



**RENYO - Re-engaging young offenders
with education and learning**

Quantitative Analysis on Educator's Learning Power Data

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Renyo

Re-engaging young offenders with education and learning

Quantitative Analysis on Educator's Learning Power Data

The RENYO Project

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1 Background

Educators working with young people in custodial settings (young participant or YP hereafter) were recruited to receive training on using Authentic Inquiry provided by the four RENYO project partner organisations. These educators conducted their own authentic inquiry as a learner during the course of training, then trialed this method with young participants they worked with.

The data about the young participants' learning power has been analysed and reported separately, which also cover a brief introduction to the Learning Journey Platform that was used to facilitate and capture participants' reflection about themselves as a learner.

This report looks at the learning power of the educators and whether and how it changed over the course of the educators' undertaking their own authentic inquiry.

2 The data

There are 82 educator participants from four partner organisations who have completed at least one learning power profile, of these, 51 participants have subsequently completed a second learning power profile and 8 participants completed three or more learning power profiles. The numbers of learning power profiles recorded from each organisation are summarised by the orders of personal profiles (i.e., the 1st, 2nd, 3rd, or 4th profile completed by an individual) in Table 1. The dates on which these profiles were completed are listed in Table 2 to be found in the appendix.

Table 1

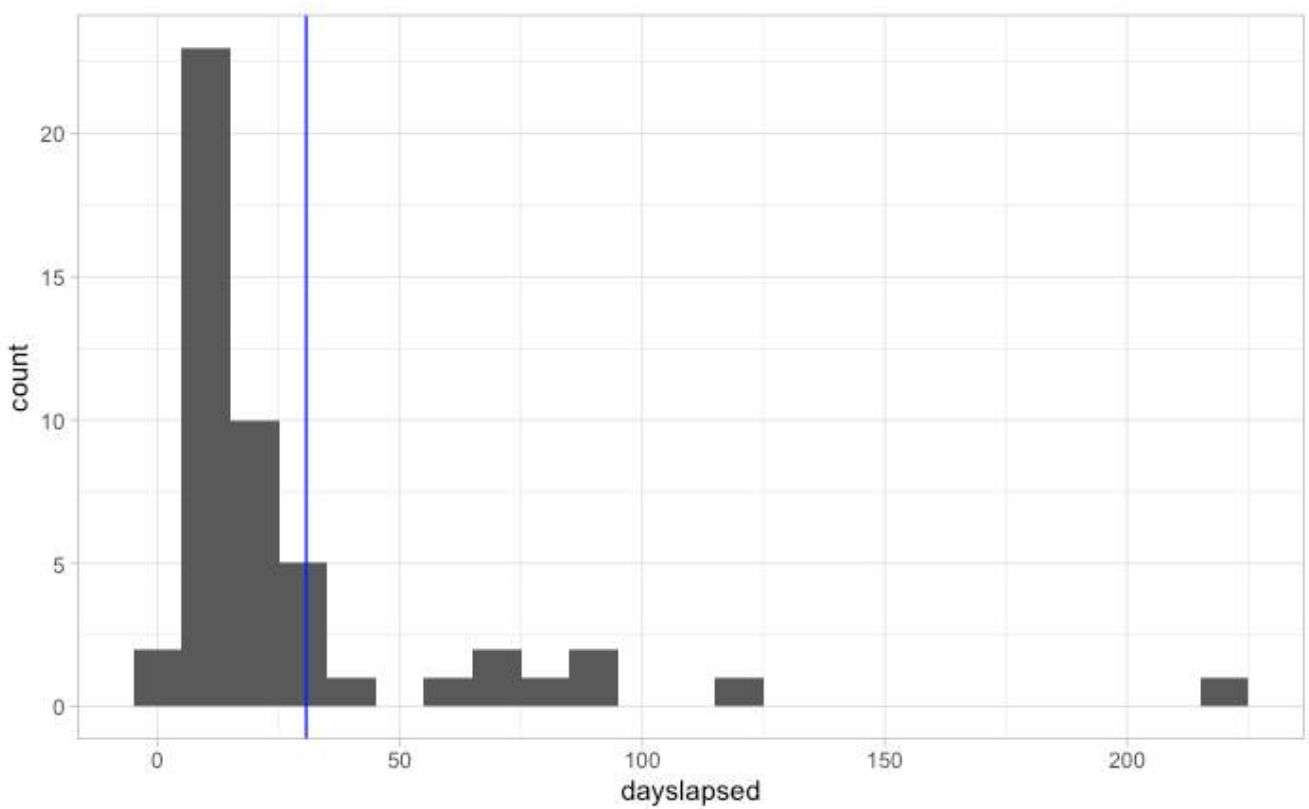
	1	2	3	4
CES	49	35	5	1
FD	9	9	2	0
FHD	14	4	0	0
VG	10	3	1	0

Count of educator learning power profiles by personal order and by organisation

When an educator completed more than two learning power profiles, two profiles were selected based on the following principles:

1. the two profiles that has the most day lapse
2. with the exception that if two or more profiles were completed within a few days, only the first is included and the rest are ignored.

As a result of the selection, profiles with the following profile id numbers are excluded from subsequent analysis: 9949, 10003, 10004, 9941, 10033, 10030, 9999, 10018, 9277, 9096, 9845. The remaining 49 pairs of pre and post learning power profiles have an average of 30.7 days lapsed. The distribution of days lapsed are plotted in the figure below.



Days lapsed between a pair of learning power profiles in the working dataset

3 Educators' initial Learning Power profiles

The initial learning power profiles reported by the educators when they did their first CLARA survey is plotted in the figure below, showing the distribution of scores in each of the eight learning power dimensions, and is summarised using numbers in Table 3 that follows.

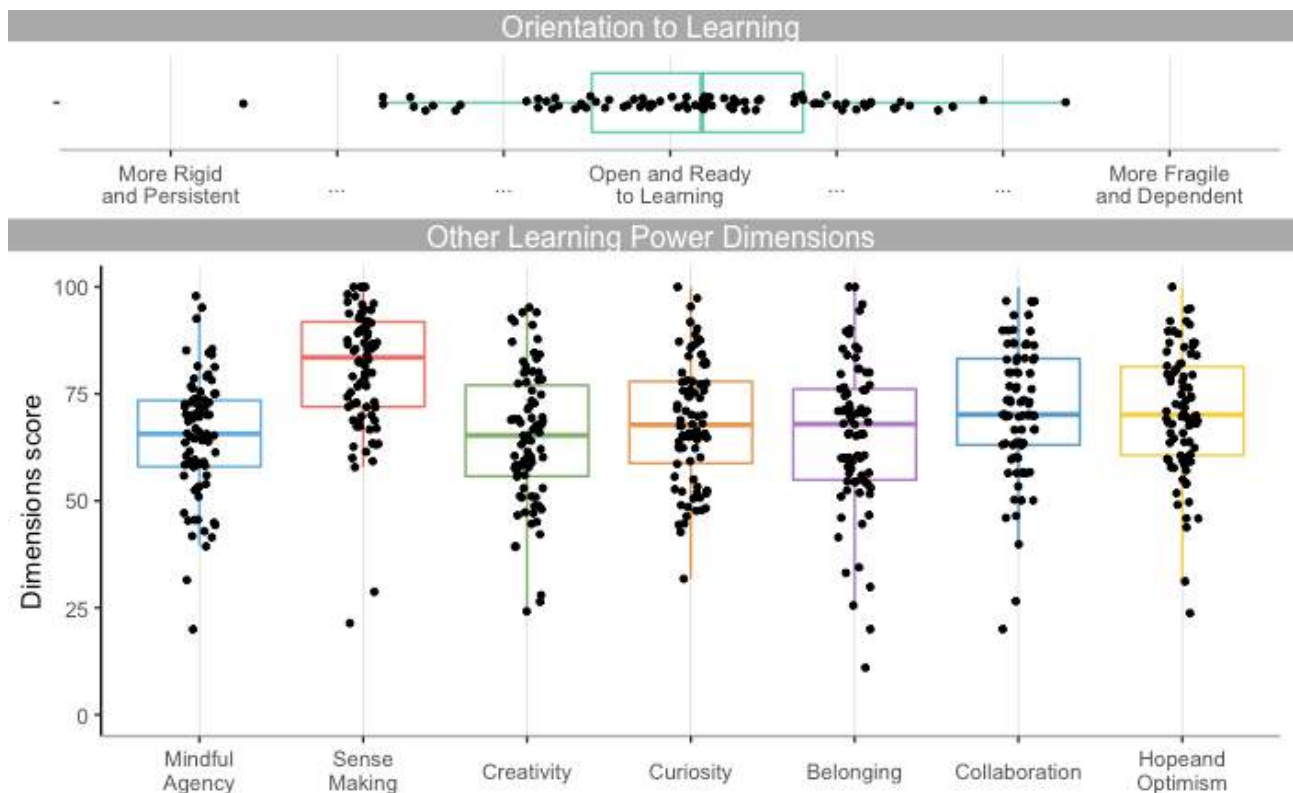


Table 3

Dimension	Mean	Median	Std.Dev	Min	Max	Count
Mindful Agency	64.8	65.7	14.2	19.96	97.88	82
Sense Making	80.9	83.5	14.7	21.38	100.00	82
Creativity	64.9	65.3	15.8	24.18	95.20	82
Curiosity	68.3	67.8	14.4	31.78	100.00	82
Belonging	65.7	67.9	17.6	11.00	100.00	82
Collaboration	71.5	70.2	15.6	20.00	100.00	82
Hope and Optimism	70.9	70.1	14.9	23.76	100.00	82
Orientation to Learning	51.8	52.8	14.0	11.54	85.64	82

Descriptive statistics of the initial learning power profiles completed by educators

Collectively, the educators reported higher scores in some dimension than in others and some of the differences were considered statistically significant (tested using one-way ANOVA, $F = 23.8536807$, $p < 0.0001$). Specifically, they reported themselves with a particular strength in *Sense Making*.

4 Comparison between educators who completed only one profile and those completed more

Of the 82 educators who completed at least one learning power profile, 33 completed only one profile (group 1) and 49 completed two or more (group 2). Learning power characteristics of these two groups are compared visually in the figure below in each of the eight learning power dimensions. The distribution of scores of these two groups are then summarised using numbers in Table 4.

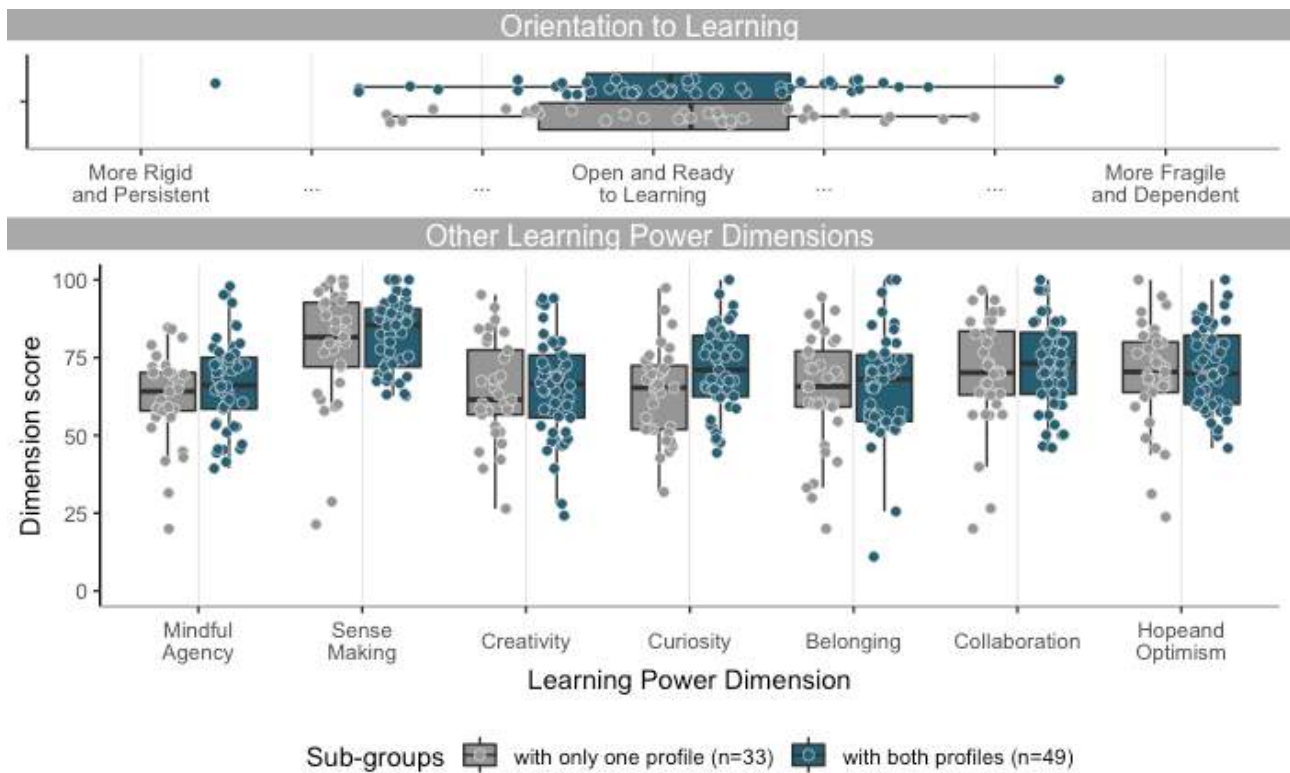


Table 4

Dimension	Sub-group	Count	Mean	Median	Std.Dev	Min	Max
Mindful Agency	2	49	66.5	66.1	13.9	39.36	97.88
Mindful Agency	1	33	62.1	64.1	14.3	19.96	84.60
Sense Making	2	49	82.5	85.4	11.4	62.66	100.00
Sense Making	1	33	78.5	81.6	18.6	21.38	100.00
Creativity	2	49	65.2	66.6	15.9	24.18	94.06
Creativity	1	33	64.4	61.5	16.0	26.42	95.20
Curiosity	2	49	71.3	71.0	13.6	44.40	100.00
Curiosity	1	33	63.8	65.3	14.6	31.78	97.36
Belonging	2	49	66.8	68.1	17.2	11.00	100.00
Belonging	1	33	64.1	65.7	18.4	20.00	94.46
Collaboration	2	49	72.6	73.1	13.9	46.00	100.00
Collaboration	1	33	69.7	70.1	17.9	20.00	96.66
Hope and Optimism	2	49	71.9	69.9	13.3	45.88	100.00
Hope and Optimism	1	33	69.5	70.4	17.1	23.76	100.00
Orientation to Learning	2	49	51.8	51.5	14.2	11.54	85.64
Orientation to Learning	1	33	51.9	53.3	13.8	26.58	78.20

Descriptive statistic comparing those who completed only one profile (group 1, n=33) and those who completed both profiles (group 2, n=49)

The mean scores reported by these two sub-groups varied with different extent on each of the eight dimensions. Those who went on to complete a second learning power profile reported a significantly higher mean score on *Curiosity* than those who only completed one profile ($t=-2.342$, $p=0.022$). The difference in other dimension did not reach statistical significance at the threshold of $p<0.05$. Result of the assessment of these differences using independent two-sample t-test is reported in Table 4b below.

Table 4b

Dimension	Mean_1	Mean_2	Std.Dev_1	Std.Dev_2	mean difference	df	t	p.value
Mindful Agency	62.1	66.5	14.3	13.9	-4.38	67.56811	-1.373	0.174
Sense Making	78.5	82.5	18.6	11.4	-4.01	48.07576	-1.108	0.274
Curiosity	63.8	71.3	14.6	13.6	-7.50	65.37733	-2.342	0.022
Creativity	64.4	65.2	16.0	15.9	-0.81	68.28128	-0.224	0.823
Hope and Optimism	69.5	71.9	17.1	13.3	-2.37	57.17437	-0.673	0.504
Belonging	64.1	66.8	18.4	17.2	-2.63	65.70599	-0.652	0.516
Collaboration	69.7	72.6	17.9	13.9	-2.93	57.09302	-0.793	0.431
Orientation to Learning	51.9	51.8	13.8	14.2	0.02	70.1243	0.005	0.996

Difference in initial learning power profile between educators completing only one profile and those completing more than one, assessed using t-test

5 Changes in educators' learning power before and after doing authentic inquiry

The score distributions of educators' learning power before and after doing authentic inquiry are compared using scatter- and box-plots in the figure below, then in numbers in Table 5 that follows. The mean scores appear to have increased from Time 1 (before doing authentic inquiry) to Time 2 (after doing authentic inquiry) on all learning power dimensions except Orientation to Learning, which remained at a similar level.

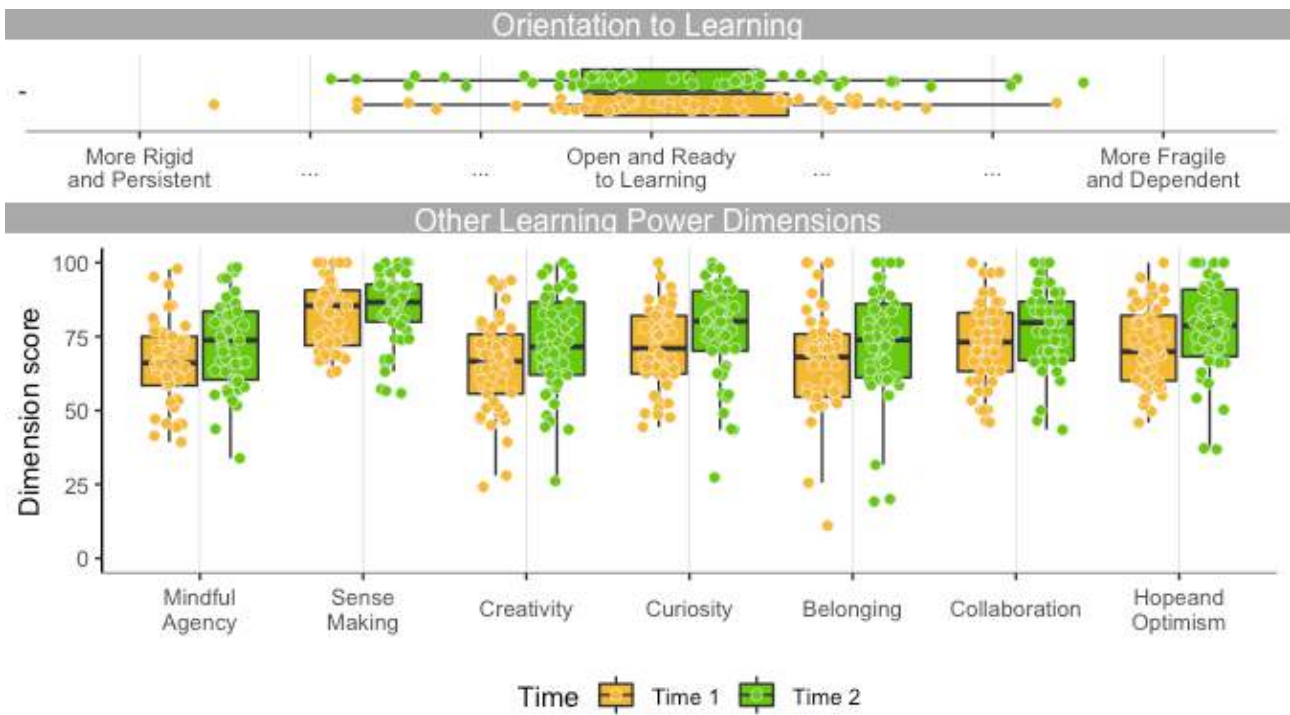


Table 5

Dimension	Time	Mean	Median	Std.Dev	Min	Max	Count
Mindful Agency	1	66.5	66.1	13.9	39.36	97.88	49
Mindful Agency	2	72.6	73.8	14.8	33.84	98.40	49
Sense Making	1	82.5	85.4	11.4	62.66	100.00	49
Sense Making	2	84.8	86.6	12.2	55.84	100.00	49
Creativity	1	65.2	66.6	15.9	24.18	94.06	49
Creativity	2	72.4	71.6	16.6	26.14	100.00	49
Curiosity	1	71.3	71.0	13.6	44.40	100.00	49
Curiosity	2	77.1	80.2	16.2	27.36	100.00	49
Belonging	1	66.8	68.1	17.2	11.00	100.00	49
Belonging	2	72.8	73.9	18.2	19.20	100.00	49
Collaboration	1	72.6	73.1	13.9	46.00	100.00	49
Collaboration	2	77.4	79.7	13.6	43.50	100.00	49
Hope and Optimism	1	71.9	69.9	13.3	45.88	100.00	49
Hope and Optimism	2	77.7	78.7	15.5	36.82	100.00	49
Orientation to Learning	1	51.8	51.5	14.2	11.54	85.64	49
Orientation to Learning	2	52.9	53.6	14.6	21.82	87.98	49

Descriptive statistics comparing educators' learning power profiles on Time 1 and Time 2

These changes in the mean scores are assessed using paired t-test, the results of which are summarised in Table 6 below. Significant rises in mean scores were observed in the dimensions of *Mindful Agency, Curiosity, Creativity, Hope and Optimism, Belonging, and Collaboration*. Only the increases in the dimension of *Sense Making* did not reach the threshold of statistical significance, but it is worth noting that *Sense Making* was already their strength from the outset.

Orientation to Learning has a bi-polar construct where the middle zone, being open and ready to learning, is considered the optimal state. The average position of these educators did not move much between Time 1 and Time 2. Although the mean score remains similar from Time 1 to Time 2, there were 14 out of 49 educators reported a shift of becoming more persistent while 21 reported themselves as becoming more dependent.

Table 6

Dimension	Mean_1	Mean_2	Std.Dev_1	Std.Dev_2	mean difference	df	t	p.value
Mindful Agency	66.5	72.6	13.9	14.8	-6.05	48	-3.039	0.004
Sense Making	82.5	84.8	11.4	12.2	-2.25	48	-1.413	0.164
Curiosity	71.3	77.1	13.6	16.2	-5.80	48	-3.072	0.003
Creativity	65.2	72.4	15.9	16.6	-7.21	48	-3.503	0.001
Hope and Optimism	71.9	77.7	13.3	15.5	-5.76	48	-2.730	0.009
Belonging	66.8	72.8	17.2	18.2	-6.03	48	-3.001	0.004
Collaboration	72.6	77.4	13.9	13.6	-4.71	48	-2.431	0.019
Orientation to Learning	51.8	52.9	14.2	14.6	-1.10	48	-0.600	0.551

Changes in educators' learning power over time assessed using paired t-test

Looking at the changes at individual level as shown in Table 7, there is a good proportion of educators who reported a decline even when the mean score has significantly increased in a dimension. Similar observations were also made on the learning power of the young participants. This indicates an opportunity for further research into improving the experience and effectiveness of the training method.

Table 7

Dimension	decline	unchanged	rise
Mindful Agency	10	7	32
Sense Making	14	18	17
Creativity	10	12	27
Curiosity	11	14	24
Belonging	12	6	31

Table 7

Dimension	decline	unchanged	rise
Collaboration	10	14	25
Hope and Optimism	11	12	26
Orientation to Learning	14	14	21

Changes in learning power dimension at the individual level

6 Summary and Discussion

- The educators as a cohort reported a significantly more positive perception about themselves as a learner after having undertaken an authentic inquiry
- Despite the positive overall effect, individuals' experience varied as many of them reported a decline in some learning power dimensions
- Unlike the young participants whose participation were mostly arranged by their educators; the educators had the opportunity to make their own decisions on whether to follow through and complete a second learning power profile. There is no evidence to suggest the completion of a second learning power profile has any correlation with their level of engagement in the authentic inquiry; nevertheless, it is very interesting to observe that those who have greater curiosity were more likely to undertake the second assessment to see how they have changed.

Appendix

Table 2 - Details of educator data points recorded in the source data set

UserID	id_1	Profile1	Lapse1	id_2	Profile2	Lapse2	id_3	Profile3	Lapse3	id_4	Profile4
9983	9018	2020-03-26	31 days	9040	2020-04-26	NA days	NA	NA	NA days	NA	NA
9984	9020	2020-03-26	28 days	9034	2020-04-23	NA days	NA	NA	NA days	NA	NA
9986	9019	2020-03-26	23 days	9032	2020-04-18	NA days	NA	NA	NA days	NA	NA
10025	9058	2020-04-30	14 days	9088	2020-05-14	NA days	NA	NA	NA days	NA	NA
10026	9053	2020-04-30	14 days	9089	2020-05-14	NA days	NA	NA	NA days	NA	NA
10027	9050	2020-04-30	14 days	9090	2020-05-14	NA days	NA	NA	NA days	NA	NA
10028	9052	2020-04-30	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
10029	9056	2020-04-30	14 days	9093	2020-05-14	NA days	NA	NA	NA days	NA	NA
10030	9051	2020-04-30	14 days	9092	2020-05-14	NA days	NA	NA	NA days	NA	NA
10031	9054	2020-04-30	14 days	9086	2020-05-14	NA days	NA	NA	NA days	NA	NA
10033	9057	2020-04-30	14 days	9091	2020-05-14	NA days	NA	NA	NA days	NA	NA
10148	9071	2020-05-13	21 days	9123	2020-06-03	NA days	NA	NA	NA days	NA	NA
10149	9073	2020-05-13	21 days	9124	2020-06-03	NA days	NA	NA	NA days	NA	NA
10150	9072	2020-05-13	21 days	9122	2020-06-03	NA days	NA	NA	NA days	NA	NA
10151	9074	2020-05-13	23 days	9135	2020-06-05	NA days	NA	NA	NA days	NA	NA
10152	9095	2020-05-17	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16899	9864	2020-11-16	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16900	9945	2020-11-18	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16901	9807	2020-11-10	9 days	9948	2020-11-19	0 days	9949	2020-11-19	NA days	NA	NA
16903	9865	2020-11-16	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16905	9809	2020-11-10	14 days	10007	2020-11-24	NA days	NA	NA	NA days	NA	NA
16908	9851	2020-11-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16909	9933	2020-11-17	2 days	10002	2020-11-19	0 days	10003	2020-11-19	0 days	10004	2020-11-19
16912	9797	2020-11-10	17 days	10034	2020-11-27	NA days	NA	NA	NA days	NA	NA
16913	9846	2020-11-13	5 days	9941	2020-11-18	9 days	10029	2020-11-27	NA days	NA	NA
16914	9947	2020-11-19	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16915	9800	2020-11-10	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16917	9802	2020-11-10	14 days	10013	2020-11-24	NA days	NA	NA	NA days	NA	NA
16918	9796	2020-11-10	14 days	10008	2020-11-24	NA days	NA	NA	NA days	NA	NA
16920	9847	2020-11-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16921	9852	2020-11-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA

Table 2 - Details of educator data points recorded in the source data set

16922	10011	2020-11-24	89 days	10673	2021-02-21	NA days	NA	NA	NA days	NA	NA
16925	10025	2020-11-27	0 days	10033	2020-11-27	NA days	NA	NA	NA days	NA	NA
16928	9798	2020-11-10	17 days	10028	2020-11-27	NA days	NA	NA	NA days	NA	NA
16929	9799	2020-11-10	14 days	10010	2020-11-24	NA days	NA	NA	NA days	NA	NA
16930	9806	2020-11-10	14 days	10009	2020-11-24	NA days	NA	NA	NA days	NA	NA
16931	9805	2020-11-10	17 days	10026	2020-11-27	NA days	NA	NA	NA days	NA	NA
16934	9848	2020-11-13	13 days	10023	2020-11-26	NA days	NA	NA	NA days	NA	NA
16936	9849	2020-11-13	14 days	10030	2020-11-27	77 days	10555	2021-02-12	NA days	NA	NA
16937	9854	2020-11-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16938	9853	2020-11-13	14 days	10032	2020-11-27	NA days	NA	NA	NA days	NA	NA
16940	9801	2020-11-10	6 days	9863	2020-11-16	NA days	NA	NA	NA days	NA	NA
16941	9804	2020-11-10	17 days	10031	2020-11-27	NA days	NA	NA	NA days	NA	NA
16942	9866	2020-11-17	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16943	9808	2020-11-10	14 days	10012	2020-11-24	NA days	NA	NA	NA days	NA	NA
16946	9855	2020-11-13	6 days	9999	2020-11-19	8 days	10027	2020-11-27	NA days	NA	NA
16948	9856	2020-11-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16949	9946	2020-11-19	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16958	10001	2020-11-19	74 days	10512	2021-02-01	NA days	NA	NA	NA days	NA	NA
10255	9276	2020-10-11	45 days	10017	2020-11-25	0 days	10018	2020-11-25	NA days	NA	NA
10256	9165	2020-07-18	85 days	9278	2020-10-11	0 days	9277	2020-10-11	NA days	NA	NA
10257	9274	2020-10-08	7 days	9296	2020-10-15	NA days	NA	NA	NA days	NA	NA
10286	9193	2020-09-01	20 days	9236	2020-09-21	NA days	NA	NA	NA days	NA	NA
10287	9194	2020-09-02	31 days	9262	2020-10-03	NA days	NA	NA	NA days	NA	NA
10288	9251	2020-09-29	11 days	9275	2020-10-10	NA days	NA	NA	NA days	NA	NA
10289	9177	2020-08-06	59 days	9264	2020-10-04	NA days	NA	NA	NA days	NA	NA
10290	9197	2020-09-04	12 days	9230	2020-09-16	NA days	NA	NA	NA days	NA	NA
16960	10016	2020-11-25	9 days	10226	2020-12-04	NA days	NA	NA	NA days	NA	NA
10075	9067	2020-05-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
10077	10035	2020-11-28	71 days	10536	2021-02-07	NA days	NA	NA	NA days	NA	NA
10111	9077	2020-05-13	34 days	9145	2020-06-16	NA days	NA	NA	NA days	NA	NA
10116	9080	2020-05-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
10118	9081	2020-05-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
10119	9078	2020-05-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
10131	9083	2020-05-14	33 days	9144	2020-06-16	NA days	NA	NA	NA days	NA	NA

Table 2 - Details of educator data points recorded in the source data set

10132	9084	2020-05-14	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
10134	9076	2020-05-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
10135	9079	2020-05-17	0 days	9096	2020-05-17	NA days	NA	NA	NA days	NA	NA
10138	9075	2020-05-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
10139	9094	2020-05-16	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16961	10036	2020-11-30	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16962	10234	2020-12-07	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
3684	3603	2019-03-20	218 days	4653	2019-10-24	NA days	NA	NA	NA days	NA	NA
3785	3668	2019-03-27	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
3786	3669	2019-03-27	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
5890	4621	2019-10-16	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
5892	4619	2019-10-15	120 days	5730	2020-02-12	NA days	NA	NA	NA days	NA	NA
16893	9832	2020-11-11	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16894	9810	2020-11-10	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16944	9842	2020-11-12	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA
16945	9843	2020-11-12	0 days	9845	2020-11-12	4 days	9862	2020-11-16	NA days	NA	NA
16947	9857	2020-11-13	NA days	NA	NA	NA days	NA	NA	NA days	NA	NA

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