

Implementation of Inclusive Education, Teacher Motivation and Teacher Resources Among Secondary School Teachers in Malaysia

Siti Fatimah Salleh¹, Mustaffar Che Omar^{2*}

^{1,2} Faculty of Islamic Contemporary Studies, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

*Corresponding author; Email: mustafa@unisza.edu.my



Received: 10 October 2024

Accepted: 11 January 2025

Revision: 15 December 2024

Published: 06 February 2025. Vol-6, Issue-1

Cite as: Salleh, SF; Omar MC. (2025). Validity and Reliability of Inclusive Education Implementation, Teacher Motivation, and Resource Teacher Needs Among Secondary School Teachers in Malaysia. *ICRRD Journal*, 6(1), 111-129.

Abstract: This study focuses on the validity and reliability of constructs related to the implementation of the Inclusive Education Program (IEP), teacher motivation, and resource teacher needs among secondary school teachers in Malaysia. The national education system aims to provide an inclusive educational framework for all students, including those with special educational needs (SEN). However, challenges persist in addressing the diverse needs of students at different educational levels, particularly at the secondary level where the curriculum becomes more complex and students face public examinations. Without the necessary support, students with SEN may encounter academic difficulties, leading to frustration, failure, and missed opportunities. Inclusive education, as emphasized by international guidelines, requires a student-centered approach that incorporates co-teaching methods to address the specific needs of SEN students. This approach leads to better curriculum mastery for these students. Resource teachers play a crucial role in supporting the effective implementation of the IEP, which aligns with the Ministry of Education's objectives. The primary aim of this research is to develop and validate an instrument that measures the implementation of the IEP, focusing on teacher knowledge, attitude, collaborative strategies, teaching methods, teacher training, and motivation (intrinsic and extrinsic), as well as the resource teacher needs in Malaysian secondary schools. The study employs quantitative research methods, utilizing Structural Equation Modeling (SEM) to examine the relationships between the various variables. Exploratory Factor Analysis (EFA) is conducted prior to SEM to confirm the suitability of the items within the research instrument. The results of this study demonstrate that the validity and reliability of the constructs evaluated through measures such as Kaiser-Meyer-Olkin (KMO), Total Variance Explained (TVE), Factor Loading (FL), and Cronbach's Alpha (CA) meet the required standards.

Keywords: Inclusive Education, Teacher Motivation, Exploratory Factor Analysis (EFA), Teachers Resources, Secondary Education in Malaysia.

INTRODUCTION

Education is one of the main pillars in the social development of the country. The importance of education to the development of a country can be seen in the large national expenditure allocations each year for the purpose of developing the education system needed by society (Nik Hassan, 2016).

This action is considered a major investment to ensure continuous progress and to develop human capital 'first-class minds' in the future. Therefore, the importance of balanced knowledge from a spiritual and skills perspective has now become a very important need for a country. The education system in Malaysia is an education system for all children. The importance of this education can be appreciated through the Education Act (1996) amended in 2002 which has made it mandatory for all children in Malaysia to receive education when they reach the age of six and above. In addition, the Persons with Disabilities Act (OKU, 2008) also stipulates that educational opportunities for Persons with Disabilities Act (OKU) cannot be excluded. This clearly proves the government's efforts in accommodating and improving the educational needs of Students with Special Educational Needs (SSEN). Therefore, this proves that the education system in this country can be achieved by all Malaysians. The need for change in the world of education is also given focus by the government so that the education received becomes something dynamic and in line with current needs (Education Act, 1996). Inspection of the Inclusive Education Program (IEP) conducted found that Inclusive Education Program (IEP) was not implemented properly due to a clear lack of understanding about the implementation of Inclusive Education Program (IEP) and the requirements of Students with Special Educational Needs (SSEN). The implementation of Inclusive Education Program (IEP) in schools with a Special Education Program for Integration of Learning Difficulties has also not been managed in a planned and effective manner and has not achieved the actual objectives as intended. In fact, it was found that there are still not enough Students with Special Educational Needs (SSEN) participating in Inclusive Education Program (IEP) because there are still many schools that are not prepared to implement Inclusive Education Program (IEP) in their schools.

The purpose of this research is to identify the influence of Implementation of Inclusive Education Program (IEP) (based on Teacher Knowledge, Teacher Attitude, Collaborative Strategy, Teacher Teaching Method, Teacher Training), Teacher Motivation (based on Intrinsic Motivation, Extrinsic Motivation) and Resource Teacher Needs among Secondary School Teachers in Malaysia.

EXPLORATORY FACTOR ANALYSIS (EFA)

EFA is conducted to identify some components that exist in the set of questionnaires that have been formed. EFA is a statistical technique that transforms a set of original construct data linearly into a set of smaller constructs that can give a comprehensive picture of all the information contained in the original construct (Duntemen, 1989). The purpose of EFA is to reduce the dimensions of the original data to several smaller components that can be interpreted more easily and meaningfully (Duntemen, 1989; Lewis-Beck, 1994 & Field, 2006). According to Tabachnick and Fidell (2007), EFA needs to go through several stages. The first stage calculates the correlation matrix between all the factor-analyzed constructs. The next stage involves extracting some factors from the correlation matrix and determining the number of factors formed. The rotation of the factors is done to improve the interpretation so that the factors are more meaningful and can be interpreted. The final and most important stage in factor analysis is to interpret the results of the factors obtained and give an appropriate name to each factor.

This study uses items in an instrument that has been built by the researcher himself. According to Chik and Abdullah (2018), Chik, Abdullah, Ismail and Mohd Noor (2024), Awang (2012) and Hoque et al. (2017), if a researcher adapts an item that has been built by a previous researcher or builds a

new item in the instrument or modifies the statement to fit the current study, then they need to re-run the EFA (Exploratory Factor Analysis) procedure. This is because the current study area may be different from previous studies, or the current study population is much different from previous studies in terms of socio-economic status, race and culture. Therefore, there may be some items that were built before, no longer suitable for the current study or there may also be a different item structure in the current study compared to the structure in the previous study. Thus, researchers need to recalculate the Internal Reliability value for the current instrument, which is the new Alpha Cronbach value (Chik et al., 2024, Awang, 2012; Hoque et al., 2017).

FINDINGS

Exploratory Factor Analysis (EFA) for Implementation of Inclusive Education Program (IEP) Based on Teacher Knowledge

The Implementation of Inclusive Education Program (IEP) based on Teacher Knowledge which uses as many as seven (7) items and is labeled as PG1 to PG7. Next, the use of an interval scale for the measurement of items is between one (1) to 10. Principal Component Analysis (PCA) in the EFA process using varimax rotation for the Implementation of Inclusive Education Program (IEP) based on Teacher Knowledge for the measurement of seven (7) items. Table 1 below shows the Bartlett's test results that are significant for P values less than 0.05 ($P < 0.05$). Next, the value for the measurement of sampling adequacy from Kaiser-Meyer-Olkin (KMO) is 0.880. The value obtained has exceeded the minimum limit value of 0.6 and the achievement of both of these tests (Bartlett's test is significant and KMO value > 0.6), showing that the data used in this study is appropriate according to the EFA procedure (Chik et al., 2024; Hoque et al., 2017; Awang, 2012).

Table 1: KMO Values and Bartlett's Test for Implementation of Inclusive Education Program (IEP) Based on Teacher Knowledge

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.880
	Approx. Chi-Square	507.019
Bartlett's Test of Sphericity	df	21
	Sig.	0.000

Total Variance Explained (TVE) is important for researchers to know what percentage of the items used can measure a research construct. Reading from Table 2 below found that Implementation of Inclusive Education Program (IEP) based on Teacher Knowledge measured using seven (7) items in one (1) component can measure Implementation of Inclusive Education Program (IEP) based on Teacher Knowledge as much as 66.947%. This value is sufficient because it exceeds the minimum requirement of 60% (Chik et al., 2024; Hoque et al., 2017).

Table 2: Total Variance Explained for Implementation of Inclusive Education Program (IEP) Based on Teacher Knowledge)

Component	Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	4.686	66.947	66.947

Thus, the researcher wants to know the selected items to measure the component. Table 3 below shows the distribution of items accepted to measure Implementation of Inclusive Education Program (IEP) based on Teacher Knowledge. All items have a factor loading value exceeding the minimum limit of 0.6 and items that are less than 0.6 should be discarded because they do not contribute to the measurement of the construct (Chik et al., 2024).

Table 3: Factor Loading for One (1) Component Implementation of Inclusive Education Program (IEP) Based on Teacher Knowledge

Component Matrix ^a	
Items	Component
PG1	0.846
PG2	0.891
PG3	0.741
PG4	0.834
PG5	0.876
PG6	0.860
PG7	0.653

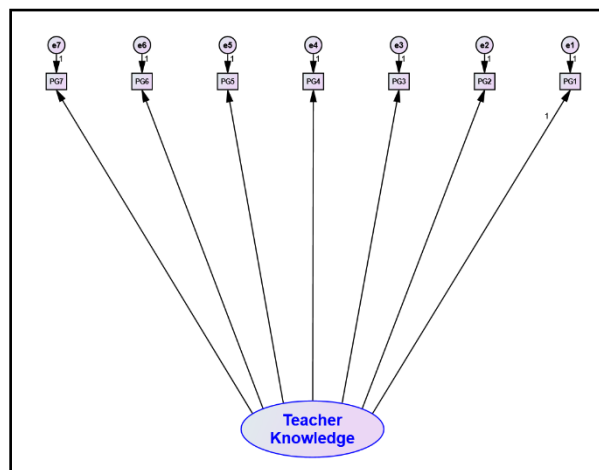


Figure 1: Position of Components and Items for Implementation of Inclusive Education Program (IEP) Based on Teacher Knowledge (Before and After EFA)

Another piece of information that researchers need to report is the reliability value of the items that have been built to measure that construct. The measure of instrument reliability is estimated through Cronbach's Alpha value that exceeds the minimum limit of 0.7 to be adopted in the study. Table 4 below shows the Cronbach's Alpha value for each item in the Implementation of Inclusive Education Program (IEP) based on Teacher Knowledge that exceeds 0.7 and can be used in this study (Chik et al., 2024).

Table 4: Cronbach's Alpha Value for Each Item in the Implementation of Inclusive Education Program (IEP) Based on Teacher Knowledge

Component	Number of Items	Cronbach's Alpha
1	7	0.916

Exploratory Factor Analysis (EFA) for Implementation of Inclusive Education Program (IEP) Based on Teacher Attitude

The Implementation of Inclusive Education Program (IEP) based on Teacher Attitude which uses as many as seven (7) items and is labeled as SG1 to SG7. Next, the use of an interval scale for the measurement of items is between one (1) to 10. Principal Component Analysis (PCA) in the EFA process using varimax rotation for the Implementation of Inclusive Education Program (IEP) based on Teacher Attitude for the measurement of seven (7) items. Table 5 below shows the Bartlett's test results that are significant for P values less than 0.05 ($P < 0.05$). Next, the value for the measurement of sampling adequacy from Kaiser-Meyer-Olkin (KMO) is 0.831.

Table 5: KMO Values and Bartlett's Test for Implementation of Inclusive Education Program (IEP) Based on Teacher Attitude

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.831
	Approx. Chi-Square	435.331
Bartlett's Test of Sphericity	df	21
	Sig.	0.000

Total Variance Explained (TVE) is important for researchers to know what percentage of the items used can measure a research construct (Hossen & Pauzi, 2025; Ziogas et al., 2023). Reading from Table 6 below found that Implementation of Inclusive Education Program (IEP) based on Teacher Attitude measured using seven (7) items in one (1) component can measure Implementation of Inclusive Education Program (IEP) based on Teacher Attitude as much as 63.469%. This value is sufficient because it exceeds the minimum requirement of 60% (Chik et al., 2024; Hoque et al., 2017).

Table 6: Total Variance Explained for Implementation of Inclusive Education Program (IEP) Based on Teacher Attitude

Component	Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	4.233	63.469	63.469

Thus, the researcher wants to know the selected items to measure the component. Table 7 below shows the distribution of items accepted to measure Implementation of Inclusive Education Program (IEP) based on Teacher Attitude. All items have a factor loading value exceeding the minimum limit of 0.6 and items that are less than 0.6 should be discarded because they do not contribute to the measurement of the construct (Chik et al., 2024).

Table 7: Factor Loading for One (1) Component Implementation of Inclusive Education Program (IEP) Based on Teacher Attitude

Component Matrix ^a	
Items	Component
SG1	0.848
SG2	0.871
SG3	0.875
SG4	0.840
SG5	0.810
SG6	0.709
SG7	0.802

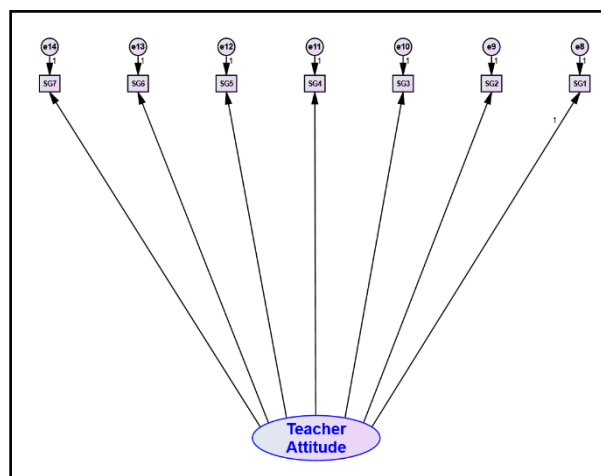


Figure 2: Position of Components and Items for Implementation of Inclusive Education Program (IEP) Based on Teacher Attitude (Before and After EFA)

Another piece of information that researchers need to report is the reliability value of the items that have been built to measure that construct. The measure of instrument reliability is estimated through Cronbach's Alpha value that exceeds the minimum limit of 0.7 to be adopted in the study. Table 8 below shows the Cronbach's Alpha value for each item in the Implementation of Inclusive Education Program (IEP) based on Teacher Attitude that exceeds 0.7 and can be used in this study (Chik et al., 2024; Hoque et al., 2017).

Table 8: Cronbach's Alpha Value for Each Item in the Implementation of Inclusive Education Program (IEP) Based on Teacher Attitude

Component	Number of Items	Cronbach's Alpha
1	7	0.875

Exploratory Factor Analysis (EFA) for Implementation of Inclusive Education Program (IEP) Based on Collaborative Strategy

The Implementation of Inclusive Education Program (IEP) based on Collaborative Strategy which uses as many as seven (7) items and is labeled as SK1 to SK7. Next, the use of an interval scale for the measurement of items is between one (1) to 10. Principal Component Analysis (PCA) in the EFA process using varimax rotation for the Implementation of Inclusive Education Program (IEP) based on Collaborative Strategy for the measurement of seven (7) items. Table 9 below shows the Bartlett's test results that are significant for P values less than 0.05 ($P < 0.05$). Next, the value for the measurement of sampling adequacy from Kaiser-Meyer-Olkin (KMO) is 0.870. The value obtained has exceeded the minimum limit value of 0.6 and the achievement of both of these tests (Bartlett's test is significant and KMO value > 0.6), showing that the data used in this study is appropriate according to the EFA procedure (Chik et al., 2024; Hoque et al., 2017; Awang, 2012).

Table 9: KMO Values and Bartlett's Test for Implementation of Inclusive Education Program (IEP) Based on Collaborative Strategy

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.870
	Approx. Chi-Square	491.560
Bartlett's Test of Sphericity	df	21
	Sig.	0.000

Total Variance Explained (TVE) is important for researchers to know what percentage of the items used can measure a research construct. Reading from Table 10 below found that Implementation of Inclusive Education Program (IEP) based on Collaborative Strategy measured using seven (7) items in one (1) component can measure Implementation of Inclusive Education Program (IEP) based on Collaborative Strategy as much as 66.490%. This value is sufficient because it exceeds the minimum requirement of 60% (Chik et al., 2024; Hoque et al., 2017).

Table 10: Total Variance Explained for Implementation of Inclusive Education Program (IEP) Based on Collaborative Strategy

Component	Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	4.654	66.490	66.490

Thus, the researcher wants to know the selected items to measure the component. Table 11 below shows the distribution of items accepted to measure Implementation of Inclusive Education Program (IEP) based on Collaborative Strategy. All items have a factor loading value exceeding the minimum limit of 0.6 and items that are less than 0.6 should be discarded because they do not contribute to the measurement of the construct (Chik et al., 2024).

Table 11: Factor Loading for One (1) Component Implementation of Inclusive Education Program (IEP) Based on Collaborative Strategy

Component Matrix ^a	
Items	Component
SK1	0.844
SK2	0.789
SK3	0.883
SK4	0.882
SK5	0.764
SK6	0.834
SK7	0.794

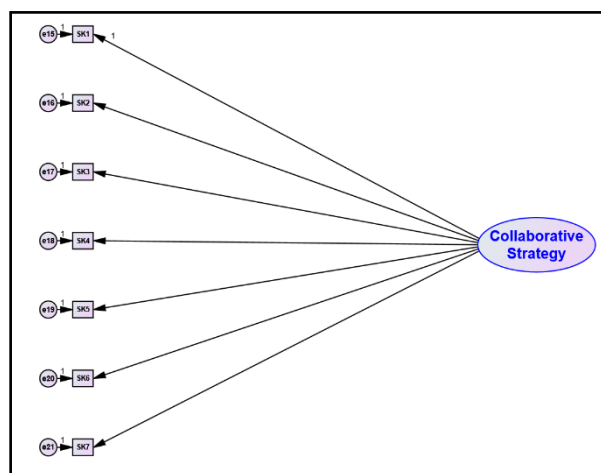


Figure 3: Position of Components and Items for Implementation of Inclusive Education Program (IEP) Based on Collaborative Strategy (Before and After EFA)

Another piece of information that researchers need to report is the reliability value of the items that have been built to measure that construct. The measure of instrument reliability is estimated through Cronbach's Alpha value that exceeds the minimum limit of 0.7 to be adopted in the study. Table 12 below shows the Cronbach's Alpha value for each item in the Implementation of Inclusive Education Program (IEP) based on Collaborative Strategy that exceeds 0.7 and can be used in this study (Chik et al., 2024).

Table 12: Cronbach's Alpha Value for Each Item in the Implementation of Inclusive Education Program (IEP) Based on Collaborative Strategy

Component	Number of Items	Cronbach's Alpha
1	7	0.915

Exploratory Factor Analysis (EFA) for Implementation of Inclusive Education Program (IEP) Based on Teacher Teaching Method

The Implementation of Inclusive Education Program (IEP) based on Teacher Teaching Method which uses as many as seven (7) items and is labeled as KP1 to KP7. Next, the use of an interval scale for the measurement of items is between one (1) to 10. Principal Component Analysis (PCA) in the EFA process using varimax rotation for the Implementation of Inclusive Education Program (IEP) based on Teacher Teaching Method for the measurement of seven (7) items. Table 13 below shows the Bartlett's test results that are significant for P values less than 0.05 ($P < 0.05$). Next, the value for the measurement of sampling adequacy from Kaiser-Meyer-Olkin (KMO) is 0.907. The value obtained has exceeded the minimum limit value of 0.6 and the achievement of both of these tests (Bartlett's test is significant and KMO value > 0.6), showing that the data used in this study is appropriate according to the EFA procedure (Chik et al., 2024; Hoque et al., 2017; Awang, 2012).

Table 13: KMO Values and Bartlett's Test for Implementation of Inclusive Education Program (IEP) Based on Teacher Teaching Method

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.907
	Approx. Chi-Square	747.852
Bartlett's Test of Sphericity	df	21
	Sig.	0.000

Table 14 below found that Implementation of Inclusive Education Program (IEP) based on Teacher Teaching Method measured using seven (7) items in one (1) component can measure Implementation of Inclusive Education Program (IEP) based on Teacher Teaching Method as much as 80.285%. This value is sufficient because it exceeds the minimum requirement of 60% (Chik et al., 2024; Hoque et al., 2017).

Table 14: Total Variance Explained for Implementation of Inclusive Education Program (IEP) Based on Teacher Teaching Method

Component	Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	5.620	80.285	80.285

Thus, the researcher wants to know the selected items to measure the component. Table 15 below shows the distribution of items accepted to measure Implementation of Inclusive Education Program (IEP) based on Teacher Teaching Method. All items have a factor loading value exceeding the minimum limit of 0.6 and items that are less than 0.6 should be discarded because they do not contribute to the measurement of the construct (Chik et al., 2024).

Table 15: Factor Loading for One (1) Component Implementation of Inclusive Education Program (IEP) Based on Teacher Teaching Method

Component Matrix ^a	
Items	Component
KP1	0.901
KP2	0.916

KP3	0.933
KP4	0.871
KP5	0.919
KP6	0.870
KP7	0.859

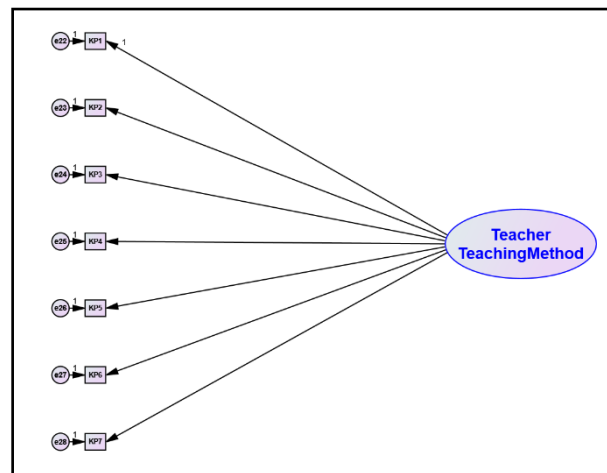


Figure 4: Position of Components and Items for Implementation of Inclusive Education Program (IEP) Based on Teacher Teaching Method (Before and After EFA)

Another piece of information that researchers need to report is the reliability value of the items that have been built to measure that construct (Hossen, 2023; Hossen & Rezvi; Hossen & Salleh, 2024). The measure of instrument reliability is estimated through Cronbach's Alpha value that exceeds the minimum limit of 0.7 to be adopted in the study. Table 16 below shows the Cronbach's Alpha value for each item in the Implementation of Inclusive Education Program (IEP) based on Teacher Teaching Method that exceeds 0.7 and can be used in this study (Chik et al., 2024).

Table 16: Cronbach's Alpha Value for Each Item in the Implementation of Inclusive Education Program (IEP) Based on Teacher Teaching Method

Component	Number of Items	Cronbach's Alpha
1	7	0.959

Exploratory Factor Analysis (EFA) for Implementation of Inclusive Education Program (IEP) Based on Teacher Training

The Implementation of Inclusive Education Program (IEP) based on Teacher Training which uses as many as seven (7) items and is labeled as LG1 to LG7. Next, the use of an interval scale for the measurement of items is between one (1) to 10. Principal Component Analysis (PCA) in the EFA process using varimax rotation for the Implementation of Inclusive Education Program (IEP) based on Teacher Training for the measurement of seven (7) items. Table 17 below shows the Bartlett's test results that are significant for P values less than 0.05 ($P < 0.05$). Next, the value for the measurement

of sampling adequacy from Kaiser-Meyer-Olkin (KMO) is 0.940. The value obtained has exceeded the minimum limit value of 0.6 and the achievement of both of these tests (Bartlett's test is significant and KMO value > 0.6), showing that the data used in this study is appropriate according to the EFA procedure (Chik et al., 2024; Hoque et al., 2017; Awang, 2012).

Table 17: KMO Values and Bartlett's Test for Implementation of Inclusive Education Program (IEP) Based on Teacher Training

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.940
	Approx. Chi-Square	795.594
Bartlett's Test of Sphericity	df	21
	Sig.	0.000

Total Variance Explained (TVE) is important for researchers to know what percentage of the items used can measure a research construct. Reading from Table 18 below found that Implementation of Inclusive Education Program (IEP) based on Teacher Training measured using seven (7) items in one (1) component can measure Implementation of Inclusive Education Program (IEP) based on Teacher Training as much as 82.773%. This value is sufficient because it exceeds the minimum requirement of 60% (Chik et al., 2024; Hoque et al., 2017).

Table 18: Total Variance Explained for Implementation of Inclusive Education Program (IEP) Based on Teacher Training

Component	Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	5.794	82.773	82.773

Thus, the researcher wants to know the selected items to measure the component. Table 19 below shows the distribution of items accepted to measure Implementation of Inclusive Education Program (IEP) based on Teacher Training. All items have a factor loading value exceeding the minimum limit of 0.6 and items that are less than 0.6 should be discarded because they do not contribute to the measurement of the construct (Chik et al., 2024).

Table 19: Factor Loading for One (1) Component Implementation of Inclusive Education Program (IEP) Based on Teacher Training

Component Matrix ^a	
Items	Component
LG1	0.920
LG2	0.897
LG3	0.851
LG4	0.919
LG5	0.932
LG6	0.922
LG7	0.925

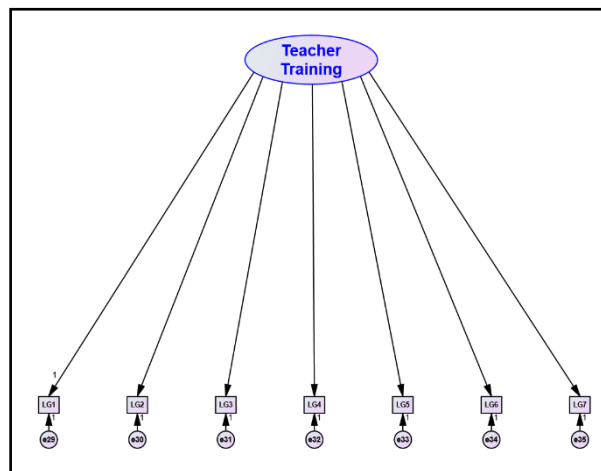


Figure 5: Position of Components and Items for Implementation of Inclusive Education Program (IEP) Based on Teacher Training (Before and After EFA)

Another piece of information that researchers need to report is the reliability value of the items that have been built to measure that construct. The measure of instrument reliability is estimated through Cronbach's Alpha value that exceeds the minimum limit of 0.7 to be adopted in the study. Table 20 below shows the Cronbach's Alpha value for each item in the Implementation of Inclusive Education Program (IEP) based on Teacher Training that exceeds 0.7 and can be used in this study (Chik et al., 2024; Hoque et al., 2017).

Table 20: Cronbach's Alpha Value for Each Item in Implementation of Inclusive Education Program (IEP) Based on Teacher Training

Component	Number of Items	Cronbach's Alpha
1	7	0.965

Exploratory Factor Analysis (EFA) for Teacher Motivation

The Teacher Motivation which uses as many as eight (8) items and is labeled as MD1 to MD4 and ML1 to ML4. Next, the use of an interval scale for the measurement of items is between one (1) to 10. Principal Component Analysis (PCA) in the EFA process using varimax rotation for the Teacher Motivation for the measurement of eight (8) items. Table 21 below shows the Bartlett's test results that are significant for P values less than 0.05 ($P < 0.05$). Next, the value for the measurement of sampling adequacy from Kaiser-Meyer-Olkin (KMO) is 0.849. The value obtained has exceeded the minimum limit value of 0.6 and the achievement of both of these tests (Bartlett's test is significant and KMO value > 0.6), showing that the data used in this study is appropriate according to the EFA procedure (Chik et al., 2024; Hoque et al., 2017; Awang, 2012).

Table 21: KMO Values and Bartlett's Test for Teacher Motivation

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.849
Bartlett's Test of Sphericity	Approx. Chi-Square	633.516
	df	28
	Sig.	0.000

Total Variance Explained (TVE) is important for researchers to know what percentage of the items used can measure a research construct. Reading from Table 22 below found that Teacher Motivation measured using eight (8) items in two (2) component can measure Teacher Motivation as much as 79.669%. This value is sufficient because it exceeds the minimum requirement of 60% (Chik et al., 2024; Hoque et al., 2017).

Table 22: Total Variance Explained for Headteacher Motivation

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.870	48.373	48.373
2	2.504	31.295	79.669

Thus, the researcher wants to know the selected items to measure the component. Table 23 below shows the distribution of items accepted to measure Teacher Motivation. All items have a factor loading value exceeding the minimum limit of 0.6 and items that are less than 0.6 should be discarded because they do not contribute to the measurement of the construct (Chik et al., 2024).

Table 23: Factor Loading for One (1) Component Teacher Motivation

Component Matrix ^a	
Items	Component
MD1	0.801
MD2	0.907
MD3	0.896
MD4	0.904
ML1	0.925
ML2	0.890
ML3	0.858
ML4	0.864

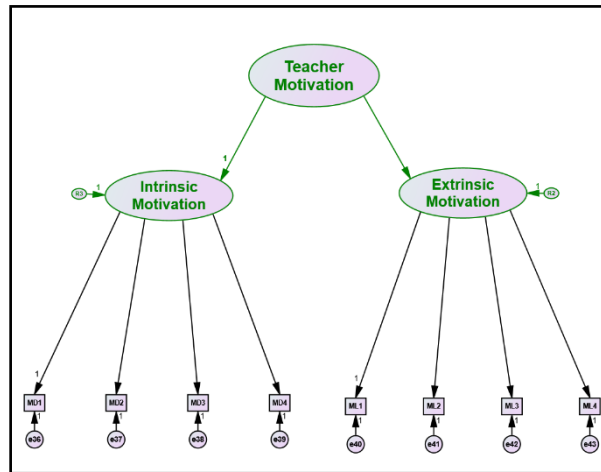


Figure 6: Position of Components and Items for Teacher Motivation (Before and After EFA)

The measure of instrument reliability is estimated through Cronbach's Alpha value that exceeds the minimum limit of 0.7 to be adopted in the study (Hossen & Rezvi, 2021). Table 24 below shows the Cronbach's Alpha value for each item in the Teacher Motivation that exceeds 0.7 and can be used in this study (Chik et al., 2024; Hoque et al., 2017).

Table 24: Cronbach's Alpha Value for Each Item in the Teacher Motivation

Component	Number of Items	Cronbach's Alpha
1	4	0.924
2	4	0.857
Total	8	0.902

Exploratory Factor Analysis (EFA) for Resource Teacher Needs

The Resource Teacher Needs which uses as many as seven (7) items and is labeled as GR1 to GR7. Next, the use of an interval scale for the measurement of items is between one (1) to 10. Principal Component Analysis (PCA) in the EFA process using varimax rotation for the Resource Teacher Needs for the measurement of seven (7) items. Table 25 below shows the Bartlett's test results that are significant for P values less than 0.05 ($P < 0.05$). Next, the value for the measurement of sampling adequacy from Kaiser-Meyer-Olkin (KMO) is 0.944. The value obtained has exceeded the minimum limit value of 0.6 and the achievement of both of these tests (Bartlett's test is significant and KMO value > 0.6), showing that the data used in this study is appropriate according to the EFA procedure (Chik et al., 2024; Hoque et al., 2017; Awang, 2012).

Table 25: KMO Values and Bartlett's Test for Resource Teacher Needs

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.944
Bartlett's Test of Sphericity	Approx. Chi-Square	1377.165
	df	21
	Sig.	0.000

Total Variance Explained (TVE) is important for researchers to know what percentage of the items used can measure a research construct (Hossen et al., 2023). Reading from Table 26 below found that Resource Teacher Needs measured using seven (7) items in one (1) component can measure Resource Teacher Needs as much as 93.874%. This value is sufficient because it exceeds the minimum requirement of 60% (Chik et al., 2024; Hoque et al., 2017).

Table 26: Total Variance Explained for Resource Teacher Needs

Component	Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	6.571	93.874	93.874

Thus, the researcher wants to know the selected items to measure the component (Hossen & Mohd Pauzi, 2023). Table 27 below shows the distribution of items accepted to measure Resource Teacher Needs (Hossen & Mohd Pauzi, 2023). All items have a factor loading value exceeding the minimum limit of 0.6 and items that are less than 0.6 should be discarded because they do not contribute to the measurement of the construct (Chik et al., 2024).

Table 27: Factor Loading for One (1) Component Resource Teacher Needs

Component Matrix ^a	
Items	Component
GR1	0.961
GR2	0.972
GR3	0.973
GR4	0.968
GR5	0.976
GR6	0.967
GR7	0.966

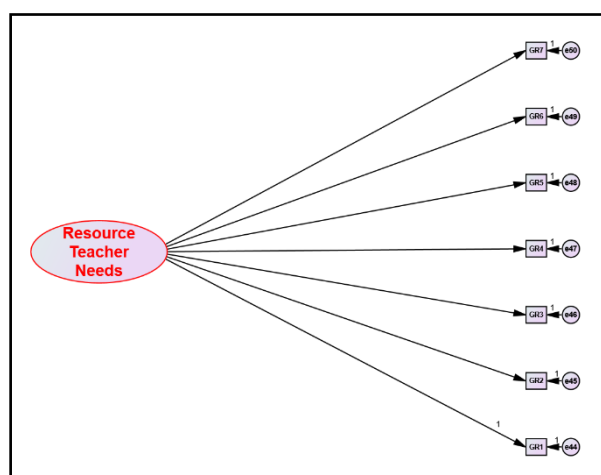


Figure 7: Position of Components and Items for Resource Teacher Needs (Before and After EFA)

The measure of instrument reliability is estimated through Cronbach's Alpha value that exceeds the minimum limit of 0.7 to be adopted in the study. Table 28 below shows the Cronbach's Alpha value for each item in the Resource Teacher Needs that exceeds 0.7 and can be used in this study (Chik et al., 2024; Hoque et al., 2017).

Table 28: Cronbach's Alpha Value for Each Item in the Resource Teacher Needs

Component	Number of Items	Cronbach's Alpha
1	7	0.989

Overall Results of Exploratory Factor Analysis (EFA)

Based on the results of the EFA analysis on the questionnaire items, no items were excluded. Table 29 below shows the overall latest position of the items after the EFA analysis was carried out.

Table 29: Overall EFA Analysis

No	Constructs	Validity			Reliability	
		Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO>0.6)	Bartlett's Test of Sphericity (Sig.< 0.05)	Total Variance Explained (>60%)	Items Factor Loading (>0.60)	Cronbach's Alpha (>0.70)
1	Implementation of Inclusive Education Program (IEP)					
	a) Teacher Knowledge	0.880	0.000	66.947	7 item > 0.60	0.916
	b) Teacher Attitude	0.831	0.000	63.469	7 item > 0.60	0.875
	c) Collaborative Strategy	0.870	0.000	66.490	7 item > 0.60	0.915
	d) Teacher Teaching Method	0.907	0.000	80.285	7 item > 0.60	0.959
	e) Teacher Training	0.940	0.000	82.773	7 item > 0.60	0.965
2	Teacher Motivation					0.902
	a) Intrinsic Motivation	0.849	0.000	79.669	4 item > 0.60	0.924
	b) Extrinsic Motivation				4 item > 0.60	0.857
3	Resource Teacher Needs	0.944	0.000	93.874	7 item > 0.60	0.989

CONCLUSION

Overall, the requirements of the items in each Implementation of Inclusive Education Program (IEP) (based on Teacher Knowledge, Teacher Attitude, Collaborative Strategy, Teacher Teaching Method, Teacher Training), Teacher Motivation and Resource Teacher Needs among Secondary School Teachers in Malaysia, as a whole meet the achievement of Bartlett's Test (significant), KMO value (> 0.6), factor loading value exceeds the minimum limit of 0.6 and Cronbach's Alpha exceeds the minimum limit of 0.7 to be used in the study. This reflects that the items are not set aside and qualified to be used in this study (Chik et al., 2024; Hoque et al., 2017). Figure 8 shows all the items in the study model after EFA.

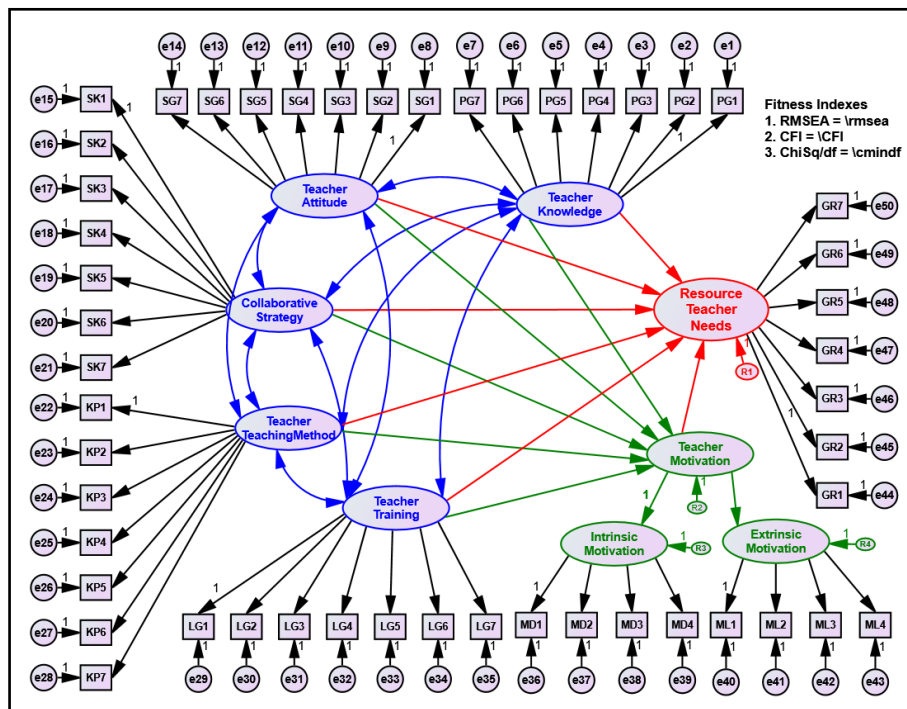


Figure 8: Overall Implementation of Inclusive Education Program (IEP), Teacher Motivation and Resource Teacher Needs

Acknowledgement

Special appreciation is owed to Universiti Sultan Zainal Abidin (UniSZA), Research Management, Innovation & Commercialization Centre (RMIC) UniSZA & Ministry of Higher Education Malaysia (MOHE).

Funding: The research did not receive financial assistance from any funding entity.

Conflicts of Interest: The author has no conflicts of interest to disclose concerning this study.

Declarations: This manuscript has not been published to any other journal or online sources.

Data Availability: The author has all the data employed in this research and is open to sharing it upon reasonable request.

References

- Airil, H. M. & Intan, A. H. (2001). *A disabling education: the case of disabled learners in Malaysia. Disability & Society* 16(5): 655-669.
- Awang, Z. (2012). *Structural equation modelling using AMOS graphic*. Penerbit Universiti Teknologi MARA.
- Hossen, M. S., & Pauzi, H. M. (2025). Bibliometric Analysis of Social Support for the Older Adults. *Ageing International*, 50(1), 1-24.
- Chik, Z., & Abdullah, A. H. (2018). Developing and validating instruments for measurement of motivation, learning styles and learning disciplines for academic achievement. *International Journal of Academic Research in Business and Social Sciences*, 8 (4), 594 - 605.
- Hossen, M. S., & Rezvi, A. H. M. R. (2021). Impact of Covid-19 Pandemic on Mental Health among Bangladeshi Senior Citizens: A Cross-Sectional Study [Research Article]. *ICRRD Journal*, 2(2), 149-161. <https://doi.org/https://doi.org/10.53272/icrrd.v2i2.5>
- Chik, Z., Abdullah, A. H., Ismail, M. S. & Mohd Noor, A. Z. (2024). Impact of Industrial Revolution 4.0 (IR4.0) Knowledge, Application Learning, University Policy, Commitment to Study and Motivation on Assimilate IR4.0 in Education. *Journal of Economics, Finance and Management Studies*, 7 (4), 3884 – 3889.
- Hossen, M. S., Pauzi, H. B. M., & Salleh, S. F. B. (2023). Enhancing Elderly Well-being Through Age-Friendly Community, Social Engagement and Social Support. *American J Sci Edu Re: AJSER-135*.
- Daniels, H. (2009). Vygotsky and inclusion. Dlm. Hick, P., Kershner, R. dan Farrell, P. (pnyt). *Psychology for Inclusive Education: New Directions in Theory and Practice*, hlm. 24-37. Oxon: Routledge.
- Duntemen, G. H. (1989). *Principles components analysis: Quantitative applications in the social sciences*. California: Sage Publications, Inc.
- Field, A. (2006). *Discovering statistics using SPSS*. London: Sage Publications Ltd.
- Hossen, M. S., & Mohd Pauzi, H. B. (2023). Embracing Housing Alternatives for the Enhancement of Wellbeing in the Aging Population: A Qualitative Study *J Aging Neuro Psychol* 4: 120. DOI, 10, 2688-6499.
- Hoque, A. S. M. M., Awang, Z., Jusoff, K., Salleh, F., and Muda, H (2017). Social Business Efficiency: Instrument Development and Validation Procedure using Structural Equation Modelling. *International Business Management*, 11(1), 222-231.
- Lewis-Beck M. S. (1994). *Factor analysis and related techniques*. London: Sage Publication, Ltd.
- Magiera, K., Smith, C., Zigmond, N. & Gebauer, K.(2005). Benefits of co-teaching in secondary mathematics classes. *Teaching Exceptional Children* 37 (3): 20 - 24.
- Mastropieri, M. A., Scruggs, T. E., Norland, J. J., Berkeley, S., McDuffie, K., Tornquist, E. H. & Connor, N. (2006). Differentiated curriculum enhancement in inclusive middle school science: effects on classroom and high-stakes test. *The Journal of Special Education* 40 (3):130 - 137.
- Nik Hassan Seman. (2016). *Permasalahan Pengajaran Pendidikan Islam Peringkat Sekolah Menengah Dalam Kalangan Pelajar Pekak*. Tesis Dr Fal. Universiti Sultan Zainal Abidin.

Hossen, M. S. (2023). Triumphant in the Art of Aging: Key Determinants. *Int J Geriatr Gerontol*, 7(166), 2577-0748.

Hossen, M. S., & Salleh, S. F. B. (2024). Social influences on the psychological well-being of elderly individuals. *Journal of Humanities and Applied Social Sciences*.



This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium upon the work for non-commercial, provided the original work is properly cited.