ABSTRACT

The objective of this analysis is to analyse the inequality of the educational sector of Vietnam, it further projects an understanding of insights between the social life, background, family, peers and even teachers' behaviour to their performance academically.

The analysis is geared towards helping children from lower income families in Vietnam with a focus on the educational sector. A new database was created for this report with 2 schemas representing each wave, wave1 and wave2.

Relational Schema

2 schemas were created for the purpose of this analysis according to the waves.

```
1   create schema Vietwave1;
2
3   create schema Vietwave2;
```

Table Identification

Each of the 2 tables were imported into the SQL Server management studio into a default schema. The tables and columns were categorised based on data on the Wave1 and Wave2.

Table creation

To create the tables, firstly I had to create views, selected the required columns for each view, saved the data in the view into a table and then naming the table alongside the required schema depending on the wave.

```sql

--CREATING VIEWS AND CREATING TABLES WITH THW VIEWS(SCHEMAS ARE NAMED AFTER THE 2 WAVES)

create view Learning_outcome
as
select uniqueid, schoolid, studentid, province, gender, absent_days, stageeng,eng_test, eng_rawscore, math_test, math_rawscore, grlenrl, boyenrl, tgrlenrl, tboyenrl
from dbo.[vietnam_wave_1.tab];

select * into vietwave1.learningoutcome
from Learning_outcome;

create view home_bckground
as
select uniqueid, studentid, stdliv, stplstdy, STHVDESK, stplhlrd, stplhl01, stplhl03, stplhl06, sthvintr, stpplhm, stdlnghm, province
from dbo.[vietnam_wave_1.tab];

select * into vietwave1.homebackground
from home_bckground;


create view school_
as
select uniqueid, studentid, schfac01a, schfac01b, schfac04, schfac05, schfac07, htampaid9, schfac02, schfac10, schfac11
from dbo.[vietnam_wave_1.tab];

select * into vietwave1.school
from school_;

create view Learning_outcome2
as
select uniqueid, schoolid, studentid, stfeel19c, stfeel21e, stfeel22a, stfeel22b, stfeel22h, stfeel23a, eng_test, eng_rawscore, math_test, math_rawscore
from dbo.[vietnam_wave_2.tab];

select * into vietwave2.Learningoutcome2
from Learning_outcome2;

create view teachers_behaviour
as
select uniqueid, schoolid, studentid, stmthwrk, stmwrkch, stethwrk, stfeel33, stfeel34, stfeel37, stfeel35, stfeel47
from dbo.[vietnam_wave_2.tab];

select * into vietwave2.teachers_behaviours
from teachers_behaviour;

create view school_2
as
select uniqueid, schoolid, studentid, stcmpsch, staddmt, stadden, stprven, stprvmt
from  dbo.[vietnam_wave_2.tab];

select * into vietwave2.school_2
from school_2;

```

TRANSFORMATIONS

From the data, I observed most columns had encoding and appeared numeric hence the need to transform them and remove the encodings to actual meanings by creating stored procedures to update each column of the tables that with encodings.

```
--TRANSFORMING THE TABLES BY CREATING STOREED PROCEDURES FOR ALL ENCODING TO REMOVE NUMERICAL DATA

create procedure learningoutcome_trans
as
begin
    update vietwave1.learningoutcome
    set province =
    case
    when province = 1   then 'Ben Tre'
    when province = 2   then 'Da Nang'
    when province = 3   then 'Hung Yen'
    when province = 4   then 'Lao Cai'
    when province = 5   then 'Phu Yen'
    else 'null'
    end

    update vietwave1.learningoutcome
    set gender =
    case
    when gender = 1 then 'Male'
    when gender = 2 then 'Female'
    else 'null'
    end

    update vietwave1.learningoutcome
    set stageeng =
    case
    when stageeng = 0  then 'I have never learned English in school'
    when stageeng = 1  then 'Kindergarten'
    when stageeng = 2  then 'Grade 1 - 5'
    when stageeng = 3  then 'Grade 6 - 9'
    when stageeng = 4  then 'Grade 10'
    when stageeng = 99 then 'Missing'
    when stageeng = 88 then 'NA'
    else 'null'
    end

end;
go

execute learningoutcome trans;
```

```
94
95  execute learningoutcome_trans;
96
97  create procedure homebackground_trans
98  as
99  begin
100     update vietwave1.homebackground
101     set stdliv =
102     case
103     when stdliv = 99 then 'Missing'
104     when stdliv = 1  then 'At home with my parents'
105     when stdliv = 2  then 'With other family or friends'
106     when stdliv = 3  then 'In a school hostel'
107     when stdliv = 4  then 'In a private hostel'
108     when stdliv = 5  then 'Other'
109     when stdliv = 88 then 'NA'
110     else 'null'
111     end
112
113     update vietwave1.homebackground
114     set stplstdy =
115     case
116     when stplstdy = 0 then 'no'
117     when stplstdy = 1 then 'yes'
118     else 'null'
119     end
120
121     update vietwave1.homebackground
122     set STHVDESK =
123     case
124     when STHVDESK = 0 then 'no'
125     when STHVDESK = 1 then 'yes'
126     else 'null'
127     end
128
129     update vietwave1.homebackground
130     set stplhlrd =
131     case
132     when stplhlrd = 0 then  'Never'
133     when stplhlrd = 1 then  'Sometimes'
134     when stplhlrd = 2 then  'Always'
135     when stplhlrd = 99 then 'Missing'
136     when stplhlrd = 88 then 'NA'
137     else 'null'
138     end

140     update vietwave1.homebackground
141     set stplhl01 =
142     case
143     when stplhl01 = 99  then  'Missing'
144     when stplhl01 = 1   then  'Never or almost never'
145     when stplhl01 = 2   then  'Once or twice a month'
146     when stplhl01 = 3   then  'Once or twice a week'
147     when stplhl01 = 4   then  'Everyday or almost everyday'
148     when stplhl01 = 88  then  'NA'
149     else 'null'
150     end
```

```
update vietwave1.homebackground
set stplhl06 =
case
when stplhl06 = 99  then  'Missing'
when stplhl06 = 1   then  'Never or almost never'
when stplhl06 = 2   then  'Once or twice a month'
when stplhl06 = 3   then  'Once or twice a week'
when stplhl06 = 4   then  'Everyday or almost everyday'
when stplhl06 = 88  then  'NA'
else 'null'
end

update vietwave1.homebackground
set STHVINTR =
case
when STHVINTR = 0   then  'no'
when STHVINTR = 1   then  'yes'
else 'null'
end

update vietwave1.homebackground
set STDLNGHM =
case
when STDLNGHM = 0 then  'Never'
when STDLNGHM = 1 then  'Sometimes'
when STDLNGHM = 2 then  'Always'
when STDLNGHM = 99 then 'Missing'
when STDLNGHM = 88 then 'NA'
else 'null'
end

update vietwave1.homebackground
set province =
case
when province = 1   then 'Ben Tre'
when province = 2   then 'Da Nang'
when province = 3   then 'Hung Yen'
when province = 4   then 'Lao Cai'
when province = 5   then 'Phu Yen'
else 'null'
end
```

```
execute homebackground_trans;

create procedure school_trans
as
begin
    update vietwave1.school
    set SCHFAC04 =
    case
    when SCHFAC04 = 0 then 'yes'
    when SCHFAC04 = 1 then 'no'
    else 'null'
    end

    update vietwave1.school
    set SCHFAC05 =
    case
    when SCHFAC05 = 0 then 'yes'
    when SCHFAC05 = 1 then 'no'
    else 'null'
    end

    update vietwave1.school
    set SCHFAC02 =
    case
    when SCHFAC02 = 0 then 'yes'
    when SCHFAC02 = 1 then 'no'
    else 'null'
    end

    update vietwave1.school
    set SCHFAC07 =
    case
    when SCHFAC07 = 0 then 'yes'
    when SCHFAC07 = 1 then 'no'
    else 'null'
    end
```

```
end;
go

execute school_trans;

create procedure Learningoutcome2_trans
as
begin
    update vietwave2.Learningoutcome2
    set STFEEL19C=
    case
    when stfeel19c = 1 then 'Strongly disagree'
    when stfeel19c = 2 then 'Disagree'
    when stfeel19c = 3 then 'Agree'
    when stfeel19c = 4 then 'Strongly agree'
    when stfeel19c = 88 then 'NA'
    when stfeel19c = 79 then 'Missing'
    else 'null'
    end

    update vietwave2.Learningoutcome2
    set STFEEL21E =
    case
    when STFEEL21E = 1 then 'Strongly disagree'
    when STFEEL21E = 2 then 'Disagree'
    when STFEEL21E = 3 then 'Agree'
    when STFEEL21E = 4 then 'Strongly agree'
    when STFEEL21E = 88 then 'NA'
    when STFEEL21E = 79 then 'Missing'
    else 'null'
    end

    update vietwave2.Learningoutcome2
    set STFEEL22A =
    case
    when STFEEL22A = 1 then 'Strongly disagree'
    when STFEEL22A = 2 then 'Disagree'
    when STFEEL22A = 3 then 'Agree'
    when STFEEL22A = 4 then 'Strongly agree'
    when STFEEL22A = 88 then 'NA'
    when STFEEL22A = 79 then 'Missing'
    else 'null'
```

RELATIONSHIPS BETWEEN TABLES

To create a relationship between the tables, I chose to create 2 different relationships between the 2 tables in each country, a composite key (primary key) was created in each learning outcome table for each wave which relates to other tables homebackground in wave1 and teachers beahavior in wave 2 in the most ways and is linked with a foreign key created on the other tables with reference to the table with the primary key.

```
---
---Altering columns to create primary keys (uniqueid, studentid) on the center table as not nullable(Vietwave1).
alter table vietwave1.learningoutcome
alter column uniqueid varchar(50) not null;

alter table vietwave1.learningoutcome
alter column studentid varchar(50) not null;

--creating composite key by altering keys
alter table vietwave1.learningoutcome
add constraint uniquestudent primary key (uniqueid,studentid);

---Altering columns to create primary keys (uniqueid, studentid) on the center table as not nullable(Vietwave2).
alter table vietwave2.learningoutcome2
alter column uniqueid varchar(50) not null;

alter table vietwave2.learningoutcome2
alter column studentid varchar(50) not null;

--creating composite key by altering keys
alter table vietwave2.learningoutcome2
add constraint uniquestudent2 primary key (uniqueid,studentid);

--adding foriegn key to table(vietwave1.homebackgroud)
alter table vietwave1.homebackground
add constraint viethomebackground_fk foreign key (uniqueid,studentid)
references vietwave1.learningoutcome (uniqueid,studentid);

--adding foriegn key to table(vietwave1.school)
alter table vietwave1.school
add constraint vietschool_fk foreign key (uniqueid,studentid)
references vietwave1.learningoutcome (uniqueid,studentid);

--adding foriegn key to table(vietwave2.school_2)
alter table vietwave2.school_2
add constraint vietschool2_fk foreign key (uniqueid,studentid)
references vietwave2.learningoutcome2 (uniqueid,studentid);

--adding foriegn key to table(vietwave2.teachers_behaviours)
alter table vietwave2.teachers_behaviours
add constraint vietteachersbehaviours_fk foreign key (uniqueid,studentid)
references vietwave2.learningoutcome2 (uniqueid,studentid);
```

RATIONALE OF THE DESIGN

I decided to conduct in-depth and focused research on each wave, and I'll comment on variables that influenced database building decisions in the report of my analysis.

DESIGN CONSIDERATION

My idea for the analysis is to compare the child's home background, home experiences, and learning outcomes between the two waves.

NORMALISATION

All table has similar columns, such as (unique id and student id), that distinguishes them from one another and was used to connect the tables in the database diagram.

CONSTRAINT

The database features composite key constraints and a not null constraint that were created on the learning outcome tables as unique identifiers throughout the two waves.

VALIDATION

The stored procedures', unique IDs, primary keys, and update functions ensure that the data in the table is continuous across all rows.

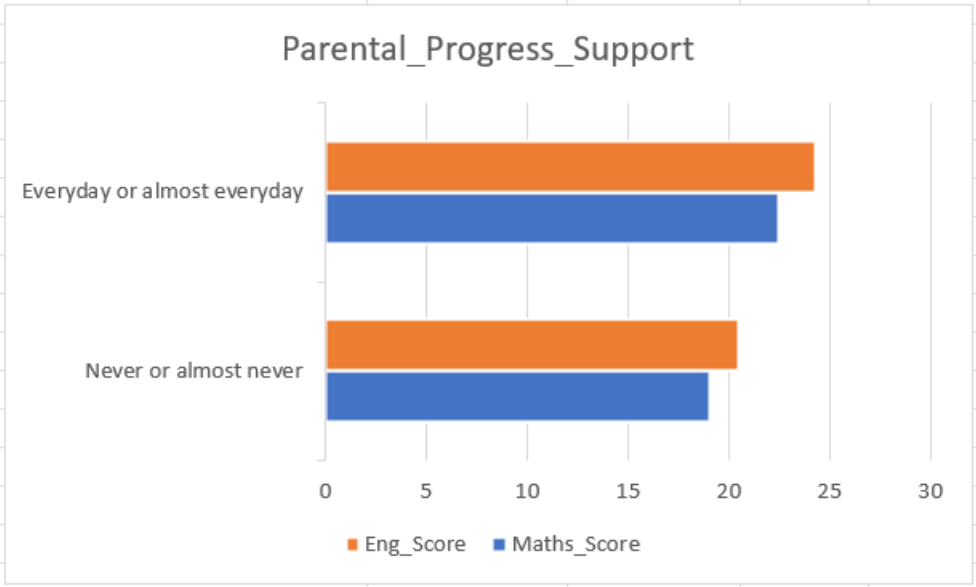
TRAENSPARENCY AND CONCURRENCY CONTROL

The database was solely used to retrieve data within the database in this study.

REPORT 1 (THIS REPORT SHOWS THE ACADEMIC PROGRESS BETWEEN CHILDREN WHOSE PARENTS CHECK UP ON THEIR ACADEMIC PEFORMANCE AND THOSE WHOSE PARENTS DON'T)

```
553  --REPORT 1 (THIS REPORT COMPARES THE PERFOMANCE OF CHILDREN WHOSE PARENTS/GUARDIANS DISCUSS THEIR ACADEMIC PROGESS
554  alter table vietwave1.learningoutcome
555  alter column math_rawscore float;
556
557  alter table vietwave1.learningoutcome
558  alter column eng_rawscore float;
559
560  create view Parental_Progress_Support_Analysis
561  as
562  Select stplhl01 as Parental_Progress_Support, AVG(math_rawscore) as Maths_Score , AVG(eng_rawscore) as Eng_Score
563  from vietwave1.learningoutcome as learn
564  inner join vietwave1.homebackground as bckground
565  on learn.uniqueid = bckground.uniqueid
566  where stplhl01 like 'ev%' or  stplhl01 like 'ne%'
567  group by stplhl01;
568
569  select *
570  from Parental_Progress_Support_Analysis;
```

	A	B	C	D	E
1	Parental_Progress_Support	Maths_Score	Eng_Score		
2	Never or almost never	19.05942857	20.53828571		
3	Everyday or almost everyday	22.45123537	24.30689207		

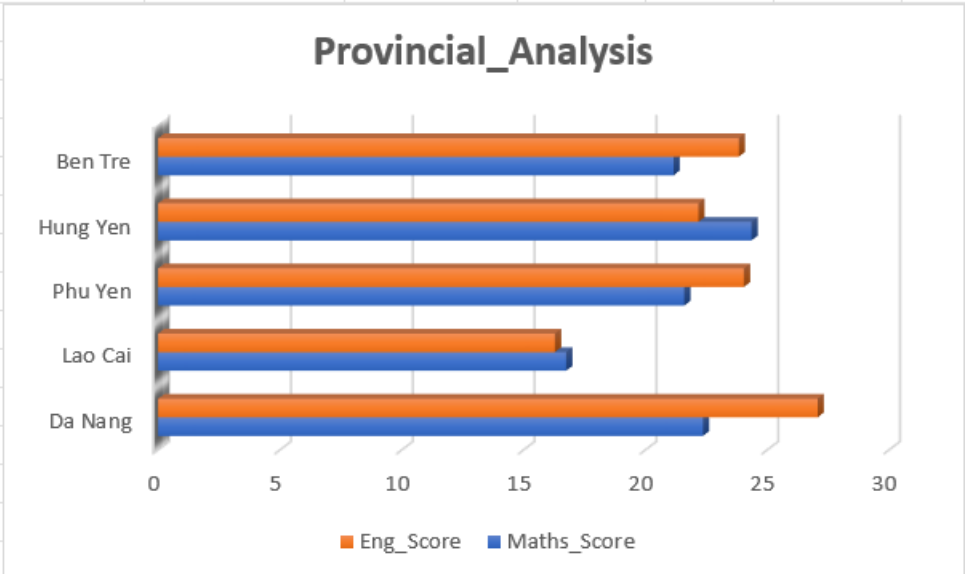


The visualisation above shows that children with parental care and support on average of their academic result in Maths and English are doing better than those with little or no parental care or support.

REPORT 2 (COMPARATIVE ANALYSIS OF CHILDREN IN THE DIFFERENT PROVINCES AND THEIR ACADEMIC PEFORMANCE)

```
573  -- REPORT 2 (COMPARATIVE ANALYSIS OF CHILDREN IN THE DIFFERENT PROVINCES AND THEIR ACADEMIC PERFOMANCE)
574
575  Create view Provincial_analysis
576  as
577  Select hbck.province as Province, AVG(math_rawscore) as Maths_Score, AVG(eng_rawscore) as Eng_Score
578  from Vietwave1.homebackground as hbck
579  inner join Vietwave1.learningoutcome as lout
580  on hbck.uniqueid = lout.uniqueid
581  group by hbck.province;
582
583  select *
584  from Provincial_analysis;
```

Province	Maths_Score	Eng_Score
Da Nang	22.36302624	27.07077486
Lao Cai	16.74481567	16.28513825
Phu Yen	21.59525826	24.04445385
Hung Yen	24.35294118	22.17182663
Ben Tre	21.15546464	23.83343074

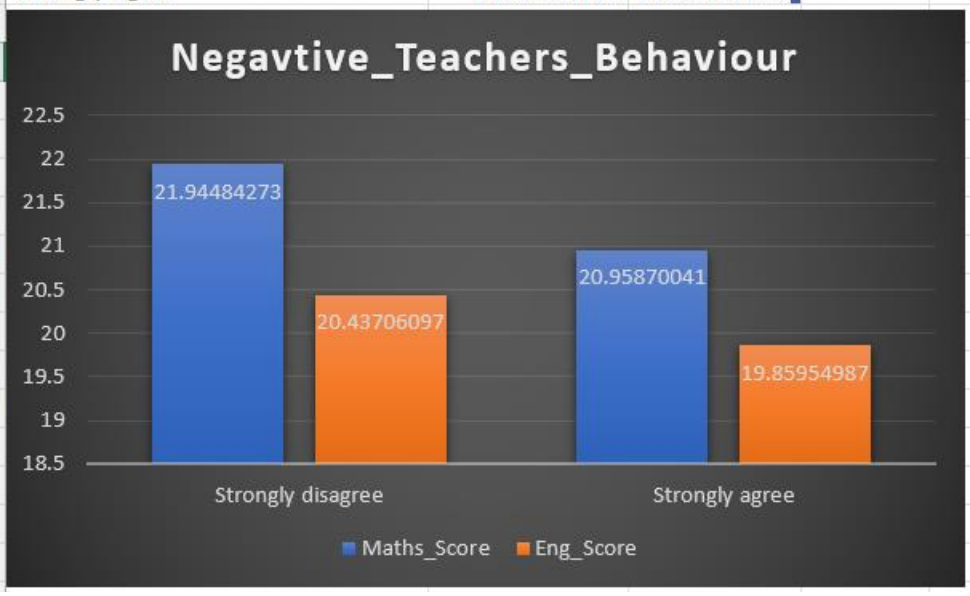


This shows that Da Nang Province on average has the best performing children in both English and Maths while Lao Cai on average has the least performing children academically.

REPORT 3 (EFFECTS OF NEGATIVE TEACHERS' BEHAVIOR ON THE ACADEMIC PEORMANCE OF THE CHILDREN)

```
586  -- REPORT 3 (EFFECTS OF NEGATIVE TEACHER'S BEHAVIOUR ON THE CHILDREN'S ACADEMIC PERFOMANCE)
587  alter table vietwave2.learningoutcome2
588  alter column math_rawscore float;
589
590  alter table vietwave2.learningoutcome2
591  alter column eng_rawscore float;
592
593  Create view NEGATIVE_TEACHER_BEHAVIOUR
594  as
595  select stfeel37 as Negavtive_Teachers_Behaviour, AVG(math_rawscore) as Maths_Score, AVG(eng_rawscore) as Eng_Score
596  from Vietwave2.teachers_behaviours as v2b
597  inner join Vietwave2.Learningoutcome2 as v2l
598  on v2b.schoolid = v2l.schoolid
599  where stfeel37 like '%strongly disagree' or stfeel37 like '%strongly agree'
600  group by stfeel37;
601
602  select *
603  from NEGATIVE_TEACHER_BEHAVIOUR;
```

	A	B	C	D
1	Negavtive_Teachers_Behaviour	Maths_Score	Eng_Score	
2	Strongly disagree	21.94484273	20.43706097	
3	Strongly agree	20.95870041	19.85954987	



This shows some negative teachers' attitude on children and how it affects their learning, from the data above, kids who have experienced such in school on average tend to perform worse than those children who didn't have the same experience.