moral (Ethical) Neutrality	No religious or political contexts
3	Focus on Social-Emotional Learning	In demonstrated plots, characters always interact with each other, making this format perfectly suited for the key components of social-emotional learning.
4	Wording (Age Appropriate)	Word choice is, in our view, a key component that both matches the child's age level of understanding of the story and helps develop language skills by enriching vocabulary.

enhancing social and emotional competence can not only provide a likely high level of school readiness but also a much greater number of deferred positive outcomes – influencing the likelihood of graduating high school, readiness for post-secondary education, successful careers, positive family and work relation-ships, improved mental health, reduced levels of criminal behavior, and active civic engagement (Hawkins, Kosterman, Catalano, Hill, & Abbott, 2008; Jones, Greenberg, & Crowley, 2015).

We meticulously reviewed the most significant contemporary guides and litera-ture related to Social-Emotional Learning (SEL) in early childhood to extract the following components: a) themes recommended for inclusion in an SEL-oriented curriculum; b) specific examples of pedagogical practices, lesson plans, and developing or guiding dialogues that constructively contribute to the assimilation of knowledge and skills in the context of SEL. Particularly, these were used not for their direct transfer to our products but rather as sources of inspiration in the process of finding guidelines and limitations for the creative team engaged in generating story ideas and preparing scripts. The most vivid expression of such a search for inspiration was found in the preparation of the cycle of the animated series named Bimi Boo: Preschool Stories (working title), where the main setting is a kindergarten and a teacher character is introduced. As a result, in our fictional kindergarten from Bimi Boo: Preschool Stories, where anthropomorphic animals study, one can encounter reinterpreted practices and pedagogical elements that are realistic considering the peculiarities of animation but carry a positive mean-ing in the context of SEL learning.

From this "inspiration seeking" practice, we have derived the following internal rule listed in Table 3 under the name "Correct and understandable (age-appropriate) wording." Starting from the age of 2, children can obviously learn new words and expand their vocabulary by watching media content (Naigles & Kako, 1993; Rice, Huston, Truglio, & Wright, 1990; Rice & Woodsmall, 1988). Another body of research also emphasizes the connection between watching high-quality children's content and the development of important pre-academic skills and even the likelihood of future academic success (Anderson, Huston, Schmitt, Linebarger, & Wright, 2001; Rice, Huston, Truglio, & Wright, 1990; Wright, Huston, Murphy, St Peters, Piñon,Scantlin & Kotler (2001). Besides the importance of carefully thought-out visual storytelling, one cannot underestimate the importance of specific words, expressions, and even intonations with which words will be pronounced on screen, especially if they belong to a character representing an adult—a parent or teacher. Based on the foregoing, we choose a carefully thought-out approach to selecting the right words and expressions that will be spoken by our characters on screen while trying to keep the language as lively, literate, and rich as possible. Moreover, we practice involving consultants from among practicing educators and kindergarten staff for additional verification of all the script material.

Returning to the general emphasis on Social-Emotional Learning in the Bimi Boo media content, it would be pertinent to mention our conviction that the demonstrated stories, in which a group of characters interact with each other and collectively resolve any conflict situations, finding an optimal solution, are extremely effective for modeling educational situations and visually demonstrating desirable behavioral patterns. Iandolo, Esposito, and Venuti (2013) consider an indicator of good content to be cartoons in which the behavior of characters is more often evaluated as good rather than bad; aggression may be shown but is never encouraged, and the efforts of the characters should be directed toward finding adaptive solutions. Besides SEL orientation, we can also demonstrate desirable behavior patterns regarding healthy habits, such as preferring healthy food and popularizing strengthening physical exercises.

Apparently, the high quality of media content consumed by a child through television or YouTube determines its potential in terms of learning. Effective learning from watching programs or cartoons is possible in two-year-olds when viewing acceptable content serving this purpose (Barr, Muentener, Garcia, Fujimoto & Chávez, 2007). Carefully designed and so-called child-directed as opposed to adult-directed (Wright, Huston, Murphy, St Peters, Piñon, Scantlin & Kotler,

2001) educational videos, shows, and cartoons have great potential for learning, ranging from vocabulary expansion to the assimilation of entire behavior patterns. And we make every possible effort to make the Bimi Boo media content exactly like that.

3. Toys

The modern market is saturated with a vast array of different toys. According to a study conducted by the Toy Industry Association (2021), there are an average of 71 toys in every American household. It's hard to judge the quality of the average toy and how much it actually contributes to child development. However, the important role that a child's interaction with toys plays in early childhood cannot be denied.

At this stage, Bimi Boo Company produces toys primarily for home use. This fact has led us to develop some of our own principles that we apply when designing new toys. For comparison, in traditional Montessori classes, there are strict and clear requirements for organizing the environment, as well as requirements for the toys that are placed in the rooms. Montessori educational materials, which include toys and their sets, must be limited in quantity and arranged in a special way. And although toys in the Montessori approach are also intended more for independent use by the child than for play with prompts from an adult, the average parent is unlikely to have the necessary knowledge and resources to set up a fully prepared Montessori environment at home and correctly select the necessary toys in the right quantity; this task is usually performed by specialists in educational institutions.

For home use, we would like to offer toys that allow for independent exploration and operation by children, are durable and suitable for reuse, and, of course, meet current safety standards. Additionally, Bimi Boo toys are designed to encourage children to explore the power of their own imagination, which aligns with current recommendations from the American Academy of Pediatrics (2007).

Summarizing the above, we aim to endow all toys released under the Bimi Boo brand with the following set of characteristics (see Table 4).

Table 4. *Characteristics of Bimi Boo toys and their meaning.*

	Characteristic	Meaning
1	Safe, age-appropriate	All toys exceed international safety standards and are certified in the USA (ASTM F963-17) and the EU (EN71)
2	Do not depict weapons, military equipment, and combat gear	This characteristic is mandatory for all Bimi Boo toys in order to support the "Culture of Peace."
3	Suitable for independent play	Bimi Boo toys do not contain mandatory reading instructions, do not require mandatory assistance from a parent or educator during play, but they are also suitable for joint play
4	Durable, suitable for reuse	To ensure this characteristic in our toys, we prefer to use natural wood as the main manufacturing material. Moreover, natural wood is practical, pleasant to the touch, and wooden parts create pleasant, not overly loud sounds when colliding with each other. We believe this positively enriches the sensory experience of children.
5	Awaken imagination.	Bimi Boo toys do not contain special effects such as sound, light, or voiceovers, and also do not contain an excessively large number of realistically presented elements, encouraging children to fantasize and invent interesting play on their own. Following the Bimi Boo pedagogy principle of "Balance: beauty and necessity," we strive not to paint the parts of the toys, preferring to preserve the natural color and texture of the wood unless painting or images are necessary from a pedagogical perspective (see relevant section for more).

We can conditionally divide the existing and developing product lines into groups based on their direction, as reflected in Table 5.

Our goal in the toy development process is to offer children high-quality, thoughtful toys possessing the given set of characteristics, regardless of which of the above groups they belong to.

Summarizing the above, we note that Bimi Boo products include both digital products (educational applications, media content) and traditional toys and educational materials. Bimi Boo pedagogy is an integrated approach to the early development of children from 2 to 5 years old, the development of cognitive functions, behavior, social, emotional, and self-regulation capabilities, and physical development. The importance of play at an early age cannot be overstated.

The environment with which Bimi Boo pedagogy works is predominantly the home environment and the environment familiar to the child with the potential of HLE ("home-learning environment"), filled with materials and tools of the "responsible care" approach. Among our products, digital products, online methods, and mobile applications are of particular importance, although Bimi Boo does not abandon traditional pedagogy. The most optimal type of educational and play activity for a child aged 2 to 5 years is child-led (child-initiated) play and learning. The guiding principles of Bimi Boo pedagogy are:

- Security (no advertising, media violence);
- Balance (between challenge and pleasure, entertainment and learning, reality and fantasy, beauty and necessity, balance of representation);
- Finding and effectively using "learning opportunities";
- All products are ready for immediate use by children;
- Protection of the rights of parents (the content of the products is "universal morality" without religious or political motives and is gender neutral).

All online Bimi Boo applications can be divided into types according to the level of educational load. They are aimed at developing general cognitive skills. Media content produced by Bimi Boo is songs, cartoons, videos, and any other products in which the "Lore" of the Bimi Boo world is somehow expressed. Bimi Boo media content principles: absence of media violence, moral neutrality, emphasis on social-emotional learning, and correct and understandable vocabulary. At this stage, the Bimi Boo company produces toys for home use, suitable for independent exploration and use by children, for reuse.

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