



香港教育大學

The Education University  
of Hong Kong



Department of  
Health and  
Physical Education

香港體育教師會議

**Hong Kong Physical Education Teachers Conference 2020**

有效運用網上教學策略於體育活動以照顧學生的多樣性  
**Effective Use of Online Teaching Strategies to Cater for  
Learner Diversity in Physical Activities**

# Background

- Due to Coronavirus (2019-nCoV) outbreak, people with intellectual disability can only just stay at home or dormitory.
- Parents mention that they can only spend their time by watching TV or playing Ipad.
- Some research stated prolonged sedentary lifestyle will affect people's health and emotion, even arouse **obesity, cardiovascular disease and behavioural problem.**



# Background

- Mental health of people with SEN and their caregivers will be deteriorated.
- In this period, we prefer to stay at home to prevent against the infection of virus.
- Organizing exercise program in public facilities is not appropriate, but it's not easy for parents or caregivers to do exercise with them at home.



# Background

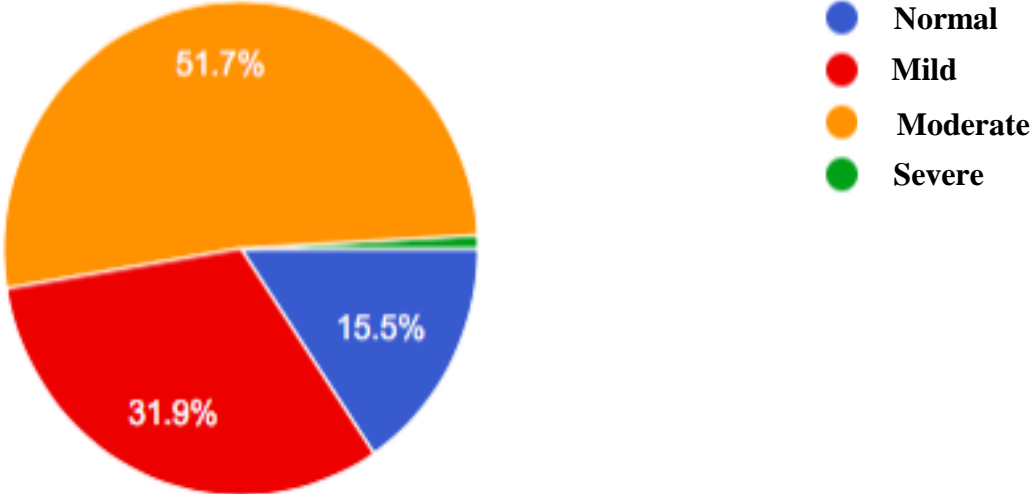
- **Lack of motivation, teaching or coaching skill and peer impact** are the main factors.
- Therefore, we prefer to create and provide a platform to let people with intellectual disability to do exercise at home with the assistance of coaches and parents through online device.



# Background (Parents Survey)

## Level of Intellectual Disability

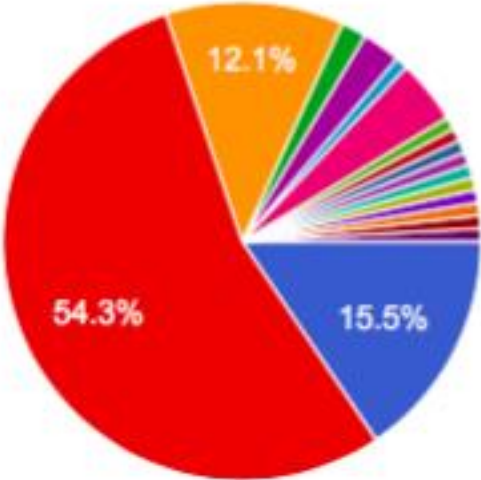
116 responds



# Background (Parents Survey)

## Other Special Needs

116 responds

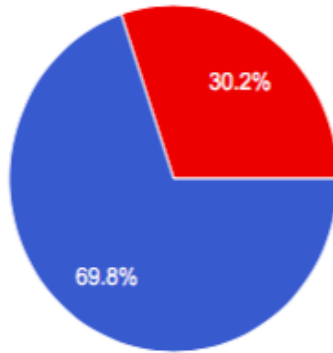


- None
- Autism
- ADHD
- Visual-impaired
- Hearing-impaired
- Physical disability
- Down Syndrome
- Dyslexia

# Exercise habit before and during the Coronavirus outbreak

**Apart from Physical Education lesson, do you participate in any physical activities?**

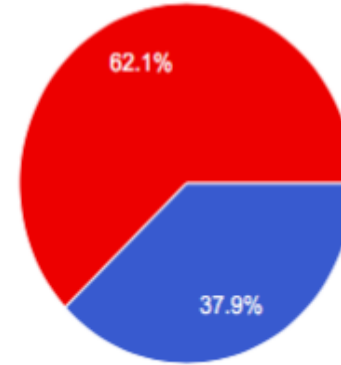
116 responds



**Do you participate in exercise during the Coronavirus outbreak?**

116 responds

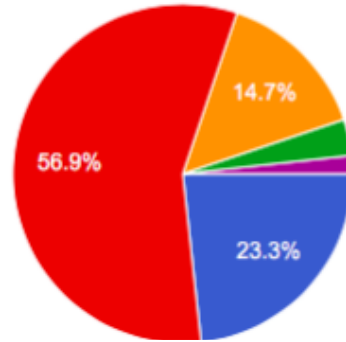
● Yes  
● No



● Yes  
● No

## Frequency of exercise per week (Before)

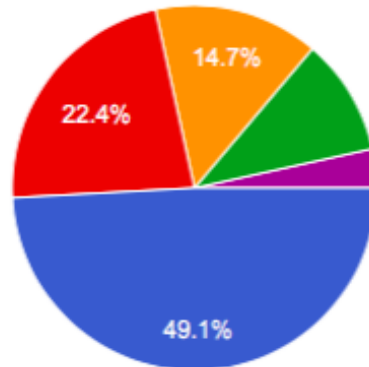
116 responds



- Less than once a week
- 1-2 times per week
- 3-4 times per week
- 5-6 times per week
- Everyday

## Frequency of exercise per week (During)

116 responds

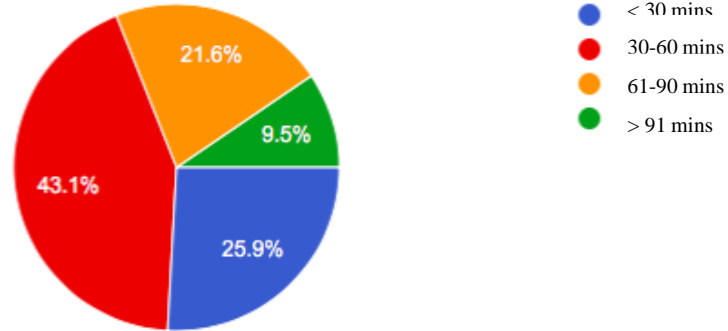


- Less than once a week
- 1-2 times per week
- 3-4 times per week
- 5-6 times per week
- Everyday



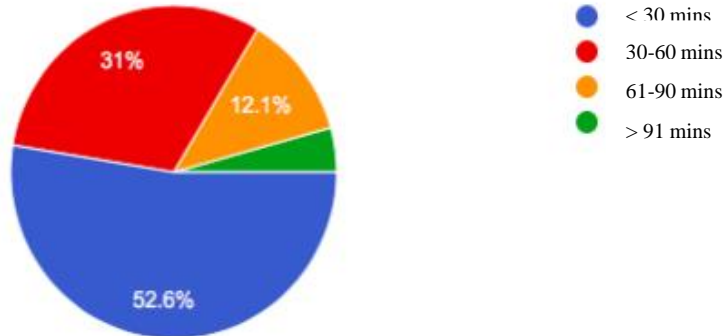
## Average Exercise Duration (Before) (each time)

116 responds



## Average Exercise Duration (During) (each time)

116 responds



# **Home Exercise for SEN**

# Objectives

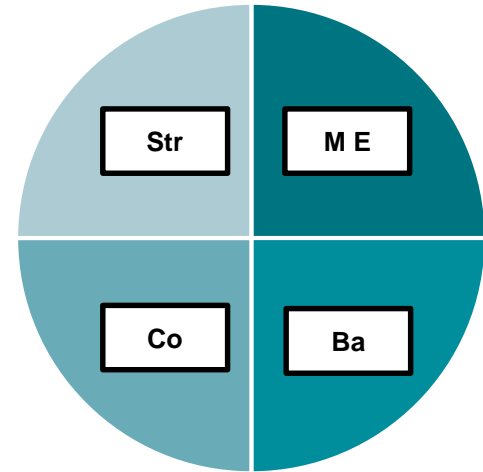
- Enhancing the physical activity of people with SEN which are aged from 6-40
- Improving child and parental relationship
- Nurturing sense of community service

# Participants

- > 300 people with special needs, 6-40 years
- From mild to severe grade intellectual disability
- Associated with Autism Spectrum Disorder (ASD), Down Syndrome, Attention Deficit Hyperactivity Disorder (ADHD)
- From 1 mainstream school, 2 mild grade, 2 moderate grade, 2 severe grade special schools and 2 NGO

# Procedure

- Regular exercise program were provided through online device.
- In each 60 minutes session, 2 coaches provided a series of exercise, such as **stretching**, **muscular endurance**, **coordination**, **balance exercise** based on the physical fitness of students with ID
- They will also organize some **games** to make interaction among the participants.



# Procedure

- Before the program, we had briefing and guidelines for parents and caregivers, such as the safety of the exercise, how to assist the participants and set up whatsApp groups for enquiry, application and entry.
- The participants are distributed into different sessions **based on age and ID level**. e.g. mild and moderate grade ID, 6-12 years, 12-18 years and 19-40 years, etc.
- **Project leader and PE teachers of special schools** monitored the online program, so as to ensure the quality of the coaching.
- After the program, we received opinion through google form and phone survey from the parents.

## 《Home Exercise for SEN》計劃家長同意書

敬啟者：

香港教育大學健康與體育學系現進行一項名為《Home Exercise for SEN》計劃，是次計劃旨在為主流學校、特殊學校及相關機構的特殊需要人士提供一個運動的機會，透過持續的網上家居運動，以改善學員的運動習慣，從而提升他們的體適能狀況。為了確保學員及家長的安全，請各家長留意及遵守以下細則：

1. **必須有家長或照顧者陪同學員**
2. **注意家居環境的安全**
3. 時刻檢查有關用具的完整無缺
4. 留意視訊背景是否合適
5. 注意學員當日的**身體狀況**
6. 學員及家長**穿著合適的運動裝束**
7. 如有需要，**可自行購買家居意外保險**
8. 上課時必須關閉音訊
9. 課堂老師會透過視訊以了解學員的動作是否正確
10. 評估學員的**身體狀況及能力是否適合進行**有關訓練內容
11. 上課時**不可進行任何拍攝及攝錄**，以確保其他學員及家長的私隱
12. **填寫是次計劃之家長同意書(見附件)**

如閣下同意以上細則，請填寫家長同意書，並電郵或傳真至本學系(電郵: chingyat@eduhk.hk; 傳真號碼: 2948 7848)。另外，如就是次計劃有任何疑問，歡迎與本人聯絡(電話: 29486812 / 62557330)。最後，在此感謝您的參與。

# Physical Fitness of Students with ID

Table 1

Descriptive Statistics of physical fitness among Autism, Down syndrome and other ID group

Variable	Autism N = 30		Down N = 30		Others N = 30		Total N = 90	
	M	SD	M	SD	M	SD	M	SD
Age	16.83	.986	16.40	1.1192	16.63	1.159	16.62	1.118
Height(m)	1.6578	.09924	1.4717	.04534	1.5437	.11333	1.5577	.11834
Weight(kg)	59.333	13.8155	48.400	5.1334	50.750	13.384	52.828	12.3074
9-minR(km)	1048.53	230.844	850.67	192.475	952.93	311.746	950.71	260.199
HG-L(kg)	16.433	6.6834	13.833	5.6999	15.383	6.2432	15.217	6.2446
HG-R(kg)	16.800	5.6180	14.283	5.8112	15.817	6.2539	15.633	5.9259
CurlUp(t)	19.100	7.7653	17.167	7.1876	16.767	10.7372	17.678	8.6659
BMI	21.4177	3.78545	22.3140	1.76721	20.9566	3.56132	21.5628	3.18444
SumSkf(mm)	27.2667	10.89585	27.3667	7.12322	28.2333	9.28545	27.6222	9.13793
WHR	.8459	.05759	.8686	.04814	.8649	.04756	.8574	.5141
MSR-L(cm)	23.467	11.1285	50.300	6.3958	28.9	12.0010	34.222	15.3716
MSR-R(cm)	25.067	10.3555	52.333	7.7785	30.833	11.8847	36.078	15.4885
SS-L(P/F)	.30	.466	.73	.450	.33	.479	.46	.501
SS-R(P/F)	.47	.507	.77	.430	.40	.498	.54	.501

Note: HG-L = Hand Grip-Left; BMI = Body Mass Index; SumSkf = Sum of Skinfold Test; WHR = Waist-to-Hip Ratio; MSR-L = Modified Back Saver Sit and Reach Test-Left Leg; SS-L = Shoulder Stretch Test-Left Shoulder; P/F = Pass = 1 / Fail = 0

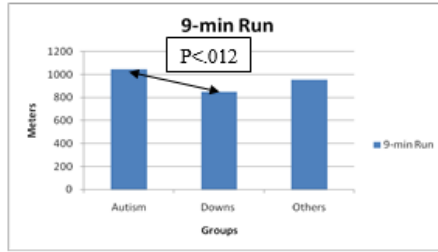
# Physical Fitness of Students with ID

Table 2  
Significance of difference among Autism, Down syndrome and other ID group in physical fitness test items

Variable	F	p
9-minR	4.006	.022*
HG-L	.647	.526
HG-R	.707	.496
CurUp	.498	.609
BMI	2.157	.122
SumSkf	.099	.906
WHR	1.313	.274
MSR-L	56.099	.000***
MSR-R	57.391	.000***
SS-L	6.905	.002**
SS-R	4.484	.014*

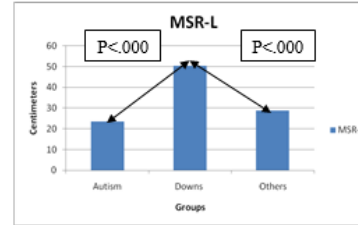
Note: \*p<.05 \*\*p<.01 \*\*\*p<.001

Chart 1



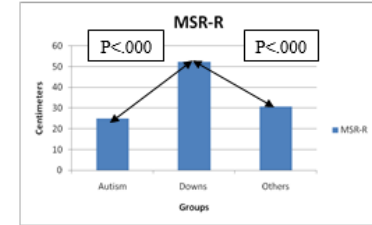
There is significant difference between Autism and Down syndrome group in Post Hoc-Scheffe test  $P<.012$ .

Chart 2



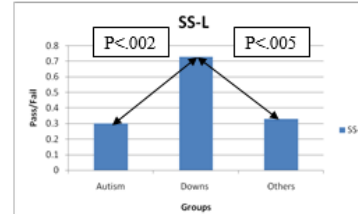
There are significant difference between Autism and Down syndrome group ( $P<.000$ ); Down syndrome group and Other ID group ( $P<.000$ ) in Post Hoc-Scheffe test.

Chart 3



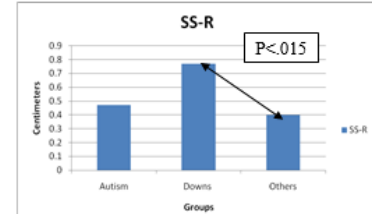
There are significant difference between Autism and Down syndrome group ( $P<.000$ ); Down syndrome group and Other ID group ( $P<.000$ ) in Post Hoc-Scheffe test.

Chart 4



There are significant difference between Autism and Down syndrome group ( $P<.002$ ); Down syndrome group and Other ID group ( $P<.005$ ) in Post Hoc-Scheffe test.

Chart 5



There is significant difference between Down syndrome group and Other ID group ( $P<.015$ ) in Post Hoc-Scheffe test.



# Coordination of students with ASD

- Recent neuroanatomical and neurophysiologic studies found cortical and subcortical areas including the motor cortex, supplementary motor area, basal ganglia, and cerebellar dysfunction have deficits which affect motor planning, sensorimotor integration, and motor execution.
- Motor deficits are a potential core feature of ASD.
- Treatment of ASD should include interventions aimed at improving motor performances involved with motor coordination (i.e., gait and balance, arm functions, planning)

<https://www.youtube.com/watch?v=CkdsyDMQFmQ>

(Fournier, 2010)



# Improving Motivation for Academics in Children with Autism

- Little interest in academic assignments
- Have behavioral problem
- Choice, Interspersal of maintenance tasks and Natural reinforcers

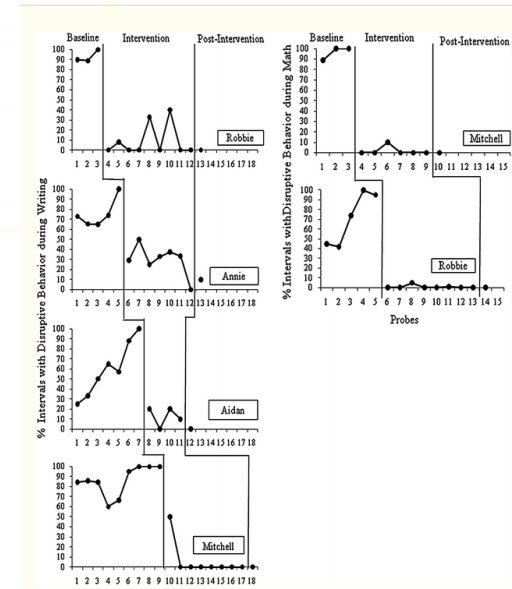
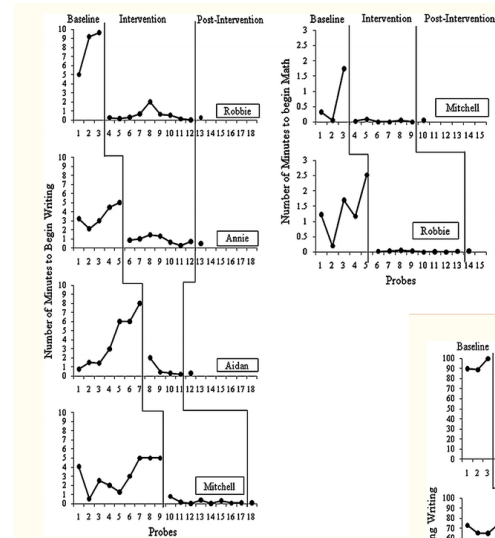


(Koegel et al., 2010)

# Improving Motivation for Academics in Children with Autism

- The intervention decreased the children's latency to begin academic tasks
- Improved their rate of performance and interest
- Decreased their disruptive behavior

(Koegel et al., 2010)



# **Dimensions of Coaching Behavior, Need Satisfaction, and the Psychological and Physical Welfare of Young Athlete**

Coach provides players with choices and options

(Reinboth et al., 2004)

# Consideration of Online Physical Education (OLPE)

## Teaching strategies

- Student-centered approach
- Allow students to choose their favorite activities in the lesson
- Including ask students to explore sports options
- Balance screen time and physical exercise time

# Student perceptions of the effect of high school online PE class participation on Fitness Knowledge and motivation for PA

- High school students perceived they possessed enough HRFK to be physically fit regardless of class format
- Physical outcomes, attitudes and course satisfaction were similar between the face-to-face and online groups and that physical performance (upper body strength) improved over time for both groups.

Participant Actual and Perceived Knowledge Level Results

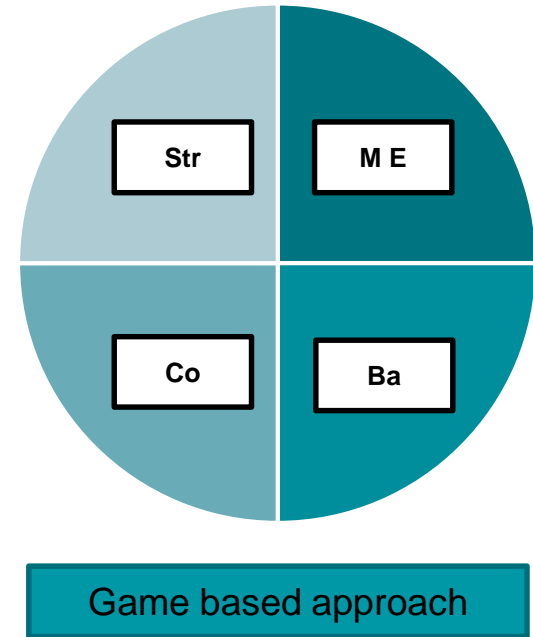
Participant	OSPI Score (%)	OSPI Grade	Perception of Personal HRFK Level
Traditional PE			
T1	52.58	F	Average
T2	55.38	F	Poor
T3	43.08	F	Good
T4	49.23	F	Good
Cyber School PE			
C1	72.31	C	Good
C2	49.23	F	Average
C3	73.85	C	Average
C4	56.92	F	Good
C5	83.08	B	Good
C6	49.23	F	Good
C7	66.15	D	Average
C8	58.46	F	Good

# Consideration of Online Physical Education (OLPE)

- Course content
- Learning environment
- Teaching strategies
- Prerequisites for students
- Assessment

# Home Exercise for SEN

- Characteristic and physical fitness of students with SEN
  - Stretching, muscular endurance, coordination & balance exercise
- Different strategies
  - TEACCH – Physical structure, Visual prompts (Timetable & schedule), Routine
  - Providing choices
  - Method of practice
  - Providing games
  - Elite Athlete-students Approach
  - Online tools
  - Community service

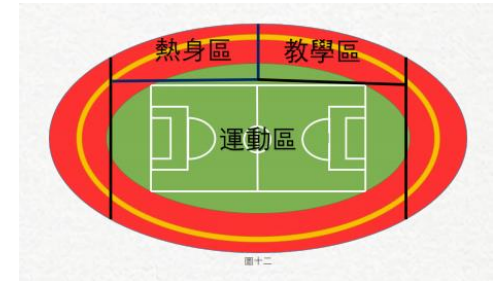
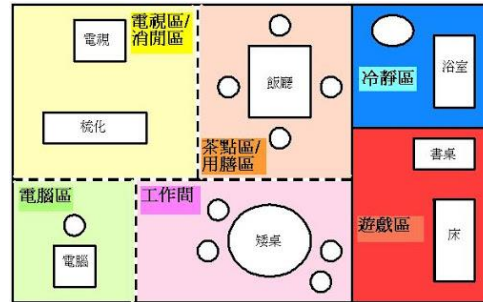




# Treatment and Education of Autistic and Communication handicapped Children (TEACCH)

## 5 principles of TEACCH

- Physical structure
- Consistent schedule
- Work system
- Routine
- Visual structure



(李春曉 · 2018) (Mesibov, 1994)

# Timetable

2020年3月

男女	星期日	星期一	星期二	星期三	星期四	星期五	星期六	備註
六	1  5:00-6:00	2 	3  5:00-6:00	4 	5  5:00-6:00	6  5:00-6:00	7  5:00-6:00	
七	8  5:00-6:00	9  5:00-6:00	10  5:00-6:00	11  5:00-6:00	12  5:00-6:00	13  5:00-6:00	14  5:00-6:00	
八	15  5:00-6:00	16 	17  5:00-6:00	18 	19 	20  5:00-6:00	21  5:00-6:00	
九	22  5:00-6:00	23 	24  5:00-6:00	25 	26  5:00-6:00	27  5:00-6:00	28  5:00-6:00	
十	29  5:00-6:00	30 	31  5:00-6:00					

# Schedule

家居運動流程	
1. 閒談	
2. 十步操	
3. 協調訓練	
4. 椅上訓練	
5. 六大挑戰 (各動作30秒)	
挑戰一. 半蹲	
挑戰二. 三角式	
挑戰三. 戰士蹲	

休息時間	
挑戰四. 彎腰	
挑戰五. 高抬腿	
挑戰六. 舉啞鈴	
5. 遊戲時間	
6. 伸展活動	

Monday	Tuesday	Wednesday	Thursday	Friday
Spelling SEC	Spelling SEC	Physical Education	Spelling SEC	Assembly
Reading SEC	Reading SEC	Spelling SEC	Reading SEC	Handwriting
Computer SEC	Writing SEC	Reading SEC	Grammar SEC	Writing
Recess 10:30 - 10:50	Recess 10:30 - 10:50	Recess 10:30 - 10:50	Recess 10:30 - 10:50	Recess 10:30 - 10:50
Maths SEC	Maths SEC	Maths SEC	Art SEC	Reading SEC
Lunch 12:00 - 12:40	Lunch 12:00 - 12:40	Lunch 12:00 - 12:40	Lunch 12:00 - 12:40	Lunch 12:00 - 12:40
Measurement SEC	Integration SEC	Integration SEC	Maths SEC	Chess / Data SEC
Writing SEC	Writing SEC	Society & Environment SEC	Music SEC	Pack up & Jobs SEC
Integration SEC	Integration SEC	Pack up & Jobs SEC	Science SEC	Library SEC
Pack up & Jobs SEC	Pack up & Jobs SEC	Home SEC	Pack up & Jobs SEC	Computer SEC
Home SEC	Home SEC	Home SEC	Home SEC	Physical Education SEC

# Schedule

家居運動流程	
1. 閒談	
2. 十步操	
3. 協調訓練	
4. 椅上訓練	
5. 六大挑戰 (各動作30秒)	
挑戰一. 半蹲	
挑戰二. 三角式	
挑戰三. 戰士蹲	

Consistent Schedule  
for ASD

Ice-breaking

Routine Activities

Coordination Activities for ASD

Teaching Content

Big Challenge

Visual Prompts

# Schedule

 休息時間 
挑戰四. 彎腰 
挑戰五. 高抬腿 
挑戰六. 舉啞鈴 
5. 遊戲時間 
6. 伸展活動 

Physical Structure

Timetable

Learning /  
Exercise system

Equipment

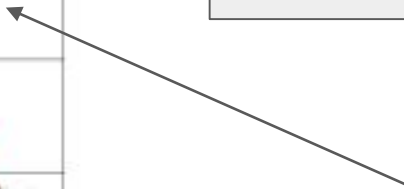
Co - teaching

Leadership /  
Social Service

Big Challenge

Games

Cool Down



# Visual Prompts with QR Code

上肢			
<p>前三角肌</p> 		<p>中三角肌</p> 	
		<p>後三角肌</p> 	
	<p>肱三頭肌</p> 		



# Visual Prompts with QR Code

 **INNO POWER @ JC**  
運動與科技的力量

**伸展一覽表**

 香港賽馬會慈善信託基金  
The Hong Kong Jockey Club Charities Trust  
馬力齊飛 齊心共創美好未來

**動作伸展**

頸部			肩部			上肢		
								
斜角肌伸展	頸夾肌伸展	頸椎後肌群	中三角肌伸展	前三角肌伸展	後三角肌伸展	肱三頭肌伸展	肱二頭肌伸展	腕伸肌伸展
								
上肢			軀幹					
								
腕屈肌伸展	髂腰肌伸展	腹外斜肌伸展	腰方肌伸展	背闊肌伸展	腹直肌伸展	胸大肌伸展	豎棘肌群伸展	腹內斜肌伸展
								
下肢								
								
腓腸肌群伸展	臀大肌伸展	四頭肌伸展	梨狀肌伸展	梨狀肌伸展 (盤膝坐)	梨狀肌伸展 (坐式)	腓腸肌伸展	內收肌群伸展	
								



# Visual Prompts in Exercise



[https://www.youtube.com/watch?v=1\\_SDT-a8FNM&t=324s](https://www.youtube.com/watch?v=1_SDT-a8FNM&t=324s)



# Method of Practice

- Part practice
- Whole practice
- Progressive part practice
- Whole part whole practice



## THROWING AND CATCHING CUES

### UNDERHAND THROW

SWING - STEP - THROW  
STEP WITH YOUR OPPOSITE FOOT



### OVERHAND THROW

SIDE TO TARGET  
UPPERCASE 'L'  
STEP - TWIST - THROW  
STEP WITH YOUR OPPOSITE FOOT



### CATCHING

READY POSITION - HANDS UP - REACH. GRAB. GIVE  
OVER BELLY BUTTON - THUMBS TOGETHER  
UNDER BELLY BUTTON - FINGERS TOGETHER



## FRISBEE CUES

THUMB ON TOP FINGERS ON THE BOTTOM

GRIP



### THROWING



REMEMBER TO KEEP IT FLAT!

### CATCHING



# Elite Athlete-students Approach



# Others - Lucky Wheel




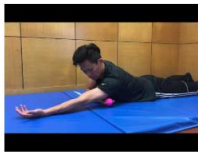










# Others - E platform

體適能測試及活動電子平台 首頁 計劃背景 計畫目的 體適能測試 建議活動 關於我們 活動回顧 聯絡我們

登入

## 建議活動

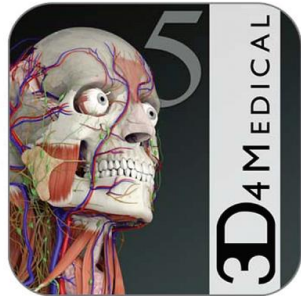
柔軟度  請選擇程度

<p>三頭肌、前三角肌 (伸展帶)</p>  <p>三頭肌、前三角肌</p>	<p>三頭肌 (按摩球)</p>  <p>三頭肌</p>	<p>中三角肌 (按摩球)</p>  <p>中三角肌 (按摩球)</p>	<p>主動式伸展-中三角肌伸展</p>  <p>主動式伸展-中三角肌伸展</p>
<p>主動式伸展-內收肌群伸展</p>  <p>主動式伸展-內收肌群伸展</p>	<p>主動式伸展-前三角肌伸展</p>  <p>主動式伸展-前三角肌伸展</p>	<p>主動式伸展-四頭肌伸展</p>  <p>主動式伸展-四頭肌伸展</p>	<p>主動式伸展-手腕伸展</p>  <p>主動式伸展-手腕伸展</p>
<p>主動式伸展-斜角肌伸展</p>  <p>主動式伸展-斜角肌伸展</p>	<p>主動式伸展-梨狀肌伸展</p>  <p>主動式伸展-梨狀肌伸展</p>	<p>主動式伸展-梨狀肌伸展(坐式)</p>  <p>主動式伸展-梨狀肌伸展(坐式)</p>	<p>主動式伸展-梨狀肌伸展(盤膝坐)</p>  <p>主動式伸展-梨狀肌伸展(盤膝坐)</p>



<http://fitness.proedge.hk/>

# Others - Essential Anatomy 5



# Others - Quizlet



## 伸展運動教學 ( 軀幹及下肢 )

學習

單詞卡

學習

書寫

拼寫

測試

遊戲

配對  
學習時間: 29秒

重力

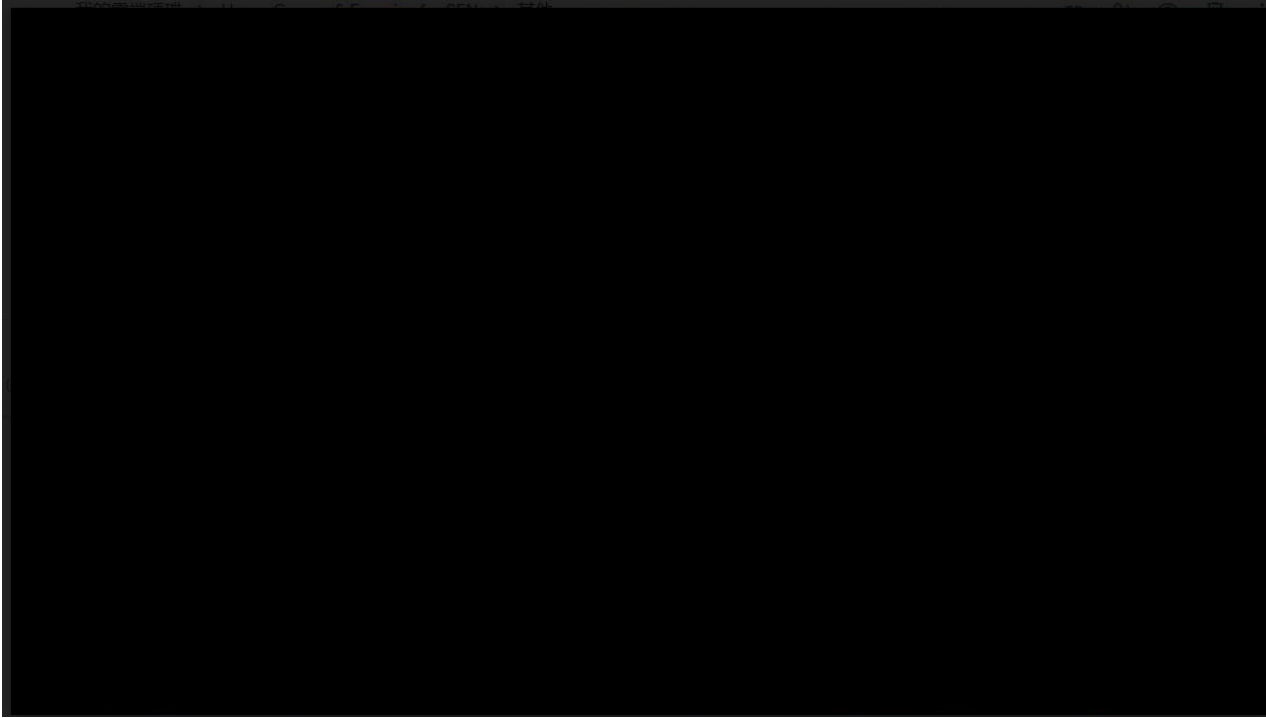
Live 測試版



1/16



# Providing games



<https://drive.google.com/drive/u/0/folders/1dJaHwkVvb4ynPI08oi4Qmj-PaqRgtkZf>



# Others - Video Modeling

J Autism Dev Disord (2016) 46:2845–2858  
DOI 10.1007/s10803-016-2824-3



ORIGINAL PAPER

## Video Modeling and Observational Learning to Teach Gaming Access to Students with ASD

Amy D. Spriggs<sup>1,2</sup> · David L. Gast<sup>2</sup> · Victoria F. Knight<sup>1,3</sup>

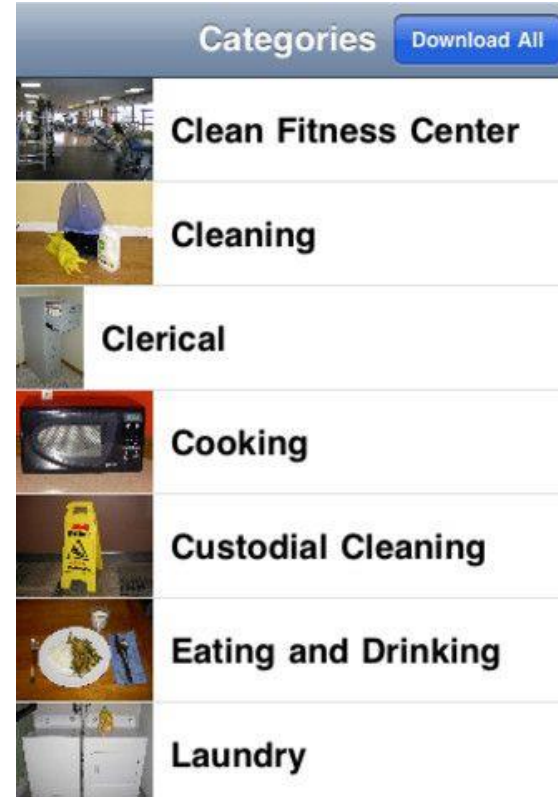
Published online: 6 June 2016  
© Springer Science+Business Media New York 2016

**Abstract** The purpose of this study was to evaluate both video modeling and observational learning to teach age-appropriate recreation and leisure skills (i.e., accessing video games) to students with autism spectrum disorder. Effects of video modeling were evaluated via a multiple probe design across participants and criteria for mastery were based on these results. Secondary measures were collected on observational learning across participants and behaviors. Participants included 4 children with autism, ages 8–11, who were served in self-contained special education classrooms. Results indicated a functional relationship between video modeling and observational learning.

### Introduction

#### Rationale for Teaching Gaming as a Recreational Activity to Students with ASD

Recreation and leisure skills are important for all people, but do not often come naturally to children with autism spectrum disorder (ASD). "Recreation is typically defined as an activity that people engage in for the primary reasons of enjoyment and satisfaction... leisure describes a person's perception that he or she is free to choose to participate in an activity."



(Spriggs, 2016)



# Community Service

- Train the students based on their unique abilities
- Practice from their class and transfer it in to other classes
- From the school to the community

Student	Special Needs	Post
Student A	Mild ID & ASD	Sharing Screen
Student B	Mild ID	Introduction
Student C	Mild ID	Routine Activity Part A
Student D	Moderate ID	Routine Activity Part B
Student E	Moderate & Down	Demonstration (Lv 1) in coordination exercise
Student F	Mild & ASD	Demonstration (Lv 2) in coordination exercise
Student G	Mild	Introduction & demonstration (Lv 3) in coordination
Student H	Moderate & ASD	Demonstration (Lv 1) in desk exercise
Student I	Mild & Down	Introduction & demonstration (Lv 2) in chair exercise
Student J	Moderate & Down	Introduction & demonstration in Big Challenge 1
Student K	Mild & Down	Introduction & demonstration in Big Challenge 2
Student L	Moderate & ASD	Introduction & demonstration in Big Challenge 3
Student M	Mild & Down	Introduction & demonstration in Big Challenge 4
Student N	Mild & ASD	Introduction & demonstration in Big Challenge 5
Student O	Moderate & Down	Introduction & demonstration in Big Challenge 6
Student P	Mild	Games
Student Q	Mild & Down	Cool Down
Student R	Moderate & ASD	Cool Down

# Limitation

- Lack of funding and manpower
- Different family background (Home setting, Education)
- Privacy & Safety
- Technical problem (e.g. Audio delay)

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