

PROMISING PRACTICE IN DATA MANAGEMENT

DATA MANAGEMENT IN THE CLASSROOM

Sherilyn M Sia

Singapore

www.teachersherilyn.com

Head Teacher in Singapore

EDUCATIONAL BACKGROUND

Master of Distance Education

University of the Philippines Open University

BS Family Life and Child Development

University of the Philippines – Diliman

Diploma in Early Childhood Care and Education

Bentley Institute, Singapore

Certificate in Early Education Leadership

Zaentz Professional Learning Academy,

Harvard Graduate School of Education

RESEARCH INTERESTS

Technology in Early Childhood Education

Curriculum and Instruction

Teacher's Training and Development



OUTLINE

1. Introduction
2. Resources and requirements
3. Challenges
4. Results
5. Current stage in data management
6. Next stage of development
7. Conclusion

WHAT IS BIG DATA?

"The term Big data refers to any set of data that is so large or so complex that conventional applications are not adequate to process them. The term also refers to the tools and technologies used to handle 'Big Data'. Examples of Big Data include the amount of data shared in the internet everyday, Youtube videos viewed, twitter feeds and mobile phone location data." (Sin, K. and Muthu, L., 2015)

kilo – 1, 000

mega – 1, 000, 000

giga – 1, 000, 000, 000

tera – 1, 000, 000, 000, 000

peta – 1, 000, 000, 000, 000, 000

exa – 1, 000, 000, 000, 000, 000, 000

THE ANATOMY OF BIG DATA

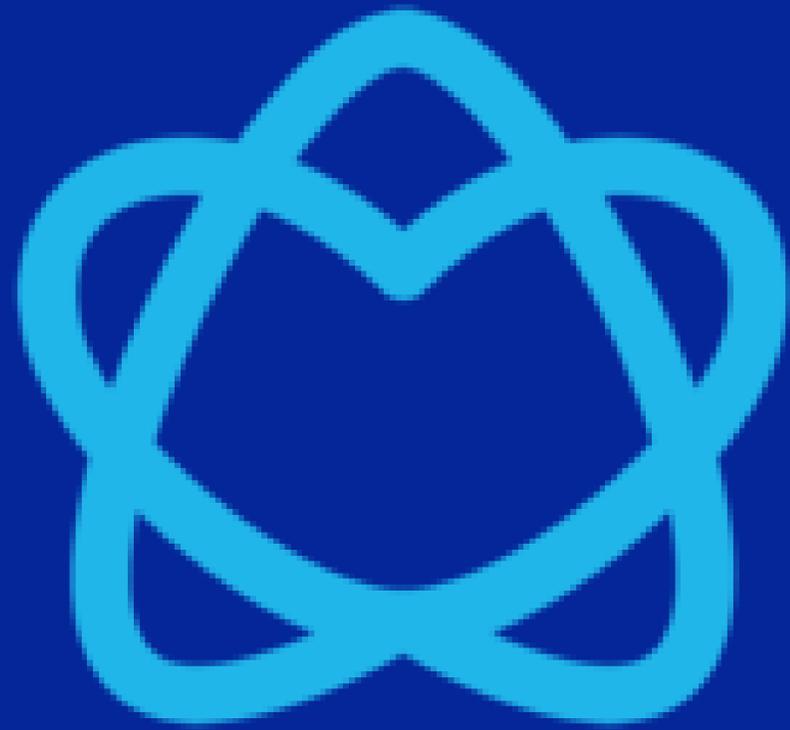
FOUR V'S

1. Volume – relating to the vast amounts of data generated every second.
2. Velocity – relating to the speed which new data is generated and moves around the world.
3. Variety – relating to the increasingly different types of data that is being generated
4. Veracity – relating to the messiness of the data being generated.

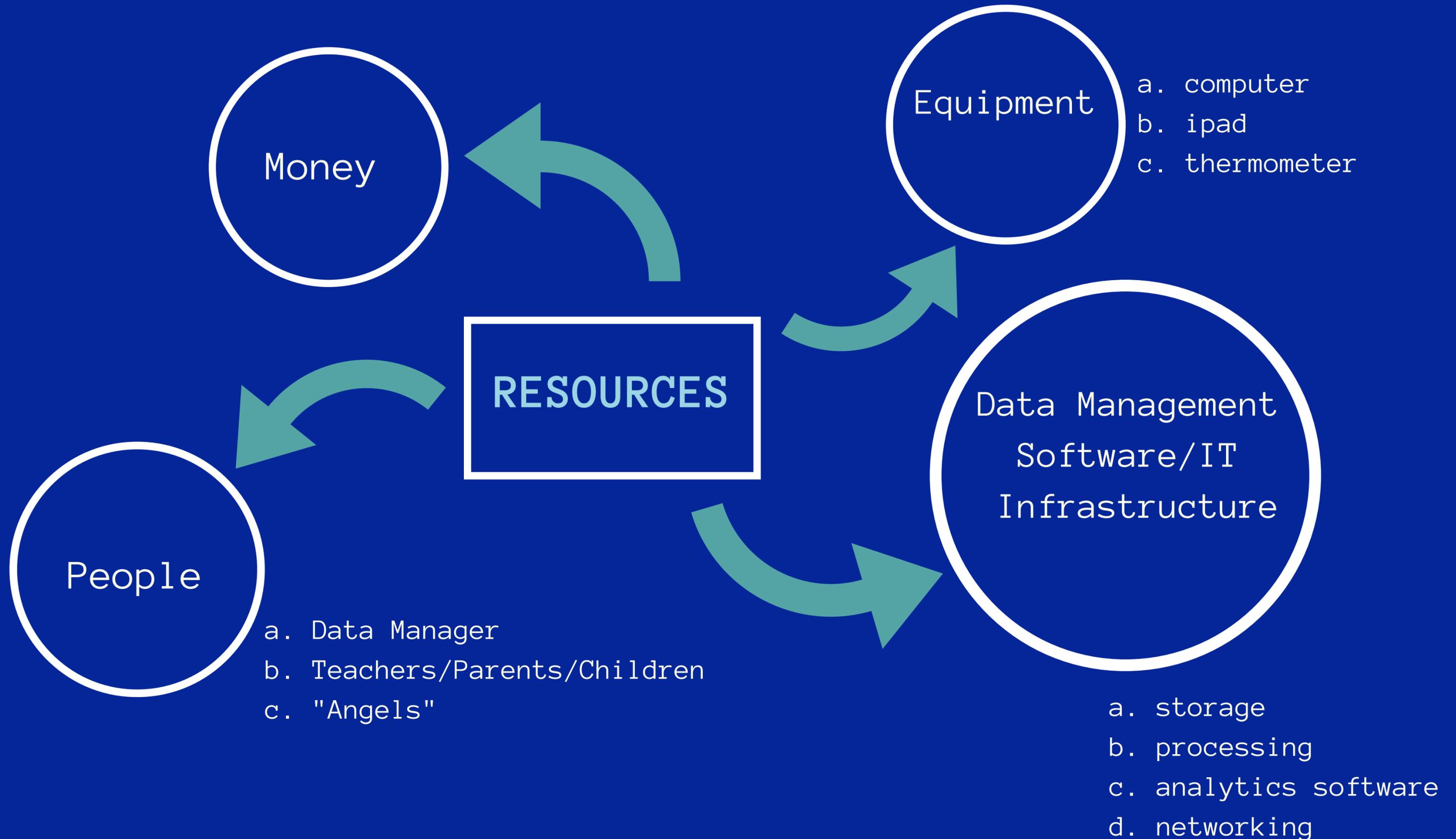


WHY BIG DATA IS IMPORTANT IN EARLY CHILDHOOD EDUCATION?

The use of Big Data is important in Early Childhood Education because the information revealed can be translated into actions that can improve decision-making and performance.



LittleLives



REQUIREMENTS

```
graph TD; A[REQUIREMENTS] --> B[Have an objective.]; A --> C[Be mindful of the national mandate.]; A --> D[Be aware of the Big Data ethics.]; D --> D1[a. Privacy]; D --> D2[b. Confidentiality]; D --> D3[c. Transparency]; D --> D4[d. Identity];
```

Have an objective.

Be mindful of the national mandate.

Be aware of the Big Data ethics.

- a. Privacy
- b. Confidentiality
- c. Transparency
- d. Identity

What challenges did you face? How did you overcome them?

CHALLENGES

Determining what data to collect from the children and/or parents.

Teachers are apprehensive during the initial stage.

Identifying how to use the data

SOLUTIONS

Look at the objective.
Consider the national mandate.
Establish procedures in collecting data.

Training and assurance.

Consider the objective.
Zoom in to one area (at a time).

WHAT RESULTS DID YOU GET?

- Children's attendance report
- Children's time in and time out
- Children's temperature
- Children's reason for not being in school
- Children's portfolio
- Parents' last log in
- Percentage of parents who have opened teacher's message
- Teacher's attendance
- Learning activities conducted by the teachers

1. Parents are more likely to open teacher's message via email rather than the app.
2. Mothers are more updated of their child's learning activities than the father.
3. From 2016 to 2018, the months with lower attendance among children are February, November and December while the months with higher attendance are July and September.
4. Teachers' attendance are high on June and low on December and January.
5. Preschool Teachers upload more photos and videos of children than Early Years teachers.

HOW FAR DID YOU GET IN DATA MANAGEMENT IN EARLY CHILDHOOD?

Big data Processes

Data Management

Acquisition and
Recording

Extraction,
Cleaning and
Annotation

Integration,
Aggregation and
Representation

Analytics

Modeling and
Analysis

Interpretation

Figure 1. Processes for extracting insights from big data (Gandomi, A. and Haider, M., 2015).

WHAT IS THE NEXT STAGE OF DEVELOPMENT?

- Intensify the analyzation and interpretation of big data in the school
- Continue working closely with LittleLives
- Make others aware of the power of data in effecting changes for a quality preschool

Data Management Sample

← Back Save
Last saved: 12 Feb 7:10pm

12 Feb 2019

Present 12 Absent 3

	Attendance	Temp 1	Time In/Out	Remarks
			8:52am -	Didn't check out. Last child to leave. Left at 7:04pm
			9:40am 6:54pm	
			8:37am 6:07pm	
			8:32am 5:11pm	
		...	-	

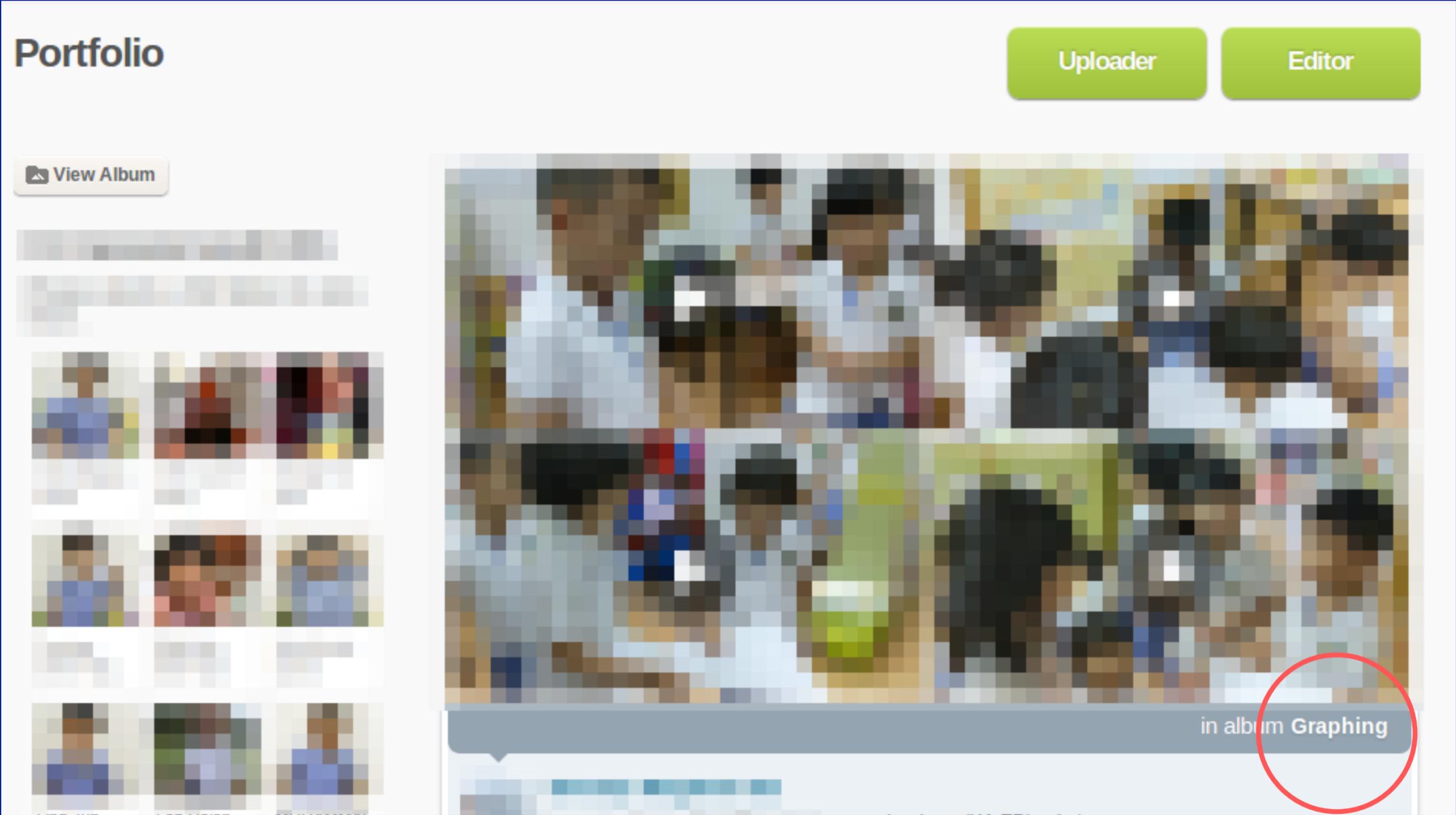
Visual Healthcheck and Remarks

Visual Health Check | Illness | Misc Status | Other Findings

Eyes	Redness	Discharge	Swollen
Respiratory	Cough	Runny Nose	Breathing Difficulty
Oral	Visible Ulcer	Red Spots tongue	Red Spots throat
Hands	Red Spots palms	Red Spots arms	Rashes arms
Legs/Feet	Red Spots soles	Red Spots legs	Rashes legs

Cancel Done

Data Management Sample



Data Management Sample

Portfolio Save Evaluation
Last saved: 20 Nov 07:38:00am

[Timeline](#) [Evaluation](#)

English Language Word Skills Kosakata Perkembangan Penguasaan Bahasa Melayu ...

Semester 1 Checklist Semester 2 Checklist 幼儿发展 - 上半年 幼儿发展 - 下半年 识字能力

Viewing evaluation for

2018 K2: Pollock

Aesthetics and Creative Expression	5
Discovery of the World	49
Language and Literacy	64
Motor Skills Development	8
Numeracy	3
Social and Emotional Development	3
家庭阅读书	1

Evaluation | 2018 Semester 2 Checklist

	Emerging	Making Progress	Mastery
Aesthetic and Creative Expression: Respond, create and appreciate music, and creative movement Add Remark			
Recognize and compare differences of basic features and elements of different types of music using musical vocabulary (e.g. rhythm and beats, pitch, tempo, dynamics)			★
Sing with appropriate dynamics of tempo in unison and respond to the cues of a conductor			★
Recognize strong/weak beats and is able to			

Data Management Sample

Admin

[Add Class](#) [Add Staff](#) [Add Students](#)

8 BOY 7 GIRL

Class Weight/Height **Family** Email

Name	Family	Action
1	<div style="border: 2px solid red; padding: 2px;">Father e: [redacted]</div> <div>Mother e: [redacted]@yahoo.com</div> <div>Mother e: [redacted]@ncs.com.sg</div>	<div style="border: 2px solid red; border-radius: 50%; padding: 5px; text-align: center;">▼ 14:03 13 Feb 2019</div> <div style="text-align: center;">▼ 08:15 18 Jan 2019</div> <div style="text-align: center;">▼ 09:32 20 Sep 2017</div>
2	<div>Mother e: [redacted]@gmail.com</div>	<div style="text-align: center;">▼ 09:23 14 Feb 2019</div>



Parent's last access

Data Management Sample

The screenshot displays a 'Communications' dashboard. At the top left is the title 'Communications'. To its right are a search bar labeled 'Search' and a blue button labeled 'Compose Broadcast'. Below the title are two tabs: 'Conversations' and 'Broadcasts', with 'Broadcasts' being the active tab. A horizontal scroll bar is visible below the tabs. The main content area shows a list of broadcast items. The first item is partially visible, showing a profile picture and a blurred title. Below this is a summary box titled 'Broadcasts (5)' with a refresh icon. This box contains a table with three columns: a profile picture and blurred text, '15 Children', and '1 Classes'. The '33.3% Opened' statistic is circled in red. Below the summary box is another blurred broadcast item.

Profile Picture	Blurred Title	15 Children	1 Classes	33.3% Opened
[Blurred]	[Blurred]	15	1	33.3%

CONCLUSION

BIG DATA IS HERE TO STAY!

With great power comes
great responsibility!

BIG data
responsibility

CONCLUSION

HOW TO CREATE A RELIABLE ECCE DATA SYSTEM

1. Start with an objective.
2. Establish a procedure in gathering data bearing in mind the big data ethics.
3. Form a team of IT and Early Childhood Experts to develop the system.
4. Analyze and interpret the data by considering the objective you set.
5. Translate data into actions to improve the provision of quality early childhood services.

REFERENCES

FedTech Staff. (2016). 4 infrastructure requirements for any big data initiative. Retrieved from <https://fedtechmagazine.com/article/2016/12/4-infrastructure-requirements-any-big-data-initiative>.

Gandomi, A. and Haider, M. (2015). Beyond the hype: Big data concepts, methods, and analytics. *International Journal of Information Management*, 35(02), pp. 137–144.

Labrinidis, A. and Jagadish, H. V. (2012). Challenges and opportunities with big data. *Articles in the Proceedings of the VLDB Endowment*, 5 (12) (2012), pp. 2032–2033.

McAfee, A. and Brynjolfsson, E. (2012). Big data: The management revolution. Retrieved from <http://tarjomefa.com/wp-content/uploads/2017/04/6539-English-TarjomeFa-1.pdf>.

Richards, N. and King, J. (2014). Big data ethics. Retrieved from <https://heinonline.org/HOL/LandingPagehandle=hein.journals/wflr49&div=16&id=&page=>.

Sin, K. and Muthu, L. (2015). Application of big data in education data mining and learning analytics – a literature review. *ICTACT Journal of Soft Computing: Special Issue of Soft Computing Models for Big Data*, 05(04).

BE INSPIRED

“We make a living by what we get.
We make a life by what we give.” —
Sir Winston Churchill

THANK YOU!
—SHERILYN M SIA