



The Impact of Play on Wellbeing

Analytical Study on Play and Wellbeing
Condensed Edition

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aiESG, Inc.

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1. Introduction

This report is a compilation of excerpts from the “[Analysis on Play and Wellbeing](#),” which was conducted in collaboration with aiESG, Inc. The purpose of this study was to gain a broader understanding of the impact of play on human wellbeing. The excerpts included in this report focus on analysis and research contents that the Tomy Group would particularly like to highlight, and they have undergone editing from its specialized phrasing for easier comprehension. For a more detailed review of study results, please also refer to the “[Analysis on Play and Wellbeing](#).”

(Please note that in editing this report, some terms and expressions have been paraphrased.)

2. Study Background and Overview



At the Tomy Group,
we are committed to our updated Sustainability Vision, which was
established on the occasion of our 100th anniversary:
“A creator of quality Asobi that promotes the sustainable wellbeing of society.”
This is based on the Group’s desire to bring happiness to people through Asobi.

In considering how to realize this vision, we believe it is necessary to
understand the relationship between Asobi and wellbeing,
leading us to conduct this study.

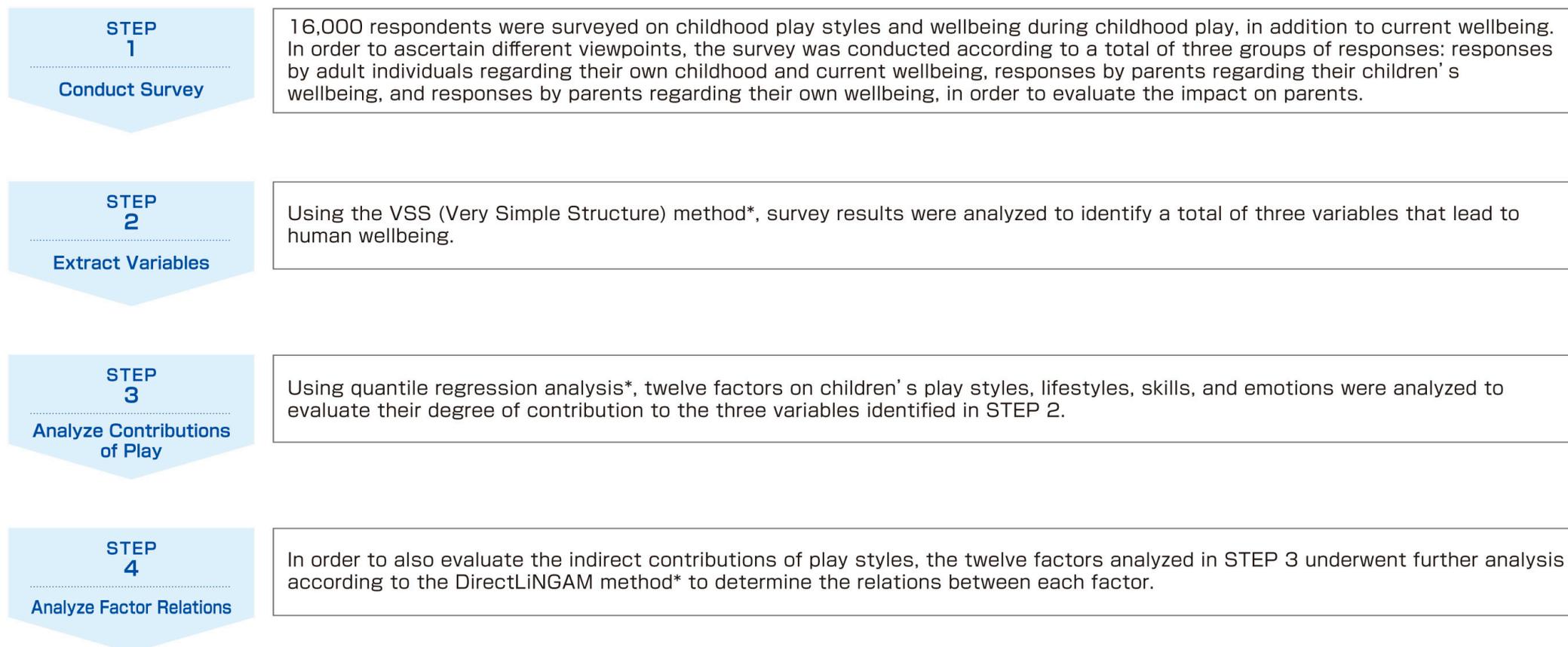
As an initial step, we conducted a survey on a wide range of topics
within the context of Asobi, with the goal of understanding the overall
relationship between Asobi and human wellbeing. This report is the
culmination of analysis based on those survey results, including what
elements lead to wellbeing,
what kind of Asobi or what other factors contribute to those variables,
and what relations lie between those factors.

Note: “Asobi” is a Japanese word for “play”, “amusement”, “diversion”, “pastime” and more.

2. Study Background and Overview

In this study, we evaluated the question
“How does Play contribute to human wellbeing?”
based on the following sequence:

● Study Sequence



Note: Please refer to the end of this report and the Full Edition of the “Analysis on Play and Wellbeing” for more information on each analysis method.

3. Study Results

3-1. Does Play contribute to wellbeing?

This study found that the following three variables contribute to human wellbeing:

●The Three Variables that Contribute to Wellbeing

Contributing Variables	Specific Relation
Subjective Wellbeing (Well1)	Relates to overall psychological wellbeing and life satisfaction
Attachment to Family (Well2)	Relates to being supported by family bonds and gaining fulfillment from it
Play Immersion/Enthusiasm (Well3)	Relates to intrinsic motivation to play and immerse oneself in activities that bring inner joy and fulfillment



3. Study Results

3-1. Does Play contribute to wellbeing?

This study also analyzed how the twelve factors (set against the aspect of children's play styles as well as the non-Play aspects of children's lifestyle, children's skills, and children's emotions) contribute to the three variables that contribute to wellbeing.

● Factors evaluated for their impact on the three variables that contribute to wellbeing

Aspect	Factor	Implication	Details (Main Questions)
Children's Play Styles	1 Manual Play (play1)	Play involving dexterous hand work	<ul style="list-style-type: none"> Play involving logic, such as puzzles, mazes, building blocks, etc. Creative play involving clay or blocks, drawing, or singing
	2 Physical Play (play2)	General physical activity	<ul style="list-style-type: none"> Play involving running or jumping Play involving balls
	3 Digital Play (play3)	Play involving watching videos or playing video games	<ul style="list-style-type: none"> Playing video games or watching videos Posting videos on social media, etc.
	4 Play for Under 3s (play_un3)	Play styles for under 3s	<ul style="list-style-type: none"> Same as manual play and physical play, but involving play styles for under 3s
Children's Lifestyles	5 Time with Parents (life1)	Time children share with parents/caregivers	<ul style="list-style-type: none"> Amount of time spent playing with parent or caregiver per day Amount of time spent with parent or caregiver per day
	6 Toy Availability (life2)	Number of toys children possess	<ul style="list-style-type: none"> Amount of money spent on toys per month Number of toys that children are typically allowed to play with

Aspect	Factor	Implication	Details (Main Questions)
Children's Skills	7 Motor-Social Competence (cog1)	Physical play with friends	<ul style="list-style-type: none"> Smooth and balanced movement while playing Acceptance of others approaching while playing
	8 Divergent Thinking (cog2)	Creative thinking and ability to conceptualize new ideas	<ul style="list-style-type: none"> Ability to conceptualize new forms of play Ability to introduce uncommon items during play (e.g., daily items other than toys)
	9 Cooperativeness (cog3)	Ability to act cooperatively	<ul style="list-style-type: none"> Actively invites other children to play Ability to play cooperatively with other children
Children's Emotions	10 Playful Humor (emo1)	Expresses humor during play	<ul style="list-style-type: none"> Enjoys joking with others Initiates funny storytelling
	11 Emotional Investment (emo2)	Absorbs themselves in play	<ul style="list-style-type: none"> Shows liveliness during play Shows enthusiasm (willingness and excitement) during play
	12 Emotional Release (emo3)	Expresses emotions during play	<ul style="list-style-type: none"> Often becomes moody, sad, or starts to cry Often fights with or bullies other children

3. Study Results

3-1. Does Play contribute to wellbeing?

Upon analysis of the twelve factors and its impact on the three variables that contribute to wellbeing, the following effects were observed:

The Effects of Play on Wellbeing

Manual play was found to be effective for subjective wellbeing. Results also showed that manual play had a certain effect in terms of attachment to family and play immersion/enthusiasm, although the results varied depending on the subject's degree of wellbeing.

On the other hand, results showed that physical and digital play had some negative impact, depending on the variable of wellbeing.

The Effects of Non-Play Factors on Wellbeing

In terms of non-Play factors, we found that the following factors have a broadly positive impact on wellbeing: motor-social competence, playful humor, and emotional investment. We also found that elements that fall under the children's skill group (motor-social competence, divergent thinking and cooperativeness) had a positive effect on subjective wellbeing.

● Analysis Results of Responses by Adult Individuals Reflecting on Their Own Childhood and Current Wellbeing

Factors (Variables)		Subjective Wellbeing					Attachment to Family					Play Immersion/Enthusiasm				
		Subject's Degree of Wellbeing*					Subject's Degree of Wellbeing*					Subject's Degree of Wellbeing*				
		Low	Slightly Low	Moderate	Slightly High	High	Low	Slightly Low	Moderate	Slightly High	High	Low	Slightly Low	Moderate	Slightly High	High
Children's Play Styles	Manual Play	↑	↑	↑	↑	↑	↑	↑						↑	↑	↑
	Physical Play	↓	↓	↓				↓							↑	↑
	Digital Play	↑	↑	↑	↑	↑	↑		↓	↓	↓				↓	↓
	Play for Under 3s									↑						
Children's Lifestyles	Time with Parents							↑		↑		↑	↑	↑		↑
	Toy Availability											↑	↑	↑	↑	
Children's Skills	Motor-Social Competence	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑		↑	↑	↑	↑
	Divergent Thinking	↑	↑	↑	↑	↑	↑	↑		↓	↓	↑	↑	↑		
	Cooperativeness	↑	↑	↑	↑	↑	↑	↑	↓	↓	↓		↓	↓	↓	↓
Children's Emotions	Playful Humor			↑	↑	↑		↑	↑	↑	↑	↑	↑	↑	↑	↑
	Emotional Investment			↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
	Emotional Release		↑	↑					↓	↓	↓	↑	↑	↑	↑	



Note: This study uses quantile regression analysis to investigate whether the impact of each factor differs according to the different levels of current wellbeing reported by the subjects. For this reason, the figure above is shown according to the different levels of "Subject's Degree of Wellbeing."

Note: Arrows within the figure above indicate only those which results showed significant effects.

↑ indicates that analysis results showed a significantly positive impact on wellbeing variables, as where ↓ indicates that analysis results showed a significantly negative impact on wellbeing variables.

3. Study Results

3-2. Does Play contribute to fun and satisfaction in everyday life?

We will now take a deeper look at particularly noteworthy results. First is the types of contributions Play (and its three play styles) brings to wellbeing.

With respect to the three variables of wellbeing identified in this study, we found that the act of playing itself has effect to a certain degree. In particular, we found that manual play, physical play, and digital play all had some effect on subjective wellbeing and play immersion/enthusiasm, which relates to feelings of joy and fulfillment.

Manual play (which includes play involving activities like puzzles, building blocks, creative play, etc.) was found to have a uniformly positive impact, observed from both the perspectives of parents and the perspectives of individuals reflecting on their childhood.

Physical play (which includes play involving activities like running or jumping, playing sports with balls, etc.) was found to have some impact, although results differed between the perspectives of individuals and the perspectives of parents. Analysis revealed a relatively negative impact from the individuals' perspective, whereas a positive impact on subjective wellbeing and play immersion/enthusiasm was observed from the parents' perspective.

Digital play (which includes play involving video games, watching videos, etc.) was found to have a positive impact on subjective wellbeing from the perspectives of adult individuals, but had almost no impact from the perspectives of parents.

Meanwhile, with regards to **play for children under 3**, we could not adequately observe an impact on wellbeing.



3. Study Results

3-2. Does Play contribute to fun and satisfaction in everyday life?

Another aspect we analyzed in this study was the impact of children’s play styles on their parents. As a result, we found that physical and digital play by children indirectly had a positive impact on parental wellbeing. This may be due to the increase in social connections through children being active outside, which may also lead to positive changes in the parents’ emotions. With digital play, this may be a result of an increase in free time for the parent, as it presents an opportunity for children to play alone.

● Impact on Subjective Wellbeing

Factors (Variables)	Impact	Subjective Wellbeing				
		Subject’s Degree of Wellbeing				
		Low	Slightly Low	Moderate	Slightly High	High
Manual Play	Impact from Parents’ Perspectives	↑0.10	↑0.07	↑0.08	↑0.07	↑0.06
	Impact from Individuals’ Perspectives	↑0.09	↑0.09	↑0.05	↑0.05	↑0.06
	Impact on Parents					
Physical Play	Impact from Parents’ Perspectives		↑0.04	↑0.04	↑0.05	
	Impact from Individuals’ Perspectives	-0.09	-0.05	-0.05		
	Impact on Parents			↑0.03	↑0.04	↑0.05
Digital Play	Impact from Parents’ Perspectives					
	Impact from Individuals’ Perspectives	↑0.18	↑0.14	↑0.08	↑0.04	↑0.04
	Impact on Parents	↑0.15	↑0.11	↑0.08	↑0.07	↑0.07

● Impact on Play Immersion/Enthusiasm

Factors (Variables)	Impact	Play Immersion/Enthusiasm				
		Subject’s Degree of Wellbeing				
		Low	Slightly Low	Moderate	Slightly High	High
Manual Play	Impact from Parents’ Perspectives					
	Impact from Individuals’ Perspectives			↑0.04	↑0.09	↑0.06
	Impact on Parents	↑0.08				
Physical Play	Impact from Parents’ Perspectives	↑0.07	↑0.07	↑0.08	↑0.12	↑0.15
	Impact from Individuals’ Perspectives				↑0.05	↑0.06
	Impact on Parents	↑0.09	↑0.05	↑0.04	↑0.06	
Digital Play	Impact from Parents’ Perspectives					
	Impact from Individuals’ Perspectives				-0.06	-0.09
	Impact on Parents					

Note: Figures above are the results of quantile regression analysis and indicate the extent to which wellbeing variables change (in standard deviation units) when an explanatory variable increases one standard deviation from the mean. Only coefficients that are statistically significant at the 5% level are listed.

Topic: Child Wellbeing and Parental Wellbeing

This study also revealed that aspects such as children’s play styles also impact parental wellbeing.

For example, physical play was found to positively impact parental wellbeing. As children are more active outside, they make more social connections, which can bring about positive changes in the parent’s emotions, demonstrating how children’s play styles can indirectly increase parental wellbeing (i.e., spillover effect). Under our mission to contribute to the wellbeing of not only children, but of “all people with the spirit of Play,” the Tomy Group is committed to advancing business with Play’s ripple effects in mind.



3. Study Results

3-3. Does Play contribute to an increase in connections with people?

Next, we will assess whether Play expands relationships with communities such as family, friends, and other third places.

Manual play was found to increase attachment to family. On the other hand, physical play and digital play were found to potentially have a negative impact. It is possible that excessive time spent on digital play (watching videos, etc.) reduces time spent with family, leading to a decrease in familial attachment.

One question that was deemed inconclusive in this study was whether Play exclusively increases the sense of belonging to a community, a factor that appears to be highly related to the variable of subjective wellbeing.

Topic: Time Dedicated to Play and Wellbeing

We found that a certain number of hours dedicated to Play has a positive impact on wellbeing. Positive effects were seen for durations up to 6 hours, while it waned for the duration between 7 to 8 hours, and particularly for the duration of 8 hours, negative effects were seen on subjective wellbeing and attachment to family. These results indicate that more play time does not necessarily produce better outcomes. For example, children in single-parent households or situations where adequate care is not available at home often spend after-school hours alone.

Such backgrounds may lead to the simultaneous occurrence of long hours of play and low wellbeing.

Given these findings, the Tomy Group believes it is vital to collaborate with its stakeholders to implement a comprehensive approach centered on Play.

Impact on Attachment to Family

Factors (Variables)	Impact	Attachment to Family				
		Subject's Degree of Wellbeing				
		Low	Slightly Low	Moderate	Slightly High	High
Manual Play	Impact from Parents' Perspectives			↑0.03		
	Impact from Individuals' Perspectives		↑0.04	↑0.04		
	Impact on Parents					
Physical Play	Impact from Parents' Perspectives	-0.13	-0.08	-0.06	-0.07	
	Impact from Individuals' Perspectives		-0.03			
	Impact on Parents			-0.04	-0.03	
Digital Play	Impact from Parents' Perspectives					
	Impact from Individuals' Perspectives			-0.03	-0.08	-0.11
	Impact on Parents			-0.04	-0.05	-0.09



3. Study Results

3-4. Does Play contribute to an individual's ability to enrich one's own life?

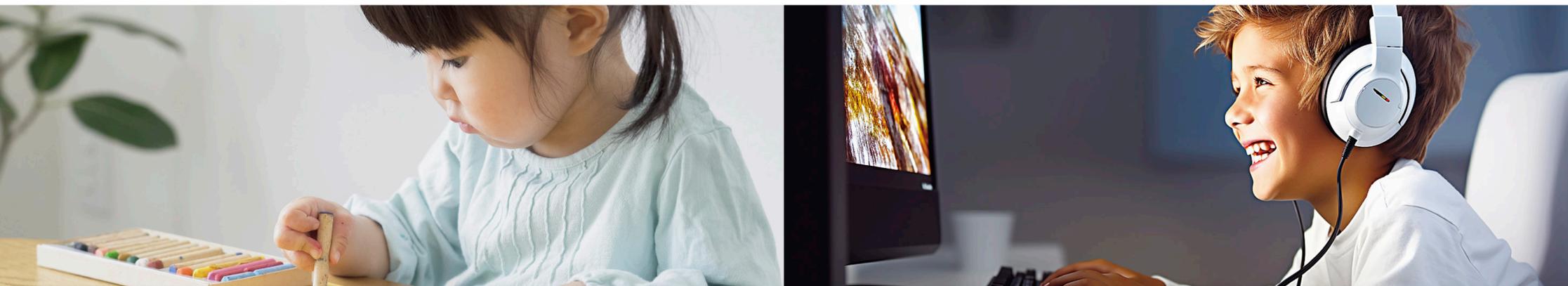
In addition to Play's degree of impact on the three variables that contribute to wellbeing, we also analyzed Play's impact on each of the twelve factors, such as play styles and lifestyles (the methodology for this analysis differs from the aforementioned analysis).

As a result, we found that play has positive effects on factors that contribute to overall wellbeing, such as motor-social competence, playful humor, and emotional investment.

Manual play was found to be helpful in promoting children's emotional development and fostering skills such as expressing feelings and understanding emotions. For example, it was seen to have a positive impact on divergent thinking (coming up with new ideas, using alternate items) and emotional investment (liveliness, being enthusiastic). Unlike physically active forms of Play, this type of Play involves many aspects of quiet contemplation and entering into one's own world. The inward-facing quality of these activities encourage not only the act of experiencing emotions, but also the process of carefully reflecting on and understanding those emotions (emotional processing), which is thought to lead to deeper emotional involvement.

Digital play is thought to contribute to the development of social skills (the ability to engage with others), physical skills, and cooperative skills (the ability to work well with others). For example, we found that it contributes to motor-social competence (physical movement, accepting friends), cooperativeness (actively calling on others, providing support), and playful humor (telling jokes, telling funny stories). These results provide further evidence that Play involving exercise plays an important role in fostering children's abilities to engage with others and express a range of emotions.

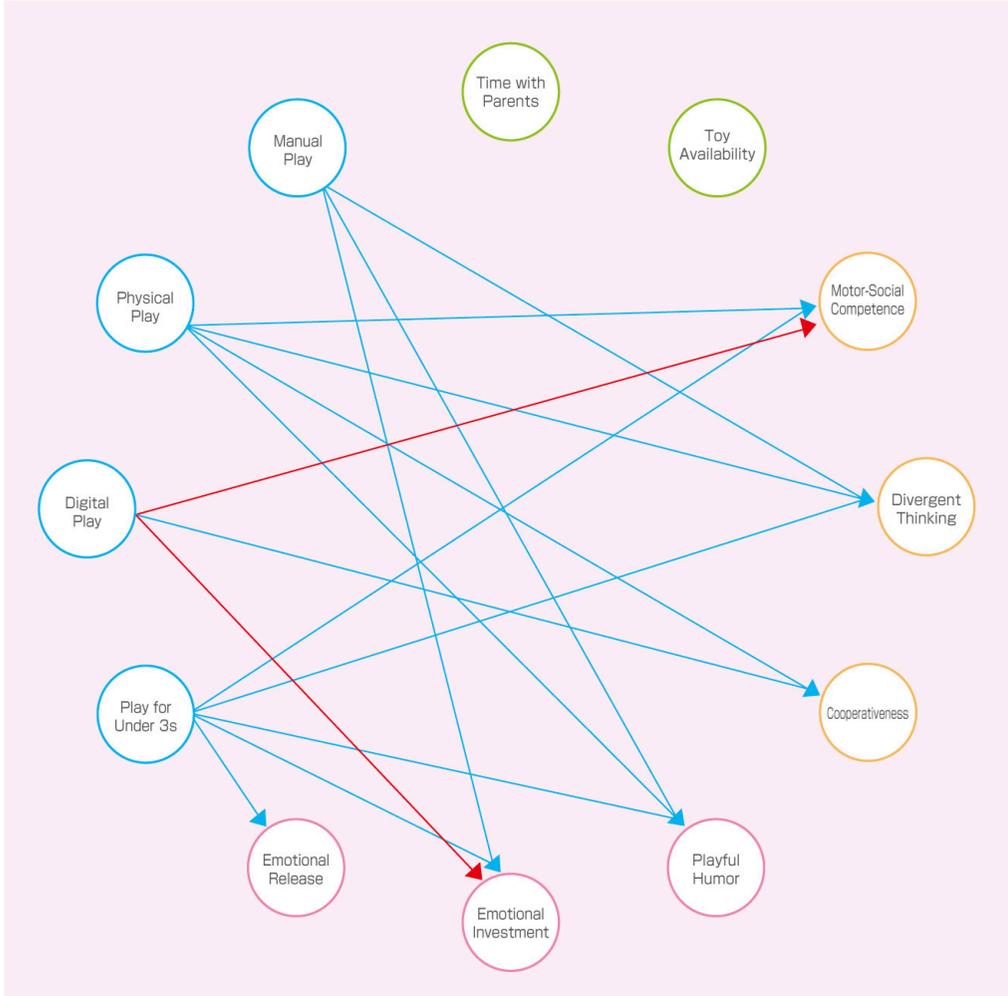
We believe that Play's contribution to these non-cognitive abilities hold the potential to indirectly contribute to wellbeing as well.



3. Study Results

3-4. Does Play contribute to an individual's ability to enrich one's own life?

● Impact on factors besides play style (analysis based on responses by individuals reflecting on their childhood)



Note: Blue arrows indicate positive impact, while red arrows indicate negative impact.
 Note: The figure above illustrates how play styles affect children's lifestyles and skills based on analysis results.



Topic: Impact of Toys on Wellbeing

Do toys contribute to wellbeing?

Through this study, we found that toys had a positive effect on increasing play immersion and enthusiasm. We also observed that toys are directly linked to nurturing children's ability to release emotions, as well as increased frequency of manual play.

These results indicate that playing with toys may potentially lead to more opportunities for children to express their feelings and engage in reflective forms of Play, thus allowing for a more fulfilling pastime.

As a provider of Play, the Tomy Group will continue striving to contribute to wellbeing by pursuing new toy features and formats.

4. Conclusion

In this study, we analyzed how Play contributes to wellbeing, including its direct impact and indirect impact through other factors.

The results showed how Play plays a role in contributing to people's wellbeing. We were able to observe that Play contributes to wellbeing from diverse angles, such as providing enjoyment and enthusiasm, creating connections with others, and enhancing skills that lead to wellbeing.

Through Play, the Tomy Group strives to contribute to people's happiness and their ability to lead fulfilling lives. Our mission will continue with these new findings in mind.

In conclusion, we believe it is vital to utilize this study's findings to further review and advance future research. For this purpose, we will continue to work with our stakeholders to examine the relationship between Play and wellbeing.



5. Study Methods

● Survey Subjects

- Subject regions: All 47 prefectures in Japan
- Sample size: 16,000 persons

Respondent breakdown:

- ▶ Individuals reporting on their own childhood and current wellbeing (18 years and older): 5,500 persons
- ▶ Parents reporting on their children's wellbeing (Parents with children): 5,500 persons
- ▶ Parents reporting on their own wellbeing (Parents with children ages 12 and under): 5,000 persons

● Survey Content (Summary)

- What kind of play did you engage in during your childhood?
- What state were you in during play in your childhood?
- What is the current state of your/your child's wellbeing?

● Analysis Method

This study was conducted according to a three-stage analysis, described below:

1: VSS Analysis

This study analyzed survey results using VSS (Very Simple Structure) analysis to identify the structure of complex psychological factors based on 23 questions. VSS analysis is a technique that organizes the factor structure inherent in a large number of questions in an easy-to-understand manner, and makes explicit which questions are strongly linked to which variables. Through VSS analysis, we identified the three variables that contribute to wellbeing.

2: Quantile Regression Analysis

Next, we investigated the relationship between the three variables that contribute to wellbeing extracted from the VSS analysis and the twelve factors set against the four aspects of children's play styles, lifestyles, skills, and emotions. However, the impact of the twelve factors on each variable of wellbeing may vary depending on the individual's current state of wellbeing. For this reason, this study employed a quantile regression analysis as a method that can assess the impact of each of these degrees.

3: DirectLiNGAM

Finally, we investigated the relationship between the twelve factors. This analysis is structured in a way that complex causal relationships exist between factors, such as "play styles influence psychological characteristics, which in turn influence wellbeing (mental health and happiness)." As this makes it difficult to get a complete picture with a single regression equation, we used DirectLiNGAM, which allows us to evaluate more direct causal relations.