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Creation and Expansion of a Japanese Typeface Designed for Readers with Dyslexia

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Introduction

- Research regarding Japanese typefaces and readers with developmental dyslexia implies the possible effectiveness of Japanese typefaces designed for readers with dyslexia, which have not been created so far.
- In previous research, we defined the requirements for Japanese typefaces designed for readers with dyslexia.
- In this research, we aim to create a new Japanese typeface that fulfills the requirements defined and evaluate its

Requirements for Japanese Typefaces





effectiveness.

F. Characters of similar shapes made easy to identify G. Frames added to illustrate kanji structure

Creation and Expansion of a New Japanese Typeface

Selecting an existing Japanese typeface (Source Han Sans) as a base font

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Applying the requirements for Japanese typefaces designed for readers with dyslexia to the base font to generate new fonts



Expanding character collections to meet the demands of daily use

274 characters

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2,778 characters

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Two versions of the new Japanese typeface designed for readers with dyslexia have been created

LiS Font walnut (walnut) LiS Font cashew (cashew) りすフォントかしう りすフォントくるみ

Each contains latin characters, hiragana characters, katakana characters and jōyō (regular-use) kanji characters.

鶴 諦 溺 塡 妬 賭 藤 瞳 栃 頓 貪 井 那 奈 梨 謎 鍋 匂 虹 捻 罵 剥 箸 氾 汎 阪 斑 眉 膝 肘 阜 訃 蔽 餅 璧 蔑 哺 蜂 貌 頍 睦 勃 昧 枕 蜜 冥 麺 冶 弥 闇 喩 湧 妖 !

Preliminary Evaluation

• Two kinds of written materials (text and random kana

Methods

- Rapid reading tasks
 - duration time and number of errors are recorded
- Interview regarding most and least readable typefaces

Participants

Six children who have symptoms of dyslexia (mean[±SD] age, 10.17±1.47 years)

• Four kinds of typefaces Lis Font walnut (walnut) Hiragino Maru Gothic (maru) Hiragino Mincho (mincho) LiS Font cashew (cashew) ヒラギノ丸ゴシック ヒラギノ明朝 りすフォントくるみ りすフォントかしう

Qualitative Ar	nalysis
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	Most	readable typeface	Least r	eadable typeface		Ту	pe of miscue	es		Symptoms of roading difficulties		
ID	Text	Random characters	Text	Random characters	Skipping Error		Addition	Correction	Repetition	Symptoms of reduing unneutles		
1	maru	walnut	mincho	cashew	20%	20%	10%	50%	0%	Making errors when reading		
2	walnut	walnut	mincho	mincho	24%	19%	24%	10%	24%	Making errors when reading/Lack of reading fluency		
3	walnut	cashew	mincho	mincho	11%	15%	17%	28%	28%	Lack of reading fluency/Not good at reading kanji characters		
4	cashew	walnut	mincho	mincho	4%	13%	8%	38%	38%	Making errors when reading/Skipping characters and lines		

5	maru	maru	cashew	mincho	0%	10%	35%	35%	20%	Seeing non-existent shapes when reading
6	walnut	maru	cashew	cashew	40%	20%	10%	30%	0%	No symptoms of reading difficulties

Conclusions	Outlooks			
 Subjective readability implies a significant difference between four kinds of typefaces. 	In future research,The requirements for Japanese type			
 Participants with similar symptoms of reading difficulties may have similar preferences of typefaces 	 dyslexia should be elaborated; Relationship between objective and 			

Materials

Eight kinds of stimuli

characters)

- Type of miscues may be related to preferences of typefaces.
- ese typefaces for readers with ed;
- tive and subjective readability should be explored.

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