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Contents

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The Big Three of Financial Literacy: Analyzing its Influences on Financial Well-being

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This study attempts to identify the key components of financial literacy and its constituent factors, and to examine influences of people's financial literacy on their financial well-being. The study is mainly based on the primary data collected from 384 randomized samples from the Indian state of Assam. Data analysis was carried out using statistical techniques such as factor analysis, regression analysis, and correlation analysis. A thorough review of the empirical literature, and findings of the present study reveal three major components– "financial knowledge, financial behavior, and financial attitude" –that constitute people's financial literacy, which are coined as "the big three of financial literacy." Financial literacy and its three major components are found to have strong and significant influences on people's financial well-being. It is concluded that an increase in people's financial literacy results in an increase in their financial well-being, and vice versa .
Keywords: the big three, financial literacy, factor analysis, influences, financial well-being.
JEL classification: C12, C38, G53, I31.

The term "financial literacy" simply means the knowledge and understanding of people on financial matters, which helps them to carry out financial transactions successfully in day-to- day life. Hastings, Madrian, and Skimmyhorn (2013) define it as "possession of the required knowledge, skills, and awareness to manage one's resources effectively over the lifetime." Financial literacy covers a broad area of the financial life of an individual, and is mainly comprised of financial knowledge, behavior, and attitudes (Ibrahim et al., 2009; Lusardi et al., 2010; Joseph, 2012; Bhushan & Medury, 2013; Hastings et al., 2013; NCFE, 2014; Mehtab et al., 2015; Hermawan et al., 2019; Sabri et al., 2022). In the words of Atkinson and Messy (2014), financial literacy is, "a combination of awareness, knowledge, skills, attitude, and behavior necessary to make sound financial decisions, and ultimately achieve individual financial well- being." It enables people to have higher financial satisfaction and well-being in life (Bilal & Zulfiqar, 2016). The term "financial well-being" basically means a sound financial position, wherepeople can meet their financial commitments, secure their financial future, and be able to enjoy life. According to the CFPB (2015), "financial well-being refers to the state of being, where people can fully meet current and ongoing financial obligations, feel secure in their financial future, and be able to enjoy life."

Financial literacy evolved in the USA during the twentieth century. Initially, it was imparted in the form of financial knowledge by parents, friends, or financial experts. Later on, it began to encompass the multifarious dimensions of personal finance (Rose, 2022). Nowadays, it is not merely concerned with the knowledge and comprehension of basic financial concepts; rather,

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it covers a broad area of behavioral finance. An in-depth observation of the previous empirical literature makes it clearer that financial literacy basically comprises of three major components– "financial knowledge, financial behavior, and financial attitude". In this study, these key components are coined as *"**the big three of financial literacy**"*.

Financial knowledge is basically the understanding and knowledge of basic financial terminology such as money division, interest computation, price and inflation, risk-return connection, risk diversification, and so on (Chen & Volpe, 2002; Lusardi et al., 2010; Joseph, 2012; Bhushan & Medury, 2013; NCFE, 2014). Financial behavior refers to the way people deal with money and includes buying habits, saving habits, borrowing habits, bill payments, and budgeting (Joseph, 2012; Agarwalla et al., 2013; Bhushan & Medury, 2013; NCFE, 2014). Financial attitude can be defined as the psychological tendency regarding personal finance practices, and may include an inclination towards planning and the propensity to save or consume (Joseph, 2012; Taft et al., 2013; NCFE, 2014). Table 1 gives the details of the components and factors that constitute the financial literacy of a person.

Table 1

Components and Factors of Financial Literacy

Components	Factors
Financial Knowledge	Division of money, interest calculation, inflation and price, money value, and financial risk.
Financial Behavior	Preparation and management of household budget, meeting monthly expenses, collecting information for decision making, evaluation of financial products and services, keeping watch on personal finance, setting long-term financial goals, affordability and bill payment.
Financial Attitude	Attitude towards planning, attitude towards saving and attitude towards spending money.

Source: Lusardi et al., 2010; Atkinson & Messy, 2012; Joseph, 2012; Taft et al., 2013; NCFE, 2014; Hasibuan et al., 2018; Shobha & Kumar, 2020; Sangeeta et al., 2022.

Financial literacy enables people to manage their money and other economic resources efficiently (Ibrahim et al., 2009; Hastings et al., 2013). A financially literate person experiences less financial concern and stress, enjoys more financial satisfaction, and ultimately, achieves a higher financial well-being position in life (Joo & Grable, 2004). Increased financial literacy influences people's financial satisfaction, which in turn improves their financial well-being (Yakoboski et al., 2021). Hence, financial literacy is regarded as a crucial area of study for the general public, as well as for students, academics, educational institutions, bankers, policymakers, and other interested parties.

Literature Review and Problem Statement

A good number of empirical studies were reviewed before setting the objectives and designing the methodology for the study. Most of the studies (Agarwalla et al., 2013; Bhushan & Medury, 2013; NCFE, 2014; Devi, 2016; Farrar et al., 2019; Shobha & Kumar, 2020; Yakoboski et al., 2021) are mainly concerned with measuring financial literacy level. Financial literacy was viewed from a narrow perspective, where only one dimension, i.e., financial knowledge, was considered (Hastings et al., 2013; Hermawan et al., 2019; Sabri et al., 2022). Furthermore, the previous studies paid little attention to how people's financial literacy affects their financial well-being (Bilal & Zulfiqar, 2016; Yakoboski et al., 2021). A global survey on financial literacy by the Standard & Poor’s (S&P) revealed that financial literacy levels are low in most of the underdeveloped and emerging countries. Worldwide, levels of financial literacy vary from 14 percent to 71 percent or more (Klapper et al., 2014), and in India, only 27 percent of the adults are financially literate (NCFE, 2019).

Various studies were conducted in the domain of financial literacy and well-being during the last decade. After reviewing the available literature, some of the important studies are presented here so as to give an insight into the theoretical background, and the problem under study.

Financial literacy simply means the capability of an individual to handle money and other economic resources and to make decisions in an informed and efficient manner. It is comprised of three major components– "financial knowledge, financial behavior, and financial attitude” (Joseph, 2012; Bhushan & Medury, 2013; NCFE, 2019; Shobha & Kumar, 2020). A number of demographic and socio-economic features, including marital status, age, gender, place of residence, education, religion, occupation, income, race, and ethnicity, affect the financial literacy level of an individual (Klapper et al., 2014; NCFE, 2014; Devi, 2016; Alderman et al., 2017; Yoshino et al., 2017; Farrar et al., 2019; Singh et al., 2020). The ultimate goal of financial literacy is to lead people toward better financial well-being (Bilal & Zulfiqar, 2016). Financial well-being means being in a sound financial position, where people can meet their financial commitments, ensure their financial future, and be able to enjoy life. Financial literacy develops a positive financial attitude, modifies the financial behavior of people, and leads them toward a better financial well-being position in life (Worthington, 2006). Increased financial literacy influences people's financial satisfaction, which in turn improves their financial well-being (Yakoboski et al., 2021).

Taft et al., (2013) examined how financial concern, financial literacy, and financial well-being are associated with each other. The study is based on a survey of 300 professors from the universities in Yazd, Iran. The association was studied using statistical tools such as the t-test, correlation coefficient, and regression analysis. The analysis shows that financial concern, educational attainment, and financial literacy have a significant association with people’s financial well-being. It is opined that financial literacy forms the foundation for a successful economic life through informed decisions, proper wealth management, and increased savings and investments.

Vosloo et al., (2014) analyzed the influences of remuneration satisfaction and financial efficacy on working people’s financial well-being. The inferences were drawn based on the data obtained from 9057 South African working people belonging to various sectors of the economy. The analysis was done using factor analysis, correlation, and regression analysis techniques. From the analysis, it is clear that remuneration satisfaction, and financial efficacy bear significantly strong influences on financial well-being of working people. In other words, employees with higher remuneration satisfaction, and financial efficacy achieve higher financial well-being positions in life.

Falahati and Sabri (2015) identified and analyzed the determinants of the financial well-being of Malaysian university students. The moderating effect of gender on the factors of financial well-being was specifically evaluated along with the other variables under study. The inferences drawn were based on the responses gathered from 2,500 sample respondents, and an AMOS-based multigroup analysis approach was applied in the data analysis. It is clear from the analysis that financial well-being is influenced by a variety of factors, including financial literacy, consumer experience, and socialization agents. Moreover, it has been shown by the study that gender is an essential element for moderating various aspects related to financial wellbeing.

Mehtab et al., (2015) examined the interrelationship of factors of financial literacy such as financial attitude, financial knowledge, and financial practices of conventional and religious (Islamic) bank account holders in Peshawar, Pakistan. To examine this effect, the study analyzed 400 sample data using the chi-square test, and odd-ratio analysis techniques. The examination revealed that positive financial attitudes, and higher financial knowledge contribute towards better banking and financial practices among bank customers. Proper knowledge and awareness of various banking products and services, especially which are in line with the Sharia law will promote positive financial attitudes, and sound banking practices among the bank customers in the country.

Bilal and Zulfiqar (2016) investigated the role of financial literacy in the financial stability of working women in Pakistan. The investigation is based on a survey of 300 working women in the non-finance sector of the economy. To evaluate and understand the relationship between financial literacy and financial stability, a multiple regression model was developed. The results show that financial knowledge affects financial satisfaction and, in turn, contributes to the overall financial wellbeing of working women. Financial attitude greatly impacts the financial stability and well-being of women. Moreover, financially knowledgeable individuals have better financial attitudes, which results in improved financial wellbeing.

Adam et al., (2017) investigated the influences of financial literacy, financial behavior, number of family members, support from the family (monetary nature), and planning for retirement on pensioners' financial well-being. The investigation was carried out among 1500 pensioners from a metropolitan city in Ghana. The partial least squares method was applied to study the influences of various factors on financial well-being. The investigation revealed significantly strong influences of financial literacy, support from the family, and planning for retirement on the financial wellbeing of the pensioners. Support from the family and planning for retirement were found to have comparatively stronger influences on promoting the financial well- being of the pensioners.

Hasibuan et al., (2018) studied how financial behavior and literacy impacts the financial satisfaction and well-being of entrepreneurs. The research was carried out on 60 selected entrepreneurs from Medan, Indonesia, and the impact was studied using a regression model. The analysis revealed that financial behavior and literacy have statistically significant impacts on the financial satisfaction and wellness of entrepreneurs. In other words, an entrepreneur with favorable financial behaviors, and higher financial literacy enjoys more financial well-being.

Hermawan et al., (2019) studied how financial behavior, wellness, and satisfaction are related to the financial literacy of students. The investigation was carried out among 316 randomly selected students from five universities in Indonesia, and the relationship was analyzed and interpreted using a regression model. The analysis found a significant association of financial wellness, satisfaction, and behavior with financial literacy of students. There exists low financial literacy level among the students, and therefore, the authors suggested to introduce a proper financial literacy course curriculum for them.

West and Cull (2020) analyzed the association of financial behavior and attitudes with financial satisfaction and expectations of students. The analysis was based on a survey of 416 students from different universities in Australia, and the impact was measured using a regression model. The survey results clearly show that certain negative financial behaviors, attitudes, and future expectations are associated with financial dissatisfaction among students. Moreover, most of the students have lower financial literacy, which causes them difficulty in managing their daily financial affairs.

Chavali et al., (2021) studied how financial behavior influences people's financial well-being. The study was carried out by surveying 150 resident Indians, and statistical technique like exploratory factor analysis was applied to identify various factors, and regression analysis was applied to examine their influences. The analysis shows that except for credit commitments, all other behavioral factors such as credit discipline, future security, saving and investment, and financial consciousness have significant influences on people's financial well-being.

Yakoboski et al., (2021) assessed financial well-being and financial literacy among adult people. A nation-wide survey was conducted in America across five generations of people. The assessment showed a lack of financial literacy and lower levels of financial well-being among the people, particularly among the young adults. The study found a substantial positive association between people's financial well-being and their level of financial literacy. Moreover, financial education programs were found to be effective in promoting financial literacy among people across generations.

Sabri et al., (2022) investigated how financial literacy impacts the financial well-being of adults. The investigation was carried out by surveying 482 low-income Malaysian adults, and the structural equation modeling technique was adopted for analyzing the data. The analysis revealed that the financial behavior, knowledge, and locus of control of the adults bear a significant impact on their financial well-being. Financial knowledge and educational attainment affect the financial behavior of adults, and ultimately influence their financial well-being.

Sangeeta et al., (2022) investigated a number of variables that impact young people's financial well-being. Statistical techniques such as factor analysis and the multigroup modeling approach (i.e., AMOS) were applied to study the impacts. Based on a sample survey of 117 young people from the Indian state of Haryana, the study found that a variety of factors, such as financial socialization, behavior, attitude, and knowledge have influences on people's financial well-being. Except for financial knowledge, all other factors, such as financial socialization, attitude, and behavior have statistically significant impacts on financial well-being. The authors opined that although financial knowledge is a significant factor in determining people's financial literacy, it is not so important for financial well-being.

In the present study, certain issues were identified for re-examination to see if thefindings are valid in different situations and locations. It is worth mentioning here that most of the studies were specific to certain aspects of overall financial literacy, and rarely covered all three major components– "financial knowledge, financial behavior, and financial attitude". The constituent factors of these key components were not extensively investigated. Moreover, the influences of all the key components on financial well-being were examined in only a few studies.

Considering the above issues, the objectives set for the study are: (1) to identify the major components and factors that constitute people's financial literacy; and (2) to examine the influences of people's financial literacy and its components on their financial well-being. The study is mainly concerned with providing a holistic view of various aspects of financial literacy and understanding their association with financial well-being, instead of merely measuring the levels of financial literacy and well-being.

The entire work is presented in seven different sections, viz., introduction, literature review and problem statement, formulation of hypotheses, methodology, results and discussion, practical implications of the study, and conclusion.

Formulation of Hypotheses

Keeping pace with the discussions and objectives in the preceding sections, the following hypotheses were formulated to be tested.

H_1: Financial knowledge has a significant influence on the financial well-being of people.
H_2: Financial behavior has a significant influence on the financial well-being of people.
H_3: Financial attitude has a significant influence on the financial well-being of people.
H_4: Financial literacy has a significant influence on the financial well-being of people.

Method

The research methodology explains the procedure for conducting a research work, which may include details of the population, samples, sampling technique, data collection technique, the basis of analysis, and other related aspects of a study.

Population and Samples

The study area is Assam, in the north eastern region of India. So far as India is concerned, on average, 27 percent of the people are financially literate. However, it is comparatively better among the people of Assam, which is 36 percent (NCFE, 2019). Assam, the gateway to north east India, is the second largest state in the region. Assam has a total land area of 78,438 square kilometers. The population of the state is diverse, with socio-cultural and ethnic differences. According to the census of India (2011), the population of Assam is 31,205,576 people. It has 398 people per square kilometer of population density, and a literacy rate of 72.19 percent (Census, 2011). The state's human development index (HDI) value is 0.557 (HDI Report, 2014).

The study is based on a sample survey of household families belonging to the Indian state of Assam. The population of the study consists of adult (18+ years of age) residents of Assam. The minimum sample size required for the study was estimated as 384 samples by using Krejcie and Morgan (1970) model of sample size determination.

Sampling Technique

The samples were selected by applying the multi-stage random sampling technique. Two criteria, i.e., literacy rate and place of residence (rural-urban) were considered while selecting the samples for the study so that the sample would be more representative. The total of 27 districts in Assam (as per the census of India, 2011) were grouped into three categories– high, moderate, and low literacy, based on the prevailing literacy rates in the districts. In the first stage, three districts, viz., Sivasagar, Tinsukia, and Morigaon were selected from the high, moderate, and low literacy groups, respectively. In the second stage, the selected districts were divided into rural and urban areas. From the rural area, two village-panchayats, and from the urban area one municipal board were selected from every district. In the third and final stage, respondents were selected from the household families located in the already selected areas based on the list of voters or household families available with the concerned authorities.

Data Collection Technique

This is a descriptive study based on a survey of 384 randomized samples, and data were collected using a standardized questionnaire. The questionnaire consists of two parts, viz., Part-I and Part-II. Part-I contains questions on "financial literacy", and Part-II contains questions on "financial well-being".

Part I consists of 20 questions to measure financial literacy, out of which 8 questions measure financial knowledge, 9 questions measure financial behavior, and 3 questions measure financial attitude of the respondents. Since, the responses to the questions measuring financial literacy are of multiple types, such as yes/no, true/false, or scaled responses, therefore, scoring of the responses to the questions was done individually. The details are provided in the Annexure-I. These questions were applied by the national center for financial education (NCFE) in a survey to measure financial literacy among people throughout India in the year 2013 (NCFE, 2014).

Part II contains 10 questions on financial well-being. These questions measure financial well-being based on a five-point Likert scale, where the most positive response carries 4 scores, and the most negative response carries 0 score. These questions were applied to measure the financial well-being of American consumers in the national financial well-being survey of 2017 (CFPB, 2017). The details are provided in the Annexure-II. These questions being valid, reliable, and widely accepted were applied in the present study.

Basis of Data Analysis

In data analysis, the exploratory factor analysis technique was adopted. However, before using this technique, Kaiser Meyer Olkin (KMO) and Bartlett's tests were performed to ensure sampling adequacy. The exploratory factor analysis was used to find out the component-wise factors of financial literacy. Based on the derived component-wise scores, regression and correlation analyses were performed. The influences of– "financial knowledge, financial behavior,and financial attitude" –on the "financial well-being" of people were examined using the following regression model:

$$FW = Constant + b1\ FK + b2\ FB + b3\ FA + e \qquad (1)$$

Where, FW=Financial Well-being, FK= Financial Knowledge, FB=Financial Behavior, FA=Financial Attitude, b= Slope coefficient, e= Error term (residual).

The influence of financial literacy on people's financial well-being was examined using the Pearson correlation analysis technique.

Results and Discussion

The results derived from the analysis of the collected data by applying various statistical tools are presented here, in this section.

Factor Analysis

KMO and Bartlett's tests were applied to evaluate the sampling adequacy and strength of the relationship among the variables before using the factor analysis. If the KMO test value is greater than .5, the sampling is satisfactory or sufficient (Field, 2000). Moreover, a minimumKMO test value of .5 is recommended by Kaiser (1974). The results of KMO and Bartlett's tests are shown in Table 2.

Table 2

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.663
Bartlett's Test of Sphericity	(Approx. Chi-Square)	408.341
	df	21
	p-value	.000

Source: Authors' computation based on primary data.

For the present study, the KMO test gives an acceptable value of .663, and Bartlett's test is found significant at 5 percent level of significance (p=.000<.05), supporting the factor analysis for the collected data. Two criteria were used in the factor analysis process. First, a statement's anti-image correlation value should be greater than .6 to be selected for further factor analysis (Backhaus et al., 2006). Second, the Eigenvalue must be greater than one to determine the number of factors from the factor analysis (Kaiser, 1974). It is noteworthy that when two variables are correlated, a correlation coefficient (r) of less than .3 implies weak correlation, .3 to .7 implies moderate correlation, and higher than .7 implies strong correlation between the variables (Ratner, 2009).

Table 3

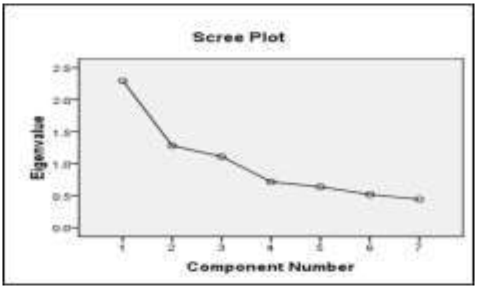
Factor Analysis for Financial Knowledge

Factors		Statements		Communality	Factor Loading	Eigen Value	Cumulative % of Variance
F1	Knowledge of Numeracy	FK1	Division of money	.630	.786	2.296	32.795
		FK2	Interest calculation	.637	.777		
F2	Knowledge of Saving and Investment	FK3	Saving money and earning of interest	.686	.826	1.280	51.081
		FK4	Effect of inflation on cost of living	.689	.779		
		FK6	Revenue from lending and investment	.576	.574		
F3	Knowledge of Risk-Return	FK7	Risk and return on investment	.733	.827	1.111	66.952
		FK8	Risk diversification	.736	.856		

Source: Authors' computation based on primary data.

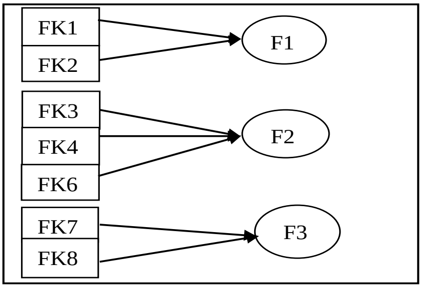
Figure 1: Scree Plot & Path Diagram for Financial Knowledge

(a) Scree Plot



Source: Output of factor analysis.

(b) Path Diagram



Source: Output of factor analysis.

Table 3 explains the communality and factor loadings of the statements, along with the Eigenvalues and cumulative percent of variances of the factors of financial knowledge. Figure 1(a) shows the factors (components) of financial knowledge and their Eigenvalues. Figure 1(b) presents factor wise groupings of the statements relating to financial knowledge.

It has already been mentioned that, to select a statement, the anti-image correlation value should be greater than .6 (Backhaus et al., 2006). In this regard, except for statement-FK5, the remaining statements in the financial knowledge data set exhibit anti-image correlation values ranging from .612 to .841. As a result, statement-FK5 was excluded from further analysis. Moreover, the statements that were retained have communality values greater than .4, which are regarded as acceptable (Costello & Osborne, 2005). Three factors, such as knowledge of numeracy (F1), knowledge of saving and investment (F2), and knowledge of risk-return (F3), have been formed from the data set of financial knowledge. Table 3 contains three extracted factors with Eigenvalues greater than one, which explain 66.952 percent of the variance in financial knowledge.

Table 3 gives results of the rotated component matrix of the statements related to financial knowledge. The three extracted factors with Eigenvalues greater than one were analyzed further. The first factor (F1), i.e., knowledge of numeracy is comprised of the statement-FK1 and statement-FK2 with factor loadings of .786 and .777. From the factor loadings, it is clear that these statements have a high correlation with the first factor. This factor, with an Eigenvalue of 2.296, contributes 32.795 percent of the variance in financial knowledge. In other words, 32.795 percent of financial knowledge is determined by knowledge of numeracy. The second factor (F2), i.e., knowledge of saving and investment is comprised of the statement-FK3, statement-FK4, and statement-FK6 with factor loadings of .826, .779 and .574. It is clear from the factor loadings that these statements have high and moderate correlation with the second factor. This factor, along with the first factor, i.e., knowledge of numeracy, contributes 51.081 percent of the variance of financial knowledge. The third factor (F3), i.e., knowledge of risk-return is made up of the statement-FK7, and statement-FK8 with factor loadings of .827 and .856. The factor loadings reveal that these statements have a high correlation with the third factor. This factor, along with the other two factors, i.e., knowledge of numeracy, and knowledge of saving and investment explains up to 66.952 percent of the variance in financial knowledge. On this basis, it is concluded that 66.952 percent of people's financial knowledge is determined by their knowledge of numeracy, saving, investment, and risk-return.

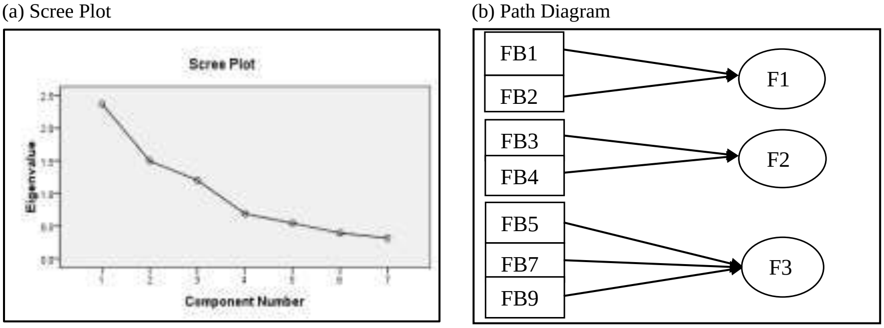
Table 4
Factor Analysis for Financial Behavior

Factors			Statements	Communality	Factor Loading	Eigen Value	Cumulative % of Variance
F1	Budgeting Behavior	FB1	Tracking monthly income and expenditure	.815	.900	2.370	33.856
		FB2	Preparation of household budget	.795	.868		
F2	Buying and Spending Behavior	FB3	Buying affordable things	.834	.904	1.496	55.226
		FB4	Evaluation of products and services prior to purchase	.838	.908		
F3	Saving Behavior	FB5	Coverage of living cost by monthly income	.519	.699	1.200	72.369
		FB7	Habit of saving regularly	.676	.817		
		FB9	Setting of long term financial goals	.589	.742		

Source: Authors' computation based on primary data.

Figure 2: Scree Plot & Path Diagram for Financial Behavior

(a) Scree Plot (b) Path Diagram



Source: Output of factor analysis. Source: Output of factor analysis.

Table 4 explains communality and factor loadings of the statements, along with the Eigenvalues and cumulative percent of variances of the factors of financial behavior. Figure 2(a) shows the factors (components) of financial behavior and their Eigenvalues. Figure 2(b) presents factor wise groupings of the statements relating to financial behavior.

Except statement-FB6 and statement-FB8, all other statements in the financial behavior data set have anti-image correlation values ranging from .623 to .861. As a result, statement-FB6 and statement-FB8 were eliminated from further analysis. Moreover, the statements that were retained have acceptable communality values of more than .4. Three factors, such as budgeting behavior (F1), buying and spending behavior (F2), and saving behavior (F3) have been formed from the financial behavior data set. Table 4 shows three extracted factors with Eigenvalues greater than one, which explain up to 72.369 percent of the variance in financial behavior.

Table 4 gives results of the rotated component matrix of the statements related to financial behavior. The three extracted factors with Eigenvalues greater than one were analyzed further. The first factor (F1) is comprised of the statement-FB1 and statement-FB2 with factor loadings of .900

and .868. From the factor loadings, it is clear that these statements have a high correlation with the first factor, i.e., budgeting behavior. This factor with an Eigenvalue of 2.370, contributes 33.856 percent of the variance in financial behavior. The second factor (F2) is comprised of statement-FB3 and statement-FB4 with factor loadings of .904 and .908. From the factor loadings, it is revealed that these statements have a high correlation with the second factor, i.e., buying and spending behavior. This factor, along with the first factor, i.e., budgeting behavior,contributes 55.226 percent of the variance in financial behavior. The third factor (F3), i.e., saving behavior is comprised of statement-FB5, statement-FB7 and statement-FB9 with factor loadingsof .669, .817 and .742. It is indicated by the factor loadings that these statements have moderate and high correlation with the third factor. This factor, along with the first factor, i.e., budgeting behavior, and the second factor, i.e., buying and spending behavior, explains up to 72.369 percent of the variance in financial behavior. On this basis, it can be concluded that 72.369 percent of the financial behavior of people is determined by their behavior with regard to budgeting, buying, spending, and saving.

The details of the factor analysis for financial attitude are given in Table 5.

Table 5

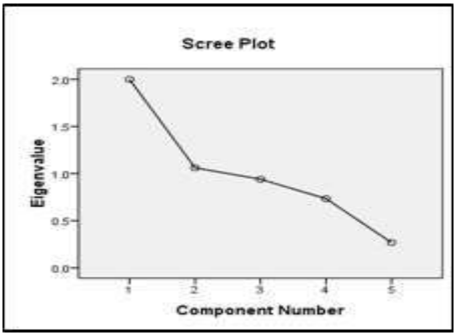
Factor Analysis for Financial Attitude

Factors			Statements	Communality	Factor Loading	Eigen Value	Cumulative % of Variance
F1	Attitude toward Saving & Spending	FA1	Inclination toward saving and investment	.583	.630	1.999	39.983
		FA2	Satisfaction in spending money	.627	.716		
F2	Attitude toward Financial Planning	FA3	Interest in financial planning	.784	.881	1.061	61.195
		FA4	Aptitude toward future security	.674	.525		
		FA5	Motive toward long term financial goal	.792	.864		

Source: Authors' computation based on primary data.

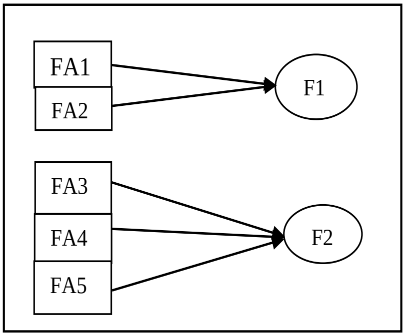
Figure 3: Scree Plot & Path Diagram for Financial Attitude

(a) Scree Plot



Source: Output of factor analysis.

(b) Path Diagram



Source: Output of factor analysis.

Table 5 explains communality and factor loadings of the statements, along with the Eigenvalues and cumulative percent of variances of the factors of financial attitude. Figure 3(a) shows the factors (components) of financial attitude and their Eigenvalues. Figure 3(b) presents factor-wise groupings of the statements relating to financial attitude.

All the statements in the financial attitude data set have anti-image correlation values ranging from .608 to .768. Moreover, these statements have acceptable communality values of more than .4. Two factors, such as attitude toward saving and spending (F1) and attitude toward financial planning (F2), have been formulated from the data set of financial attitude. Table 5 consists of two factors that have Eigenvalues of greater than one, and these factors explain up to 61.195 percent of the variance in financial attitude.

Table 5 gives results of the rotated component matrix of the statements related to financial attitude. The two extracted factors with Eigenvalues of greater than one were analyzed further. The first factor (F1), i.e., attitude towards saving and spending is comprised of the statement-FA1 and statetement-FA2 with factor loadings of .630 and .716. The factor loadings indicate that these statements have moderate and high correlation with the first factor. This factor with an Eigenvalue of 1.999, contributes to 39.983 percent of the variance in financial attitude. The second factor (F2), i.e., attitude toward financial planning is comprised of statemenet-FA3, statement-FA4, and statement-FA5 with factor loadings of .881, .525 and .864. From the factor loadings, it is clear that these statements have moderate and high correlation with the second factor. This factor, along with the first factor, i.e., attitude toward saving and spending, explainsup to 61.195 percent of the variance in financial attitude. On this basis, it is concluded that 61.195 percent of the financial attitude of the people is determined by their attitude toward saving, spending, and financial planning.

To sum up the major findings of the factor analysis, it is concluded that financialknowledge is comprised of knowledge of numeracy, saving, investment, and risk-return. Financial behavior is composed of budgeting, buying, spending, and saving behavior. And, financial attitude includes attitude toward saving, spending, and financial planning.

Multiple Regression Analysis

This study examines influences of three major components of financial literacy– “financial knowledge, financial behavior, and financial attitude” on “financial well-being” of people. A multiple-regression model was developed and applied to serve this purpose. While usinga regression model, it is important to comply with the assumptions of the regression analysis. All

of the assumptions for performing the regression analysis were met. To evaluate the measurement scale, a reliability and validity test was performed. For all of the statements (questions), the Cronbach's Alpha test yields an acceptable score of .786 (Streiner, 2003). The R^2 assesses the overall predictive fitness of a regression model. As a rule of thumb, R^2 value of greater than .5 is considered acceptable (Badshah, 2019). The derived R^2 for the model is .782, which indicates the model to be fit for the regression analysis.

The individual scores obtained by the respondents on “financial knowledge”, “financial behavior”, “financial attitude”, and “financial well-being” were regressed together to examine the influences. Table 6 gives the results of the multiple regression analysis.

Table 6
Results of Multiple Regression Analysis

	Std. Error	β_0	t	p
Constant	.782	5.513	7.049	.000
Financial Knowledge	.159	.302	6.616	.000
Financial Behavior	.158	.353	7.186	.000
Financial Attitude	.280	.211	3.623	.000
R^2 .782				
F 136.286				
α .05				

Note: Predictors: Constant, Financial Knowledge, Financial Behavior and Financial Attitude; Independent Variable: Financial Well-being.

Source: Authors' computation based on primary data.

Table 6 shows that financial knowledge, financial behavior, and financial attitude have caused 78.2 percent of the variance in the financial well-being of the people. Moreover, the general model is acceptable, as the F-value of 136.286 is significant at the 5 percent level of significance. The regression model used to examine the influences of financial knowledge, financial behavior, and financial attitude on people's financial well-being is as follows:

$$\text{Financial Well-being} = 5.513 + .302*\text{Financial Knowledge} + .353*\text{Financial Behavior} + .211*\text{Financial Attitude}. \quad (2)$$

The regression analysis clearly shows that financial knowledge has a significant influence on the financial well-being of people ($p=.000<.05$, $t=6.616$, $\beta0=.302$). If the respondents' scores in financial knowledge change by one unit, it will eventually change their financial well-being scores by .302. Hence, hypothesis-H_1 is accepted, and it is concluded that financial knowledge has a significant influence on the financial well-being of people.

From the regression analysis, it is clear that financial behavior has a significant influence on the financial well-being of people ($p=.000<.05$, $t=7.186$, $\beta0=.353$). If the respondents' scores in financial behavior change by one unit, it will eventually change their financial well-being scores by .353. Hence, hypothesis-H_2 is accepted, and it is concluded that financial behavior has a significant influence on the financial well-being of people.

Moreover, the regression analysis reveals that financial attitude has a significant influence on the financial well-being of people ($p=.000<.05$, $t=3.623$, $\beta0=.211$). If the respondents' scores in financial attitude change by one unit, it will eventually change theirfinancial well-being scores by .211. Hence, hypothesis-H_3 is accepted, and it is concluded that financial attitude has a significant influence on the financial well-being of people.

To sum up, it is concluded that three major components of financial literacy– "financial knowledge, financial behavior, and financial attitude" –individually have significant influences on the "financial well-being" of people. This conclusion is supported by the previous studies as well. Adam et al., (2017) observed that there exists a strong and significant relationship of people's financial literacy scores with their financial wellbeing positions. Hasibuan et al., (2018) opined that people with favorable financial behaviors, and higher financial literacy enjoy more financial well-being. Bilal and Zulfiqar (2016) reported that attitudes of people towards personal finances bear strong impacts on their financial stability and well-being.

Pearson Correlation Analysis

In order to examine the influence of financial literacy on the financial well-being of people, the Pearson correlation analysis was performed on the overall financial literacy scores and financial well-being scores obtained by the respondents. The results of the Pearson correlation analysis are presented in Table 7.

Table 7

Results of Pearson Correlation Analysis

Variables	Mean	Std. Deviation	r	p-value
Financial Literacy	13.18	4.122	.720	.000
Financial Well-being	19.72	6.158		

Note: Level of significance (α)=.05.

Source: Authors' computation based on primary data.

The results of the Pearson correlation analysis reveal a strong and statistically significant association between financial literacy scores and financial well-being scores ($r=.720$, $p=.000<.05$). Therefore, hypothesis- H_4 is accepted, and it is concluded that financial literacy has a significant influence on the financial well-being of people.

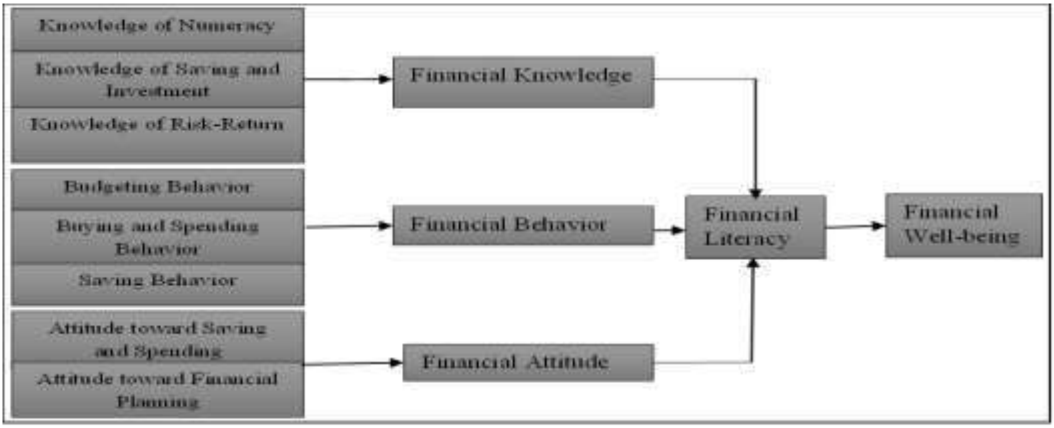
From the results of the multiple regression analysis, and Pearson correlation analysis, it can be concluded that an increase in people's financial literacy results in an increase in their financial well-being, and vice versa. This conclusion is supported by the previous studies as well. Hasibuan et al., (2018) observed that a person with a higher level of financial knowledge and favorable financial behavior enjoys a higher level of financial satisfaction and well-being. Yakoboski et al., (2021) observed a significant and positive relationship between people's financial literacy and their financial well-being.

Summary of the Findings

A thorough review of the empirical literature, and the results of the factor analysis in the present study have revealed three key components of financial literacy– "financial knowledge, financial behavior, and financial attitude". These three components, being the essential parts of the overall financial literacy of a person, are coined as "the big three of financial literacy". The factor analysis clearly shows that financial knowledge is comprised of knowledge of numeracy, saving, investment, and risk-return. Financial behavior is composed of budgeting, buying, spending, and saving behavior. And, financial attitude includes attitude toward saving, spending, and financial planning. The regression analysis proved that the big three of financial literacy individually have statistically significant influences on the financial well-being of people. Moreover, the results of the correlation analysis reveal strong and significant influences of people's financial literacy on their financial well-being. Therefore, it can be concluded that an increase in people's financial literacy results in an increase in their financial well-being, and vice versa.

The relationship among the extracted factors, the big three of financial literacy, and financial well-being is presented in a logical and sequential order in Figure 4.

Figure 4: Relationship of Financial Literacy with Financial Well-being



Source: Authors' self-construct based on the output of the analysis.

Figure 4 gives the results of the analysis and shows that the financial knowledge of people is comprised of their knowledge of numeracy, saving, investment, and risk-return. Financial behavior is concerned with budgeting, buying, spending, and saving. And, financial attitude includes attitude toward saving, spending, and financial planning. The three major components– "financial knowledge, financial behavior, and financial attitude" –constitute the overall financial literacy of people, which contribute to their financial well-being as well. Therefore, financial well-being is considered to be the ultimate goal of financial literacy.

Practical Implications of the Study

The conceptual framework developed in this study, by identifying and analyzing various factors and components of financial literacy, and examining its association with financial well-being, contributes to the existing stock of knowledge, and will pave the way for more detailed exploration of financial literacy and financial well-being in the future.

The results of the study suggest that financial literacy improves people's financial well-being, and contributes to the economic growth and development of a country. Therefore, the findings of the study may be useful to a variety of stakeholders, especially banks, insurance companies, government departments, and educational institutions, in formulating and implementing policies on financial literacy and financial well-being for their people.

Conclusion

Both financial literacy and financial well-being are important aspects of the financial life of an individual. The term "financial literacy" basically means the knowledge, skills, and awareness required to make informed decisions, and live a successful financial life. And the term "financial well-being" refers to a position, where people can meet their financial commitments, secure their financial future, and be able to enjoy life.

The review of empirical literature, and findings of the present study have revealed three key components– "financial knowledge, financial behavior, and financial attitude" that constitute people's financial literacy. These three components, being the essential parts of the overall financial literacy of an individual are coined as "the big three of financial literacy". The findingsof the present study confirm that financial knowledge is comprised of knowledge of numeracy, saving, investment, and financial risk; financial behavior is composed of budgeting, buying, spending, and saving behavior; and financial attitude includes attitude toward saving, spending, and financial planning. Individually, these components have shown significant influences on people's financial well-being. Moreover, overall financial literacy seemed to have a strong and significant influence on people's financial well-being.

It is concluded that an increase in people's financial literacy results in an increase in their financial well-being, and vice versa. Therefore, in order to improve people's financial well-being positions, the stakeholders should take the necessary measures to improve their financial literacy first. A step toward financial literacy is a step toward financial well-being.

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Annexure-I: Financial Literacy Measurement Scale

Sl.No.	Financial Knowledge Statements (Questions)	Options	Scoring Norms	Min. Score	Max.Score
1	Imagine a father leaves behind Rs.1, 00, 000 for his two children. If the two children have to share the money equally how much does each child get?	a.Rs.30,000 b.Rs.50,000 c.Rs.70,000	1 point for correct answer. 0 for all other cases.	0	1
2	In continuation to above question, now imagine that the children have to wait for one year to get their own share of money and inflation stays at 5 percent. After one year will they be able to buy same amountof goods/services that they can buy today?	a. Yes b. No c. Don't Know	1 point for correct answer. 0 for all other cases.	0	1
3	You lend Rs. 50,000 to your brother one evening and he gives you Rs. 50,000 back in the next day. Did he pay any interest on this loan?	a. Yes b. No c. Don't Know	1 point for correct answer. 0 for all other cases.	0	1
4	Suppose, you put Rs. 1,000 into a deposit account with a guaranteed simple interest rate of 10% per year. How much would there be in the account at theend of the first year, including interest?	a. Rs. 1,000 b. Rs. 1,100 c. R s.1,200	1 point for correct answer. 0 for all other cases.	0	1
5	Suppose, you put Rs.1000 into a deposit account with a guaranteed compound interest rate of 10% per year. How much would there be in the account at the end of the fifth year, including interest? (approx.)	a. Rs. 1,500 b. Rs.1, 600 c. Rs.1,700	1 point for correct answer. 0 for all other cases.	0	1
6	An investment with a high return is likely to be of high risk.	a. True b. False c.Don't Know	1 point for correct answer. 0 for all other cases.	0	1
7	It is better to invest your money in more than one financial product for safety.	a. True b. False c. Don't Know	1 point for correct answer. 0 for all other cases.	0	1
8	High inflation means that the cost of living increases.	a. True b. False c. Don't Know	1 point for correct answer. 0 for all other cases.	0	1
Financial Knowledge Score				0	8

Sl.No.	Financial Behavior Statements (Questions)	Options	Scoring Norms	Min. Score	Max.Score
1	Does your householdhave budget?	a. Yes b. No	1 point is awarded if respondent is personally or jointly responsible for financial and money management activities and have a budget. 0 for other cases.	0	1
	If yes, in the previous question, who is responsible for financial and money management activities in your household?	a. Self b. Self & Spouse c. Self & Others d. Another family member e. Others			
2	In the last 12 months have you encountered situation wherein your income does not cover for your living costs?	Yes No Not Applicable	0 is awarded if uses creditto make fulfillment of needs. 1 point for all other cases. (Refusal of encounteringsuch situation also results in 1 point).	0	1
	If yes, in the previous question, What did youdo to meet your living cost?	Borrowed from Family members/Relatives b. Borrowed from Employer c. Drew from Saving/ Investment d. Availed Loan/Finance/ Mortgage e. Missed Payments f. Earned Extra money g. Sold Items h. Others			
3	Which of the following statements best describes how did you last chose or evaluated any of the financial Products/ Services?	Considered/ Evaluated several Products/Services from different companies . Considered/Evaluated several Products/ Services from the same company Did not Consider/Evaluate any other Products/ Services . There were no other Products	0 if respondent have refused to answer, not chosen a product or not made any attempt to make an informed decision. 1 point for respondent who had tried to shop	0	2

		/Services to Consider/ Evaluate Not Applicable	around or gather any information. 2 points for those who had shopped around and availed products/services by taking informed decision.		
4	Which source of information most influenced your decision in selecting financial Products/ Services? (Rank top three of your choice)	Information from Company Website/Staff/Branch Advertisements Friend/Relatives/Employer Past Personal Experience. Financial Advisor/ Expert's Recommendation Financial Literacy Camps Information on Internet Not Applicable			
5	In the past 12 months have you been personally saving money in any of the following ways?	Saving cash at Home Putting money into Bank A/c Buying Financial Products/Services Investing in Gold/Silver Investing in Property Giving money to Family/ Friends No Savings Others	1 point for putting money in any of the saving activity which provides return. 0 for other cases.	0	1
6	I set long term financial goals and strive to achieve them.	a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree	1 point for 'Strongly Agree' and 'Agree'. 0 for all other cases.	0	1
7	I keep a close personal watch on my financial affairs.	a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree	1 point for 'Strongly Agree' and 'Agree'. 0 for all other cases.	0	1
8	I only buy things which I can afford.	a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree	1 point for 'Strongly Agree' and 'Agree'. 0 for all other cases.	0	1
9	I pay bill on time	a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree	1 point for 'Strongly Agree' and 'Agree'. 0 for all other cases.	0	1
Financial Behavior Score				0	9

Sl. No.	Financial Attitude Statements (Questions)	Options	Scoring Norms	Min. Score	Max. Score
1	Live for today and let tomorrow takes care of itself.	a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree	1 point for 'Strongly Agree' 2 points for 'Agree' 3 points for 'Neutral' 4 points for 'Disagree' and 5 points for 'Strongly Disagree'	1	5
2	I find it more satisfying to spend money than to save it for the long term.	a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree		1	5
3	Money is there to be spent only.	a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree		1	5
Financial Attitude Score [(Score of Sl. No.1+ Score of Sl. No. 2+ Score of Sl. No.3) ÷3]				1	5

Source: NCFE, 2014.

Annexure-II: Financial Well-being Measurement Scale

Sl. No.	Financial Well-being Statements (Questions)	Options	Scoring Norm	Min. Score	Max. Score
1	I could handle major unexpected expenses.	a. Completely b. Very well c. Somewhat d. Very little e. Not at all	4 points for 'Completely' 3 points for 'Very well' 2 points for 'Somewhat' 1 point for 'Very little' and 0 for 'Not at all'	0	4
2	I am securing my financial future.	a. Completely b. Very well c. Somewhat d. Very little e. Not at all	4 points for 'Completely' 3 points for 'Very well' 2 points for 'Somewhat' 1 point for 'Very little' and 0 for 'Not at all'	0	4
3	I can enjoy life because of the way I am managing the money.	a. Completely b. Very well c. Somewhat d. Very little e. Not at all	4 points for 'Completely' 3 points for 'Very well' 2 points for 'Somewhat' 1 point for 'Very little' and 0 for 'Not at all'	0	4
4	I have money left over for the end of the month.	a. Always b. Often c. Sometimes d. Rarely e. Never	4 points for 'Always' 3 points for 'Often' 2 points for 'Sometimes' 1 point for 'Rarely' 0 for 'Never'	0	4
5	Because of my money situation, I feel like I will never have the things I want in life.	a. Completely b. Very well c. Somewhat d. Very little e. Not at all	0 for 'Completely' 1 point for 'Very well' 2 points for 'Somewhat' 3 points for 'Very little' and 4 points for 'Not at all'	0	4
6	I am just getting by financially. (Just surviving a financial life.)	a. Completely b. Very well c. Somewhat d. Very little e. Not at all	0 for 'Completely' 1 point for 'Very well' 2 points for 'Somewhat' 3 points for 'Very little' and 4 points for 'Not at all'	0	4

7	I am concerned that the money I have or will save won't last.	a. Completely b. Very well c. Somewhat d. Very little e. Not at all	0 for 'Completely' 1 point for 'Very well' 2 points for 'Somewhat' 3 points for 'Very little' and 4 points for 'Not at all'	0	4
8	Giving a gift for a wedding, birth day or other occasions would put a strain on my finances for the month.	a. Always b. Often c. Sometimes d. Rarely e. Never	0 for 'Always' 1 point for 'Often' 2 points for 'Sometimes' 3 points for 'Rarely' 4 points for 'Never'	0	4
9	I am behind with my finances. (Not current with one's finances, e.g. delay in bill payment.)	a. Always b. Often c. Sometimes d. Rarely e. Never	0 for 'Always' 1 point for 'Often' 2 points for 'Sometimes' 3 points for 'Rarely' 4 points for 'Never'	0	4
10	My finances control my life.	a. Always b. Often c. Sometimes d. Rarely e. Never	0 for 'Always' 1 point for 'Often' 2 points for 'Sometimes' 3 points for 'Rarely' 4 points for 'Never'	0	4
Financial Well-being Score				0	40

Source: CFPB, 2017.

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Taliban's Government in Afghanistan and the Dilemmas of Pakistan

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The Taliban resistance against the various Afghan governments continued in the post-2001 period which finally culminated in their agreement with the United States of America (USA) for the withdrawal of its forces from Afghanistan in February 2020 and the subsequent capture of Kabul from President Ashraf Ghani in September 2021. Pakistan once again played a pivotal role in this US-Taliban agreement with a hope to achieve its regional objectives of discouraging Afghanistan from its claim on Durand Line, countering India to seek further influence in Afghanistan, tackling the menace of *Tehreek-e-Taliban Pakistan* (TTP) inside Pakistan and taking benefits from regional economic and commercial developments. To add to the surprise of Pakistan, the Taliban government repeated the Afghan claim on Durand Line as an international border, provided active support to TTP, allowed India to complete the ongoing projects and also failed to help Pakistan in realizing its dream of accessing the Central Asian markets on account of sanctions on their government. This research paper seeks to answer the question that what dilemmas Pakistan faces after the establishment of Taliban government in Afghanistan once again after a gap of 20 years?
Keywords: Taliban, Government, Afghanistan, Dilemmas, Pakistan

The failure of Afghan *Muhahideen* (Holy Warriors) faction of Gulbadin Hekmatyar to capture and rule Afghanistan compelled Pakistan to support another Islamist (using of Islam for political ends) group of the Pashtun-dominated Taliban. Pakistan played a pivotal role in the rise of the Taliban who were mostly the students of the religious madrassas of *Jamiat-e-Ulama Islam* (JUI) and *Jamat-e-Islami* (JI) of Pakistan in the border region and were run through the funds of Gulf countries, particularly Saudi Arabia. The ideological mindset of Taliban was not only framed in those madrassas but was also trained militarily. Mullah Mohammad Omar, who later on became the Amir-ul-Momineen of Taliban government, was a teacher in one of the JUI madrassa (Nojumi, 2002). JUI with the backing of Interior Minister, Naseerullah Khan Babar who himself was a staunch supporter of the Taliban influenced the government's attitude towards the Taliban (Rashid, 2010). Subsequently, Taliban's remarkable successes compelled the Inter-Services Intelligence agency of Pakistan to support them for its own vested interests (Nojumi, 2002). The ISI then started educating, training and support in men and money of the Taliban (Emadi, 1997) and extended recognition to them later on along with Kingdom of Saudi Arabia and United Arab Emirates (UAE) in 1997. Furthermore, Pakistan also tried to convince the Central Asian Republics (CARs) who conditioned their decisions with the recognition by the United Nations Organization (UNO). This recognition however, caused criticism of Pakistan both at home and abroad (Murshed, 2006) as it ardently pursued the policy of having a friendly Islamist government in Afghanistan that could pacify the Afghan nationalists about 'Durand

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Line' and 'Pashtunistan,' discourage India from sorting influence in Afghanistan and might check all types of threats to its trade with Central Asia (Nojumi, 2002).

Pakistan though succeeded in achieving some objectives but when it failed to get recognition for Taliban, they refused to accept Pakistan's guardianship. Besides when Pakistan under the pressure of the United States of America (USA) and Saudi Arabia, asked Taliban to surrender Osama bin Laden (the leader of the terrorist organization, Al-Qaeda) for his alleged involvement in the attack over the American World Trade Center on 11 September 2001, in which many innocent people lost their lives, the Taliban turned it down too. America then launched its war against terrorism and asked Pakistan to join it. The military regime of General Pervez Musharraf immediately joined USA for escaping drastic consequence of political isolation, economic sanctions, endangering nuclear program and American support of India over Kashmir (Coll, 2005).

The Taliban then started hiding in the border region between Afghanistan and Pakistan. Despite this, Pakistan was seen as a major facilitator for the toppling of Taliban government and an obstacle in the promotion of Islamic values. The religious political parties and their leaders inside Pakistan started favoring Islamic *Sharia'a* Law (Toru, 2005). One such leader was Sufi Muhammad whose movement *Tehreek-e-Nifaz-e-Shari'at-e-Muhammadi* (Movement for the imposition of Muhammadan *Shari'ah* law) was inspired by the Afghan *Jihad* (holy war) which was formed in the merged tribal areas of Bajuar in 1995 and which was later on run by his son-in-law, Maulana Fazlullah but was crushed by the Pakistan army through a military operation. Similarly, Taliban movements on the model of Afghan Taliban were also launched in the merged tribal areas of Orakzai in Khyber Pakhtunkhwa and Quetta of Balochistan (Rashid, 2010).

All these movements were much effective compared to the Taliban movement that emerged in the tribal area of Waziristan after the toppling of the Afghan Taliban government. They infiltrated in the tribal in 2003 and restructured their political and military command. When the government of Pakistan launched operations against them, the Taliban became infuriated formally established TTP in December 2007 which beside Pashtuns absorbed Arabs, Chechens, Uzbeks and Punjabis who would launch offensives inside Afghanistan against the Afghan government, American troops, the International Security Assistance Forces (ISAF) and the North Atlantic Treaty Organization (NATO) forces from the tribal area. Pakistan became an infidel state for TTP after its attack on *Lal Masjid* (Red Mosque) of Islamabad in 2007 (Siddique, 2010).

Pakistan launched multiple military operations against TTP in the tribal area and received many losses in men and money. Although, it sacrifices were not recognized by the Americans but still it remained a major bridge between the US and Taliban since the Presidency of Barrack Obama who made a decision to vacate Afghanistan. A more clear opportunity came in the hands of Pakistan when the American President Donald Trump showed willingness to pursue open and direct discussions with the Taliban (Irfan, 2015). The inclusion of the Taliban was seen in the interest of Pakistan by the army which would help in safeguarding Pakistan's vested interests in Afghanistan, the stability of Pakistan's volatile northwestern border and the improvement of its own tense relations with Washington (Ahmad, 2010).

Taliban Capture of Power in Afghanistan

Since the American occupation of Afghanistan, the war cost reached to more than two trillion US dollars beside the amount spent on the lifetime care of American veterans while the death toll of reached to more than 200,000 as a direct result of this occupation and war (Lutz, 2022). USA in its obsession decided to quit Afghanistan and signed an agreement with the Taliban at Doha by returning power to them which caused a breaking point in the international politics too because a significant part of its allies considered Taliban as a terrorist organization (Dora, 2021). Besides some scholars were apprehensive that the Afghan state would be weak and on the mercy of Taliban (Greenwood, 2013) which proved true because the Taliban saw none as equal to themselves.

Subsequently, the Taliban despite their commitment captured power from the US-backed Ashraf Ghani's government in Afghanistan on 15 August 2021 and forcefully entered into Kabul. The president along with his dignitaries fled away from Afghanistan and left the ground wide open for the Taliban to rule the country. However, this unexpected capture of Kabul posed an issue of recognition for the Taliban regime at large. Pakistan, as a vital stakeholder in the Afghan conundrum, started its endeavors to provide an opportunity to Taliban to sustain (Akhtar, 2022).

Although many Pakistani celebrated the triumph of Taliban including Prime Minister Imran Khan who appreciated the Afghans for "breaking the shackles of slavery" (Dawn, 2021) but did not extended recognition to their government unilaterally as it did in the past when the first Taliban government was established at Kabul in 1996. Pakistan pursued an ambiguous approach at this stage and the Prime Minister had urged for the strengthening and stability of the Taliban government. Though recognition of the Taliban government was withheld but yet Pakistan came so close to that. It maintained a diplomatic mission along with ambassador at Kabul throughout the conflict. Besides, Pakistan issued visas to the Taliban in the embassy of Kabul at Islamabad and at the various provincial consulates (Staff Reporter, 2021).

However, Pakistan still wanted to see the Taliban successful amidst of conflict, political instability, institutional weaknesses, weak economy, droughts, economic sanctions, and freezing of developmental assistance. Alongside, it was also worried about their economic collapse as it would cause pouring more and more refugees in its territory and the impact of Taliban links and government with the Pakistani militant groups (The Express Tribune, 2021) and sectarian outfits (Newsweek, 2021).

Despite such apprehensions, Pakistan tried to ease the isolation of the Taliban government and asked them to be flexible in governance and be harsh on counter-terrorism. Pakistan convinced the Taliban to cooperate in the evacuation flights of foreign citizens and the Afghans who ran for their lives. Pakistan at this juncture was having strain relations with the US who no more saw it as a frontline state. The administration of Joe Biden asked for more support against Taliban and the terrorist networks but Imran Khan declined it and instead the policy on ground and of air lines communication with US was kept intact. As a result of receiving a setback in its policy with the US and the Western countries, Pakistan started developing a regional consensus on the recognition of Taliban government and hosted the first virtual meeting of the neighbors of Afghanistan including China, Iran, Russia, Tajikistan, Turkmenistan and Uzbekistan on 8 September 2021 as Taliban had announced an interim government for Afghanistan on 7 September (Staff Reporter, 2021). This meeting failed too but China, Russia and Iran showed willingness to keep their embassies at Kabul and provide economic support to the Taliban. They conditioned recognition with a more inclusive governance and action against those militant groups who threatened their security. Pakistan also hosted the Troika Plus meeting of USA, China, and Russia on 11 November 2021, to engage with the Taliban for an inclusive government, prevention of humanitarian crisis, protection of human rights and particularly women's rights (Khan, 2021). Taliban declined such demands of backing off their stand on strict *Shariah* law, suppression of critics, women deprivation of education and jobs and the breaking of links with the terrorist groups, Pakistan then sought incentives for Taliban instead of pressure from the Western countries to change their behavior (Dawn, 2021). Pakistan even then tried to convince the western powers on one hand that Taliban takeover has not destabilized Afghanistan and the security situation has improved and asked the Taliban to make compromises for ending their diplomatic isolation on the other hand (Iqbal, 2021).

Pakistan also kept its policy of Taliban's government recognition intact even after the change in government. It wanted to get recognition for Taliban through a 'regional-consensual approach' as stated by the Pakistan's Foreign Office spokesperson, Asim Iftikhar. On one occasion Foreign Minister of Pakistan, Bilawal Bhutto Zardari said that we wish a peaceful, stable, prosperous and connected Afghanistan. Furthermore he emphasized over a continued constructive engagement and practical cooperation with the Taliban government for the promotion of sustainable peace and security in the region (Yousaf, 2022). Regarding recognition the foreign minister clarified the stance of Pakistan for not taking a solo flight or of defying the global consensus on the issue. He favored the provision of a wider political space to the Afghan regime without ignoring the fact that Afghan Taliban support is detrimental for the materialization of Pakistan's transcontinental trade network with Central Asian Republics (Kaura, 2022).

Beside recognition, the contested border also remained a tension between Pakistan and Taliban. As the issue of border tension previously caused clashes between the armies of Pakistan and Afghanistan, so with the establishment of Taliban government, Pakistan believed over the mitigation of that tension but it proved a nightmare because both the governments closed the border on several occasions, causing a looming conflict. This tension was mainly caused by the fencing issue and both sides conflicted over the wall (Jamal, 2022).

Pakistan while fearing the infiltration of terrorists sealed the border which was reciprocated by the Taliban authorities. The Taliban stopped Pakistan from fencing the border but soon both sides agreed to resume it on mutual consensus. However, the Taliban acting information minister said that there was no need of fencing as Durand Line is an unresolved issue and fencing it would cause the division of Pashtuns living on both sides of the border (Khan, 2022). Pakistan on the other hand saw fencing as a step towards peace and protection rather than a division of the people (Hanif, 2021). Fearing Pakistan's demand for recognition of Durand Line, the Taliban dignitaries reiterated time and again that the issue of Durand Line cannot be solved by any government including the Taliban alone as it is a national issue and can only be sorted by the Afghan as a nation (Mills, 2022).

Another backdrop of the return of Afghan Taliban regime was the resurgence of TTP which saw the Afghan Taliban as their role model. Taliban's tactical triumph in Afghanistan gave a great boast and encouragement to TTP for restructuring itself and for the imposition of *Shariah* law in Pakistan which already has suffered from the long Afghan war. This new alarming situation provided for more than adequate reason to be worried about blowback from the Afghan Taliban across the Durand Line (Kaura, 2022) as they have themselves started creating problems for Pakistan (Mir, 2022). Although Pakistan wished to have a secure border with Afghanistan and tried to prevent the influx and infiltration of Pakistani militants based in Afghanistan but it proved a major point of its disagreement with the Afghan Taliban who refused to cut ties with TTP asked Pakistan instead to reach a negotiated settlement with TTP (International Crisis Group, 2022) which during the span of eight months from August 2021 to

March 2022, launched 272 terrorist attacks. This was a higher number than in any year from 2018 to 2020 (Ahmed, 2022).

Despite that the government of Pakistan reciprocated to the call of the Afghan Taliban government with opening talks with TTP in October 2022 which broke down in December over several issues of merger of tribal areas with Khyber Pakhtunkhwa and the release of some TTP leaders. Pakistan though showed flexibility and was ready to reach a ceasefire with TTP by releasing 90 militants but the opposition criticized the government for making the common citizen vulnerable to attacks. TTP also showed reluctance in signing the ceasefire because it did not trust the government. It escalated violence and launched attacks in various cities and caused deaths of civilians and security personnel (Khan, 2022).

Recently, a massive suicide attack on a crowded mosque in the police compound at Peshawar caused a death toll of 85 policemen (100 policemen according to BBC News 31 January 2023) and more than 150 injured. Regarding the responsibility of this blast, TTP has issued mixed signals of claiming and denying. Keeping aside these claims there is no doubt in the fact that it was a deadliest assault since the Afghan Taliban had captured power in Afghanistan and the resurgence of TTP in 2021. Beside financial emergency with which Pakistan is grappling, the aftermath from the destructive surges and a consistently tempestuous political scene, the growing danger of TTP presents one more test for the striving country (Constable, 2023) because the alliance between the Afghan Taliban and TTP appears to be more grounded than before and that both understands each other very well. There is an aggravation in TTPs attacks and are challenging the security position of Pakistan. Kidnapping, ransom, blackmailing, extortions and racketeering are on the rise. Pakistan seems handicapped and helpless and made multiple appeals to the international community for preventing global terrorists from threatening it (Kaura, 2022). This new spate of assailant savagery has initiated another period of struggle and has set its counterterrorism crusade at a junction. The country needs to recognize the hidden purposes behind the ongoing attacks and how it varies from previous episodes of terrorism.

In reality, Pakistan reaped the crop of its own actions for supporting the Islamist groups inside Afghanistan. They are resurging and menacing Pakistan because their radical agenda is appealing to the people and helping them in stirring religious fervor among them. The ideological association through which Pakistan controlled has caused growing Islamic radicalization inside its own borders. These radical forces used Islam in its agenda to pressurize Pakistan for asserting the true Islamic character of the country (Kaura, 2022).

Another looming menace which Pakistan confronts is the presence of India in Afghanistan. The Taliban are seeing no benefit in keeping India at bay which can provide the much needed funds for reconstruction and development. Though their relations are not improving but at the same time they are not overtly hostile. In the past, India had very strong relations with the governments of Hamid Karzai and Ashraf Ghani. It not only directly invested in Afghanistan, but also gave political, economic, and other strategic assistance to Afghanistan. It helped in the health and education sectors and provided hundreds of scholarship opportunities to the Afghan students (Akhtar, 2021).

A large sector of the Afghan population sees India as a friendly country. India in the last few decades has provided $3 billion in aid. The Taliban have assured India protection of its mission at Kabul and asked it for up-gradation while its foreign ministry spokesman Abdul

Qahar Balkhi requested India to complete the ongoing development projects that it had begun in Afghanistan such as the Shahtoot Dam in Kabul (Izarali, 2022).

Pakistan on the other hand see India as an arch-rival and a key security challenge in Afghanistan because it believes that India wants to diminish its position in regional and global affairs. Therefore, Pakistan left no stone unturned to obstruct the influence of India since the collapse of the Taliban government in 2001. Pakistan assisted the Taliban to force out India from Kabul but it failed in its disposition because the Taliban maintained autonomy with regards to its Indian policy. However, the Haqqani network supported by Pakistan is under its influence and is a threat to Indian interests in Afghanistan (Izarali, 2022). Even Pakistan's use of coercive measures, such as trade embargoes, has pushed Afghanistan even closer to India (Ahmed., 2021).

Dilemmas of Pakistan

Undoubtedly Afghanistan is an important western neighbor of Pakistan and the later needs to be cautious in the pursuit of its interests there as the troubled history and unleash some horrific dilemmas. It needs to reassess and reevaluate its Afghan policy of only looking for favorites because there are other stakeholders too both at regional and foreign level. Since its independence, Pakistan envisioned Afghanistan to be its closest neighbor in the face of an Indian threat and has always tried to counter-balance it but in the pursuit of that major objective, Pakistan always distanced Afghanistan from itself. Another objective of getting access to the Central Asian markets have caused it to support the religious ideological groups which in the long run became a menace for the country itself. It has become clear from the Afghan quagmire now that Pakistan cannot treat Afghanistan in the context of its 'strategic depth policy' of indirectly controlling Afghanistan in the face of an Indian military attack anymore and that is why some of the Pakistani leaders proclaimed of giving up this policy in its dealing with the Taliban as the current Taliban government is not like the previous Taliban government which could be treated in a client-patron manner because the use of coercive measures by Pakistan against the Taliban had a very little impact on them (Kaura, 2022).

Another dilemma Pakistan is facing is from its support of USA for its own vested interests which often fire backed in the long run. America being a super power isolates itself from the issues after meeting its objectives and this was evident from the Afghan war of 1979-1988. Pakistan served as a frontline state in that war but then after the war, Pakistan was left alone to fight for its own interests in Afghanistan. Later on when the Global War on Terrorism (GWT) was launched against the Afghan Taliban and Al-Qaeda network, Pakistan was given the status of a frontline state but after the war, Pakistan was totally ignored in the Afghan interim formula and was left alone to suffer at the hands of terrorists. Pakistan has suffered a lot in that war both in men and many and till date it is facing the menace of terrorism and suicide bombing. Beside existential threats, the Americans started suspecting Pakistan for its role in the promotion of terrorism and provided an opportunity to its adversary India to isolate it. However, when USA decided to withdraw its forces from Afghanistan, Pakistan was once again seen as a potential state to arrange meetings and talks with the Taliban. Pakistan played a pivotal role in those talks and successfully facilitated the US-Taliban agreement in 2020. Later on, Pakistan was left isolated once again and even its relations with USA deteriorated for not satisfying to have played a more proactive role for America (International Crisis Group, 2022).

Beside that both the previous and the current Taliban governments have ignored the role played by Pakistan in their capture of power and in providing cover to their governments to be spared from isolations. Pakistan which trusted the ideological orientation of the Taliban believed that they would help in the recognition of Durand Line as a legal international border between Afghanistan and itself was, however, wrong in its assessment because the previous Taliban government feared the sparking of a tribal revolt (Hussain, 2021) while the current government not only clashed with Pakistan over the border fencing but also rejected the notion of Durand Line by considering it not an issue of any government but a national issue of all the Pashtuns along both sides of the area (Mills, 2022).

Furthermore, Pakistan also faced the consequences of keeping a soft corner for the Taliban. The first Taliban government unleashed the forces of radicalism and terrorism while the later government did not controlled TTP and instead encouraged them. Even the banned members of TTP were given positions in their government and the pleas of Pakistan to stop the Afghan-based TTP militants from infiltrating inside its borders were totally ignored (Mir, 2022). The Afghan Taliban government maintained close ties with TTP who targeted civilians and security forces over the issue of the merger of tribal area and the fencing of border with Afghanistan (Khan, 2022).

India which enjoyed a complete leverage in Afghanistan during the governments of President Hamid Karzai and President Ashraf Ghani though at present find itself in a hot water because the Taliban are keeping it at arm length. This situation however, can change and may not remain the same because the Afghans have developed liking for India due to its previous role in the Afghan reconstruction and rehabilitation. The Taliban dignitaries are still engaging India in its projects and have signaled to develop its mission in Kabul with full protection (Izarali, 2022). Pakistan on the other hand enjoys the trust of Taliban for its role in their support during talks and the issue of recognition. Simultaneously, the fact should not be ignored that the Taliban are unsupportive of the idea of the recognition of Durand Line, maintaining close relations with TTP and are hosting India missions. This phenomenon gives rise to three different kinds of apprehensions. First, if the relations with the Taliban deteriorate, the issue of border recognition will be doomed forever. Second, if TTP found further boast from Taliban, it can become more lethal and can weaken the state internally. Third, if India received a foothold again in Afghanistan, it will once again encircle Pakistan and will support TTP and other ethnic and linguistic dissident movements inside its territory which Pakistan was proclaiming since many years (International Crisis Group, 2022).

Beside the Indian threat, Pakistan should also be vary of the criticism of the US and European countries for seeking recognition for Taliban government. Afghanistan is a sensitive area and all regional and foreign countries feel concerned about it. Pakistan should be cautious in policy towards Taliban as the US and European countries have criticized Pakistan for engaging regional powers in order to get recognition for the Taliban (International Crisis Group, 2022). In addition to that Pakistan engagement of China in Afghanistan is also seen with suspicion and mistrust by the different stakeholders as China is seen as a potential competitor by the US and an ally of Pakistan which can disturb equilibrium in the region by India (Ali, 2020).

A more significant dilemma is that Pakistan never recognized even from its engagement in Afghanistan that relations are based on interests rather than on ideological orientations. That is why it has harmed its own image in the world by aligning itself to such individuals and groups. It should realize that relations with a state are important and image among its citizens is valued instead of giving weightage to an individual. The ideological groups of *Mujahideen* or Holy Warriors (1980s & 1990s), and the Taliban (1996 to 2001) have disappeared from the political scene while Afghanistan and Afghans are still there and will remain there. Relations must be of a state to state nature rather than state to a group nature. This has been questioned by the Afghans too that Pakistan instead of maintaining relations with the group should ask Taliban for reducing violence (Easterly, 2021).

Conclusion

Pakistan since inception cherished a friendly government in Afghanistan as to outweigh India and to settle the issue of Durand Line. In order to achieve these determined objectives, Pakistan sought to rely on the ideological groups rather than the Afghan nationalists who do not wish a division of their territory or their people. During the Soviet occupation of Afghanistan, Pakistan supported different religious Islamist groups particularly the group of Gulbadin Hekmatyar. After the Soviet withdrawal when the Mujahideen failed to agree on a power sharing formula by starting a civil war, Pakistan supported another radical group of Taliban who ruled Afghanistan from 1996 to 2001. The Taliban government though ended Indian influence but could not accept the Durand Line or could formally open the road to Central Asia. The subsequent Afghan governments suspected the role of Pakistan and brought India closer. Pak-Afghan relations deteriorated and on the other hand, US showed disregard for Pakistan previous roles as a front-line state.

Nevertheless, Pakistan once again came to limelight with regard to the Afghan affair after the US decision of withdrawal from Afghanistan. Pakistan played a leading role in the US-Taliban agreement and saw an opportunity to exploit the situation in its favor by keeping India at bay, solving the Durand Line issue, by eradicating TTP and by ending its isolation. These dreams however still to be realized but practically speaking the situation is not that favorable. The Taliban after emerging triumphant have supported and sheltered TTP. They did not distanced India and also have shown reluctance to reach a settlement over Durand Line.

This scenario outlines few dilemmas for Pakistan which it can handle in its future dealings with Afghanistan. Pakistan should not pursue the strategic depth policy anymore in Afghanistan as it has caused more rifts then of establishing friendly relations with Afghanistan. It should also not rely on the US and should only maintain a principled policy towards it. Besides Pakistan should not expect any group to help in the settlement of Durand Line rather than to pursue a rational policy with the state of Afghanistan and should raise the issue at international forums. India though has not been ousted by Taliban but Pakistan still can keep it away from using the Afghan soil against it. Pakistan should also show some restrain on the issue of the recognition of Taliban. Last but not the least; Pakistan should establish relations with Afghanistan rather than with any individual or group, ideological or non-ideological.

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Uncovering the Key Elements and Supporting Factors of *Tahfiz* Houses in Shaping the Spiritual Education of the Younger Generation in Indonesia

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Tahfiz houses have become the choice of parents for their children's education, while spiritual education for children has become a challenge for urban families due to the busy schedules of their parents. The presence of *tahfiz* houses is one solution to this challenge. This study aims to uncover the key elements and supports of *tahfiz* houses in shaping the spiritual education of young people in Indonesia. This research uses a case study approach, which emphasizes in-depth analysis of specific cases with the aim of finding specific aspects of *tahfiz* programs. The research findings indicate that the presence of An-Nur *tahfiz* house has brought spiritual education to children through a trilogy of education programs: Night of Building Faith and Piety (MABIT), Quranic camp living, preserving Islamic traditions, *shalawat*, creativity, and the role model of *Mudabbir-Mudabbirah*. This program has instilled a sense of consistency in performing night prayers, morning prayers, fasting on Mondays and Thursdays, reading good readings, eating and drinking in accordance with religious teachings, and a love for the Quran. Not only does it foster spiritual attitudes, but it also nurtures social cohesion. These findings suggest that the integration between *tahfiz* programs and worship practices with consistent and sustained spiritual education has resulted in children's spiritual development.

Keywords**:** young generation, *tahfiz* houses, spiritual education.

Tahfiz education has become an alternative form of education in Lombok, Indonesia. The presence of *tahfiz* houses is a response to the concerns of parents who see their children occupied with smartphones and online games. Several studies, including the Kaiser Family Foundation Study, have shown that two-thirds (66%) of children aged 8 to 18 have their own phones, up from 39% five years ago (Roberts et al., 2010). Recent studies indicate a relationship between gadget use and the development of early childhood character (Pratiwi et al., 2022). The use of gadgets in school-age children has negative impacts, such as a reluctance to read books or engage in activities, a propensity for anger, and disrupted concentration (Hidayat & Maesyaroh, 2022). The same study showed that children addicted to gadgets exhibit negative behavior, such as failing to answer their parents' calls and crying to use gadgets (Adinda et al., 2021). Additionally, the use of gadgets can diminish children's active power and their ability to interact with others, making them less social and more solitary (Widya, 2020). Similarly, Yildiz Durak's study revealed nomophobia and smartphone addiction among teenagers in Turkey (Yildiz Durak, 2019). The increasing access to mobile phones in rural India has led to technology addiction among school students (Jamir et al., 2019). The psychological risk factors of social networking site (SNS) addiction among Chinese smartphone users showed that those who spend more time on SNS also report a higher tendency to be addicted (Wu et al., 2013). The relationship between smartphone addiction and physical activity among Chinese international students in Korea revealed that smartphone addiction has a negative impact on physical health

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by reducing the amount of physical activity (Kim et al., 2015). The use of gadgets can negatively affect children's growth and development (Sagr & Sagr, 2020). Teenagers' cybersecurity knowledge about smartphones is negatively correlated with their Smartphone Addiction Tendency (SAT) (Chou & Chou, 2019). These findings underscore the importance of providing young generations with adequate spiritual education so that they can maintain their golden age, although Katz notes that technology has become an infrastructure of family life that is difficult to avoid (Katz, 2010), and the efficacy of digital technology tools in teaching pronunciation to Saudi EFL learners (Nasim et al., 2022) has played a significant role.

On the other hand, children have a spiritual vulnerability, as Chairani et al.'s study found that strengthening resilience through the cultivation of spiritual values can be a coping source for families (Chairani et al., 2019), spirituality and inclusivity of children for strengthening spirit, resilience, and joy by digging a curriculum that emphasizes holistic education (Harris, 2015). The results of this study provide important information on the need to prepare adequate spiritual education facilities.

Studies on the urgency of *tahfiz* programs for children have provided new information that this program has a strategic role in nurturing the spiritual development and education of children, although the current digital era has given rise to the trend of online *tahfiz* programs (Nisa, 2018; Wajdi et al., 2020; Zulaili, 2018), and (Tahfidzonline.com., 2020). Another study found that parents of students take pride in enrolling their children in educational institutions that implement *tahfiz* programs (Wahyuni & Syahid, 2019), making *tahfiz* programs a phenomenon in formal institutions (Elementary Schools, *Madrasah Ibtidaiyah*, Quran Education Park) (Solikhin & Hartono, 2010), especially in Lombok.

Furthermore, children will grow emotionally and spiritually well if provided with adequate environments and appropriate approaches. Several related studies have shown that the success of Quranic *tahfiz* education is supported by the environment (Fatah, 2014). The success of Quranic learning in elementary school children is supported by good motivation, methods, and media (Usman, 2016; Sofyan, 2015), and *tahfiz* programs can increase spiritual intelligence (Sarwanto, 2018). In another study, one of the current challenges of children's spiritual education is that they are not accustomed to reading the Quran (Khoerusyfah, 2019). Therefore, if children's spirituality grows well, it can build harmonious living (Pelu, 2009), and they can grow into dynamic teenagers with increasingly developed spirituality, as there is a significant relationship between age and spiritual development (Jalaluddin, 2015).

Therefore, researchers have found many studies related to *tahfiz* programs (environment, approach, habituation, methods, media, programs, and family support), but there are not many studies on the integration between worship practices, *tahfiz*-MABIT, and religious studies for children aged 6-12 years old. Integration between nature-tradition-Human Resources (HR) also becomes important amidst the challenges of spiritual education at present. The researcher's hypothesis is that early age is quite vulnerable to spiritual and social cohesion development, especially in Lombok, known as the island of 1000 mosques, where the Provincial Government of West Nusa Tenggara (NTB) Indonesia has re-launched the mandatory recitation program as a literacy culture of NTB's society (Diskominfotikntb, 2021).

Tahfiz An-Nur House was established on September 9, 2019, by M. Haris, S.Pd.I., and community figure Didik Sumardi, although it had been initiated since 2014. This institution is located on Jl. TGH. M. Siddiq, number 26/B, Monjok Barat Village, Selaparang District, Mataram City, Lombok, West Nusa Tenggara Province, Indonesia. This location is the birthplace of the Islamic scholar *Waliyullah Almagfurullah* TGH.M. Siddiq and the tomb of

Waliyullah TGH. Ahmad Tretetet. The researcher chose *Tahfiz* An-Nur House for several reasons: firstly, although relatively young, it has attracted many sympathies from the wider community to entrust their children, so in 2021 it has 300 *Tahfiz* children. Second, the integration between worship practices, *tahfiz*, and book studies is supported by the integration between nature-tradition-HR interaction. Third, spiritual education through the MABIT program. Therefore, the research aims to find and analyze key elements and supporting factors of *Tahfiz* An-Nur House in shaping children's spiritual education. The significance of this research is intended for *tahfiz* managers who still use conventional models (memorization and listening), which are quite prevalent in Lombok, West Nusa Tenggara Province, Indonesia. For busy Muslim families in urban areas, *Tahfiz* House can be a solution for their children's spiritual education in the era of 4.0. It can also be utilized by *tahfiz* education practitioners and policy-makers such as the Ministry of Religion at the district/city, provincial, and national levels.

Literature Review

Spiritual Education for Young Generation

The term spiritual is taken from the Latin word spiritus, which means something that gives life or vitality to a system. Quoting Zohar & Marshall, spirituality is seen as an improvement in the quality of life in this world and the afterlife. Similarly, spirituality refers to the basic values and meanings that underlie our lives, both worldly and otherworldly, consciously or unconsciously enhancing our commitment to those values and meanings (Pelu, 2009). Spiritual is the golden thread that connects intelligent ideas with reality. The spiritual foundation includes recognition (believing in reward and worship), commitment (total loyalty in worship), and supplication (staying on the straight path) (Solikhin & Puji Hartono, 2010). Thus, the awareness of God within oneself is the main foundation and capital in carrying out all dimensions of life and all activities performed.

Spiritual is defined as life (Wilson et al., 2003), enlightenment (Houtman & Mascini, 2002), liberation (Kovel, 1999), emotional involvement (Lynch, 2007), spiritual condition (Tacey, 2004), ethics (Taylor, 2002), integrated cancer care (Barraclough, 2001), and the dynamics of spiritual trends (Wuthnow, 1998). These various meanings have provided a true picture that spirituality is a condition of spirituality, life, enlightenment, control, emotional involvement, ethics, individualization, and spirituality of a person. These elements are important, where people will behave well when they have good spirituality, control, emotions, and ethics, and vice versa, people will behave poorly when their spiritual condition, control, emotions, and ethics are unstable. Dincer and Öksüz (2012) provide the view that the importance of core values such as spirituality, spiritual intelligence, and the contribution of spiritually intelligent leaders in educational institutions.

In the context of spiritual education, *tahfiz* schools provide educational experiences and activities with a divine spirit (divine nature). The educational building is based on the divine spirit in various *tahfiz* activities. Integration between the divine and the human to build spirituality, and habituation for spiritual education (Al-Ahmadi, 2022; Hasbullah, 2019), is important to be developed in *tahfiz* children. The divine spirit can become the spirit and moral responsibility of the *tahfiz* house manager, where the *tahfiz* house can become a medium in the spiritual education of children so that a generation with adequate spirituality is expected to emerge.

Method

This research uses a case study research method. Several considerations prompted the researchers to use a case study method. Firstly, the researcher focuses on one object of study in order to emphasize a deeper understanding of the researched problem. Secondly, the method enables an in-depth examination to uncover the reality behind phenomena occurring in the field. Thirdly, the method allows for an intensive, detailed, and in-depth examination of events or phenomena with a narrow scope related to the spiritual education trilogy, supporting factors, and the impact of the An-Nur *Tahfiz* House. Therefore, in this study, the researcher does not merely report the number of *tahfiz* children and informants, but rather emphasizes the depth of the subject of the study.

Role of Informants and Researchers

Informants or sources of data in this study are categorized into two groups: human and non-human sources. Human sources of data act as key subjects or informants, such as the program manager, *Mudabbirs*, *Mudabbirahs*, and *tahfiz* children. Key informants were determined using snowball sampling, which involved asking previous informants to identify additional informants. In order to maintain the confidentiality of the informant's identity, the researcher assigned codes such as informant 1, informant 2, and so on (see table 1). The selection of informants was based on criteria suggested by Linconl and Guba (1985), namely: 1) full enculturation, which refers to informants who have been intensively integrated with the research location for a long time, 2) direct involvement, which refers to those who are still actively involved in activities at the research location, 3) still have time to be asked for information, 4) can provide information honestly, and 5) are still considered strangers to the researcher. These informants provided information directly or indirectly (via What Apps, SMS) related to the key elements of the spiritual education trilogy, supporting factors, and the impact of the An-Nur *Tahfiz* House. Non-human sources of data were derived from artifacts, daily, weekly, and monthly activity documents, MABIT programs, and programs supporting *tahfiz* children's activities, such as preserving traditions, *shalawat*, and the roles of *Mudabbirs* and *Mudabbirahs*.

Table 1
Informant Details

No.	Informant Code	Informant	Role	Date
1	Informant 1	Khaetami	Islamic Teacher	July 20th 2021
2	Informant 2	Ira Indrianingsih	Parent	July 20th 2021
3	Informant 3	Muhammad Haris	Head of Tahfiz House	July 12th 2021
4	Informant 4	Muhammad Sadri	Islamic Teacher	July 20th 2021
5	Informant 5	Hafidzah	Islamic Teacher	July 12th 2021
6	Informant 6	Nuri Aulia Fitriani	Islamic Teacher	July 20th 2021
7	Informant 7	Fitria Wardani	Islamic Teacher	July 12th 2021

The researcher's role in this study was to collect and process data, analyze the data, and subsequently verify and draw conclusions regarding the three research focuses. The author conducted an analysis and interpretation of the data obtained by sorting, coding, categorizing, and arranging it into units based on the problem formulation. The data analysis process was carried out from the beginning of the research until its completion.

Data Collection Method, Analysis, and Validity

The data collection method used in this study included in-depth interviews, non-participant observations, document utilization, and focus group discussions (FGD). In-depth interviews were conducted by the researcher involving ten informants, including one program manager, five *Mudabbirs*, *Mudabbirahs*, and four *tahfiz* children. The interviews were carried out simultaneously with observations. At certain moments, the interview was a follow-up to the observation. The results of the interviews were recorded and noted to avoid bias when conducting analysis. For example, after observing the atmosphere of the *tahfiz* children, the researcher wrote down the results in field notes. Interviews were conducted to reveal the meaning of each interesting observation result.

Non-participant observations were carried out meticulously until the researcher found characteristics or elements in a situation that were highly relevant to the An-Nur *Tahfiz* program. The program manager provided very flexible time, allowing the researcher to conduct intensive and in-depth observations without feeling awkward or constrained. Observations took place over three months, from May to September 2021. During that time, the researcher conducted ten observations at different times of the day and on different days of the week to capture a comprehensive picture of the An-Nur *Tahfiz* program

The observations were conducted in various locations, including the prayer hall, classrooms, dining hall, and recreational areas. The researcher also observed the interactions among students, teachers, and staff members, as well as the daily routine of the program. Additionally, the researcher observed the teaching methods, materials used, and the effectiveness of the curriculum in achieving the program's objectives.

The researcher took detailed notes during the observations and recorded any significant events or interactions that took place. The researcher also made note of any issues or concerns that arose during the observations, such as discipline problems or communication barriers.
Overall, the non-participant observations provided the researcher with a rich and detailed understanding of the An-Nur *Tahfiz* program. The observations revealed the strengths of the program, such as the dedication and passion of the teachers and the supportive environment for students. The observations also highlighted areas for improvement, such as the need for more structured activities and a more diverse curriculum.

The researcher used the insights gained from the non-participant observations to inform the design of the subsequent phases of the research project, which included interviews with teachers and students and a survey of program participants. By conducting non-participant observations at the outset of the project, the researcher was able to gain a deep understanding of the program and identify areas for further investigation.

Result

Three Elements of Spiritual Education for Tahfiz Children

Tahfiz An-Nur House has designed a concept of spiritual education trilogy. The first trilogy aims to develop individuals with the noble character through programs such as *tahajud* prayer, *dhuha* prayer, *dhikr*, and congregational prayer. The second aims to enhance the children's ability in memorizing the Qur'an through a MABIT program that is divided into four clusters. The third aims to enhance their understanding of religion through a *diniyah* curriculum (including books such as *Nahu Sharaf Book, Safinatun Naja, Khulasah Nurul Yaqin Aqidatul Awam, and Akhlak al Banin*).

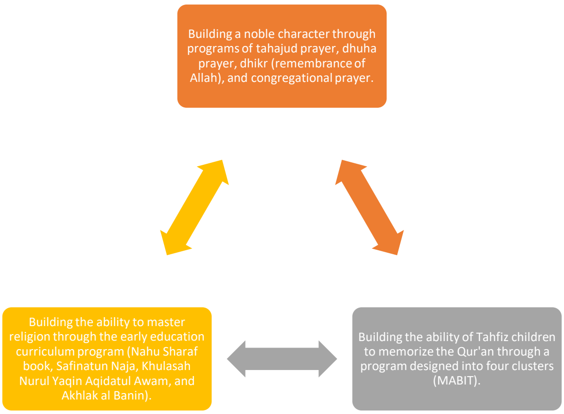

Figure 1. Trilogy of Spiritual Education of Tahfiz An-Nur House.

The First Element of the Spiritual Education Trilogy

The first element is to build a person with a noble character through programs such as *tahajud* prayer, *dhuha* prayer, *dhikr*, and obligatory congregational prayer. The direction of spiritual education is to produce *tahfiz* children who not only have many memorizations but also have depth in their character and spirituality. Therefore, An-Nur *Tahfiz* House has designed a routine program to continuously train *tahfiz* children to perform the congregational obligatory prayer, *dhikr*, dua, *tahajud* prayer, and *dhuha* prayer in congregation.

Informant 1:

> *"The failure of tahfiz children is often the result of their inability to consistently maintain their prayers, zikr, dua, tahajjud, and dhuha prayers. This reality is the basis for An-Nur Tahfiz House to establish the first element of spiritual education trilogy as the key for tahfiz children to develop their enthusiasm for memorization and at the same time develop their spiritual strength. It has been proven that An-Nur Tahfiz children who are able to consistently maintain their prayers, dikr, dua, tahajjud, and dhuha prayers have a better and stronger memorization*"

The Second Element of Spiritual Education Trilogy

The second element is designed through the MABIT program. MABIT is divided into four clusters. The first cluster is the coaching for the recitation class, which includes strengthening the memorization of daily prayers, short surahs, and practicing worship. The second cluster is the coaching for the tahsin class, which includes strengthening the recitation of *tahfiz* children in chapter 30, strengthening the memorization of selected verses, and practicing worship. The third cluster is the coaching for the early *tahfiz* class, which includes strengthening the memorization and examination of chapter 30, strengthening the memorization of selected verses, practicing worship, and the fourth cluster is the coaching for the middle and upper *tahfiz* class, which includes the examination of *tahfiz* chapter 29 and strengthening the memorization of all selected verses and practicing worship.

MABIT is held every end of the month for five days at Camp Narmada Lombok Indonesia. MABIT not only strengthens memorization but also provides spiritual experiences through various worship practices.

Table 2

MABIT Sahlan Program Curriculum at An-Nur Tahfiz House

No.	Program	Activities	Spiritual Experiences	Graduation Standards and Program Targets
1	Content for Group Class *Tilawati* (Participant Quota: 25 People)	Strengthening the memorization of daily prayers Strengthening the memorization of short surahs Practice of Worship *Qiyam al-lail, dhuha'*, and morning exercise.	Growing love for the Quran and love to do good things.	Fluent and fluent in reciting daily prayers Fluent and fluent in pronouncing short surah (Letters)
2	The subject of the Group: *Tajweed* Class (Quota of Participants: 25 People)	Consolidation of Children's Reading of *Tahfiz* Tahsin in Chapter 30 Strengthening the Memorization of Selected Verses listed in the Achievement Control Book *Qiyam al-lail, dhuha'*, and morning exercise.	Able to organize and make the best use of time. Children are used to holding the Al-Qur'an *Mushaf*, and are used to being in a state of ablution'. Growing a strong sense of responsibility towards himself, is disciplined, patient, conscientious, and focused on his activities	Fluent and fluent in reciting and memorizing chapter 30 of the Quran Fluent and fluent in reciting selected verses listed in the Achievement Control Book
3	Material for *Tahfidz Awaliyah* Class Group (Participant Quota: All *Tahfiz* Children)	Strengthening and Chapter 30 Memorization Test Strengthening Memorizing Selected Verses of *Qiyam al-lail, dhuha'*, and morning exercise.	Creating *tahfiz* children who are honest, accept gracefully, do not give up easily, and think positively.	Fluent and fluent in reciting and memorizing Chapter 30 Fluent and fluent in reciting and memorizing selected verses listed in the Achievement Control Book
4	Material for *Tahfidz Wustho* and *Ulya* Class Groups (Quota: All *Tahfiz* Children)	*Tahfidz* Exam chapter 29 Strengthening Memorizing All selected verses listed in the Achievement Control Book. *Qiyam al-lail, dhuha'*, and morning exercise.	Creating *tahfiz* children who are honest, accept gracefully if they fail, don't give up quickly, do not give up, and think positively	Fluent and fluent in reciting and memorizing Chapter 29 Fluent and fluent in reciting and memorizing all selected verses listed in the Achievement Control Book

MABIT Cluster I (Tilawati Class)

MABIT cluster I with tilawati class and beginner level *tahfiz* children category with a maximum of 25 participants. The activities include reinforcement of daily prayer, short surahs, and practice of worship such as *qiyam al-lail, dhuha'*, and morning exercise. The integration of memorization with worship practice is expected to provide a positive contribution to cultivating the spiritual growth of beginner-level *tahfiz* children. They are not required to meet the standard 100 percent, but they are introduced to new experiences through the practice of Quranic messages in real life.

> Informant 6:
> *"They are trained and tested while enjoying the outdoors. The hope is that with the memorization of the Quran and the practice of worship, it can cultivate the spiritual attitude of tahfiz children and develop positive behavior"*

> Informant 2:
> *"The aim of this program is not only to maintain the smoothness of memorization but also to improve the quality of memorization and worship practice. Improving the quality of memorization and worship practice is considered important because it will increase the enthusiasm and strengthen the spiritual growth of tahfiz children, eventually making their worship a personal need as a servant of Allah SWT"*

MABIT Cluster II (Tahsin Class)

MABIT cluster II, tahsin class with a maximum of 25 participants. This program includes the improvement of tahsin recitation in chapter 30 and the solidification of memorization of selected verses listed in the Prestasi Control Book. The improvement of recitation and memorization of selected verses and short verses is done smoothly and fluently with the rules of tajwid. The goal is to cultivate enthusiasm and motivation and train patience, responsibility, discipline, accuracy, and focus. Additionally, children are trained in *qiyam al-lail*, dhuha prayer, and congregational prayer.

> Informant 3:
> *"The memorization and practice of worship in this cluster emphasize the spiritual attitude, qiyam al-lail, dhuha' prayer, obligatory congregational prayer, and dua are not just routine activities but can become a living part of daily activities. The aim is to cultivate a spiritual attitude, such as growing self-awareness to wake up for tahajud prayer, dhuha prayer, and making dua without being ordered. It also fosters good manners during meals together, socializing, building solidarity, and cooperation among them. Practicing worship as a means of transforming and internalizing children's spirituality, so it is hoped that they will grow up to be young generations with ethics and manners that reflect the Quranic ethics"*

MABIT Cluster III (Tahfidz Awaliyah Class)

MABIT cluster III, Tahfidz Awaliyah class with a program of strengthening and testing memorization of chapter 30 (Quran) and selected verses. The target is to deliver the memorization and add more to it. The *tahfiz* children must go through an exam. If they pass, they can continue to chapter 29, while those who fail must repeat or have remedial. The goal is to create *tahfiz* children who are honest, accept with an open heart, are not easily discouraged, and think positively. The ibadah practice in this cluster is similar to cluster II, which includes *qiyam al-lail, dhuha* prayer, congregational prayer, and prayer.

MABIT Cluster IV (Tahfidz Wustho & Ulya Class)

This cluster is designed to test the ability of *hafiz* children to memorize chapter 29 and strengthen their memorization of all selected verses listed in the Performance Control Book. Similar to the Awaliyah class group, the Wustho & Ulya *Tahfidz* class follows a competency exam, but the difference lies in the amount of memorization. The *Awaliyah Tahfidz* class targets complete memorization of chapter 30, while the Wustho & Ulya *Tahfidz* class targets complete memorization of chapter 29.

> Informant 7:
> *"The goal is to create hafiz children who are honest, accepting, resilient, never give up, and think positively, increasing motivation to complete their memorization. Spiritual education is practiced through qiyam al-lail and dhuha prayers, congregational prayers, and supplication"*

The Third Trilogy of Spiritual Education

Developing the ability of *hafiz* children in the field of religion through the early curriculum program. The An-Nur *Tahfiz* House not only emphasizes memorization and practice of worship aspects but also focuses on the basic knowledge of the Islamic religion. This trilogy is intended to lay the foundation for understanding the tools to further explore religious knowledge. Introducing religious knowledge early on is a strategic and anticipatory step. This book study takes place on Saturdays, learning several books including *Nahwu Sharaf, Safinatunnaja, Khulasah Nurul Yaqin, Aqidatul Awan, and Akhak al Banin).*

Table 3

Tahfiz Children's Activities at the Tahfidz An-Nur House

Time (Monday to Friday)	Program	Time	Program (Saturday)
05.00	Session I of the *Tahfidz Program*	12.30-13.30	*Nahwu*
07.30	Session II of the *Tahfidz Program*	13.30-14.30	*Sharf*
10.00	Session III of the *Tahfidz Program*	14.30-15.30	*Safinatun Naja*
13.00	Session IV of the *Tahfidz Program*	15.30-16.30	*Khulashah Nurul Yaqin*
16.00	Session V of the *Tahfidz Program*	17.00-19.00	*Aqidatul Awam*
19.30	*Diniyah* Program	18.00-19.00	*Akhlaqul Banin*

Support Program for the Spiritual Education of Tahfiz Children

The support program for the spiritual education of An-Nur *Tahfiz* children is built through the concept of integration between Nature (*Tadabbur Alam*) -Tradition (preserving Islamic traditions, *shalawatan*) and Human (creative *Mudabbir* and *Mudabbirah*, *Mudabbir*, and *Mudabbirah* as role models). The integration between nature, tradition, and humans must be in harmony in order to provide balance in nurturing and strengthening the spirituality of An-Nur *Tahfiz* children.

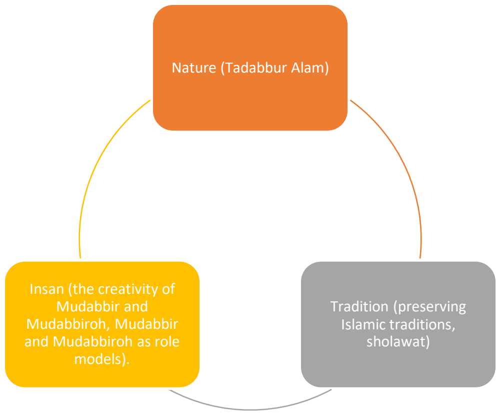

Figure 2. Spiritual Education Supporting Elements Trilogy

Tadabbur Alam as Living Al-Quran

The An-Nur *Tahfiz* children have learned through nature. They were introduced to the importance of caring for and preserving nature. They spent the night in the open air at Narmada, Lombok, Indonesia. This place has an esoteric and natural atmosphere. Introducing nature from an early age is one way to love nature and love God as the Creator. As the children confess, they feel happy and comfortable.

Informant 5:

"I am happy, I can learn in the open air, nature teaches me a lot of things. I can interact with nature, that nature must be cared for and its ecosystem must be preserved so that nature is friendly to humans"

Figure 3. Living Al-Quran for Children in An-Nur *Tahfiz* House
Source: Author's document

Shalawatan Program

The *shalawatan* program is part of the spiritual character strengthening - building positive values such as confidence, honesty, responsibility, and discipline so that these values can become part of the attitude of the *tahfiz* children. These positive attitudes can become the spirit of interacting with each other at *Tahfiz* An-Nur House. *Mudabbir* and *Mudabbirah* train and encourage *tahfiz* children to recite *shalawat* before starting the *tahfiz* program, with the hope of loving their Prophet, his teachings, and the Quran.

Preserving Islamic Traditions

Tahfiz An-Nur House not only lays the foundation for children's love of the Quran but also preserves Islamic traditions. For example, the tradition of welcoming the Islamic New Year, 1 Muharram, and other important Islamic days. This tradition can foster the spiritual growth of *tahfiz* children. Celebrating the new year with worship activities as a spiritual activity. Children are presented with spiritual programs such as congregational prayers, classical Quranic recitation, *tahajjud* prayer, and memorization reviews. This series of spiritual activities have provided important affirmation that direct experiences are more meaningful than indirect learning experiences. *Tahfiz* children can experience and feel inner happiness and emotional states through these experiences. This tradition is also expected to cultivate problem-solving creativity and strengthen positive values such as confidence, honesty, responsibility, and discipline.

Mudabbir-Mudabbirah Creativity and Role Model

Mudabbir-Mudabbirah has responded to the enthusiasm of the community to enroll their children in *Tahfidz* An-Nur House. Field findings show that the creativity of *Mudabbir-Mudabbirah* at *Tahfiz* An-Nur House is marked by program design, innovation, and method development. Program design is arranged through MABIT design, outbound activities, *shalawatan*, and preserving Islamic traditions.

The role of *Mudabbir-Mudabbirah* as a role model is one of the key factors in supporting the formation of the spiritual growth of *tahfiz* children and their ability to create memories of love and interest in memorizing the Quran. The role model in question includes attitude, speech, humanistic attitude, and parental and maternal care. Throughout the author's observations in the field, *Mudabbir-Mudabbirah* has always been consistent and responsible in accompanying and guiding children, always monitoring and improving their memorization continuously, guiding worship practices, and always performing sunnah practices such as fasting on Mondays and Thursdays, *tahajjud* prayer, and *dhuha* prayer.

Discussion

In this study, the researchers have examined all the field data. According to Porter, religious training serves as a medium for the formation of spirituality, character, and morality (Porter et al., 2019). Several studies have been conducted to understand the key elements of *Tahfiz* education in the context of spiritual education. Among them, Huda and Kartanegara (2015) argue that instilling Islamic values and spiritual character values is good if based on the Qur'an and Hadith. Nurdiawati (2018) suggests that spiritual intelligence is formed through the traits of *shidiq*, *istighosah*, *istiqomah*, *fathanah*, and *amanah*, as well as habituation methods. Mudrikah (2017) states that spiritual education is formed through motivation and advice. Therefore, the researchers divided the analysis into two parts, namely the key elements of spiritual education and the supporting factors.

Key Elements of Spiritual Education at Tahfiz An-Nur House

The key elements of spiritual education at *Tahfiz* An-Nur House are known as the trilogy of spiritual education (the practice of worship, *Tahfiz*-MABIT, and religious teachings). These key elements have provided new ideas for the spiritual education of *Tahfiz* children. The first key element is the practice of worship. Consistent practice of worship, including Tahajud prayer, *Dhuha* prayer, remembrance of Allah, and obligatory prayer in the congregation has nurtured their spiritual growth positively and dynamically. Spiritual intelligence has emerged, such as encouraging their friends to pray in congregation, praying at night, and reviewing memorized verses. The practice of worship among *Tahfiz* children has also strengthened their social relations, such as being trustworthy, enthusiastic about and enjoying fulfilling their duties, caring for their younger siblings, and respecting their older siblings.

The second key element is the *Tahfiz*-MABIT program with four clusters. This program serves as a monthly routine for memorizing and practicing worship. Children are taught and trained in *qiyam al-lail*, *Dhuha* prayer, obligatory prayer in congregation, and supplication. They are taught manners, ethics of eating and drinking, bathing, memorizing daily supplications, short chapters of the Quran, practicing worship, socializing, building solidarity, and working together in groups. The *Tahfiz*-MABIT program is a good model for the spiritual education of children and should be developed for the future. There is little research on this subject. Some studies related only to the factors supporting *Tahfiz* education, and not the MABIT concept. For example, Fatah (2014) found that the success of Quranic education was supported by the environment. Usman's study found that learning the Quran for elementary school children was supported by motivation, methods, and media (Usman, 2016). Theoretical studies (Nisa, 2018; Wajdi et al., 2020; Zulaili, 2018), and (Tahfidzonline.com, 2020) show that Tahfiz houses have a strategic role in nurturing the spiritual development and education of children, although the current digital era has given rise to the trend of online *Tahfiz*. Sarwanto's study found that *Tahfiz* activities can enhance spiritual intelligence (Sarwanto, 2018), and children should be accustomed to reading the Quran (Khoerusyfah, 2019). Therefore, this study found that the *Tahfiz*-MABIT program could be a new discourse in strengthening the spiritual and social dimensions of Tahfiz children's education.

The third key element is the *Diniyah* program. There are few studies related to this program. For example, students have difficulty understanding the meaning of verses because teachers do not emphasize the process of understanding the verses during learning sessions. As a result, the practice of *tadabbur* among *Tahfiz* students is limited. The children's memory of the Quran is low, and their ability to understand the verses is limited due to not paying attention to the meaning of the verses (Hashim, 2013; Saad et al., 2020; Saad et al., 2021; Nurain et al., 2017). Therefore, this research discourse is important in formulating the relationship between the *Diniyah* program-religious knowledge, *Tahfiz*-MABIT, and the practice of worship, as a package program that supports and complements each other in the midst of the spiritual split of millennial children. Through the *Diniyah* program, *Tahfiz* children can understand the tools for delving deeper into religious knowledge. Religious knowledge serves as the foundation while the practice of worship acts as the application of that knowledge. The *Diniyah* program is meant to create a balance between the two, allowing students to not only memorize the Quran but also understand its meaning and significance in their lives.

One possible solution to address the issue of limited understanding of verses among *Tahfiz* students is to incorporate the practice of *tadabbur* during learning sessions. Tadabbur involves reflection, contemplation, and deeper analysis of the Quranic verses to understand their meanings and implications in our lives. Teachers can guide students in this practice by encouraging them to ask questions and explore different interpretations of the verses.

Moreover, it is important to provide students with a comprehensive understanding of the religious knowledge they are studying. This includes not only the Quran but also other Islamic texts and teachings. By doing so, students can develop a holistic understanding of Islam and its principles, enabling them to apply this knowledge in their daily lives.

In addition to the *Diniyah* program, the *Tahfiz*-MABIT program plays a crucial role in shaping the spiritual and moral development of students. MABIT stands for *Muhadara*, Biah, and *Tarbiah*, which refers to lectures, interaction, and cultivation, respectively. Through this program, students are exposed to a wide range of Islamic knowledge and teachings, and they also have the opportunity to interact with their peers and teachers to strengthen their faith and moral values.

In conclusion, the Diniyah program and the *Tahfiz*-MABIT program are two key elements that are essential for the spiritual and moral development of *Tahfiz* students. By emphasizing the practice of *tadabbur*, providing a comprehensive understanding of religious knowledge, and exposing students to a range of Islamic teachings and interactions, these programs can help to bridge the gap between memorization and understanding, and ultimately create a generation of *Tahfiz* students who have a deeper understanding and appreciation of Islam.

Trilogy of Supporting Elements for Spiritual Education in Tahfiz An-Nur House

The supporting elements of spiritual education in *Tahfiz* An-Nur House are known as the Trilogy of Supporting Elements for Spiritual Education (Nature-Tradition-Human). The first supporting element in the trilogy is nature. Literature on this element is limited, but Schein (2014) found in his article "Nature's Role in Children's Spiritual Development" that nature plays a role in the spiritual development of children. Spiritual moments are often created when children spend time in the great outdoors. Schein concludes that this early childhood nature program has significant implications for the spiritual development of children in the United States, as it involves special attributes that create spiritual moments in time, space, and nature and connects them with big questions that allow children to explore, think, and feel the presence of spirituality through outdoor activities.

The second supporting element in the trilogy is tradition. The people of Lombok are very strong in preserving their traditions, especially Islamic traditions. For this reason, *Tahfiz* An-Nur House has made Islamic tradition an important element in nurturing and strengthening the spirituality of its students. For example, they celebrate the Islamic New Year, 1 Muharram, and other Islamic holidays. These traditions are designed with various spiritual programs such as congregational prayers, classical recitation lessons, night prayers, and memorization submission.

The third supporting element in the trilogy is human resources. The *Mudabbir* and *Mudabbirah* (mentors) serve as role models for educating the children. Few studies have been conducted on the role of mentors in spiritual education, but some suggest that mentors should guide the children in memorization (Saad et al., 2020), and prioritize spiritual and moral values over material and practical values (Huang & Shih, 2011), be patient, gentle, and persistent in teaching (Nurhidayat, 2015), and be more active in guiding and motivating Quranic memorization students (Nurhidayat, 2015). The teachers also encounter obstacles in the *tahfiz* program, such as laziness and despair (Hirayani, 2020). The leadership style of the school also affects spiritual character (Dreyer & Hermans, 2014), and leadership influences the mediation of workers' psychological climate (Zainab & Sheeraz, 2022). However, this study proposes a new discourse on educating, teaching, and mentoring by accompanying and setting examples, despite the challenges that Quranic memorization students tend to experience stress due to a heavy workload.

The Impact of An-Nur *Tahfiz* House as Spiritual Education

Several related studies include Fatah (2014) who identified that students' achievements are influenced by memorization of the Quran. Another study by Usman found that Quranic learning and children's prayer activities at elementary schools have produced a generation with individual and social sensitivity that is creative, dynamic, and tolerant in accordance with their developmental level (Usman, 2016). Therefore, the researcher added that children's spirituality will develop dynamically if an integration pattern is developed between worship practices, *tahfiz*-MABIT, and religious studies. Similarly, integration between nature-tradition and human resources role models can be an important element in supporting a better *tahfiz* education climate. This integration pattern has fostered sincere attitudes, humility, patience, independence, creativity, perseverance, and skills in consistently performing night prayers, morning prayers, Monday-Thursday voluntary fasting, reciting *thoyyibah*, giving greetings, eating and drinking in accordance with religious teachings, and loving the Quran among the *tahfiz* children. And *tahfiz* children have a correlation with their achievements in school.

Conclusion

Based on the findings and discussions, it can be concluded that the three key elements of An-Nur Islamic Boarding School in the formation of spiritual education are: first, the program of night prayer (*tahajud*), morning prayer (*Dhuha*), remembrance *(Dzikr)*, and mandatory congregational prayer of the students have nurtured their spiritual growth positively and dynamically from the emergence of their *awareness* to consistently perform worship such as *qiyam al-lail* and *dhuha* prayer. Second, the *tahfiz*-MABIT program has provided a spiritual space for the students and made a positive contribution to strengthening their spiritual and social aspects. Third, the program of studying religious texts or Islamic knowledge has been used as the foundation of spiritual education and as a tool to understand the Quran and the function of worship. The three supporting elements are: first, nature as an eco-religious tool to cultivate the love of nature among the students; second, preserving Islamic traditions as a means and way to love the Prophet and the religion; and third, the creativity of the *Mudabbir-Mudabbirah* (educators) has played a role not only as teachers but also as role models who always guide, accompany, and set examples.

However, the limitation of this study is that the researcher has not been able to comprehensively capture the intangible and holistic phenomena related to the spiritual aspects of the students, although the students have shown better spiritual development than before they entered the boarding school. Another limitation is that the researcher suggests that nature can be used as representative eco-religious tourism to cultivate the spiritual awareness of children, and this area can be a subject for future research. Furthermore, this study was designed and implemented only in one boarding school in an urban community, Mataram City, Lombok, West Nusa Tenggara Province, Indonesia. It would be interesting to determine whether similar data can be obtained if this study is replicated in a different context, for example, the trend of the millennial generation with online *tahfiz*, and whether it can encourage children to strengthen their spirituality.

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Helping After the 2020 Earthquake in Croatia: The Role of Men's and Women's National Identity

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The goal of this study was to investigate whether the association between national identity and providing direct aid to individuals impacted by the 2020 earthquake in Croatia differs depending on the gender. A convenience sample of 374 Croatian residents (70.1% women) between 18 and 64 years old completed a cross-sectional survey on-line. Participants, using valid questionaires, self-reported their level of national identity and how much direct assistance they provided to people in earthquake-affected areas. The study employed a linear regression model to test the moderating effect of gender on the relationship between national identity and direct aid provision. The results showed that the interaction between national identity and gender significantly affected helping: higher levels of national identity predicted greater helping among men but not women. This suggests that men were more motivated than women to provide aid after the earthquake due to their sense of national identity and affiliation with the nation. These findings have significant implications for disaster relief efforts, as different motivations may be at play when providing aid during crises. Relief organizations can tailor their efforts to meet the needs and motivations of different groups, resulting in more effective relief efforts .

***Keywords*:** national identity, gender, helping, earthquake

On December 29, 2020, an earthquake measuring 6.2 on the Richter scale struck the wider Petrinja region in Croatia, 50 km from the capital, Zagreb (Markušić et al., 2021). According to the International Federation of Red Cross and Red Crescent Societies (2021), the earthquake was the most powerful recorded in the country over the past 140 years, resulting in eight fatalities and injuring 36 individuals, ten of whom were severely wounded. The broader Petrinja area experienced significant physical destruction due to the earthquake, with around 22% of structures suffering extensive to severe harm and 65% enduring minor to moderate damage (Markušić et al., 2021). Many people in affected areas urgently required humanitarian assistance in the form of shelter, food, and household items. People and institutions across the country organized actions to collect money, food, clothing, and personal hygiene products to help those affected. Within 24 hours of the earthquake, volunteers from all over Croatia joined in search-and-rescue operations together with firefighters, police, civil protection personnel, and Croatian Red Cross workers. During the month after the earthquake, volunteers contributed to rescue operations, evacuation, distribution of food and household items and provision of psychological counseling (International Federation of Red Cross and Red Crescent Societies, 2021).

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Television is widely recognized as a significant source of daily news consumption (Fatima, 2017), along with other traditional and digital media platforms such as newspapers and social media. In the aftermath of the earthquake, various media outlets covered extensively the motivations of volunteers who came forward to assist the earthquake victims. These stories were deemed newsworthy (Ullah & Jan, 2021) and often emphasized the volunteers' strong identification with and emotional connection to the people of Croatia. The coverage provided insight into the motivations and experiences of the volunteers and helped to raise awareness and understanding of the impact of the earthquake on the affected communities. This is consistent with the idea that natural disasters and other threats can lead one to identify strongly with one's group, which in turn can promote prosocial and other behaviors (e.g., Clarke, 2002; Drury, 2018; Fritz, 1996; Jencson, 2001; Jong et al., 2015; Paton & Irons, 2016; Solnit, 2009; Walker-Springett et al., 2017). In particular, terror management theory explains how identification with the nation can contribute to helping behavior in times of disasters and other deadly threats (e.g., Greenberg & Kosloff, 2008; Greenberg et al., 1992; Greenberg et al.; 1997; Pyszczynski, 2004; Pyszczynski et al., 2015). In this paper, we draw on terror management theory to examine whether and how a sense of national identity influenced assistance to people affected by the 2020 earthquake in Croatia. Given previous findings within terror management theory that a heightened sense of mortality increases the accessibility of nationalistic thoughts among men but the accessibility of relational thoughts among women (Arndt et al., 2002), we tested whether gender moderated association between national identity and provision of direct help.

Terror management theory

The term "disaster" typically refers to a significant event, whether caused by human actions or natural forces, that affects people and disrupts their lives and various resources on a large scale (Kaleem et al., 2016). During the occurrence of natural disasters, individuals are confronted with the risk of losing their homes, belongings, community ties, physical well-being, and, most gravely, their lives. In the realm of social psychology, the impact of the threat of death on human behavior is often elucidated through the lens of the terror management theory (TMT) framework (e.g., Greenberg et al., 1992).

This theory stipulates that threatening events can induce a paralyzing fear of one's own mortality, which people manage by adopting a cultural worldview that gives them a sense of meaning, order, and permanence (e.g., Greenberg et al., 1992). Cultural worldviews provide a set of standards for what is valued behavior („good“ vs. „evil“) and provide a foundation for believing that one's life has meaning even after death (Pyszczynski, 2004). Culture provides us a sense of immortality, not only by enabling belief in heaven or reincarnation, but also by allowing us to identify as part of something larger, more significant, and enduring than ourselves—a nation, ethnic group, profession, or family—that will continue to exist long after our death (Pyszczynski, 2004).

One of the tenets of terror management theory is that awareness of death increases one's solidarity with other members of one's group (Greeenberg et al., 1992; Pyszczynski, 2004). Such solidarity reflects the personal meaning that one attaches to belonging to a group such as a nation (Leach et al., 2008). This may help explain social behavior. An earlier version of terror management theory (e.g., Greenberg et al., 1986) held that heightened awareness of death leads people to be more accepting of people similar to them and more hostile to those who are different (Pyszczynski, 2004). The theory was later revised to suggest that cultural worldviews can be sufficiently broad and tolerant to accept worldviews of other groups, even when the worldviews conflict (e.g., Greenberg et al., 1992). In any case, it seems clear that events that heighten one's feeling of mortality lead one to identify more strongly with a group, which in turn strengthens one's motivation to help other members of that group (Levine et al., 2005).

Purpose of the study and the study hypothesis

Research supports the prediction of terror management theory that natural disasters or other potentially deadly threats strengthen one's national identity (e.g., Conte et al., 2022; Fokt, 2020; Maki et al., 2018). For example, patriotism among younger adults increased during the two months after the first Covid-19 lockdown in Italy (Conte et al., 2022). An increase in national identity was also observed among Chileans following the 2010 earthquake there (Maki et al., 2018).

Some studies have examined the relationship between one's national identity and one's engagement in relief efforts after natural disasters (Levine & Thompson, 2004; Maki et al., 2018). Levine and Thompson (2004) conducted an experiment at an English university where participants' British or European identity was made salient. They were asked to evaluate their willingness to provide financial help or political intervention for victims of a natural disaster in a fictitious place in either Europe or South America. When British identity was salient, intervention levels were similar for both locations as Europe and South America were perceived outside the nation's boundaries. However, when the disaster occurred on the European mainland and European identity was salient, participants were significantly more likely to intervene. Unlike Levine and Thompson (2004), Maki et al. (2018) focused on a real disaster and conducted surveys with individuals who were directly impacted by it. Their research expands upon previous studies in social psychology and theory regarding the consequences of natural disasters, such as the work done by Drury et al. (2016). Their findings align with Drury et al., (2016) as they discovered that a particular type of social identity, namely national Chilean identity, plays a significant role in motivating people to help in the aftermath of an earthquake. Therefore, their research emphasizes the importance of both general identification with others (as highlighted by Drury et al., 2016) and the specific form of identity associated with a particular geographic region in fostering social cohesion and contributing to relief efforts in times of disaster. The authors of the study also draw the conclusion that their findings have broader implications for theoretical models that explore the relationship between threatening events and social interactions, such as terror management theory (as demonstrated by Greenberg et al., 1990). Their research revealed that the most significant increases in helping motivations before and after the earthquake were related to both self-protection and social reasons. Therefore, their findings suggest that these motivations align with and support existing theoretical models that examine the impact of threatening events on social behavior.

Further, Maki et al. (2018) showed that higher Chilean national identity predicted only some types of prosocial behavior after the 2010 Chilean earthquake. More specifically, it was shown that national identity predicted general money donations (i.e., donating money to people in the streets, donating spare change to charities, and donating money for national collections), as well as donating money to help with disasters in general and donating goods and money after the earthquake. However, national identity did not predict participation in the reconstruction effort. This finding suggests that national identity may influence the way people provide aid after natural disasters.

As can be seen, Maki et al., (2018) in their study measured different types of helping. According to Dovidio et al., (2006), helping can be defined as an action that benefits or improves the well-being of another person, and which can be divided into different categories. One category refers to whether it is indirect help, such as donating to the earthquake victims, or direct help to the person in need, such as distributing humanitarian aid in the form of food and household items to the earthquake victims.

In this paper, we focused on direct aid to earthquake victims. Research on the determinants of direct forms of aid after disasters is of paramount importance because direct aid is what is most needed at the time of the disaster. Specifically, this study analyzes the direct help provided after an earthquake in Croatia and aims to explore how gender influences the relationship between Croatian national identity and direct aid to earthquake victims. Gender is commonly studied as a moderator in research related to a heightened sense of mortality, as highlighted by Burke et al., (2020). The 2010 meta-analysis by Burke et al. showed that gender moderates the effects of increased mortality salience in some contexts but not in others. This meta-analysis suggests that men and women may respond differently to the threat of death depending on the specific circumstances or dependent variables in the studies. Moreover, previous research conducted by Arndt et al., (2002) revealed that mortality salience increases the accessibility of nationalistic words for men and relational words for women. This finding provides a rationale for investigating whether gender acts as a moderator between national identity and post-earthquake assistance. This approach aligns with the existing understanding of gender differences in terms of two types of interdependence, as described by Brewer and Gardner's (1996) distinction between collective and relational interdependence. Collective interdependence refers to the aspect of self defined by membership in important groups (e.g., nation), while relational interdependence pertains to the aspect of self defined by roles in close relationships (e.g., sister, husband). Gardner and Gabriel (2004) have stated that, overall, there are no differences in the level of interdependence between women and men. However, women tend to have a stronger relational sense of self compared to men, whereas men tend to have a stronger collective sense of self compared to women.

Consequently, the hypothesis put forth in this study is that stronger national identity will predict greater involvement in post-earthquake assistance, but specifically among men.

Method

Participants

The study involved 374 Croatian adults, consisting of 262 women (70.1%) and 112 men (29.9%), who were between 18 and 64 years old (*M* = 35.03, *SD* = 11.449).They were living in five counties affected by the earthquake: Sisačko-Moslavačka County (*n* = 43, 11.5%), City of Zagreb (*n* = 236, 63.1%), Zagreb County (*n* = 48, 12.8%), Karlovac County (*n* = 10, 2.7%), and Krapinsko-Zagorska County (*n* = 37, 9.9%).

Procedure

The research received ethical approval from the Ethics Committee of the Catholic University of Croatia and was carried out utilizing SoSci Survey (Leiner, 2019). The link to the on-line survey was made available to participants via social networks. The first part of the survey informed potential participants about the purpose of the study, and it explained that responses would remain anonymous and that one could withdraw from the study at any stage without repercussions. Those who provided consent after reading the first part of the survey were then given access to the questions. Each questionnaire had separate instructions to ensure clarity and particpants’ comprehension. The online survey included a large number of closed statement items, with only 12 of them being used in this study. Data collection session lasted 20 minutes on average. Data were collected between June and September 2021.

Measures

This study collected data on participants' gender, strength of national identity and amount of direct help to earthquake-affected people.

National identity

Participants answered the 10 items of the Group Identification Scale (Brown et al., 1986), half of which were affirmative (e.g., "I am a person who identifies with my nation") and half were negative (e.g., "I am a person who tries to hide belonging to my nation"). Responses were on a five-point scale: 1, "never"; 2, "seldom"; 3, "sometimes"; 4, "often"; and 5, "very often". After reverse-coding the negative items, responses on all items were summed, with higher scores indicating stronger national identity. Cronbach α for this measure was .857.

Helping

Participants indicated how much they engaged in the following forms of direct help to earthquake-affected people, based on the the scale by Barraket et al. (2013) for measuring spontaneous volunteering during natural disasters: counselling, distributing donations, health work, building and reconstruction, general clean-up, transportation, food catering, fundraising, and organizational work (such as volunteering in a call center). Participants indicated the amount of each behavior using an 8-point scale: "0", not involved; "1", one day; "2", two-three days; "3", four-seven days; "4", more than one week to two weeks; "5", more than two weeks to four weeks; "6", more than four weeks; or "7", still involved. Responses on all items were summed to give an overall score, such that higher scores indicated greater amounts of direct help. Cronbach α for this measure was .986.

Demographic data

Participants were asked to indicate their age and gender; the latter was coded as 0 for female or 1 for male.

Data analysis

The 'stats' package in R 4.1.1 (R Core Team, 2021) was used to generate descriptive statistics and analyze correlations and moderation. Before moderation analysis, the variable "national identity" was mean-centered using the 'jtools' package (Long, 2020). Standardized regression coefficients were obtained using the 'lm.beta' package (Behrendt, 2014), while simple slope coefficients and interaction plots were calculated using the 'interactions' package (Long, 2019).

Results

Table 1 contains descriptive statistics for study variables and correlations among them. On average, participants' level of direct helping after the earthquake was low, while their level of national identity was high. The relationship between gender and post-earthquake direct assistance was statistically significant but very weak, with male participants providing more direct assistance to people affected by the earthquake. In contrast, the relationship between gender and national identity and between national identity and direct aid to earthquake-affected people was not statistically significant.

Table 1

Descriptive Statistics for Study Variables and Correlations Among Them

	1.	2.	3.
1. Gender	-	.07	.12*
2. National Identity		-	.08
3. Helping			-
M	-	38.49	5.52
SD	-	6.71	9.88
Min - Max	-	14-50	0-63

Note. Observed minimum and maximum values are presented. *$p < .05$

To test whether gender moderates the effect of national identity on helping after the earthquake, linear regression was performed in which national identity, gender, and their interaction were treated as predictor variables. The overall model was significant [F (3,370) = 6.05, $p < .001$], and it explained around 5% of the observed variance in the amount of helping (R^2 = 0.047).

Table 2

Linear Regression to Assess National Identity, Gender, and Their Interaction as Predictors of Helping After the Earthquake

Variable	*b*	*β*	*SE*	*t*	*p*
National Identity	-0.06	-0.04	0.09	-0.67	.504
Gender	2.25	0.10	1.10	2.05	.040
National Identity *x* Gender	0.53	0.20	0.16	3.28	.001

Table 2 shows that gender, but not national identity, significantly affected the amount of helping. Men in the sample were more inclined to help after the earthquake than women were. The interaction between national identity and gender also significantly affected helping: higher levels of national identity predicted greater helping among men but not women (Table 3, Figure 1).

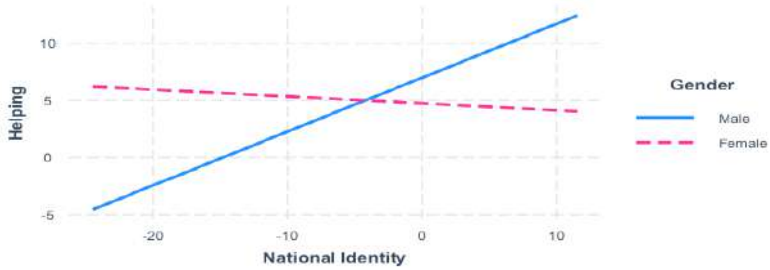
Table 3

Simple Slope Effects of National Identity on Helping After the Earthquake by Men and Women

Gender	*b*	*SE*	*t*	*p*
Female	-0.06	0.09	-0.67	.504
Male	0.47	0.13	3.49	.000

Figure 1

Plot of Simple Slope Effects of National Identity on Helping After the Earthquake by Men and Women



Discussion

In this study, we investigated whether gender moderates the influence of national identity on direct helping after an earthquake. The results are consistent with our hypothesis that stronger national identity in men, but not women, would be associated with greater direct aid to earthquake victims. These findings add to the body of knowledge about the role of gender in terror management theory. Gender is one of the most commonly studied moderators of heightened awareness of mortality (Burke et al., 2010; Passalacqua, 2016), and it seems to act as a moderator in some contexts but not others (Burke et al., 2010). This suggests that men and women differ in their strategies to avert death in some contexts but not others. Given the differences between men and women in collective and relational interdependence and differences in how deadly threats affect the two genders (Arndt et al., 2002; Gabriel & Gardner, 1999; Gardner & Gabriel, 2004), we suggest that gender should be explored more deeply for its moderating effects on national identity in the context of terror management theory.

Our results suggest that campaigns that reinforce a sense of national identity may indeed be effective in motivating men to participate in direct assistance to disaster victims. Future research should investigate whether this strategy is indeed effective in encouraging citizens to help those affected by the disaster indirectly, such as through monetary donations. Asking citizens to donate money to a public fund that would benefit earthquake victims (Šarčević, 2021) was the main goal of the humanitarian campaign launched by public television in Croatia two days after the massive earthquake in Croatia in December 2020. This campaign ran under the slogan "You are not alone with us" ("Uz nas niste sami"). As part of the campaign, the patriotic song "I give you my heart, my homeland" ("Dajem ti srce zemljo moja") by singer Doris Dragović was broadcast, accompanied by dramatic footage from the earthquake-affected areas and heroic acts of mainly male individuals who directly helped the earthquake victims.

This is, to our knowledge, the first study to examine the role of gender in the relationship between national identity and helping behavior after an earthquake, so further studies are needed to validate and extend our results. Our findings should be interpreted with caution because our sample was nearly 70% women, and all came from regions of the country directly affected by the earthquake. Both of these factors threaten the generalizability of our findings. Future studies should examine the difference in the association between national identity and helping behavior among participants living near and far from the epicenter of the earthquake. Our study was conducted only with participants from the five regions where the earthquake was felt. Future studies should investigate what kind of help people from regions far from the earthquake center provide to people affected by the earthquake and whether Croatian national identity is related to this kind of help. In a study by Maki et al., (2018), national identity was shown to predict indirect aid (e.g., monetary donations) but not direct aid through participation in reconstruction. The researchers in that study observed that the proximity to the earthquake's epicenter could potentially impact the findings. They discovered that participants residing in the region closest to the epicenter exhibited the strongest sense of national identity and showed greater willingness to engage in reconstruction endeavors. From the perspective of terror management theory (e.g., Greenberg et al., 1986; Greenberg et al., 1992), this could be explained by the fact that participants in the closest region faced a greater threat of death than participants living in the farthest region. And finally, we surveyed the participants only once at 5-8 months after the earthquake, yet national identity is inherently dynamic (Windari, 2021). Thus, we cannot exclude that our findings might have been different if we had surveyed the participants sooner or later after the earthquake.

This study uses terror management theory to predict the provision of direct aid to earthquake victims after the earthquake in Croatia. The findings may also deepen our understanding of relief efforts after other types of disasters, which is particularly important given the risk that natural disasters will become more frequent and intense due to global climate change (Shaw et al., 2010). Therefore, these findings have practical implications for emergency planners and professional responders who need to understand the factors that promote relief behavior after a disaster.

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Role of Artificial Intelligence in Legal Education in the 21st Century

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We set out to investigate the significant responses of the digital economy to legal education, as well as some of the practical proposals made in response to system criticisms. In order to do this, important suggestions made by legal and educational experts to modify legal education in light of the pervasiveness of technology were identified. It then delves deeply into how colleges and universities are evolving as AI enters the market. The research was conducted on the impact of AI on legal education as well as suggestions for necessary modifications. Relevant literature searches were conducted using both qualitative and technical methodologies, as well as a deductive hypothetical procedural approach, in this interdisciplinary exploratory research. Furthermore, legal education should shift from a retrospective to a forward-looking and projective perspective, integrating technical knowledge and quantitative methods, while not ignoring the practice of traditional skills, communication, and descriptive standards so extremely valued by legal professionals, thus emphasizing the need to develop creativeness in students. However, in parallel, a policy must be devised that takes into consideration the ethical issues associated with the use of AI in the classroom. Lastly, it is obvious that there is no likelihood of AI replacing the legal professions in the near future. However, institutions must notify students that some legal profession responsibilities may be performed by AI technologies .
***Keywords*:** artificial Intelligence, legal, education, 21st Century

Due to a significant factual gap, the present situation of legal education in Pakistan is scary. On one side, we have a situation where the number of courses rises year after year: As of 2023, around 252 schools and affiliated colleges are imparting the study of law in Pakistan (Eduvision, 2023). The recent increase in the number of law colleges in Pakistan is a promising sign for the country's attempts to create constitutionally capable people. However, as a result of recent stated economic crises and technical developments, the number of the State's civil service in Pakistan has been reduced, more distance and telepresence classes have been made available, and more mechanization of educational sector services have been implemented.

There is an estimation regarding use of AI technologies in higher education will begin around 2022 (Alam, 2022). Similarly, AI is now used in higher education in the form of a 24/7 online help desk, such as Deakin University's utilization of IBM Watson (Hannan & Liu, 2023). While there are worries that technology cannot (and should not) replace human teachers, there is also the promise for increasingly sophisticated virtual teachers and adaptable teaching tools.

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Chinese botanists are being assisted by machine learning in the *"Intelligent Flower Recognition System project"*, a partnership between *"Microsoft Research Asia and the Chinese Academy of Sciences"*, to quickly identify plants using smartphone photographs (Gu, 2022). The method, which employs a neural network, eliminates low-quality queries and accurately detects flowers in an image database with over 90% precision. Open source can be used to increase artificial intelligence in higher education's capabilities during the next four to five years (Wahla, 2022). OpenAI and Google's TensorFlow offer programming and open-source software libraries for numerical computation (Liermann, 2021).

Nonetheless, there are angles from which the application of AI in education is seen as highly promising, despite this bleak picture. For instance, A more equitable future for higher education is envisioned by (Moses et al., 2021) in which AI is not considered as tools but rather as a third hemisphere of the brain aiding creative and cognitive learning processes.

We have moved from a society that is based primarily on face-to-face interactions, where information is entirely recorded on a physical substrate, where access to information is difficult and communication over very long distances is difficult, to a virtual society that is based on close proximity and has access to information that is significantly more easily. Even if this is a simplification, a glance at the most significant aspect of everyday life (economics, politics, industry, etc.) reveals an exponential surge in innovation. Experts in the market and the legal profession have questioned the focus on applying past knowledge to present and future circumstances that is characteristic of traditional face-to-face education (Xu et al., 2022). This criticism is often accompanied with valid suggestions that must be disregarded in the process of reorganizing legal education and knowledge.

The purpose of this research is to investigate the following issues: In a world that is increasingly defined by digitalization, automation, and a revolution in information creation, what skills, knowledge, and competencies should legal education impart to students? Future legal professionals, it is hypothesized, will need to develop human abilities that are not restricted to preexisting groups as well as a more comprehensive multidisciplinary grasp of law, including how it interacts with technological and economic fields.

AI can aid educators in making their classrooms more conducive to student learning. It may also aid them in recognizing the specific requirements of each pupil (Burbules, Fan, & Repp, 2020). Teachers may use this to determine which pupils need additional support with their assignments. It has come to light that the information and data available on government websites or any database are not completely safe. It is important to examine legal and technological safeguards against information distortion, which might lead to changes in the way law is actually practiced, such as the widespread use of big data, which will make document inspection much less crucial. Thus, it is more important than ever to do such research and highlight the critical problem of delivering legal education with the aid of AI (Fenwick, Kaal, & Vermeulen, 2017).

Digital Technologies and Legal Education

The present obsession for technology in the classroom (technophobia) has had a disastrous effect on the learning environment and altered the relationships between instructors and students as well as amongst coworkers. This is due to the fact that, although having a common subjectivity, these connections are becoming more and more focused on the dualism of worker and machine, which hinders communication between students and professors as well as between students themselves (Nilson, 2016). At the same time, new teaching approaches are being developed in which instructors serve more as facilitators than as proprietors of the material to be taught.

In the past, legal education inclined to be "retrospective," built on the transmission of already-known information, such as analyses of existing acts, statutes, cases, etc. As a result, the connection between the teacher and the students had to be hierarchical. However, prior experience, a teacher understands, and in a world where knowledge is readily accessible online, authority may be irrelevant. Therefore, education has to be far more future-focused and oriented on skills rather than material (Thomas, 2018). Numerous technological and social developments brought on by the vast creation and accessibility of digital information has created new methodological obstacles for legal research (Fischer et al., 2020). Legal facts and their metadata, such as the number of words obtained digitally and links between texts and super texts like court decisions, state regulations, contracts, theoretical and scholarly texts, research, and legal facts, lead to a pluralistic approach that complements traditional methods (it will take into account the "similar" legal interpretation). Knowledge that is acquired through data analysis, which is becoming more "numeric" results in creation of new ideas, is hampered by the science of interpretation's growing reliance on quantitative techniques, which are anchored in methodology from fields like statistics, econometrics, and sociology, among others (Crayne et al., 2018). To overcome legal theory, ontology and deontology must be better matched.

Due to changes in the way knowledge is represented, the digitalization of law—which refers to the transmission of legal data and the automation of access to law-related information—has made additional categories of legal knowledge available (Saintot, M., & Matteo, 2022). Quantitative analyses regarding law that may be visualized as word clouds, histograms, tree diagrams, and scatter plots, for example, are data-powered findings that are no longer limited to "legal assertions" but are instead extended to graphical representations and quantitative models (Bhat, 2019).

The traditional function of legal knowledge in processing legal data necessitates a review because it primarily consists of organizing and defining organizational structures for knowledge production and as a source of organizational choice, as well as creating and assessing decisions and laws to ensure legal teaching and learning. Legal data analysis enhances legal knowledge in at least two ways: it permits some predictability of a particular outcome for court decisions, increasing legal transparency and consistency in court rulings as well as, for example, preventing States from violating human rights; and it illustrates the effectiveness of rules or legal regimes, which could be interesting for, say, better understanding the circumstances of general conformity with norms. This legal information may subsequently be used to enhance decision- and law-making.

It is vital to develop synergies between traditional legal thinking and data-driven methodologies that make legal concepts accessible and applicable in order to improve the legitimacy of legislation. However, this must not overlook the necessity for critical ordering of that method. In this sense, empirical quantitative legal studies might add to the list of sources that can be used to support or refute doctrinal arguments, such as historical or ethical considerations (Leeuw, 2016).

The conventional knowledge acquisition method in legal education must give way to a systemically new one that is based on information technology. The computerization of education must be done in a way that prepares students to function well in the new economic environment. For a future lawyer, it's crucial to acquire both practical skills and a certain level of academic knowledge. However, certain electronic forms need to be developed. The use of digital databases for things like fingerprints, legal actions, and procedural papers, as well as digital versions of different forensic cases and descriptions of legal cases, should be added to the established techniques of portfolios, distance learning, intermediate tests, and final exams. Digital video libraries contain many types of legally important information, such as organizational and statistical data, as well as analysis of materials (Cicourel, Riverside, 2017).

The Law graduates ought to be proficient with digital skills in order to effectively analyze a particular legal case while gathering pertinent information from a number of sources. They must understand how to interact with individuals and organizations using information and communication technology, as well as how to produce and disseminate electronic documents like petitions (Schneider, 2022). Simultaneously, it is necessary to take into account both legal and technological safeguards against information distortion. This, for instance, results in the use of big data in daily legal practice, which greatly reduces the significance of document inspection. The implementation of such technology solutions will make it harder to utilize illicit information for profit and will simplify the work of attorneys as they won't always have to deal with dishonest adversaries. Future attorneys are educated and taught in the use of a broad variety of technical tools in addition to conventional knowledge and skills, since this will enable a more thorough distribution of information on the subject being studied and make the courses more useful.

Students need to experience communication, teamwork, and creativity in addition to information in order to adapt legal knowledge to social and commercial change. This research examines the key digital economic reactions impacting legal education and offers suggestions for improvement in response to the system's critics. This work was separated into three particular aims, each of which corresponded to a phase of the creation of this research, in order to accomplish this purpose. The first is to explore some of the most significant suggestions provided by legal education and expert witnesses from a variety of backgrounds (USA, Australia, Russia, etc.) The second half evaluates, in particular, the changes that higher education has experienced and will continue to experience in the wake of artificial intelligence's integration into educational markets and institutions. The third and final section examines reactions to artificial intelligence (AI) in law and legal education as well as suggestions for adjustments that legal education should make in light of AI.

The research is exploratory, interdisciplinary, and employs a hypothetical procedural-deductive approach, a qualitative approach (although it occasionally uses quantitative arguments), as well as a relevant literature search technique were used. It also uses a hypothetical procedural-deductive approach.

Skills Desired In a Context Where Technology Is Reliable

It is intriguing to do relative research to confirm what has been said on changes in legal education in other nations so that this knowledge may be compared to Pakistan demands and realities. In Australia, for instance, the Law Society of New South Wales has taken the lead in comprehending technological advancement and formulating answers. The organization has highlighted seven skills/knowledge categories crucial to the success of future legal practice from connected critical competencies and the legal knowledge base in its Future of Law and Professional Innovation (FLIP) study:

a) Practice skills (interpersonal and professional): While soft skills (such as collaborative working) are now learned in clinics and extracurricular activities, professional skills (such as writing, interviewing, presentation, advocacy/negotiation, etc.) are taught through practical placements. However, these abilities need to start being delivered at various phases of legal education in order to consolidate and reinforce prior learning rather than needlessly repeat it.

b) Business Skills: Whether working for companies or businesses, governments or not-for-profits, business skills are crucial in almost every field of legal practice. They seem to be taught in part during practical training and are part of Australia's extracurricular legal education.

c) Project Management: Although legal work requires project management, such as settling disputes or writing contracts, these abilities do not seem to be impacted by formal legal education. This is because business training is often provided as part of a double degree or before studying law, if the student's interests coincide. Therefore, it is advised that project management skills be taught to students in extracurricular activities (e.g. editing legal journals);

d) Internationalization and Transnational Legal Practice: Many law schools include international law as a part of their curriculum. As a result, further research should be done to determine the need for courses that concentrate on cross-border legal practices (i.e., cross-border transactions and disputes), as well as the best career chances for these courses.

e) Interactions with consumers and experts from other industries that are interdisciplinary: It is often via various sorts of instruction, sometimes outside of classroom, that students are exposed to other knowledge fields. Conversely, interacting with customers through clinics, volunteer work, internships, and placement;

f) ***Legal Courses:*** Students and legal professionals may benefit from taking courses on managing change and developing resilience given the frequency and severity of change that the legal profession encounters.

It is advised to apply innovative techniques in extracurricular activities like legal classes (for example, application development courses) and contests involving the use of technology instruments (Collin & Halverson, 2018). Additionally, it's important to think about whether technological issues — such as blockchain in contracts and properties, electronic discovery in civil procedures, etc. — should be included in the major courses, as well as if any additional topics, such programming for attorneys, are required (Buchwald, 2019). It's possible that all attorneys must have a certain level of technology proficiency, but apart from that, the learned technological abilities will be a matter of personal discretion.

Human legal professionals will always be needed, but they must adapt their knowledge to a world that is always evolving (Goto, 2022). Thanks to technological advancements that can recognize and alter a lawyer's characteristics, clients may soon be able to get personal legal assistance and documentation without the need for a lawyer. The development of quicker and more effective methods of resolving disputes does not seem to be taking place with much time given by digital technology. Perhaps in the near future, self-driving automobile disagreements will be promptly settled by reviewing recordings; With GPS verification, customer concerns concerning delivery services may be immediately rectified; if a family member is unfaithful, divorce procedures may start; once the wearable senses a person's death, it may execute their final wishes (Froomkin & Colangelo, 2020).

Interdigitating for Attorneys Considered "Transition Engineers"

Learning should include not just a review of material covered in class, but also broader, more interdisciplinary consideration of pressing problems of the day. Ethical issues related to the use of data in decision-making may arise in a variety of contexts, including the courtroom, law enforcement, policy analysis, climate change management, and other areas. Students would be encouraged to comprehend how information from several fields interacts with one another and come together to solve significant challenges in the present. Remember that although the AI being developed today is excellent at calculating equations or doing other specialized jobs, it is still quite bad at things that need original thought (Susskind, 2020). They are the cornerstone of human professional interaction training in the future, where innovation and cross-disciplinary expertise will continue to be the purview of humans for longer than first anticipated.

In the past, attorneys have been more significant when they work as "transaction engineers," opening doors for novel commercial and social interactions (Contreras & McGrath, 2020). By managing the connection between investors and creative businesses founded by inexperienced entrepreneurs, lawyers build novel contracts that safeguard high-risk investors. In the context of disruptive technology generated by startups, such actions are crucial. Additionally, attorneys' work in forming contracts, alliances, and resolving disputes has been a crucial categorization tool for company owners who need more than just investors to launch and grow their enterprises. Additionally, contractual procedures and the reputation-driven legal market help to close knowledge gaps between entrepreneurs and investors, which are essential for coordinating the supply and demand sides of venture capital in a manner that is efficient and beneficial to both parties.

Due to the increasing relevance of information technology in legal practice, attorneys who want to execute the "transaction engineer" function will need to be able to code (Ibid: 304). The way law is practiced is evolving as a result of legal tech, which includes platforms, databases, software, apps, and IT services for attorneys that may even include AI and blockchain technology. As these autonomous services are not vulnerable to the human weakness of repeated activities, they will soon replace fresh interns and attorneys with a lot of work (proofreading, writing, etc.). Law offices and departments may be swiftly converted into virtual offices using legal technology. These platforms place a focus on bringing together legal and other professionals in a cooperative online setting incorporating both human and machine actors. If the policy concept is effective, it will build a flexible and reachable community of experts with various backgrounds and qualifications. It is simpler to provide specialized solutions for consumers' demands the bigger the community.

Learning law does not need advanced knowledge of cutting-edge tools like computers, networks, and AI. Coding and data analysis seem to be ideal places to start, but in a changing environment, other significant subject-specific talents and abilities are also required. Therefore, it is necessary to foster the development of abilities that improve decision-making under cognitive and normative ambiguity. The following are three talents that separate legal thinking and are important to digital transformation:

a) Difficult problem-solving is dealt with in legal reasoning in two ways: incentive-based thinking, which examines how norms affect how people behave, and

b) Incentive-based thinking, which deals with complex facts via critique, analysis, and application. When conventional methods, frameworks, and presumptions are challenged in the digital era, stimulus-based ways of thinking might be fruitful. The best architecture will consider how technological architecture affects human behavior.

c) Narrative and persuasion: The ability to tell a compelling story is essential for understanding the perspectives of policymakers, especially when there are several viable options for resolving a legal issue (Al-khresheh, Mohamed, & Asif, 2022). This is suitable for the internet, especially in the absence of appropriate solution.

OECD (2016) view of legal education in the face of technological interruption suggests that, at least initially, the focus should be on new ways to assist legal operators in performing their jobs (tools, applications, new means of communication, smart assistants, etc.), which change the nature of the work to be done but not the type of work itself. The essential competences taught in law schools remain relevant and helpful in a complex legal environment brought about by ICTs and artificial intelligence, but legal education must change to reflect these advancements. In reality, a variety of legal, economic, and societal repercussions are already being promoted by AI applications. Although artificial intelligence (AI) has the ability to decrease repetitive and tedious activities in automated discoveries, evaluation of contracts, and additional conventional counsel responsibilities, more innovative legal practitioners are changing to take advantage of new capabilities (Abioye et al., 2021). Using AI in the legal industry to better interpret data includes improving the prediction of legal outcomes.

Technology is altering the legal process in the twenty-first century in several ways. Big data, artificial intelligence, electronic discovery tools, document automation, communication and collaboration technologies, and cloud-based case management systems are just a few examples (Diamond et al., 2018). A wide social media strategy and client education on proper social media behavior is two of the most important lobbying techniques in the modern day. Attorneys who must deal with social media in many settings, such as multi-session courts, must adapt their typical advocacy structures to include social media from the moment a client intervenes in a case until its settlement. Following the admission of each case, attorneys are required to provide thorough client counsel about social media in the modern day. This is evident in the fact that lawyers need not just a four-year degree but also continuing education in areas like social media law. For instance, this includes recommendations on avoiding releasing material and views relevant to current lawsuit on social media, for example.

Higher Education and Intervention of Artificial Intelligence (AI)

Notwithstanding the improvements made to teaching and learning environments as a result of advances in hardware, software, and online resources, the usage of AI will bring about the true revolution in education (Alam, 2021). Artificial intelligence (AI) allows for the development of expert systems that can interact with their surroundings in ways that were formerly regarded to be uniquely human. They include, for example, voice recognition, visual perception, and intelligent conduct. AI would be particularly effective in the field of education, for instance, in the development of data gathering algorithms that would allow students to submit thorough and tailored feedback. This would allow for the interpretation of a student's requirements and the creation of an appropriate evaluation. AI systems are able to repeat lectures, display student proficiency, and create individualized learning strategies for each learner. Thus, AI would make it possible for strong virtual teaching assistants.

The advent of artificial intelligence is attested by the quickening pace at which information technologies like deep learning, big data, and neural networks are being developed. Thought, emotion, and social talents were formerly thought to be uniquely human; nevertheless, AI is progressively bringing these capacities into play, and pedagogy based on them might result in profound shifts. For educators in general, adapting to changes in education in the AI age is both a problem and an opportunity (Monroe et al., 2019).

AI will unavoidably change education so that students develop knowledge. The main objective of AI usage by humans is to liberate people from routine, boring tasks, allowing them to engage in more meaningful or fascinating activities. However, education can be broken down into two main categories: "teaching," which is the act of imparting information, and which is something that artificial intelligence can do more efficiently than humans; and "education," which is the process of shaping an individual's character and inspiring curiosity in the pursuit of new knowledge explained by Monroe at al., (2019). (Monroe et al., 2019). As a result, professors, lecturers, and teachers must continuously update their knowledge on how to teach, reflect on and synthesizes their experiences, and fully use the newest sciences and technology in the development of abilities.

According to (Edwards et al., 2018), the area of applied AI in education (AIED) has matured to the point where it may assist educators in improving their practice and introducing students to novel methods of instruction. AIED will be fully employed in the classroom when it is combined with robots and sensors to monitor the surroundings and behavior (such as the Internet of Things or IoT) in future technologies built for learning and teaching. Devices not typically seen in classrooms that are utilized by the intelligent systems created so far under AIED. It is the author's opinion that professors will continue to assist students to some degree in the classrooms of future sports academies. Cobots, or robot educators, will also be present in these classrooms (technology that may not have been around a few years ago, but should be developed from now on). Furthermore, it supplies AIED apps and sensors for use in smart schools.

When compared to the development of skilled instructors, AI will save money for students since it is a technology that will replicate an infinite number of assistants, teachers, supervisors, and mentors who will have an impact on every part of human existence. Education will soon no longer be restricted to traditional classroom settings, and teaching strategies and resources will change. According to (Wang et al., 2018), this transition will occur in four stages:

i) Improving teaching effectiveness: In the early stages of the intelligence era, AI will keep track of each student's learning outcomes, which will make up the data that the helpers examine and function as a supposition for instructors. Instructors would be able to better cater to their students' individual needs by taking into account factors such as personality, area of interest, level of knowledge, learning ability, etc. The development of AI means that pupils will constantly have a data-collecting companion. This companion completes the image of the individual, shedding light on aspects of their character that are otherwise obscured by the nuances of daily living. Additionally, this "AI companion" will aid students in comprehending their gained information more thoroughly and accurately. In fact, the "partner" may be able to do so more effectively than a person could. AI won't now alter the processes or avenues available for education. The extraordinary effectiveness of education will result in a higher scope and deepness of the information learnt, but it won't change the contents either. Universities will need to increase the speed at which they develop composite and specialized innovation talent in order to remain competitive. They should also concentrate on developing student talent because there is little time for teaching and learning but plenty of opportunity to share AI experience. Every AI instructor may exchange and learn from a wide range of experiences at the intermediate level, which even raises the bar for teachers' knowledge.

ii) As a result, they will be able to provide each kid with a customized education, which promotes equality throughout the process. Few content modifications are made at this level, but education providers will substitute AI instructors for human ones. The educational emphasis will change from "teaching" to "learning" as AI instructors provide pupils with high quality instruction at a reasonable cost. The depth and breadth of understanding will not be constrained to "teaching," so the content and goals of education will shift to the development of talents who are open to innovation, driven, and receptive to learning;

iii) Content and pedagogical approaches that harken back to the past: as AI develops, its role will change from that of an external tool to one of an organic component. The integration of man and machine will increase human learning capacity beyond what is now possible. AI and humans will interact in the same way that a person today receives information from his or her organs (eyes, ears, etc.). There will be significant changes in educational methods and content since it won't be essential to memories a wide variety of complex facts because AI will handle all of the menial tasks. So, even very long and in-depth knowledge will be learned by humans as swiftly and easy as a book download. This "super" man's breadth and depth of knowledge will not depend on "teaching" or "learning"; rather, at that point, the "super" man's IQ, EQ, personality, and interest will all be the same. A "super" man will need to learn how to use and manage the AI that is already inside of him or her in order to do creative, intuitive, and perceptual activities for which AI is inferior to human intellect. Thus, the key component of education at this point will be this information, which is unique to human intellect.

iv) Modifications to assessment techniques: At the moment, evaluations and exams continue to emphasize the ability to recall information and problem-solving techniques. However, AI will change this, providing a more accurate assessment of student achievement. A student's whole learning experience will be recorded by the pervasive "AI partner," who will assess his or her knowledge and abilities and analyze failures to create a learning strategy that makes up for them. The semester examinations and skill proficiency assessments will be replaced with assignments that require each student to explain what they have learned, mastered, and disregarded. Open, comprehensive, and multidisciplinary material will now be assessed instead of standardized content.

It is obvious that the authors' perspective above seems to be fairly hopeful, but it relies on other technical advancements (along with a lot of time) and on the human race's ability to adjust its whole way of life. Moreover, it is evident that this evolutionary line may offer light on the possible future path of education, including legal education, even if it does not turn out exactly as they expect it to be. In addition to guiding future pedagogical and legal theory development, it may be used as a jumping-off point for critical analysis and the formulation of an ethics to underpin the control of educational procedures.

Experts in the area of AI are in general agreement that the rapid rate of technology advancement and the displacement of related employment need a reevaluation of the role and pedagogies of professors in higher education. The issue of who sets the agenda for teaching and learning — businesses or higher education institutions—is already brought up by the existing usage of technology solutions, such as "learning management systems" or IT solutions to identify plagiarism. AI-based operating systems that are built on sophisticated algorithms created by programmers who may introduce their own biases or agendas into operating systems will replace many sets of jobs now at the core of higher education practice. Thus, it is essential to keep critiquing and researching the offered solutions (mostly in regards to ethics) to make sure that universities continue to be places where knowledge and wisdom may be promoted and developed. As a result, colleges need to reconsider their instructional roles and paradigms as well as how they will interact with AI products in the future. Additionally, the possibility to use AI in teaching and learning has created a plethora of opportunities and difficulties for higher education institutions. These solutions offer up new avenues for universal education, encouraging lifelong learning within a reinforced framework that can protect the reliability of core principles and the goal of higher education.

The present workforce in all industries will need to prepare for a potential substitutive impact as a result of the significant breakthroughs in AI theory and applications predicted in the next decades. AI will only have a detrimental effect on low-skilled job, while its impact on high-skilled work is still unclear (Ma et al., 2022). But negative impacts may be reduced with adequate AI instruction. They then lay out an evaluation of the collaboration, communication, and manipulation fundamental competencies fostered in AI education. Universities and businesses need to make more of an effort to assist students who are particularly vulnerable to the impact of AI on job placement in the future.

None of the aforementioned highly skilled professions, which are all listed above, is more than 50% susceptible to employment role being automated. However, concentrating on the two professions that law graduates often enter after graduation—advocacy and the judiciary—the authors argue that, in Chinese reality, the degree of automation susceptibility is roughly 15.8% (Pan et al., 2017). These numbers make sense in light of China's reality, which differs much from Pakistan's (in terms of government structure, population, modes of socialization and political organization, and opportunities for recent graduates). To illustrate, consider that, law is universal and not bound by custom or any other consideration. It's also true that many Pakistani law school grads—possibly the vast majority—find employment in administrative or judicial support jobs. These statistics, however, already help to highlight probability and inspire study into various country settings. However, these findings show that: In higher education, it is important to stress interactive communication abilities between people and with computers, as well as the use of creativity as a defense against artificial intelligence (AI) and computing (Makmee, 2022).

Many conventional teaching strategies include giving student’s information, then having them answer questions on it. AI entails, among other things, capturing and mastering knowledge, strengthening student’s analysis skills, intellectual valuation and response (Minn, 2022). Specific applications of AI in education increase interactivity, accessibility, and personalization. Learning that is given or triggered using electronic technology is known as "e-learning," which includes learning using a range of technologies. It can be quite helpful when incorporated into a well-thought-out and well-supported educational or training environment, but it does not take the place of or make outdated current customary educational theories and practices. With an ITS, students may get targeted, just-in-time teaching without the assistance of a human teacher, as is commonly the case with online education (Prasetyo, Tamrin, & Estriyanto, 2022). Virtual training assistants that mimic the subject and teaching style of a skilled trainer might be an intriguing choice, even though it is extremely impossible to have a personal training helper for each student. Education, psychology, and AI experts have all embraced this type of approach. The model tracking tutor method is another tool for categorizing ITS. Learning curve organization, course navigation, content analysis, training technique evaluation, error message interpretation, question resolution, student feedback collection, etc. are all components of ITS's hypermedia course implementation goal. In other words, ITS allows students to self-evaluate their progress and adapt their studies to their own needs. The adoption of advanced technology replaced human teachers with the teaching unit and the subject knowledge unit in the classroom (Van, 2021). A system organizes and instructs people, retaining faith in each pupil module and operating in accordance with the most effective teaching methodology. The method used by the model tracking tutor may also categories ITS.

To detect, categories, and comprehend emotional emotions in faces, facial coding techniques use algorithms and computer vision. EdTechs are using emotional AI to gauge students' growth in social and emotional skills. Katyal (2019) evaluates the new ways these technologies are being used to classroom instruction and reveals the tension between public and private interests when it comes to the application of these tools to the protection of individual rights and privacy. According to the author, using AI technology to aid instructors in their tasks does not seem to be an issue at first glance. Additionally, emotional AI is not considered to be inherently unethical. Concerns have been raised about the scientific, legal, and ethical implications of using face coding in conjunction with emotional AI (Katyal, 2019) First, there is some doubt about the veracity of the findings reached from the investigation of the face data of persons impacted by the technology, since the facial data used to train emotional AI has been criticized for being inaccurate, incomplete, and skewed. In addition, collecting and analyzing pupils' facial expressions cannot go hand in hand with ensuring their well-being (particularly if they are young children in school). So, it may be unethical to exploit a student's feelings for research purposes if doing so will compromise their health or happiness. Finally, it is problematic to train neural networks used for other commercial reasons using assumptions about learners' emotions (such as advertising). As data acquired in educational settings might be utilized for other socially decided objectives (e.g., social evaluation), it is quite possible that the scope of data collection could be breached. So, regulations are needed to restrict data collecting, which begs the issue of how necessary emotionally intelligent machines are to good teaching.

By encouraging stakeholder collaborations in co-design, we may bridge the gap between the academic and professional communities of learning sciences and the developers of AI for K-12 classrooms and professional development. As the field of educational AI development grows, the stakeholder approach becomes more pressing, thus it is essential that educators have a way to assist AI developers better comprehend the pedagogy of education. It should also guarantee that those working on AI can assist educators in gaining a deeper comprehension of the field and its potential uses in the classroom. And stakeholders may work together across disciplines to make sure AI delivers some of the educational advantages its use elsewhere promises. Large technology companies already control a significant portion of the EdTech landscape, so caution is also required when establishing these partnerships. It is crucial that they do not monopolies the relationship with educators because doing so could result in an educational AI future that is highly biased and constrained. As a result, both the brands and enterprises that produce and develop EdTech and the technologies themselves must be diverse.

Authentic Intelligence in Legal Education

It is fascinating to compare the impact of artificial intelligence on the law to that of Justinian's Compendium, which simplified the huge and complicated Roman legal system for individuals living under the customary rules of European kingdoms and regions in the 11th century. Although canon law was adopted considerably later, we nevertheless know a great deal about Western law because to it (Watson, 1978). For students, teachers, and professionals, however, the Digesto faced significant information overload issues. When it came to educating future generations and putting this new information into practice, several questions arose. Along with developing new and complex academic and professional text formats, new legal learning methodologies also emerged. Students are now qualified to study such professional legal literature and begin legal education.

In this way, the LawBot chatbot, a free app created by Cambridge Law students, aims to inform crime victims of their legal rights. When the first colleges were founded in Bologna in the 1080s, students, not monks, managed the institution (Karr, 2022). The concept of students arranging their education for the common good is something that, to me, gets to the core essence of a university via this effort. They created the new universitas, discussed their rights and responsibilities with government representatives, maintained self-control, planned instruction and evaluation, hired academics, etc. In ways that are virtually unimaginable now, students were connected to the university.

In order to plan their careers, avoid the legal professions most at danger of automation, and concentrate on duties that have nothing to do with AI, law students would be wise to acquire a working knowledge of the present status of artificial intelligence and its probable short-term influence on law. Recent developments in artificial intelligence have focused on automating tasks that are highly organized, repetitive, or simply require recognizing common patterns. For instance, in machine learning, efforts are directed at developing algorithms that can recognize patterns in large data sets in order to automate a variety of processes (automatic product recommendations, credit card fraud detection, etc.).

It's intriguing to contrast the significance of applying AI to law with the discovery of Justinian's Digest in the 11th Century, which made the enormous and intricate body of Roman law understandable to individuals living under the customs of European kingdoms and regions. Later, canon law evolved, and as a result, a large portion of what is commonly unstated about law in the West today (Tamanaha, 2011). Unfortunately, there are significant issues with Digesto's information augmentation for academics and professionals. Is there a way to digest and share this data, as well as learn from it and apply it? New and complex academic and professional text forms have developed, and new legal learning approaches have also surfaced. Students today are capable of studying such specialized legal literature and starting their legal education.

Lawyers in the making would do well to familiarize themselves with the present status and near-term prospects of AI in order to simplify their careers, avoid legal professions most at danger of automation, and concentrate on duties that make the most of their degrees and abilities (Zawiślak-Białek, 2022). Artificial intelligence's primary goal is the automation of work that is either highly organized, routine, or characterized by easily discernible patterns. In order to automate a variety of jobs, machine learning, for instance, utilizes algorithms to identify patterns in massive volumes of data.

Additionally, the technical vocabulary of AI, such as cognitive computing, neural networks, natural language processing, big data repositories, data mining, machine learning, etc., is very challenging for lawyers to understand. We provide examples of self-learning and self-modifying AI-based algorithms working in production environments to demonstrate the difficulty of this task. For instance, it is particularly challenging to uphold the Rule of Law in this digital context. Notwithstanding the difficulties, DAM has become an essential aspect of the legal industry. Expanding methodological approaches to AI-based programmes and updating education and training on the topic are both necessary to strike a fair balance between fundamental interests and rights. The theoretical groundwork for such inquiries may be found in the study of IT law and legal tech. AI has the ability to enhance digital resource management, but doing so calls for legal training and a thorough examination of the structure of legal systems.

Conclusion

Legal education's epistemology must shift from the "retro" mode of doctrinal past (where past solutions are applied to present and future problems and the teacher's authority possesses all knowledge) to the "futuristic/projective" mode, wherein students are encouraged to tackle difficult problems head-on by building their skills and coming up with novel solutions.

This new paradigm requires an interdisciplinary approach, drawing on fields of study that aren't typically part of a lawyer's toolset. Future professionals may benefit from a focus on legal education since it will provide them with the communication (collaborative working) skills, job possibilities, and the capacity to cope with the social realities of new technology. Coding and other technological innovations should be emphasized. The multidisciplinary approach should also emphasize recently implemented technologies to help students improve their imaginative, potential, and projective abilities based on use and inference. Training in conventional legal skills and abilities (still relevant in today's digital environment) must be linked with training in emerging technologies like blockchain, artificial intelligence, smart contracts, databases, and quantum technologies (among others) to develop new solutions to new difficulties.

All of those abilities ought to be used by the legal operator to accomplish new features developed by and for technologies, as well as more conventional technical tasks. Understanding and controlling technology disruption requires the critical and creative thinking that sets the legal profession apart from other academic disciplines. Creativity and interdisciplinary labor, in contrast to simple repetitive tasks, remain (and are likely to long stay) human realms that autonomous computers cannot do. The rise of the digital economy has not only made a degree from a four-year college or university necessary, but it has also ushered in a new era of expertise and training. A change to a more forward-looking, predictive emphasis on legal education is also typically a requirement of master's, doctoral, and graduate degrees, along with the inclusion of creativity, collaboration, interdisciplinary work, and other skills and knowledge.

From their studies of AI's potential in the classroom, many academics have generated overwhelmingly positive results. More efficiency in the teaching and learning process are expected to be realized in these visions as a result of more individualized training enabled by the use of robots, deep learning, and the Internet of Things (and other technologies treated in an interdisciplinary fashion) (connected to each of which students can provide). On the contrary, other scholars assume that less skilled occupations with repetitive, mechanized tasks will be supplanted by AI. But the future is even less clear for vocations that need a higher level of education. Some writers argue that the accompanying professional conflicts created by these substitute forms may be avoided if, in addition to teaching programming and coding, greater focus is placed on human creativity and communication skills in non-traditionally tech-heavy courses.

The data collection and processing of AI regarding student behavior and personality is not always a bad thing. The initial storage and analysis of such data would be done with the intention of personalizing/individualizing procedures and curricula, but there is a significant risk that it may be misused for other objectives, for example political and commercial ones. Hence, the advancement of such technologies must be followed by in-depth critical thought on their methods and ramifications in order to produce a standardization befitting their complexity (including, but necessary extending beyond, the formation of legal ethical laws and principles). This is because these technologies can, of course, be very valuable when used to make the education process more precise and efficient.

Nonetheless, schools should make it clear to students that AI can do certain jobs traditionally performed by legal professionals, and instruct them to devote their attention and study to such areas. Given the high standards of both legal education and practice, the use of AI to replace human lawyers is not yet a realistic possibility. Despite the challenges, interdisciplinary understanding of law and technology must be included in curricula for legal education.

Finally, it is important to discuss the research's constraints. As most studies of technology's impact on education have been conducted in countries other than Pakistan, readers should approach the findings with caution if they want to generalize them (such as China, the United States, and Australia). And secondly, even though the numerous sources cited here have contributed empirical studies and quantitative methodologies, the future of AI in education still has a very speculative, prospective, and subjective nature.

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Internet Addiction: Predictor of Disturbed Emotion Regulation, Sleep quality and General Health in University Students

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Excessive practice of using internet may result to behavioral addiction that is associated with detrimental physical, emotional and psychological health in university students by using between-groups correlational research design. The present research explored differences in university students with and without internet addiction regarding disturbed emotion regulation, poor sleep quality and general health issues. Further, the research explored internet addiction as a predictor of disturbed emotion regulation, poor sleep quality and general health issues in university students identified with internet addiction. The sample contained 600 students (375 with & 225 without internet addiction) from different public universities of Lahore. Findings revealed higher mean scores for the students with internet addiction on disturbed emotion regulation, poor sleep quality and general health issues ($p < 0.01$). Besides internet addiction, gender and nuclear family system emerged as significant predictors of disturbed emotion regulation, poor sleep quality and general health issues ($p < 0.01$) in university students. Research implications suggest that young adults from universities should be given counselling for appropriate usage of internet rather develop internet addiction so that they can be able to utilize internet rather than deteriorating their health and time.

Keywords: *i*nternet addiction; sleep quality; emotion regulation; general health

Use of internet has become the foremost source of communication, education and entertainment in the present time as internet technologies facilitate individuals to organize routine life functions expeditiously. University students use internet considerable amount of time as universities provide mostly free and unlimited internet to students for educational purposes. But it is found that besides educational purposes, university students also use internet technology to explore inappropriate content or other irrelevant activities using social media, Instagram, playing internet games, chatting etc. (Capetillo & Juárez, 2015). Overuse of internet is reported to be associated with internet addiction (Şenormancı, Saraçlı, Atasoy, Şenormancı, Koktürk & Atik, 2014). University students are especially vulnerable to internet addiction as they have easy accessibility in comparison with the other populations. What causes internet addiction in university students can be explained by Kandell (1998) i.e., students find twenty-four hours free access to internet in campus premises. Newly admitted students may find it challenging to adapt to be responsible for independent tasks management,

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choosing new friends etc. So, possibly, the new students find internet as a bridge between learning to leave dependent behaviors and adopt new lifestyles (Khan, et al., 2020). Starting taking independent decisions may cause stresses that may enforce the student to turn to addictive behaviors as coping mechanisms. Subsequently, the young adults get involved in chatting or romantic partners through internet can acquire impeccable interaction. This type of impeccable interaction present only the good aspects of each other's personalities those are difficult in direct communications.

Despite of innumerable advantages, the over use of these media is the leading cause of its addiction which is synonymous to dependence disorder. Addiction or dependence disorder is defined as excessively devoted to something with inability to control or choose freely and that can cause problematic behavior (Rooij & Prause, 2014). Addiction beyond substance use encompasses the category of non-substance related behaviors which may exhibit comparable effects on physiology, behavioral patterns and emotional deregulation. Excessively engage on internet has been included in "Internet use gaming disorder" in DSM-V (Diagnostic and Statistical Manual of Mental Disorders; section 3). DSM-V addiction specific criteria describes behavioral and chemical addiction have the same patterns and defines addiction in terms of severe physiological, psychological and emotional side effects (American Psychiatric Association, 2013). Even though generally, the internet addiction is never observed as a significantly threatening like substance addiction is, the abusive use sources to withdrawal and tolerance frustration. Physiological effects i.e., general health effects of internet addiction may accompany with the psychological symptom i.e., anxiety and depression.

Young (2007) appraised some of the criteria and guidelines to diagnose internet addiction in a person. These guidelines consist in "the person consistently mentally occupied concerning the internet mostly, get satisfaction by using excessive internet, unable to reduce using internet, in the absence of internet, feels mood swings, irritability, agitated, anxious and depressed, unplanned longer usage, careless about losing interpersonal relations within family, educational or occupational settings, cheating and lying to close friends and family members about being online mostly and avoid focusing everyday problems and remain busy on internet. Young elaborated further that the person becomes helpless to resist once an individual is addicted to internet, is preoccupied almost all the time with internet thoughts and having behavioral complications and psychosomatic symptoms.

Internet addiction has become recurrent phenomenon especially in Asian students (Orsal, Unsal & Ozalp, 2013). Consistently, the occurrence of internet addiction among university students is increasing in Pakistan also as they have been reported spending a great quantity of time using the internet, thus developing internet addiction (Gedam, Shivji, Goyal, Modi & Ghosh, 2016). Researches have proven that excessive usage of internet addiction can steer to disturbed emotion regulation, poor sleep problems, poor health outcomes and psychological distress (Walker, 2014). Spada (2014) and Gedam et al. endorsed the association of risky use of internet with disturbed emotional regulation which further cause poor sleep, general health issues, psychological distress and compromised family functions.

Emotion regulation process normalizes physical and mental progression and initiates, constrains and modulates the emotion related functions (Howe, 2005). Emotions are basically feeling that are physiological arousal reactions and can be expressive or subjective experiences (Gross, 1998). Emotion regulation comprises in two basic procedures i.e., reappraisal and suppression. Reappraisal means that the situation is construed in a less intensive emotional impact that is associated with significant optimistic reactions. Conversely, suppression holds back expressing inner feelings (Gross, 2002). Reappraisal of situation improves general well-being and makes the person functional. When on the contrary, suppression is linked with destructive emotions that progresses dysfunctional behaviors.

Emotion regulation influences and directs the individual in re-appraising the situation and modifying the expression of emotions according to the situation (Rottenberg & Gross, 2003). Emotion regulation sustains, intensifies, maintains or inhibits certain emotions for the purpose of managing the emotional situations. Broadly speaking, emotion regulation consisted in regulating the stressful situations and negative affect (Koole, 2009).

Emotion regulation process coordinate and balance the emotions and emotional reaction appears in the form of physiological reaction, thoughts, feelings and behavior (Koole). If this harmony is disturbed, difficulties in emotional regulation emerges which ultimately deteriorate individuals' physical and psychological well-being as emotion dysregulation is related with anger, stress, anxiety and depressive reactivity (Harrist, Tait, Topham, Shriver & Page, 2013), hostility and disturbed sleep (Compare, Zarbo, Shonin, Van Gorden & Marconi, 2014; Amstadter, 2008). Researchers have demonstrated emotional dysregulation contributes in increasing multiple psychopathologies that affects physical health as well (Lynch, Robins, Morse & Krause, 2001). Some studies have established connection between suppressed emotions and development of addictive disorders (Wilens, Martelon, Anderson, Abrahanson & Biederman, 2013) and has confirmed a moderating role in addiction increase (Wills, Pokhrel, Morehouse & Fenster, 2011). So, internet addiction along with influencing emotion regulation, also disturbs sleep quality which ultimately deteriorates physical and psychological health in general (Stavropoulos, Alexandraki & Motti-Stefanidi, 2013).

Researchers i.e., Cheng et al., (2012) have found 19% to 57% of Chinese university students reported low quality sleep which was further reported to had significant association with internet addiction. Similarly, in another research in Turkey (Sahin, Ozdemir, Unsal & Tamiz, 2013) found significant association of internet addiction with low sleep quality in university students. These findings were endorsed by Aghdam, Some'eh & Kazemi (2016) who also reported that internet addiction and disturbed sleep were significantly associated in university students.

Researchers agree that excessive use of internet develops independent patterns which interfere with routine functioning of users such as Scherer (1997) found thirteen percent of South American college students (N=531) who were addicted to internet, developed dependent patterns. They were having difficulties in performing day to day routine work, in interpersonal relationships and in job performance. Moreover, Senormancia et al., (2014) conducted a large survey and found lengthy internet timings, being male, symptoms of anxiety and depression and idealistic behavior as significant predictors of internet addiction.

The current study is the first systematic study on the adverse effects of internet addiction on disturbed emotion regulation, poor sleep quality and general health in university students in Pakistan. Studying the predictive relationship of internet addiction with disturbed emotion regulation, poor sleep quality and general health issues would help to understand the importance of maintaining stable behavior while using internet. These findings will also help university students to manage their internet addiction and make them aware of normal use of internet so that it would not affect their physical or mental health. The objectives of the present study were to find out (i) group differences regarding disturbed emotion regulation, poor sleep quality and general health issues in university students with and without internet addiction and (ii) explore predictive relationship of internet addiction with disturbed emotion regulation, poor sleep quality and general health in students with internet addiction.

Method

Research Design: The present research used a between-groups correlational research design.

Participants

The sample included a total of 600 university students with (n=375) and without (n=225) internet addiction. The groups were matched on age range i.e., 19-24 and education level (BS honors). The mean age of group with internet addiction was $Mean_{(age)}$ = 16.26, *SD*= 1.44, whereas mean age of the group without internet addiction was $Mean_{(age)}$ = 16.14, *SD* = 1.99 (t = 0.69; *p* = 0.490). All the students reported that they have 24 hours access of internet.

Assessment Measures

Internet Addiction Test (IAT; Young; 1998)

Internet addition was assessed through IAT which measures addictive use of internet in terms of severity e.g., mild (20-49), moderate (50-79) and severe (80-100) levels of addiction. IAT is 20 items test and the response options range from rarely (1) to always (5) and not applicable (0). The scores fall in the category of "moderately" meant that "the individual is facing recurrent problems due to the excessive usage of internet and the last category i.e., "severely" meant that excessive usage of internet is triggering significant disturbances in user's everyday life. IAT revealed excellent Cronbach's alpha value for this research (α = .91).

Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989):

The PSQI is comprised of seven components which measures sleep quality in terms of subjective general sleep quality, sleep latency, duration, efficiency of sleep, sleep disturbances, use of sleep medication or drugs, and day-time dysfunctions. The response options of all components are rated on 0 (normal status) to 3 (severe problem) and composite scores of seven components assesses sleep quality as the maximum scores (21) indicate poor sleep quality. PSQI showed good reliability coefficients i.e., "0.66, 0.89 and 0.82" by Cheng et al. (2012). PSQI showed good Cronbach's alpha i.e., .88 for the present study.

Emotion Regulation Questionnaire (ERQ; Gross & John, 2003)

ERQ is a 10 items scale that assesses the respondents' emotion regulation. The questionnaire measures emotion regulation by assessing two facets i.e., Expressive Suppression and Cognitive Reappraisal. For the facet i.e., cognitive reappraisal, the person redefines the emotional situation and appraises the situation in different context and in expressive suppression. ERQ is a Likert-type scale and the response selections from strongly disagree to strongly agree with the appraisal for Cognitive Reappraisal (minimum scores = 6; maximum scores = 42) and Expressive Suppression (Minimum scores 4; maximum scores = 28) make up the Expressive Suppression facet. In the present research, only expressive Suppression facet was employed that emerged with good Cronbach's alpha reliability i.e., (α=.84) for the present research.

General Health Questionnaire (GHQ; Goldberg, 1992)

The GHQ is a 12 items questionnaire used to screen for non-psychotic psychopathological comorbidity such as depressive symptoms e.g., sample item "have you been feeling unhappy and depressed?" and perceived stress i.e., sample item "have you felt constantly under strain?" and sleep disturbances e.g., sample items "have you lost much sleep over worry?" or self-confidence i.e., sample statements related to measuring confidence. The response options ranges from much less than (1) to better than usual (4) with the lowest scores i.e., 12 and highest score i.e., 48, the maximum, the individual has poor general health.

Cronbach's alpha reliability of the scale was sufficient .76 while it was .82 for the present study.

Demographic Information

Demographic information sheet was used to gather information related to the personal characteristics of the participants. It included information about age, gender, education, family system and family monthly income.

Procedure

The BS-honors students from different public sector universities were approached after taking formal permission from the chairpersons of the students' departments. The researchers told the aims of the study to the students and took forms for informed consent from them. The students who gave consent were further were identified with and without internet addiction by asking two basic questions from Internet Addiction Test about their extra staying on online and about neglecting their routine tasks due to internet usage. All the students were recruited as addictive users of Internet who responded "yes" to these two questions. The students identify as having internet addiction were given Internet Addiction Scale (Young, 1998). Based on scores, the students who scored mild (20-49) were considered as normal users of internet and those who scored severe (80-100) were considered as addictive users of internet. The selected students were asked to fill a set of assessment measures including demographic information sheet and questionnaires. Data were collected and were analyzed.

Statistical analyses

For demographic variables, frequencies and percentages were calculated to compare two groups (see table 1). Means (SD) were reported for age, family monthly income and independent t-tests were employed for comparing the two groups i.e., students with and without internet addiction on disturbed emotion regulation, poor sleep quality and general health (see table 2). Pearson correlation analyses were employed to see relationship between age, gender, family system, family monthly income, internet addiction, poor sleep quality and general health issues for separate groups (see table 3). Then, hierarchical regression analyses were performed on scores of students with internet addiction. Demographic variables were entered first as control variables and then internet addiction was entered as predictor variable for disturbed emotion regulation, poor sleep quality and general health issues (see table 4).

Table 1

Socio-Demographic Characteristics of University Students (N=600)

		Students with Internet Addiction n=375		Students without Internet Addiction n=225	
Variables		F	%	F	%
Sex					
	Males	250	66.6	115	51.11
	Females	125	33.3	110	48.88
Living status					
	Campus hostel	160	42.66	120	53.33
	Home	215	57.33	105	46.66
Family system					
	Joint Family system	210	56	170	75.55
	Nuclear Family System	165	44	55	24.44
Family monthly income (in rupees)		Range: 80,000-120,000		Range: 80,000-150,000	

Table 2
Independent t-test Comparing Mean Scores (SD) of Students with and without Internet Addiction

Variables	Students with Internet Addiction n = 375 *M (SD)*	Students without Internet Addiction n=375 *M (SD)*	$t_{(598)}$	*p*
Internet Addiction	89.59 (11.38)	47.24 (9.32)	40.88	.000
Disturbed Emotion Regulation	25.36 (6.58)	9.68 (2.35)	34.46	.000
Poor sleep quality	20.77 (4.86)	15.32 (2.80)	13.74	.000
General health issues	44.28 (7.17)	22.00 (10.36)	25.00	.000

Pearson correlation analyses were calculated to see relationship between gender, age, family monthly income and family system, general health, sleep quality and internet addiction in students with and without internet addiction. The results are given in table 3.

Table 3
Pearson Correlation between Gender, Age, Family Income, Internet Addiction, Poor Sleep Quality and General Health in University Students.

Variables	1	2	3	4	5	6	7	8
1-Age	-	**-.21****	**-.03**	**.29****	**.23****	**.29****	**.19****	**.26****
2-Gender $_{(boys=1,\ girls=2)}$	.11	-	**.14****	**.25****	**.25****	**.22****	**-.27****	**-.22****
3-Family system$_{(NFS=1,\ JFS=2)}$	.14*	.05	-	**.21****	**.34****	**-.44****	**.24****	**.13***
4-Family monthly income	.20**	.32**	.18*	-	**.39****	**.36****	**.24****	**.45****
5-Internet Addiction	.13*	.08	.07	.11	-	**.32****	**.33****	**.21****
6-Poor Sleep Quality	.06	.04	.04	.13*	.12	-	**.46***	**.27****
7-Disturbed Emotion regulation	.10	.07	.12	-.13*	.12	.13*	-	**.38****
8- General Health	.04	.12	.08	.03	.10	.12	.11	-

Note. Vertical line *means (sd)* including values above diagonal (bold) represents university students (n=375) with internet addiction and horizontal line values below diagonal (unbold) represent university students (n=225) without internet addiction.
***p<0.05. **p<0.01.**

Correlational analyses for demographic variables of students with internet addiction show that age had significant negative correlation with gender (being female), whereas it had significant positive relationship with family monthly income, internet addiction, poor sleep quality and general health ($p < 0.01$). Gender (being female) had significantly positive correlation with joint family system, family monthly income, internet addiction and poor sleep quality but significant negative correlation with disturbed emotion regulation and with general health ($p < 0.01$). Joint family system had significant positive correlation family monthly income, internet addiction, disturbed emotion regulation, poor sleep quality and general health ($p < 0.01$). For study variables i.e., internet addiction had significant positive correlation with poor sleep quality, disturbed emotion regulation and general health issues ($p < 0.05$).

The correlational analyses for students without internet addiction showed significant correlation between age and family system (being in joint family; $p < 0.05$), family monthly income ($p < 0.01$) and internet addiction ($p < 0.05$). Gender (being girl) and being in joint family; $p<0.05$) showed significant positive correlation with family monthly income ($p < 0.01$).

Family monthly income had significant correlation with poor sleep quality (p < 0.05) and significant negative correlation with disturbed emotion regulation (p < 0.05) while poor sleep quality had significant correlation with disturbed emotion regulation.

Hierarchical regression analyses *(enter method)* were used to explore internet addiction as a predictor of disturbed emotion regulation, poor sleep quality and general health issues respectively. The results are presented in table 4.

Table 4

Hierarchical Regression Analyses Predicting Disturbed Emotion Regulation, Poor Sleep Quality and General Health issues from Age, Gender, Family System and Internet Addiction for University Students with Internet Addiction (N=375).

Predictors	Poor sleep quality			Disturbed Emotion Regulation			General health issues		
Step1	ΔR2	R2	B	ΔR2	R2	β	ΔR2	R2	β
Gender	.67	.67	-.81**	.53	.52	-.72**	.60	.61	-.78**
Nuclear Family system			-.48**	.47	.46	-.38**	-	-	-
Step2									
Monthly income	.69	.69	-.58**	.62	.61	-.22**	.70	.71	-.28**
Internet addiction			.27**			.59**			.59**

Note. Categorical variables are gender and family system whereas Gender; 1= males, 2 = females; Family system; 1=Nuclear family system, 2= Joint family system. Family monthly income was a continuous variable.

For poor sleep quality, F = 207.53 (p<0.01), F=107.71 (p<0.01); for disturbed emotion regulation, F=155.82 (p<0.01), F=177.28 (p<0.01); for general health issues, F=109.34 (p<0.01), F=120.56 (p<0.01)

**p<0.01.

Results from hierarchical regression analyses revealed gender being male emerged as a significant predictor of poor sleep quality, disturbed emotion regulation and general health issues whereas nuclear family system emerged as significant predictor of poor sleep quality, disturbed emotion regulation. Both the variables accounted for 67% of the variance for poor sleep quality, 52% of the variance for disturbed emotion regulation and 61% of the variance for general health issues.

Similarly, monthly income and internet addiction emerged as significant predictors of poor sleep quality, disturbed emotion regulation and general health issues accounting for 69% of the variance for poor sleep quality, 61% variance for disturbed emotion regulation and 71% of the variance for general health issues.

Discussion

The main findings of the present study were that students with internet addiction had significantly higher mean scores on disturbed emotion regulation, poor sleep quality and general health issues as compared to the students without internet addiction. Further, the results revealed for students with internet addiction revealed significant positive correlation between age and family monthly income, internet addiction, poor sleep quality and general health issues. Gender (being female) had significantly positive correlation with joint family system, family monthly income, internet addiction and poor sleep quality but significant negative correlation with disturbed emotion regulation and with general health. Joint family system had significant positive correlation family monthly income, internet addiction, poor sleep quality, disturbed emotion regulation and general health issues. Internet addiction had significant positive correlation with poor sleep quality, disturbed emotion regulation and general health issues. The correlational analyses for students without internet addiction show significant correlation between age and joint family system, family monthly income and internet addiction. Gender (being girl) and joint family system had significant positive correlation with family monthly income. Family monthly income had significant correlation with poor sleep quality and significant negative correlation with disturbed emotion regulation while poor sleep quality had significant correlation with disturbed emotion regulation. Hierarchical regression analyses showed gender (being male), family monthly income and internet addiction emerged as significant predictors of disturbed emotion regulation, poor sleep quality and general health issues in students with internet addiction.

Results from hierarchical regression analyses revealed that nuclear family system predicted poor sleep quality and disturbed emotion regulation whereas gender (being male), monthly income and internet addiction emerged as significant predictors of poor sleep quality, disturbed emotion regulation and general health issues i.e., headaches, dizziness, digestive issues due to lack of sleep and physical inactivity.

It is well established from previous researches that overuse of internet can be the source of physical and psychological health issues. Reviewing psychology literature confirms that internet addiction can affect physical, emotional and psychological health. Rhythmic emotional regulation has identified as the most important factor of health and pleasant interpersonal relations (Cicchetti et al., 1995) while dysfunctional emotional regulation is manifested in psychiatric disorders (Aldao et al., 2010) i.e., poor sleep quality, disturbed thoughts, stress and worry (Morin & Barlow, 1993). Lund et al., (2010) established that the disturbed emotion regulation in emergence of sleep disorder and emotional regulation problems were strong predictor of insomnia and depressive symptoms. These findings are supported by previous research findings as Williams et al., (2012) advocated that emotional dysregulation was found to have strong association with maladaptive behavior i.e., disturbed emotions causing mood disorders or addictive behaviors.

Yen et al., (2017) also confirmed that subjects with internet gaming disorders had higher mean scores on suppressed emotions. Their research results also revealed that suppressed emotions were significantly associated with anxiety, depressive disorder, hostile feelings and sleep disturbance in subjects with internet gaming disorder.

It has also been well-established from research that suppressed emotions prevent the outflow of inner emotions. Suppression of inner emotions does not regulate negative emotions rather suppressed emotions create internalizing behavior problems in people e.g., sleep disturbance, depression, anxiety etc. (Nikmanesh et al., 2015). So, it is evident from studies that problematic internet influence both emotion regulation process and smooth sleep which ultimately cause psychopathology in people with internet addiction (Lemola et al., 2014; Hwang et al., 2012).

The findings of the present research were also in agreement with previous research studies i.e., Lemola et al., (2014) reported significant association between later bedtimes and internet addiction in students. Similarly, Canan et al., (2013) also endorsed these findings that there is a significant association between internet addiction and poor sleep in young adults (Yusof, et al., (2022). The findings from present research were supported by Park and Lee (2014) who found negative association between internet addiction and level of physical activity, low stress and sleep satisfaction in North Korean and South Korean adolescents. Another study, investigated by An et al., (2014), found the association between over use of internet and mental as well as physical outcomes of youngsters.

Internet addiction had negative association with disrupted sleep destroying sleep quality that was also sustained in another study by Demirici et al., (2014) who did a research on university students (*N=319*) exploring association concerning severity of smartphone over use and disrupted sleep, mental distractions, anxiety and depression. They found internet addiction, disrupted sleep patterns and day time dysfunction were positively correlated. In another study, Demirici et al., also supported that extra timings on smartphone caused disturbed sleep quality and are the predictors of anxiety symptoms in adolescents.

Literature has supported the notion that overuse of internet may affect sleep construction patterns and spoil shaping sleep duration and effectivity, causes disturbances in rapid eye movement and slows down the sleep wave (Dworak et al., 2007; Higuchi et al., 2005). Higuchi et al., (2003) described that overuse or continuous gaze for a longer duration destroy secretion process and disrupt sleep in people with internet addiction. Cain and Gradisar (2010) also endorsed these findings and suggested some necessary mechanisms related to the long duration exposure of electronic media on sleep disruption e.g., electronic media may cause physiological, cognitive and emotional arousal because light emission of devise’s screen being used upset sleep badly and cause disturbed sleep (Mukhtar & Naz., 2021). These constructs were supported by Yen et al., (2009) who reported that internet addiction and cognitive disturbances i.e., inattention and impulsivity were associated in college students.

Conclusion

It is concluded that findings from our study will contribute in the existing literature related to internet addiction describing its adversative effects on emotional regulation, mental and physical health and psychological well-being in university students. The findings from the present research has practical implications for university students to be guided that internet addiction may lead to disturbed emotion regulation, poor sleep quality and general health issues in students. So, students in universities should be given awareness about the addictive engagement of internet is linked with behavioral addiction which can have devastating effects similar to those of substance addiction.

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Merging Flipped Classroom Model with the Ethnomathematics Approach: A New Flexibility Learning Model

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This research focuses on developing a learning model that focuses on flexibility as well as meaningful and student-centered learning. The development of this model is a solution to the challenges of the Education 4.0 era. The problem found in the learning process is that the developed learning model does not facilitate students to follow flexible learning. Students are also not facilitated with learning that brings the context of students' local culture and traditions into learning activities. Another problem is that the learning model used so far has not been tested for model quality, namely valid, practical, and effective. Referring to these problems, the research was conducted through a design research approach with Plomp's development study-model type. The new learning model developed combines the concepts of the flipped classroom and ethnomathematics called the ethno-flipped classroom model. The quality of the developed model was tested using Nieveen's concept through validity, practicality, and effectiveness. The results showed that the ethno-flipped classroom model was valid, practical, and effective. This research obtained an ethno-flipped classroom model syntax consisting of six stages, namely Flexibility, Culture Experience, Cooperative, Elaboration, Collaboration, and Evaluation .
Keywords: ethnomathematics, flexibility, flipped classroom, new learning model

As a basic science subject, mathematics plays a crucial and advantageous role in the advancement of science and technology. Students can study math by developing their logical, analytical, and practical thinking skills as well as their positivity and creativity. Mathematical learning in schools develops knowledge of numbers and operations, algebra, geometry, measurement, data, and probability. Problem-solving, reasoning and proof, communication, connection, and representation are all parts of the standard method used as a benchmark for enhancing students' mathematical abilities in classroom mathematics instruction (National Council of Teachers of Mathematics, 2000).

The NCTM material content and process standards are supported by Indonesia's mathematics learning objectives, which require students to understand mathematical concepts, explain the relationship between concepts, and apply concepts or algorithms practically, logically, systematically, effectively, efficiently, and in accordance with learning outcomes. Based on these mathematics learning objectives, students should be able to apply the mathematical concepts they have learned to solve mathematical problems in their environment, particularly those related to tradition, culture, and community life within the context of where they live (Ministry of Education and Culture, 2013). Current mathematics learning also uses a new paradigm of learning that presents meaningful and student-centered mathematics learning (Polman et al., 2021).

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Facts obtained in the field show that the learning model applied by mathematics teachers, especially mathematics teachers on Nias Island, North Sumatra Province-Indonesia has implemented student-centered learning through cooperative learning. However, the learning model used by teachers so far has not been properly validated regarding the suitability of the syntax in the model and its application in the field. Additionally, the learning approach is inefficient and ineffective at assisting pupils in developing their mathematical skills. The failure to put learning into practice, which would have brought pupils closer to fulfilling learning experiences, demonstrates this. One of the objectives of mathematics education nowadays is meaningful learning. The Sustainable Development Goals (SDGs) initiative, which is focused on achieving quality education for all people, includes meaningful learning as one of its objectives. Community involvement in sustainable development concerns is facilitated by Education for Sustainable Development (ESD), one of which is the promotion of educational quality while fostering local culture (Hill et al., 2020; Zidny et al., 2020).

Based on this, it is critical to produce learning innovations that are thoroughly validated, practical to use, and successful in developing student learning abilities, particularly mathematics competencies. One of the learning solutions that can be established is the use of flexible learning and providing additional possibilities for students to explore, as well as presenting informal challenges that are close to the traditions and culture of students. Nias Island itself is an island in North Sumatra Province and has ethnic and cultural homogeneity. The Nias community is a Nias community that lives in the coastal area, located in Gunungsitoli City, Nias Island, North Sumatra Province. The Nias community, especially the Nias community, is one of the indigenous people groups where they still carry out culture and traditions in their daily lives. The dominance of ethnic groups within the Nias community, namely the Nias tribe (*Ono Niha*) is also one of the reasons why their traditions and culture are still carried out today.

Students' motivation and interest will rise when learning is applied to problems based on real-world situations and drawn from their own cultures and traditions. It is not novel to use culture in relation to mathematics because mathematics is a common knowledge subject and a product of culture (Madusise, 2015; Marsigit et al., 2018). The ethnomathematics approach makes it easier for students to model concepts, processes, and procedures produced by their surroundings. The ethnomathematics approach also helps students become more familiar with events that occur in everyday life (Prahmana et al., 2021). Investigating data gathered from occurrences that occur in students' everyday lives will improve both their ability to reason mathematically and their creativity (D'Ambrosio & Rosa, 2017; Rosa & Orey, 2017).

Based on this description, a valid, practical, and effective learning model can be developed by using the integration of ethnomathematics context in mathematics learning. The learning model developed should refer to the flexibility that students feel when carrying out learning. One of the effective learning models used is this flipped classroom model (Latorre-Cosculluela et al., 2021; Lo, 2018). The flipped classroom model integrates the outside-of-class and inside-of-class learning phases into a single learning cycle (Ramadhani, 2020; Ramadhani et al., 2019; Ramadhani & Fitri, 2020). The flipped classroom paradigm allows students to connect not just with their peers but also with teachers and material information (Attard & Holmes, 2020; Fernández-Martín et al., 2020). Students can investigate the information offered by the teacher while still collaborating with one another to boost students' confidence, curiosity, motivation, and adaption to using technology in learning (Abeysekera & Dawson, 2015; Akhtar & Bahadur, 2021).

The use of the flipped classroom paradigm allows students to collaborate and explore the subject at their leisure. While, the ethnomathematics approach offers pupils relevant education that is connected to real-world issues based on their culture and traditions. The flipped classroom model, which can be combined with the ethnomathematics approach, is a novel learning strategy that has a substantial impact on the development of students' mathematics competencies.

The development of a learning model that presents meaningful learning, is student-centered, and offers flexibility has never been developed. Learning models that are currently developed do not present these three components in one learning syntax. Some learning models developed, such as cooperative learning, problem-based learning, project-based learning, discovery learning, and STEM models are some types of learning models that center on student activities. Meaningful learning has not been facilitated through learning models but facilitated through learning approaches. Some of them are the ethnomathematics approach and the realistic mathematics education approach. Meanwhile, learning that presents flexibility is offered by blended learning models, one of which is the flipped classroom model.

Therefore, this is the novelty of this research. This research presents a learning model that provides meaningful learning experiences through the support of cultural contexts close to students, centers on student learning activities, and provides flexibility in student learning activities. The development of learning models that bring meaningful learning and offer flexibility results in learning innovations that have great opportunities to be integrated more widely in mathematics learning in various regions in Indonesia and outside Indonesia. The development of a new learning model also requires an analysis of validity, practicality, and effectiveness to ensure that the learning model is able to provide improvements in student learning abilities, especially in mathematics. The ethno-flipped classroom model provides support in strengthening the cultural values and characters of various ethnic groups in Indonesia and outside Indonesia through flexible and interactive mathematics learning.

Based on the description of the problems presented, the facts obtained in the field, and the opportunities that will be obtained, the research questions of this study include.

1. What is the validity of the ethno-flipped classroom model developed?
2. What is the practicality of the ethno-flipped classroom model developed?
3. What is the effectiveness of the ethno-flipped classroom model developed?
4.

Method

The components of learning model development, which include syntax, social systems, management reaction principles, support systems, as well as instructional impact and accompanying impact, must be considered. Furthermore, the construction of learning models must consider the quality of the learning model. Akker et al., (2006) stated that the quality of the learning model is based on the quality aspects according to Nieveen, namely (1) validity, (2) practical, and (3) effectiveness.

Referring to the quality of model development, the ethno-flipped classroom model was developed through a design research method with the Plomp development study-model type. The Plomp model development study comprises three stages: preliminary research, prototype, and assessment. The preliminary research stage is where you perform a needs and context analysis, a literature evaluation, and establish conceptual and theoretical frameworks. The basic research stage resulted in prototype 1, the original concept of the ethno-flipped classroom paradigm.

The prototyping stage is used to perform a cyclical and successive design process in the form of a more micro-research approach and to develop and refine the intervention model through formative evaluation (Prototype 2). At the prototyping stage, prototype 2 was analyzed for validity in all components, both content validity and construct validity. Content and construct validity are very important for a developed component (in this case a new learning model). The validity test process is conducted to ensure the quality of the developed components before they are implemented in the field. The first validity procedure is the content validity test. According to Akker (1999), content validity relates to how much the intervention design (in this example, the new learning model) is based on current knowledge. The syntax component, the social system component, the management reaction main component, the support system component, and the instructional and accompanying impact components of prototype 2 were validated in the content context.

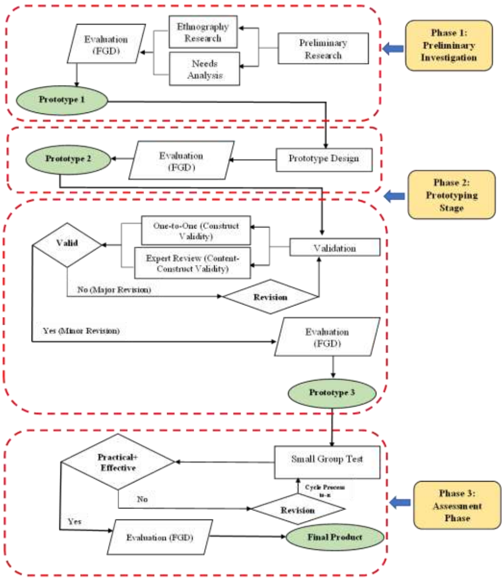
According to Akker (1999), construct validity refers to the numerous components of an intervention that are consistently interrelated with one another. Akker (1999) also states that the construct validity is conducted after the content validity process has been carried out by experts. Construct validity was carried out on all the components of the ethno-flipped classroom model, namely the syntax, the social system, the management reaction principle, the support system component, and the instructional impact component and the accompanying impact. The supporting system component consists of teaching materials supporting the model and the learning management system application used in implementing the model. The instructional impact component is student learning outcomes (focused on students' informal statistical reasoning skills) and the accompanying impact component is students' self-regulated learning. The results of the validity analysis on the ethno-flipped classroom model components are called prototype 3.

The final stage is the assessment phase, which is the stage to assess the prototype 3 that has been validated both in content and construct. The assessment phase focuses on testing the practicality and effectiveness of the ethno-flipped classroom model (prototype 3). Small-group trial activities are used during the assessment stage. According to Akker (1999) the model's practicability relates to the extent to which users (and other experts) find the intervention appealing and usable in typical situations (Akker, 1991). Observing the execution of the ethno-flipped classroom model developed was used to test the program's practicability.

The efficacy of the Akker (1999) model relates to the degree to which the intervention's experiences and outcomes are congruent with the planned goals. The model's effectiveness is evaluated using three criteria: classical learning completeness (achieved by administering valid tests to students), teacher ability to manage learning (achieved through observation activities), and achievement of positive student responses (achieved through administration of valid response questionnaires). The results obtained at the assessment stage are called the Final Product. Final The product is a valid, practical, and effective ethno-flipped classroom model. The ethno-flipped classroom model, which has proven to be valid, practical, and beneficial, can now be employed in a larger field deployment. The stages of model development using Plomp's development study-model type are presented in Figure 1 below.

Figure 1

Stages of Ethno-Flipped Classroom Model Development



The participants in this study totaled 48 people with details of 25 students (64% female and 36% male) who participated in the first small group trial activity and 23 students (65.22% female and 34.78% male) in the second small group trial activity. All participants were final year students of a public high school located in Gunungsitoli City, Nias Island, Indonesia. The selection of participants was carried out by purposive sampling by considering the criteria of ethnic and cultural dominance of students and students' initial mathematics ability.

This research was conducted for 10 months from January to November 2022. Based on the research questions presented in the Introduction, this study aims to: (1) to develop a valid ethno-flipped classroom model; (2) to develop a practical ethno-flipped classroom model; and to develop an effective ethno-flipped classroom model.

Result and Discussion

The new learning model produced is organized around the model components proposed by Joyce & Weil (2003), namely syntax, social system, management reaction principles, support system, instructional impact, and accompanying impact. The following are the outcomes of the construction of a new learning model based on the stages of the Plomp model:

Preliminary Research Stage

The preliminary research stage was conducted through two activities, namely ethnographic research and needs analysis. Preliminary research activities were carried out by conducting small-scale ethnographic research related to the use of cultural contexts that will be used in the developed model (Subki, 2022). The cultural context integrated in the ethno-flipped classroom model is the cultural context of Nias tribe, both mentifacts and cultural artifacts. Needs analysis activities are carried out by analyzing the context and problems, literature review and analysis of research results that are relevant to the development of learning models carried out. Literature study was conducted related to the effectiveness of learning theories underlying the learning model which became the basis for the development of ethno-flipped classroom model in improving students' mathematical ability. The preliminary research found that the context of mentifacts and cultural artifacts of Nias tribe are suitable to be integrated in the syntax of the new learning model. The chosen mentifactual context is the kinship system in the Traditional Wedding Ceremony of the Nias Tribe Community "*Fatalifusö"*. This context is closely related to the concept of "gotong royong" or collaboration. The concept of collaboration (called "*gotong royong*") is one of the philosophies of life of the Nias community which is still preserved today, one of which is through the "*Fatalifusö"* kinship system. Each stage of "*Fatalifusö"* contains different values and messages. In addition, each stage is also carried out by several figures who play an important role including *Salawa hada* (customary leader), *Döla-döla hada (*consisting of the customary king, village head or *salawa*, penghulu, young head, induk ina, and dubala), *Talake* or *Si'o*, or *Halöluo* or *Towi-towi bawazuasa* (acts as an intermediary to conduct deliberations or *fobanuasa*), *Sanema li* (tongue connector) and *fadono* or *ono alawe* (the family of women who provide assistance) (Laoli et al., 1985).

The results of the preliminary research are also in line with the results of the needs analysis. The needs analysis conducted by the researcher found that students need a learning design that is flexible, meaningful, and close to the cultural context and traditions of their lives. The incorporation of cultural context into learning design aids students in understanding learning materials, increases student participation in learning activities, and expands students' reasoning skills in dealing with contextual difficulties. The needs analysis also found that the theoretical study of the flipped classroom model and the ethnomathematics approach can be combined in a new learning model, taking into account students' personal factors and personal behaviors (Ramadhani et al., 2021). The results of preliminary research and needs analysis are then used to design new learning model components consisting of syntax components, social systems, management reaction principles, support systems, and instructional and accompanying impacts. The result of the initial design of the new learning model is called Prototype 1.

Protoyping Stage

RQ1: Validity of the Ethno-Flipped Classroom Model

Prototype-1 produced in the preliminary research was then analyzed regarding the validity of the design produced. The strength of the Nieeven-based model is referred to as the design's validity. Prototype 1's validity is defined as both construct and content validity. Expert judgment was used to undertake the content validity and Many-Facet Rasch Model (MFRM) analysis. Table 1 below provides the findings of the content and construct validity test on ethno-flipped classroom model utilizing MFRM analysis.

Table 1

Results of Content and Construct Validity Test on Ethno-Flipped Classroom Model Components Using Many-Facet Rasch Model (MFRM) Analysis

No.	Model Building Components Assessed	Total Score	Infit MNSQ	MNSQ Outfit	Infit ZSTD	ZSTD Outfit
1.	Syntax	134	0.58	0.87	−1.90	−0.30
2.	Social System	120	1.23	1.52	1.00	1.90
3.	Management Reaction Principle	117	0.87	1.32	−0.50	1.30
4.	Support System	132	0.74	0.57	−1.10	−1.50
5.	Instructional and Accompanying Impacts	131	1.26	0.94	1.00	−0.10

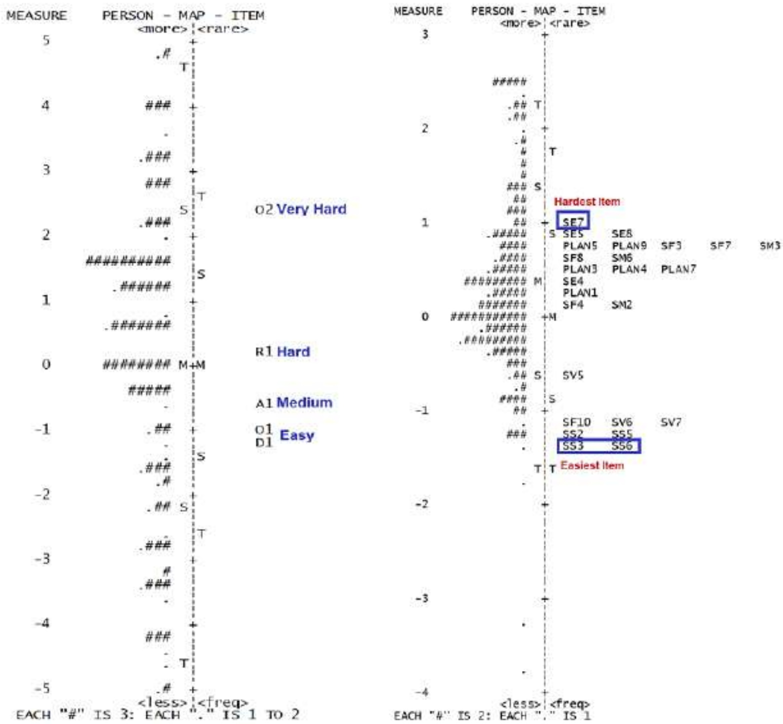
The valid criteria used in MFRM analysis refer to the fit statistics criteria which are evaluated based on the mean-square infit statistic (Infit MNSQ), mean-square outfit statistic (Outfit MNSQ), standardized infit statistic (Infit ZSTD), and standardized outfit statistic (Outfit

ZSTD). Infit and outfit mean-square statistics (Infit and Outfit MNSQ values) have an expected value range of 0.5 sampai 1.5. A facet element's Infit and Outfit ZSTD values are acceptable if they vary between -2 and +2 (Eckes, 2011, 2015). Based on MFRM analysis, the results of content and construct validity on all components of the new learning model (the ethno-flipped classroom model) were valid.

The validity test was followed by a construct validity test on the research instruments used as components of instructional impact (statistical informal reasoning ability test instrument) and accompanying impact (self-regulated learning non-test instrument). The item response theory-Rasch model measurement technique was used to assess construct validity (Sumintono & Widhiarso, 2015). Rasch Model Measurement Analysis is an IRT-based measurement analysis that employs the Joint Maximum Likelihood Estimation (JMLE) equation to convert raw data into interval data (logit) (Chan et al., 2016; Ramadhani et al., 2022). The following wright map of construct validity results on the instructional impact component (student learning outcomes test - informal statistical reasoning skills) and the accompanying impact component (student self-regulated learning questionnaire) are presented in Figure 2.

Figure 2

(a) Wright Map of Test Item Difficulty Levels from Construct Validity Results; (b) Wright Map of Questionnaire Statement Difficulty Levels from Construct Validity Results.



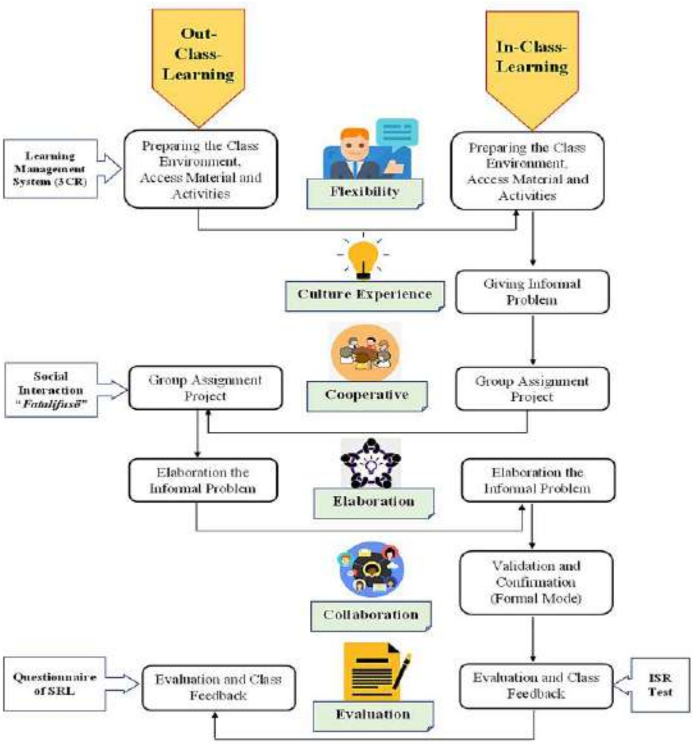
(a) (b)

The criteria for analyzing construct validity on test and non-test instruments (item suitability or item fit are (a) the accepted Outfit Mean Square (MNSQ) value of 0.50 to 1.50; (b) the accepted Z-Standard Outfit (ZSTD) value of -2.00 to $+2.00$; and (c) the Point Measure Correlation (Pt. Mean Corr) value of 0.40 to 0.85) (Bond & Fox, 2015; Boone et al., 2014).

According to Figure 2, all items of the learning outcomes test instrument (informal statistical reasoning skills) appear to match the valid criteria utilized in the Item Response Theory-Rasch Model Measurement study. In contrast to the construct validity results on the self-regulated learning questionnaire, where there are 25 out of 50 statements that do not meet the valid criteria based on Item Response Theory (IRT) analysis through Rasch model measurement analysis. The unmet criteria appear in the Z-Standard (ZSTD) Outfit value criteria, where the accepted ZSTD Outfit value criteria are $-2{,}0 < \text{ZSTD} < +2{,}0$. Referring to the results of the construct validity of the self-regulated learning questionnaire (the accompanying impact component), it is concluded that the number of statements that are valid and can be used in the effectiveness test of the new learning model is 25 statement items.

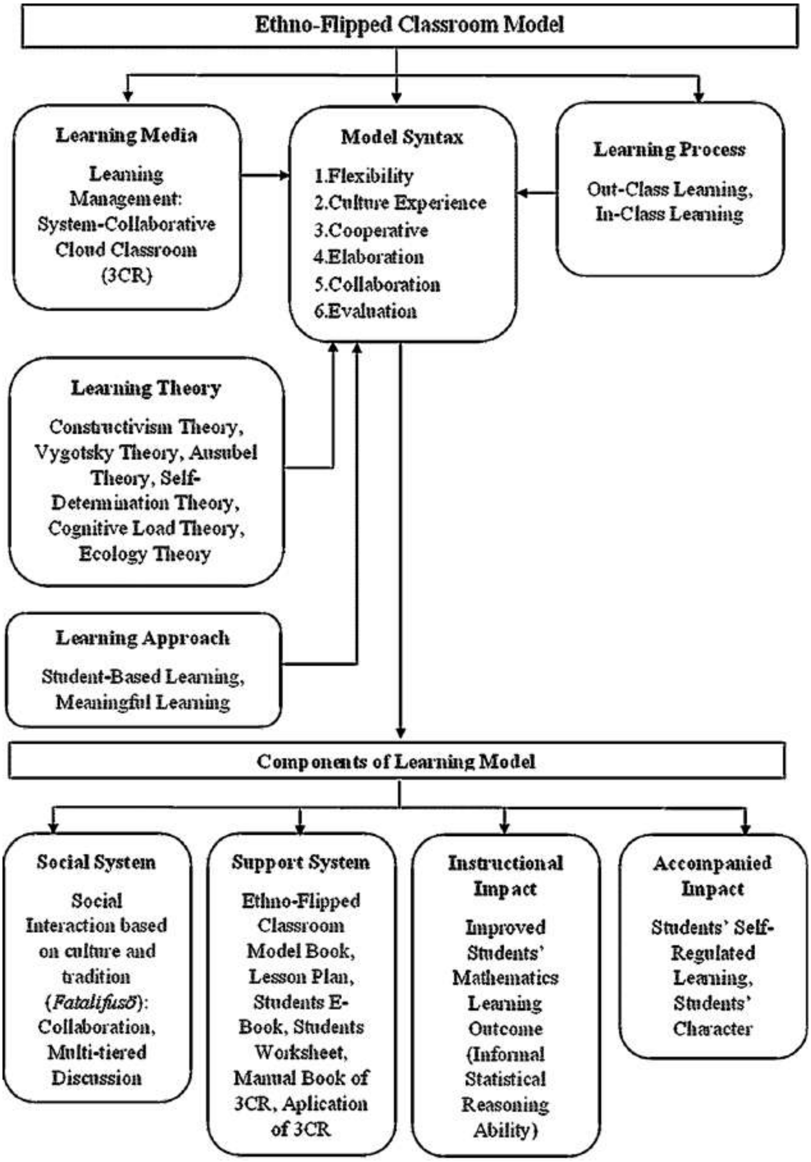
The results of the ethno-flipped classroom model design based on the components of the model at the prototyping stage are referred to as Prototype 2. The syntax design of the valid ethno-flipped classroom model (Prototype 2) is presented in Figure 3 below.

Figure 3
Syntax of the Ethno-Flipped Classroom Model



The theoretical framework of the ethno-flipped classroom model that has been designed at the prototyping stage (Prototype 2) is presented in Figure 4 below.

Figure 4
Theoretical of Ethno-Flipped Classroom Model



The content and construct validation results in Table 1 and the construct validation results of test and non-test instrument in Figure 2 demonstrate that the components that comprise the ethno-flipped classroom model are valid in both content and construct. Researchers can use Rasch Model analysis to demonstrate that the constituent components of the ethno-flipped classroom model (syntax, social system, management reaction principle, support system, instructional impact, and accompanying impact) are valid and can be applied in field learning. The syntax of the ethno-flipped classroom model presented in Figure 3 depicts a succession of validated student learning activities. Student-centered learning activities through tiered discussion activities and conducted by integrating the context of cultural mentifacts, then designed in a flexible form proved valid for implementation in the field. The validity of the ethno-flipped classroom model gained through this method demonstrates that the model is capable of facilitating a learning environment that encourages students to interact socially and promotes their competency. Furthermore, the valid ethno-flipped classroom model was further analyzed to test the practicality of its implementation in the field.

Assessment Stage

RQ2: Practicality of the Ethno-Flipped Classroom Model

The valid prototype 2 ethno-flipped classroom model (further referred to as prototype 3) was then tested in small groups. The small group trial was carried out for the initial design of the model to meet the practicality and effectiveness or not. The small group trial was conducted twice in different trial classes. The subjects who participated in the trial activities were final year students at the Science Program Senior High School level in Gunungsitoli City, Nias Island, North Sumatra Province-Indonesia. The practicality test of the model was carried out through observations of model implementation. Observations were conducted by external observers and the results of the model practicality test on the small group trial can be seen in Table 2 below.

Table 2

Summary of the Practicality Test Results of the Ethno-Flipped Classroom Model in the First and Second Small Group Trial Activities

No.	Aspects Observed	Average Aspect Score (Trial 1)	Average Aspect Score (Trial 2)
1.	Syntax	2.58	3.43
2.	Social System	2.40	3.46
3.	Management Reaction Principle	2.47	3.48
	Average Total Aspect Score	2.48	3.46
	Percentage of Model Applicability	62%	86.50%
	Summary of Model Practicality Test Results	Implemented with Less Good ($43,75 \leq KIMP \leq 62,49$)	Very well done ($81,25 \leq KIMP \leq 100$).

Based on the results of the model practicality test presented in Table 2, it is concluded that in the second small group trial, the ethno-flipped classroom model design (Prototype 3) has met the practicality requirements. The requirement for the practicality of the model is if the design of the model can at least be carried out with either ($62,50 \leq KIMP \leq 81,24$) (Akbar, 2015).

RQ3: Effectiveness of the Ethno-Flipped Classroom Model

The valid and practical Prototype 2 was then tested for effectiveness through small group trials. The effectiveness test was conducted simultaneously with the practicality test of the model which was conducted twice in small group trials. The effectiveness of the ethno-flipped classroom model was analyzed through three criteria, including the achievement of classical student learning completeness, the achievement of teacher ability to manage learning, and the achievement of positive student responses after being given learning interventions.

a) Achievement of Classical Student Learning Outcomes

The analysis test of the completeness of student learning outcomes was performed on final-year students at Gunungsitoli City's Science Program High School. Small group trial activities were used for the analysis of the completeness of learning outcomes. The first small group trial took place in class A, and the second small group trial took place in class B. Participants in the first small group trial (Class A) included 25 students (64% female and 36%

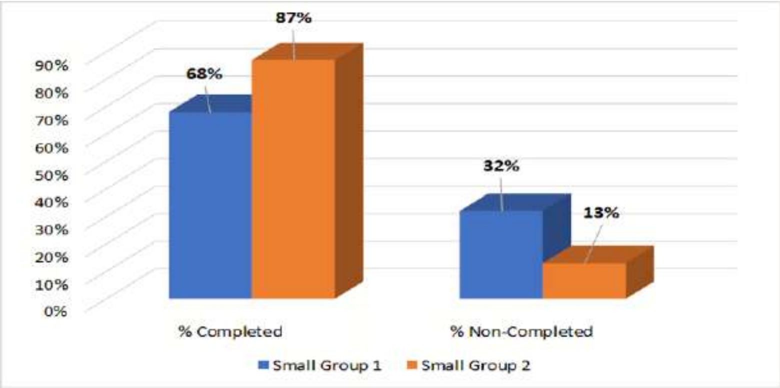
male) and participants in the second small group trial (Class B) included 23 students (65.22% female and 34.78% male).

The number of participants in the small group trial activities represents the research subjects who participated in the assessment activities to answer research questions related to effectiveness. A high number of participants is not required for small-group trials. This is because the main focus of the small group trial activities will be the success of the ethno-flipped classroom model after being deployed on a small scale in the field. According to Nieeven, the effectiveness of the learning model necessitates an analysis, and the presence of participants provides answers to the influence of the application supplied and the reaction given by a small number of students (Plomp, 2013). If the learning model has been demonstrated to be valid, practical, and effective in a small group of students, the implementation can be continued in a larger group of students, known as the field test, in the following stage.

The learning outcome test given to analyze the completeness of student learning outcomes classically uses a valid informal statistical reasoning ability test. The following comparison of the average student learning outcomes in the two small group trials is presented in Figure 5.

Figure 5

Comparison of Percentage of Students Achieving Learning Completeness in Small Group 1 and Small Group 2



According to Figure 5, the percentage of students' classical learning completeness in the small group 1 trial activity was only 68%, falling short of the efficacy criteria. If the percentage of classical completion (PCC) is greater than 85%, students have met the criterion for classical learning completeness. In reference to this condition, the small group 2 trial achieved 87% classical completeness in student learning results. Based on these findings, one of the three requirements for the new learning model's efficacy has been met.

b)Achievement of Teachers' Ability to Manage Learning

Another requirement for the ethno-flipped classroom model's performance is the teacher's capacity to supervise learning. An external observer will use a reliable observation sheet to assess the teacher's capacity to manage learning in the ethno-flipped classroom approach. In the first trial of small group activities, the findings of the examination of the teacher's ability to manage learning using the ethno-flipped classroom model did not meet the "good" criterion in all elements of observation. The observation aspects that meet the "Good" criteria are only in the aspect of syntax implementation 1 (Preparing the Learning Environment, Material Access, and Learning Activities-Introductory Activities) with a category value of 3.92; the aspect of syntax implementation 2 (Providing Informal Problems-Core Activities) with a category value of 3.83; and the aspect of observing the classroom atmosphere with a category value of 3.54. The overall average observation scores also did not meet the minimum criteria of "Good", because it only reached an average score of categories 3.83. (3.50 to 4.49) because it only reached an average category score of 3.43 ("Good Enough" criteria). The first small group trial's study of the teacher's capacity to manage learning did not fulfill the achievement criteria.

The results of the second small group trial's observational analysis of the teacher's capacity to control learning met the criteria. The teacher's ability to manage learning utilizing the ethno-flipped classroom model has met the "good" standard in all parts of observation. The average value of the overall observation has also met the minimum criteria of "Good", because it has reached the average value of the 4.30 category. (3.50 to 4.49) because it has reached the average value of the 4.30 category ("Good" criteria). The significance of applying the grammar of the ethno-flipped classroom model has grown. The teacher's ability to implement the syntax of the ethno-flipped classroom model has increased in value because the teacher has begun to adapt and become accustomed to playing the roles of facilitator, motivator, and mediator, as well as patiently waiting for the students' responses to the teacher's directions.

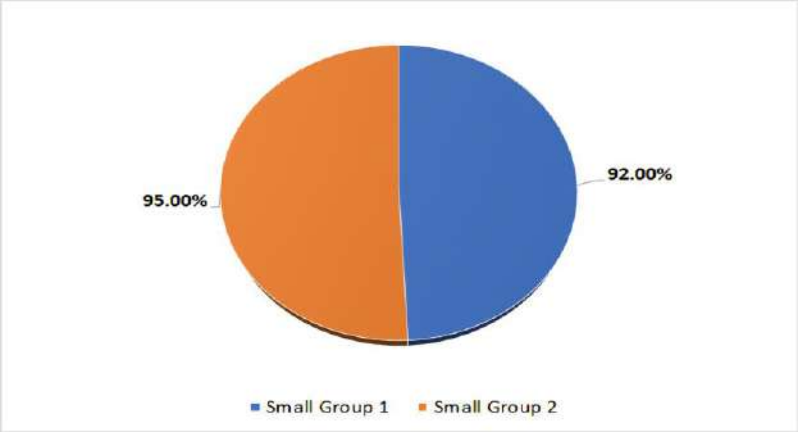
Teachers' roles in learning are critical to the successful application of learning models (Liu et al., 2018). Contact between teachers and students is also critical to ensuring that the applied learning model actualizes Vygotsky's idea that social contact influences student learning results (Dietrich et al., 2021; Kang et al., 2021; Spilt et al., 2011). Based on the observation of the teacher's ability to manage learning in the second trial activity, as well as the relationship of theory to the results and conclusions gained, the criteria for the teacher's capacity to manage learning have been met. This conclusion demonstrates that the ethno-flipped classroom approach met two of the three criteria for effectiveness.

c) Achievement of Students' Positive Response After Receiving the New Learning Model Intervention

Students' responses are measured and analyzed through the provision of student response questionnaire sheets. The student-answer questionnaire sheet that has been validated based on content and construct validity analysis is provided at the conclusion of the learning activities. Students are required to answer 12 affirmative statements on three different scales. The analysis of student replies in small group trial 1 reached 92%, and small group trial 2 reached 95%. These results show that students in two small group activities have a response in the "Very Good" category (Akbar, 2015). A comparison of the percentage of students' positive response achievement after receiving learning intervention using ethno-flipped classroom model is presented in Figure 6 below.

Figure 6

Percentage of Student Response After Learning Ethno-Flipped Classroom Model (Small Group 1 and 2)



Students' favorable responses reflect the influence of their activities during the learning process using the ethno-flipped classroom model. Students eagerly participated in tiered discussion exercises based on the kinship system at a traditional wedding ceremony, or "*Fatalifusö*. Students are also enthusiastic in solving informal statistical problems presented in the context of Nias culture. The ethno-flipped classroom concept creates a learning atmosphere that encourages students to actively participate in a variety of student-centered activities. Social interaction between students while in the learning environment attracts students' enthusiasm and interest to contribute to the learning process using the ethno-flipped classroom model.

The presence of a learning environment has been shown to assist students in creating knowledge, and the presence of social interactions has also been shown to help students manage cognitive load collectively (Huang et al., 2019; Prasetyo et al., 2022; Sjølie et al., 2022). This is consistent with the findings of Closs et al., (2022) research, which determined that the requirements for achieving favorable student responses were met based on the results of the analysis of student responses in the first and second trial activities in the small group. The examination of students' positive reactions revealed that all criteria for the effectiveness of the ethno-flipped classroom model had been met, as had the formulation of research problems connected to the model's effectiveness.

In terms of the attainment of the ethno-flipped classroom model's validity criteria, practicality criteria, and effectiveness criteria, the results reveal that the ethno-flipped classroom model established has met the learning model's validity, practicality, and effectiveness criteria. The findings of the effectiveness test conducted on the three criteria resulted in the final product of the new learning model, which is valid, practical, and effective.

Conclusion

The findings of the construction of a new learning model revealed that the ethno-flipped classroom model matched the quality of the model development criteria established by Nieveen. The ethno-flipped classroom model's validity has been established based on both content and construct validity. All components of the ethno-flipped classroom model (syntax, social system, management reaction principles, support system, instructional impact, and accompanying impact) met both content and construct validity criteria (based on Many-Facet Rasch Model analysis). The valid ethno-flipped classroom model also met Nieveen's model practicability criteria.

The implementation of the ethno-flipped classroom model conducted through observation activities has reached a very good implementation value after the second small group trial. Furthermore, the valid and practical ethno-flipped classroom model has also met the criteria for model effectiveness. Students can achieve classical completeness ($PCC \geq 85\%$) after taking part in learning using the ethno-flipped classroom model. Based on the observation data, the teacher's ability to control learning also met the "good" criterion in the second small group trial (3.50 to 4.49) in the second small group trial activity as well. Even before the first small group trial, the students' positive reactions met the "very good" requirements. Even before the first small group trial, the students' positive reactions met the "very good" requirements.

Through three steps of Plomp's development study model and design research techniques, an ethno-flipped classroom model that is valid, practical, and effective is generated based on the outcomes of the development of a new learning model. The ethno-flipped classroom model's development outcomes also yielded a novel syntax comprised of six stages: flexibility, culture experience, cooperation, elaboration, collaboration, and evaluation. The syntax of the ethno-flipped classroom model can be implemented in the field of learning by using ethnomathematics contexts that are consistent with the traditions and culture of the pupils.

Limitation of Study

The integration of ethnomathematics developed in the ethno-flipped classroom model design refers to the context of artifacts and cultural mentifacts of the Nias tribe found on Nias Island, North Sumatra Province-Indonesia. However, at the group assignment project level, the integration of the ethnomathematics context in the syntax only uses Nias tribal mentifacts (the kinship structure at the traditional wedding ceremony, or "*Fatalifusö"*. The social system formed based on the "*Fatalifusö"*-Nias context can be adapted to the social system of other tribes and cultures without changing the syntax of this model. The integration of the "*Fatalifusö"*-Nias mentifact context as an ethnomathematics context in the syntax of the ethno-flipped classroom model is because the Nias tribe is used as a case study in developing and analyzing the quality of the ethno-flipped classroom model design.

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Teaching of English at Secondary Level: A Comparative Study of Public Schools and Madaris of District Mianwali

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The study was designed to compare Public Schools and Madarisof District Mianwali regarding teaching of English as a subject and to find out satisfaction of students with English teachers. Multi-stage sampling method was used to draw sample. At first stage 6 public schools were selected through simple random sampling method and all 6 Madaris where English was taught were selected. At second stage, 120 students of 8th and 9th class were selected from each school and Madrisa by giving equal representation. At third stage, 12 English teachers of 8th and 9th class were selected through simple random sampling from public schools and 12 teachers from Madaris were selected. Results of the study showed that reading and writing were given some attention by the English teachers of both Public Schools and Madaris while listening and speaking skills were not given attention by teachers. Teachers of English of both types of institutions were using simple method of grammar translation but students of Public Schools were able to understand easy English without translation in Urdu as compared to students of Madaris who were not able to do that. Moreover, students were satisfied with their teachers. It is recommended that professional training of teachers should be arranged in order to update them about English language .
Keywords: teaching of English, teaching methodologies, public schools, Madaris, satisfaction level

English is being spoken as a native or foreign language in many countries of the world and it enjoys the status of international language (Crystal, 2000). English is used by the government of Pakistan and renowned schools—Aitcheson College (Lahore), Burn Hall (Abbottabad), Grammar School (Karachi), some private schools and all convent and public schools feel pride to teach all subjects in English and making efforts to include English in daily conversation of their students (Rehman, 2002).

The education system in Pakistan is generally divided into following levels:-
1-Primary (Grade one to Grade Five)
2-Middle(Grade Six to Grade Eight)
3-High(Grade Nine to Grade Ten) also known as secondary
4-Intermediate(Grade Eleven to Grade Twelve) also known as Higher secondary
5-University (Undergraduate and Graduate degree) (Blood, 1994).

Pakistan's Education System has three types of institutions: English Medium, Urdu Medium and Deeni Madaris. According to the financial level, every class chooses the institution for their children. Poor and religious minded community chooses Madrassah for their children (Ahmad, 2011).

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English is popular not only in Public Schools but in Madaris also. Rehman (1999), in his survey of student attitudes towards English in different school types of Pakistan, says that students from not only Public schools but from Madaris also, want to learn English and he further says that Madaris are considered most conservative part of society.

Ayub Khan's regime (1958-1969) was known for modernism and authoritarian style. Ayub Khan's Commission on National Education stressed on the use of both languages (Urdu and English).It recommended English as alternative medium of instruction at secondary level (the other being Arabic). Actually, the aim behind the inculcation of English language was to make ulmas capable of understanding the modern world (Rehman, 1998).

It was highly recommended in 2009 Education Policy that the students of Madaris shall be brought to the status of students of public secondary schools by introducing formal subjects. The curriculum from class I onward shall include English (as a subject), Urdu, one regional language and mathematics. Further it stated that provincial and area education departments were free to choose the medium of instruction up to class V (NEP, 2009).Ahmad (2009) while discussing educational policies of Pakistan, described that there was no proper emphasis to acquire modern education and the dichotomy of reason and faith in educational policies of Pakistan did not allow the emergence of critical mass that can nourish independent thinking among students.

Most of the Madaris in Pakistan prepare students for religious duties and they teach Islamic subjects such as the Qoran, Islamic law and Jurisprudence, Logic and the Prophet's traditions. According to the level of Madrassah (primary, middle or high), religious teaching is more emphasized gradually. Hafiz-e-Koran (the one who memorizes the Qoran fully) or Qari (the one who can recite the Qoran with good pronunciation and in a melodic tone) are produced at the lower level of Madaris. The higher levels of Madaris are producing Alim – the Islamic scholar and/or teacher. Mostly Madaris concentrate on religious education only whereas some of them focus on secular subjects also (Anzar, 2003). Some Madaris conduct regular classes of school education and prepare students for the service of religion and society .In such type of Madaris, English is being taught along with other subjects. Some Madaris do not allow English but in some Madaris, it is taught as a compulsory subject. A Madrisa teacher of Khyber Pakhtunkhwa says "through English we can communicate Islam to others, we can learn about Judaism and Christianity, we can achieve harmony, we can learn" (Coleman, 2010).

Akhtar (1997) says that in Pakistan English is given the status of a subject like other subjects as Urdu, Social Studies, Mathematics and Islamiyat. It is usually divided into two parts: English A and English B. English A includes a text book with some lessons. Teachers translate the stories and poems into Urdu using the Grammar Translation Method and answer comprehension questions which students memorize word by word. English B is the grammar side of the subject and syllabus of English B consists of essays, moral stories, letter writing, application writing, tenses and translation from Urdu to English. Teachers make the students learn essays, stories, letters, and the rules of grammar. Students write these rules in tests and exams.

There is a plenty of research in comparison of public schools and private schools but hardly any research can be seen related to Madaris in the context of teaching learning process of English. That is why researcher decided to highlight that area of Madaris and public schools.

Problem statement

English is being taught in Pakistan as a compulsory subject not only in Public Schools but in Madaris also. Most of the Madaris of Pakistan do not allow general education of the students and they have their own courses but some Madaris equally concentrate on general education also. Some of such Madaris have their own model schools in which students attend classes like students of Public schools and other Madaris prepare their students privately for exams of board besides their special courses for Islamic education. Mianwali is considered one of the backward areas of southern Punjab and this area has a trend to send their children to Madaris because of non availability of nearby schools and poverty. As Madaris provide free accommodation and education to the students so they are convenient in sending their children to Madaris. That is why researcher chose that district for comparative study of public schools and Madaris.

Significance of the Study

English is being taught in every public or private school of Pakistan but as Madaris are concerned, all of them are not teaching it on any level but most of them are doing that. It is assumed in society that Madaris are very rigid in their religious education and they don't pay attention to the subject like English that is need of the time. The study provides details regarding that assumption by comparing teaching learning process of English of both types of institutions. Madaris are also an important part of education system in this country because it is a Muslim country and Muslims give priority to religious education. The study shows that Madaris are trying to concentrate English subject as well and it will be a great source of research for those who want to do research on Madaris. Public schools and Madaris are working efficiently and smoothly but teaching learning process of English of both systems has areas of improvement and strengths also and there are some differences and commonalities in teaching learning process of English of both systems. The study has identified those commonalities and differences for the improvement of weak areas of both systems.

It is not only beneficial for teachers and students but also for the government (the education division) to formulate technical policies.

Objectives of the study

Objectives of the study were to compare:

1. Teaching Learning Process of English in terms of four language skills i.e. reading, writing, speaking, and listening in Public Schools and Madaris of district Mianwali.
2. Teaching methodologies used by English teachers of public schools and Madaris of district Mianwali.
3. The satisfaction level of students with the English teachers of Madaris and Public Schools of district Mianwali.

Method

The main purpose of the study was to compare the teaching learning process of English in public Schools and Madaris of district Mianwali.

Population

Population of the study was consisted of the following categories.

Category I

English teachers and students of secondary schools of Public Sector in District Mianwali.

Category II

English teachers and students of Madaris in District Mianwali.

Sample

In order to ensure adequate representation of the population, the sample comprised of 120 students and 12 English teachers of Public Schools and Madris. At first stage six schools were selected through lottery, while all Madaris were selected where English was taught. At second stage, teachers and students were randomly selected.

Six Public Schools from Tehsil Piplan and Tehsil Mianwali are as under:

1. Government Girls High School Piplan (Mianwali)
2. Government Girls High School Chak no. 1/ML (Mianwali)
3. Government Girls High School Chak no.3-4/ML (Mianwali)
4. Government High School Chak No. 32-DB (Mianwali)
5. Government Higher Secondary School Wan Bhachran
6. Government High School Hafizwala (Mianwali)

Six Madaris from Tehsil Piplan and Tehsil Mianwali are as under:

1. Jamia Akbaria Mianwali.
2. Jamia Ghousia Wahdia Mianwali.
3. Jamia Islamia Hakeem Abdul Raheem Khan Lilbinat Mianwali.
4. Al Kulia Muhammadia Ghausia Sultania Lilbinat Wan Bhachran (Mianwali)
5. Jamia Mehmoodia Lilbinat Piplan.
6. Jamia Qudsia Lilbinat Piplan.

The researcher put her effort to get purposeful responses. Researcher selected 10 students and one teacher as a sample from each school and the same number of students and teachers from each madrassah. The total number of respondents from each category of institutions was 66.

The study was quantitative in nature and survey method was used for conducting the research.

Data Collection Tool

It was decided to use interview schedule as a tool of data collection. Because most of the respondents of the study were children, so structured interviews appeared the most appropriate tool for the purpose and it helped to get first-hand information through face to face meeting. A semi structured interview schedule was developed to get information from teachers.

Tool Development

In view of the objectives of the study a structured interview for students was developed on five points rating scale (likert's). Responses on the items were scored as followed:
Strongly agreed was scored 5, Agreed as 4, Undecided as 3, Disagreed as 2and strongly disagreed as 1.

Interview schedule for students was consisted of following items:

- Teaching method of English teachers (8items)
- Satisfaction of the students with the teachers of English (7items)

Interview schedule for teachers was consisted of some questions. These questions were related to the teaching learning process of English.

Pilot Testing

The main purpose of pre testing was to know the weaknesses and complexities of the interview items and minimize the ambiguities and misconceptions .Pre testing was conducted to know the preliminary results and to determine the efficacy and appropriateness of the interview items to the content or subject matter.

For the sake of validation, interview items were reviewed by testing them on small sample. For this purpose researchers interviewed 6 students and 2 teachers from a Madaris and a Public school and noted down their comments. Results of those interviews were discussed with and on the basis of them certain amendments were made in order and nature of the questions, while some questions had to be excluded. So after pre testing the tool i-e interview schedule was given the final shape.

Data Collection

After pre-testing, data was collected. The researchers personally visited Public schools and Madaris in Tehsil Mianwali and Tehsil Piplan. Interviews of teachers and students were conducted by the researchers.

Data Processing

After data collection, the next phase of research is data processing which includes the following steps:

Editing

Editing was done by the researchers very carefully to ensure that all the interview schedules were filled accurately. During this vague and ambiguous information was made precise while certain irrelevant responses had to be omitted.

Classification

Responses of the open ended questions of the interview schedule were classified on the basis of their common characteristics. After this the whole data was transferred to the data sheet for the purpose of tabulation.

Analysis

The tables were analyzed both statistically and descriptively. In the statistical analysis percentages were worked out while in descriptive analysis narrative interpretation was made.

Results

Table 1

Use of Audio/Visual Aids by English Teachers

Options	Public Schools		Madaris	
	F	%	F	%
Strongly Agree	0	0	0	0
Agree	0	0	0	0
Undecided	0	0	0	0
Disagree	0	0	0	0
Strongly Disagree	60	100	60	100

Table 1 provides information about the use of Audio/Visual aids in class by English teachers of Public Schools and Madaris. 100% Students from Public Schools and 100% Students from Madaris strongly disagreed to the statements.

This is obvious from the table that no teacher from both types of institutions was using Audio/Visual aids in the class of English.

Table 2

English Spoken by Teachers in Class

Options	Public Schools		Madaris	
	F	%	F	%
Strongly Agree	0	0	0	0
Agree	24	40	14	23.3
Undecided	0	0	0	0
Disagree	32	53.3	39	65
Strongly Disagree	4	6.7	7	11.7

In Table 2, we can see that 40% of students of Public Schools whereas 23.3% of Madaris were agreed to the statement "Most of the time teacher speaks English in the class" As 53.3% students of Public school but 65% students of Madaris disagreed to the same statement. 6.7% from Public schools and 11.7% students from Madaris Strongly disagreed to the statement.

It can be seen in this table that majority of the teachers of both types of institutions did not speak English in the class. But the number of English speaking teachers in Public Schools was greater than that of Madaris.

Table 3
Students' Involvement in Class Discussion by Teachers

Options	Public Schools		Madaris	
	F	%	F	%
Strongly Agree	50	83.3	36	60
Agree	10	16.7	17	28.3
Undecided	0	0	0	0
Disagree	0	0	7	11.7
Strongly Disagree	0	0	0	0

The Table 3 indicates that 83.3% students of Public Schools compared to 60% of Madaris strongly agreed to the statement "Teacher involves you in class discussion". Anyhow 16.7% students of Public Schools and 28.3% from Madaris simply agreed to the same statement. Nobody from Public Schools disagreed to the statement while 11.7% from Madaris disagreed to it.

The table shows that majority of the teachers from both types of institutions involved students in class discussion. But the number of teachers who involved their students in class discussion from Public School was higher than that of Madaris' students. Almost all the teachers of Public Schools involved their students in class discussion while some teachers from Madaris did not do so.

Table 4
Efforts by Teacher to Improve English Hand Writing of Students

Options	Public Schools		Madaris	
	F	%	F	%
Strongly Agree	44	73.3	56	93.3
Agree	14	23.3	4	6.7
Undecided	2	3.3	0	0
Disagree	0	0	0	0
Strongly Disagree	0	0	0	0

The above table showed that 93.3% of the student at Madaris strongly agree with the statement, compared to 73,3% at public schools. Anyhow 23.3% students from Public Schools but 6.7% students from Madaris agreed to the same statement. Moreover, 3.33% students from Public Schools were undecided about the statement.

We reached the point from the above table that almost all the teachers from both types of institutions had tried to improve English handwriting of the students while some students were not able to decide about this.

Table 5

Students' Understanding regarding Questions in English

Options	Public Schools		Madaris	
	F	%	F	%
Strongly Agree	22	36.7	0	0
Agree	22	36.7	16	26.7
Undecided	0	0	2	3.3
Disagree	16	26.6	34	56.7
Strongly Disagree	0	0	8	13.3

This Table indicates that 36.7% students of Public Schools strongly agreed to the statement “you understand what your teacher asks from you in English” while 36.7% students from Public Schools and 26.7% students from Madaris agreed to the same statement. Moreover, 26.6% students from Public Schools but 56.7% students from Madaris disagreed to the statement. 13.3% students of Madaris strongly disagreed to this statement. 3.3% students from Madaris were unable to decide about the statement.

The above information tells that more than half of the students of Public Schools were able to understand the questions in English asked by the teacher of English while less than half of the students of Madaris were able to understand such questions. The difference is very clear that the number of students from Madaris who can understand English teacher's questions asked in English were less than half of the number of students from Public Schools (who can understand English).

Table 6

Teachers' Effort in Correct Pronunciation of Words by Students

Options	Public Schools		Madaris	
	F	%	F	%
Strongly Agree	58	96.7	54	90
Agree	2	3.3	6	10
Undecided	0	0	0	0
Disagree	0	0	0	0
Strongly Disagree	0	0	0	0

Table 6 reveals that 96.7% students from Public Schools compared to 90% of the students from Madaris strongly agreed the statement “Teacher concentrates on your reading, by his/her effort you can pronounce correct words. 3.3% students of Public Schools and 10% of the students from Madaris simply agreed to the above statement.

Almost all the teachers from Public Schools and Madaris concentrated on the reading of the students. There was no much difference among the opinions of the students.

Table 7
Daily Homework Given by Teachers

Options	Public Schools		Madaris	
	F	%	F	%
Strongly Agree	40	66.7	46	76.7
Agree	20	33.3	4	6.6
Undecided	0	0	0	0
Disagree	0	0	10	16.7
Strongly Disagree	0	0	0	0

The Table 7 exhibits that almost all English teachers of Public Schools used to give homework to the students daily while some teachers from Madaris did not give homework to the students daily. Majority 66.7% from Public Schools whereas 76.7% of the students from Madaris strongly agreed to the statement "Your teacher gives you homework daily". Moreover, 33% students from Public Schools but 6.6% students from Madaris agreed to the statement while 16.7% students from Madaris disagreed to the statement.

It is apparent from the above information that all teachers from Public Schools and majority of the teachers from Madaris used to give homework to the students on daily basis.

Table 8
Method of Teaching Used by English Teachers

Answers	Public Schools		Madaris	
	F	%	F	%
Grammar Translation Method	6	100	6	100
Direct Method	0	0	0	0

The above table shows that 100% teachers from Public Schools and 100% teachers from Madaris were agreed about the fact that they were using "Grammar Translation Method to teach English in class". From the above information we can say that teachers of both types of institutions were using the same method of teaching English.

Table 9
Technique Used by Teachers to Improve Reading Skill of Students

Answers	Public Schools		Madaris	
	F	%	F	%
I use to read by myself first and then ask the students to read again.	0	0	2	33.3
I use to read by myself and next day I say them to read it.	1	16.6	1	16.6
Do not use any special technique.	2	33.3	1	16.6
Students are asked to read in front of class by themselves.	3	50	2	33.3

The above table reveals the responses of the teachers for the question "Which technique do you use to improve reading of students"? Almost 16.6% teachers from Public School and the same percentage of teachers from Madaris answered that they used to read by themselves and next day students are asked to read the text. Moreover 50% teachers from Public Schools compared to

16.6% teachers from Madaris answered that their students were asked by them to read the text in front of the class. Anyhow 33.3% teachers from Public Schools and 16.6% teachers from Madaris said that they were not using any technique.

It can be said that teachers from both types of institutions were using almost similar techniques to improve reading skill of the students but the percentage of the teachers from Public Schools who were not using any special technique was a little bit higher than that of the Madaris.

Table 10

Technique Used by Teachers to Improve Writing Skill of Students

Answers	Public Schools		Madaris	
	F	%	F	%
I always give them home work to do.	1	16.6	4	66.6
I take their test on white board.	1	16.6	0	0
I always take their written test.	4	66.6	2	33.3

The above table indicates the answers of the teachers from Public Schools and Madaris for the question “Which technique do they use to improve writing of the students?” Almost 16.6% teachers from Public Schools compared to 66.6% teachers from Madaris told that they used to give homework to improve their writing. Moreover, 16.6% teachers from Public Schools said that they used to take written tests from the students on whiteboard whereas 66% teachers from Public Schools and 33.3% teachers from Madaris said that they used to take their written tests to improve their writing.

It can be seen from the above table that majority of the teachers of Public Schools was using written tests to improve writing of the students while majority of the teachers of Madaris was giving written assignments to improve the writing of the students.

Table 11

Technique Used by Teachers to Improve Listening Skill of Students

Answers	Public Schools		Madaris	
	F	%	F	%
I use to ask questions to check their listening.	0	0	1	16.6
Do not use any technique.	6	100	5	83.3

This table indicates the answers of the teachers for the question “Which technique do they use to improve the listening of the students”. 100% teachers from Public Schools compared to 83.3% teachers from Madaris said that they did not use any special technique. Anyhow 16.6% teachers from Madaris used to ask questions to check the listening of the students.

It can be concluded from the above information that no teacher from Public Schools was using any technique to improve the listening of the students. Teachers from Madaris were also not using any technique except 16.6% teachers who used to ask questions to improve the listening of the students.

Table 12

Technique Used by Teachers to Improve Speaking Skill of Students

Answers	Public Schools		Madaris	
	F	%	F	%
I use to speak easy English so the students can speak it by themselves.	4	66.6	1	16.6
Do not use any special technique.	2	33.3	5	83.3

The Table 13 provides the answers of the teachers about the question "Which technique do they use to improve speaking of the students?" 66.6% teachers from Public Schools compared to 16.6% students from Madaris answered that they used to speak easy English so the students can speak English by themselves whereas 33.3% teachers from Public Schools and 83.3% teachers from Madaris told that they did not use any special technique.

It is apparent from the above table that the majority of the teachers of Public Schools were trying to improve the speaking of the students by speaking English in front of the students while majority of the teachers of Madaris was not using any technique to improve the speaking of the students.

Table 13

Students' Satisfaction about Answers Given by Teachers to their Questions

Options	Public Schools		Madaris	
	F	%	F	%
Strongly Agree	50	83.3	47	78.3
Agree	10	16.7	4	6.7
Undecided	0	0	0	0
Disagree	0	0	9	15
Strongly Disagree	0	0	0	0

This table shows that 83.3% students from Public Schools whereas 78.3% students from Madaris strongly agreed to the statement "When you ask questions, your teacher satisfies you".

Moreover, 16.7% students from Public Schools and 6.7% students from Madaris agreed to the statement whereas 15% of the students from Madaris disagreed to the same statement.

It is clear from the above information that almost all the students were satisfied with answer of the teacher except some students from Madaris, the other students of Madaris were also satisfied with the answers of teachers.

Discussion

Analysis of the findings of survey of teachers showed that grammar translation method was used in both institutions. There was no difference between Public Schools and Madaris regarding concentration on reading and writing skill. Grammar translation method is one of the oldest methods to teach English in the past. A study by Liu and Littlewood (1997) discusses the reasons of hesitation of students to participate in classroom in Asian countries and tells that at that time grammar translation method was popular to teach English. They were of the view that the methods used to teach English in Asian countries revolve around teacher, book and rote memory. All the methods are based upon grammar-translation method. Akhtar (1997) also says that English teachers didn't use any other method except grammar translation method. In one of the studies, Tsui (2007) used the term of "dumb English" for English that the teachers of China were teaching to the students of schools and universities of China because they were teaching English in a traditional way in which students were focusing on intensive reading, text recitation and rote memorization. The grammar translation method was used widely in China.

The results of the study made it clear that teachers from both type of institutions were not using any special technique to improve listening or speaking skill of the students. Warsi (2004) points out mother tongue and national language as one of the reasons of unsatisfactory condition of teaching English in some areas of Pakistan. He is of the view that after these two languages come English as L3. As a result of three languages at a moment the students don't have competency in four language skills: listening, speaking, reading and writing. One of the reasons behind the low achievement in speaking skill is pointed out by Ramanathan (1999) that students feel a distance between English language and their culture. Another reason in this regard can be that Pakistani society is a multicultural society and cultural differences create hindrance in educational performance of the students. As Lim, Kang and Ha (2021) are of the view that students' language development is highly affected by multicultural differences among them. It gives them reasons for biasness which affects their academic performance as well.

The analysis of survey of students highlighted that the number of teachers who try to speak English in Public Schools was greater than that of Madaris. The students' involvement in class discussion with teachers , was greater in public schools than that of Madaris. More students from public schools were able to understand English questions than that of Madaris. The reason behind this may be highly qualified teachers in public schools and their lesson planning before class by teachers of public schools. Another reason behind this may be government pressure. Audio/visual aids in both types of institutions were not being used. Butler (2007) highlighted the same situation in Korea by saying that English language teaching is nothing more than reading, writing and the use of grammar. Grammar translation method is very common in teaching learning process of Pakistan; in which teacher is there to translate the text of English in Urdu and the students learn the translation (Diaz-Rico, 2008). Less use of Audio / Visual aids was making teaching learning process boring because grammar translation method lacks in games and activities but many researchers as BiBi (2021) regards games and activity based learning more beneficial than lecture method because activities based on games engage the students more than lecture method.

Almost all the students were satisfied with the behavior and methods of their teachers. May be they didn't have the clarity about satisfaction or the less age might be a reason for the decision regarding satisfaction level. If we have a look on different studies that dealt with grammar translation method, gave a different picture of the teachers who used grammar translation method. As Akhtar (1997) exhibited the role of English teacher in grammar translation method by saying that the teacher was all in all who used grammatical rules that were rigid in nature and was not having flexibility. He was starting the lesson and the only way of teaching was to impart the mere knowledge to the students. Another reason behind their satisfaction may be examination and might be based on their preparation for examination because Ramanathan (1999) has tried to link examination system with rote memorization and rote learning in India and the situation in India is not far from Pakistan regarding teaching learning process. He is of the view that teachers do nothing except preparing students for exams and he says that the stress of examination is responsible for rote memorization. The students have the only aim to pass the examination. Akhtar (1997) declares in his research that Pakistani schools are not producing the students who can speak English fluently because they teach English not as a language but as a subject. This is the reason that the students can pass examination but can't have any creative skill in English language. Teacher training is highly recommended by Larbcharoen (2021) to make them successful in their career. For this purpose efficient programs are needed which may create competency in the teachers of modern world.

Conclusion

On the basis of the results of study we can conclude the main shortcoming in Public Schools was that English teachers of Public Schools were not using any technique to improve the listening of the students. As for as shortcomings in Madaris were concerned the English teachers were not speaking English in their classes and most of the students were not able to understand the simple questions asked by the teacher in English language, teachers were not serious about improving speaking / listening skills of the students.

It is concluded that teaching learning process of English in public Schools was found to be better than that of Madaris on those dimensions: English teachers of Public Schools always used to give homework to their students on almost daily basis ;all the students of Public Schools were satisfied with the answers of their teachers in response to the questions asked by the students; English teachers in Public Schools tried to utter English words most of the time in class and most of the students were able to understand easy English without translation in Urdu.

We can conclude that teaching learning process of English in Madaris was, however, found to be better than of Public Schools on the these aspects: Teachers of Madaris always remained relevant to the topic and never wasted their time; teachers of Madaris were never rude to the weak students of their institutions; students of Madaris not only obeyed their teachers morally but they tried to obey their teachers in doing their work assignments also.

It is concluded that teaching learning process of English in Public Schools and Madaris was equally good on the these dimensions: Teachers of English of both types of institutions were using simple method of grammar translation to teach their students; English teachers of both types of institutions tried to improve handwriting of their students; English teachers were concentrating on the reading of their students and because of the efforts of their teachers, the students were able to pronounce correct words and teachers from Public schools and Madaris rewarded their students for their good performance.

Both types of institutions were found to be deficient on these areas: Teachers from both types of institutions were not using any audio/visual aid in their class of English; no teacher from Public Schools or Madaris used direct method of teaching English in any case and teachers from both types of institutions were not using any special technique to improve listening or speaking of the students in the class of English.

Recommendations

On the basis of conclusions, the following recommendations are made in order to improve teaching learning process of English in Public Schools and Madaris: Teachers of Public Schools/ Madaris should be made aware of the importance of the skills of listening and speaking so that they can use any of the techniques to improve this area of the students; teachers from both types of institutions should use audio/visual aids in their class of English so that students should be attracted towards teaching learning process of English. ; teachers from both categories of institutions should use direct method of teaching English along with grammar translation method and these methods should be used alternatively according to the requirement of the situation.

Since the scope of this research is limited to the study of some major components of teaching learning process of English. In addition to the replication studies, future investigation may be conducted by taking other components of teaching learning process of English; future studies should be carried out to identify training needs of the English teachers and areas where they need further orientation to strengthen weak areas; future studies may be aimed at comparing teaching learning process of English in Pakistani Schools with that of the schools in other countries of the world where English is taught as second language and these comparative studies of teaching learning process of English may be conducted at all levels of education. Higher education commission may be approached for funding comparative studies of teaching learning process of English at national as well as international level especially in the Asian countries.

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The Perceptions of Elementary School Children toward Problem-Solving Abilities

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The objective of this study is to assess the correlation between various factors influencing the problem-solving skills of elementary school students. To achieve this, eight hypotheses were formulated and examined using the General Structural Component Analysis (GSCA) technique. We collected questionnaire responses from 240 elementary school students from diverse locations. Google Forms is used for question creation and administration. The experimental findings validated seven assumptions among the eight anticipated correlations between factors. That is, the teacher's actions affect the learning environment; teachers' actions affect learning motivation; learning motivation affects both learning attitudes and metacognition; learning attitude, metacognition and learning environment all directly affect problem solving abilities. The remaining hypothesis was rejected; metacognition had no effect on problem-solving abilities. Overall, the model explains 59.6% of the variance in the data. The impact of this study has been demonstrated through theoretical and practical implications .

Keywords: problem solving abilities; primary school student; metacognition; learning attitude; learning motivation; study environment

Problem-solving proficiency is regarded as a crucial aptitude in contemporary society. As per a World Economic Forum report, around forty percent of workers are projected to undergo retraining programs lasting less than six months, while an overwhelming ninety-four percent of corporate executives express their desire for employees to acquire new skills while on the job, with emphasis placed on critical thinking, analysis, and problem-solving as the most sought-after abilities (World Economic Forum, 2020). Therefore, it is imperative for the next generation of students to possess problem-solving abilities, ensuring their readiness to enter and thrive in the globally competitive landscape. The notion of a problem is derived from a theoretical or practical challenge or impediment that demands an individual's own efforts to overcome. It is typical for individuals to experience obstacles in life as well as in the classroom. Thus, to enhance their future quality of life, it is crucial that children learn to confront them (Celebi, 2021). There are several approaches to deal with problems, such as providing oneself with conflict resolution skills, communication skills, and physical development (Celebi, 2021). One of the approaches that is emphasized recently is the ability to think critically, be creative, and always find effective answers to life's difficulties. This necessitates the early development of children's skills, particularly problem-solving capabilities (Sungur & Bal, 2016). The significance of fostering problem-solving skills is increasingly emphasized in educational programs worldwide, prompting extensive research on various aspects and concerns related to this competence, including creative problem solving (van Hooijdonk et al., 2020), developing problem-solving skills via courses (Nguyen et al., 2022; Pimta et al., 2009; Rodkroh et al., 2019; Rodríguez-Hernández et al., 2021). Teaching approaches for problem-solving skills were also investigated through a variety of methods such as experiential learning (Hulaikah et al., 2020), exploratory learning (Lubis et al., 2019; Marwazi et

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al., 2019), question-based learning (Divrik et al., 2020), and online collaborative project teaching (Yunus, Setyosari, Utaya, & Kuswandi, 2021).

In this research, the researchers have provided a wide range of perspectives on successful teaching strategies for fostering problem-solving skills in children. Nonetheless, the viewpoint of affecting factors has not been extensively investigated. There are only a few studies that mention and deeply analyze the impact of each type of factor on problem-solving abilities such as learning environment (Karatas & Baki, 2013), language (Rodríguez-Hernández et al., 2021), metacognition (Aurah et al., 2011), educational technology and learning materials (Serin et al., 2009), attitudes to learning (Zamir et al., 2022). Other researchers showed the relationships between variables such as the relationship between Motivation - Metacognition – Attitude (Yunus, Setyosari, Utaya, & Kuswandi, 2021), factors affecting the ability to solve mathematical problems (Pimta et al., 2009).

However, research on the presence and relationship of factors influencing problem-solving abilities is scarce, particularly at the elementary school level. The aforementioned publications only emphasize the research work at the middle school and university levels. For instance, Pimta et al., (2009) conducted an analysis on the factors that impact the ability of sixth-grade students to solve arithmetic problems. They have found that attitudes about the topic, self-esteem, and the presence of instructors have direct and indirect effects on students' problem-solving abilities. In addition, achievement motivation and self-efficacy have indirect effects on children' ability to solve problems. Similarly, Yunus, Setyosari, Utaya and Kuswandi (2021) examined the relationship between the factors: achievement motivation, metacognition, and learning attitude, using data collected from 148 university students in Indonesia from three schools. Upon scrutinizing the data, the researchers discovered that each factor exhibited a correlation with the students' problem-solving aptitude, and furthermore, all three factors demonstrated a simultaneous connection with their problem-solving ability. A separate study examining the factors that affect the mathematical problem-solving skills of high school students reveals the significant impact of both the teacher's instructional methods and their attitude towards mathematics. Indirectly, achievement motivation influences students' ability to solve arithmetic problems (Malangtupthong et al., 2022).

Although the aforementioned articles have examined each factor impacting problem-solving ability separately, they have not identified the interaction between these variables and the amount of their simultaneous effect on primary school students' problem-solving ability. Certain studies use qualitative approaches. In the current work, we used a distinct methodology and validated the obtained components. Therefore, the objective of our study is to illustrate the interplay among the factors that influence the problem-solving skills of elementary school students. The findings of this research will contribute to the existing body of knowledge in the field and serve as a valuable resource for fellow researchers working in this domain.

Literature review and hypothesis development

Liu and Israel (2022) defined problem-solving as the combination of two or more rules in innovative ways and it requires the use of current knowledge and experience to identify a problem and find a solution. Problem solving, as defined by OECD (2012), is the application of one's cognitive processes to the identification, analysis, and resolution of complex, multidisciplinary issues for which there is no one, universally applicable answer. In this view, OECD emphasizes people’ problem-solving skills in real-world circumstances.

According to Liu et al., (2022), a teacher's job is to foster a good learning attitude in their students by encouraging them to engage with the material and each other via the use of effective teaching strategies and a wide range of entertaining and relevant materials. However, a research by

(Chairil et al., 2020; Suparman et al., 2021) showed that the development of instructional materials that prioritize problem-solving is of utmost importance in fostering a problem-based learning atmosphere that enhances students' problem-solving abilities throughout their educational journey. Drawing upon the aforementioned theories and an extensive literature review, this study proposes the following hypothesis:

Hypothesis 1 (H1). *Teachers' competence* has the effect of creating a positive *learning environment* that affects the performance of the problem-solving tasks of primary school students.

There are a number of theoretical models that seek to explain human motivation in activity. For instance, social cognitive theory (Schunk & DiBenedetto, 2020) asserts that self-efficacy is the cornerstone of motivation. A person who lacks confidence in his or her talents is less likely to accomplish success in life than one who is always aware of his or her objectives and who is internally motivated to work towards achieving them. This needs instructors to not only provide objectives for their students, but also to create learning motivation by transforming pedagogical goals into individual student goals (Dole et al., 2016). Thus, instructors' activities indirectly affect students' problem-solving capacities through motivation and learning attitudes (Malangtupthong et al., 2022). Based on this premise, we propose that:

Hypothesis 2 (H2). *Teachers' competence* had an effect of fostering *learning motivation* when confronted with problem-solving situation of elementary school students

The theory of achievement motivation (Anderman, 2020) contends that achievement motivation is the most important factor for students to reinforce confidence, have a good attitude when engaging in activities, and achieve high levels of academic performance. Attitude learning theory (Corneille & Hütter, 2020) refers to "latently motivated" responses that assist learners in obtaining high academic achievement. Students' problem-solving attitude is influenced by their attitude toward learning (Yunus, Setyosari, Utaya, & Kuswandi, 2021). Hence, the following hypothesis was derived:

Hypothesis 3 (H3). *Learning motivation* has a positive effect on *learning attitudes* when faced with problem solving tasks of primary school students.

Metacognitive theory (Larkin et al., 2019) asserts that metacognition, or "thinking about thinking," relates to the perception and capacity to manage one's mental processes, particularly the selection and use of problem-solving strategies. Metacognition consists of three primary components: goal setting, planning, monitoring and modifying the process of issue resolution, and self-evaluation. The empirical findings of (Acosta-Gonzaga & Ramirez-Arellano, 2021) indicate that metacognition and motivation are positively associated. Further research, Tian et al., (2018) demonstrates that metacognition of strategies can predict learning success through intrinsic motivation. Students' intrinsic drive stems from their own unique combination of factors, including but not limited to their own personal values, experiences, and perspectives (Schunk, 2008). Motivations such as epistemological beliefs and self-efficacy affect the development of cognitive and metacognitive abilities. To engage in metacognition, students must have a clear understanding of their cognition, where learning motivation plays a crucial part in self-regulation to boost cognitive and metacognitive techniques. This leads us to the following assumption:

Hypothesis 4 (H4). *Learning motivation* has a positive effect on primary school *students' metacognition* when faced with a problem-solving problem

In a research involving 503 Malaysian university students, M. B. A. Bakar (2002) found a favourable correlation between metacognition and students' learning attitude. These findings align with those of a survey of 200 postgraduate students in India who majored in English literature (Khonamri, 2009). However, Özsoy et al., (2009) examined 221 Turkish fifth-graders to investigate the relationship between their metacognitive level, study habits, and reading attitudes. They discovered that there is a moderately beneficial association between metacognition and learning attitudes, but only among learners with high achievement. The following assumption is proposed on the basis of this premise:

Hypothesis 5 (H5). *Learning attitudes* have a positive effect on the *metacognition* of primary school students when faced with problem solving problems

In his study, Divrik et al. (2020) found that metacognitive methods had an impact on the problem-solving abilities of fourth graders. In the same vein, Izzati and Mahmudi (2018) argue that metacognition plays a crucial role in effectively resolving mathematical problems. Their study unveiled a positive correlation between students' metacognitive proficiency and their problem-solving skills, indicating that pupils with stronger metacognitive abilities displayed greater proficiency in problem-solving. This study proposes the following hypothesis based on the aforementioned perspectives and a review of the metacognition literature:

Hypothesis 6 (H6). Metacognition exerts a direct and beneficial influence on the problem-solving abilities of elementary school students.

In a study on math problem solving ability of sixth graders, Pimta et al. (2009) suggested that attitudes towards math have a direct impact on math problem solving of students. Nguyen and Nguyen (2022) also confirmed the role of learning attitude on students' problem-solving ability. On that basis, we propose the following hypothesis

Hypothesis 7 (H7). *Learning attitudes* has a direct positive influence on the *problem-solving abilities* of primary school students

In terms of the learning environment, Brezovszky et al. (2019) suggest that teachers can enhance their instruction in arithmetic problem-solving by integrating a supportive learning environment as a supplementary resource. This approach facilitates the cultivation of flexibility and adaptability in their teaching methodologies (Brezovszky et al., 2019). In addition, Schoenfeld (2016) believes that a problem-based learning environment helps students to develop a comprehensive understanding of mathematics and to pursue their own learning interests. In his study, Albay (2019) highlighted the importance of problem-solving techniques within the learning environment, specifically through student engagement in group discussions. This approach effectively enhances their problem-solving abilities. Thus, the learning environment plays a positive role in fostering the development of students' problem-solving skills (Ahdhianto et al., 2020; Brezovszky et al., 2019). Based on the literature review, we propose the following assumption:

Hypothesis 8 (H8). *Learning environment* has had a direct positive influence on the *problem-solving abilities* of primary school students

The conceptual model developed to test the assumptions is shown in Figure 1. Each contributing factor is displayed by a circular shape, and the hypothesis is shown by an arrow.

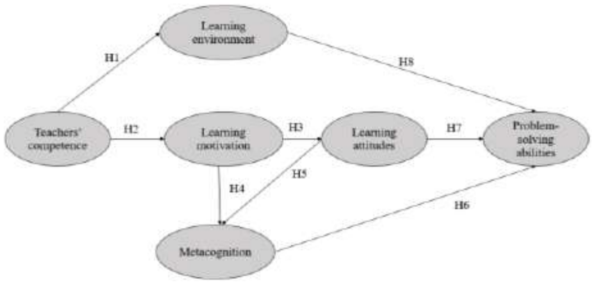

Figure 1 The proposed conceptual model

Method

Participants and Data Collection

We surveyed 571 Vietnamese elementary school children. The survey was conducted from November to December 2022, using the online Google Form. A link to the user's Google form was distributed to parents of elementary school student accounts (e.g., Zalo, Facebook, and Twitter). The questionnaire consists of 2 parts: Part 1 consists of four questions on general information, and Part 2 consists of twenty-four questions about influencing factors and their relationship with problem-solving abilities. Prior to their administration to respondents, rigorous assessments of reliability and validity were conducted for all the questions (Nguyen & Nguyen, 2022; Otoo et al., 2018; Sun et al., 2021) as part of our research. Because parents assist kids in responding to survey questions, we do not gather personally identifiable information; therefore, the study is ethically justified.

Measurement

The answers to the questions in Table 1 are used as a measurement tool to determine the factors that influence the capacity of elementary school children to solve problems. In this investigation, we used the Likert scale, where 1 indicated a complete lack of agreement, 2 indicated disagreement, 3 indicated neutrality, 4 indicated agreement, and 5 indicated strong agreement. This is a relatively widely used scale in similar studies

Table 1

Questionnaires used in the study

Code	Question
Metacognition (MC) (Sun et al., 2021)	
M1	I constantly attempt to identify the problem in difficult questions.
M2	I have remarkable problem-solving capabilities.
M3	I will often assess my progress toward my objective.
M4	I have a frequent tendency to reflect on how I have studied.
Learning attitudes (LA) (Nguyen & Nguyen, 2022)	
A5	I really enjoy answering the teacher's questions
A6	I am constantly attentive to the teacher during class.
A7	I constantly feel that I will accomplish the learning tasks
A8	I always attempt to resolve problems, regardless of their complexity.
Teachers' competence (TC) (Nguyen & Nguyen, 2022)	
C9	Teachers teach us the lessons very well and easy to understand

C10	Teachers arrange really engaging classroom activities frequently.
C11	Teachers comment on my answers very clearly
C12	Teachers are highly encouraging and supportive of my academic endeavors.
Learning environment (SE) (Sun et al., 2021)	
E13	I always feel comfortable in my classroom
E14	I always have the opportunity to discuss with my teachers
E15	I always have the opportunity to discuss with my classmates
E16	Instructional tools and equipment will improve my learning in the classroom
Learning motivation (LM) (Otoo et al., 2018)	
MT17	I am always encouraged and motivated in my studies
MT18	Earning high grades in school is crucial to me.
MT19	Learning enhances the significance of my life
MT20	I desire to increase my academic development.
Problem-solving ability (PSA) (Sun et al., 2021)	
AS21	Before attempting to solve an issue, I believe we must first identify it.
AS22	To solve the problem, I shall determine what is associated with it.
AS23	When confronted with an issue, I will first consider how to overcome it.
AS24	I believe that while tackling an issue, we should examine the solutions that have already been implemented.

Data Analysis

In the literature, structural equation modeling (SEM) is a prominent technique used to better comprehend the complicated interactions between factors (Osman et al., 2022; Prasetyo et al., 2022). The two most common methods for analyzing data using SEM are covariance-based SEM (CB-SEM) and partial least-squares structural equation modeling (PLS-SEM). Instead of using PLS-SEM to analyze the hypothesized research model, this study opted to use Generalized Structured Component Analysis (GSCA) (Hwang & Takane, 2014). GSCA was preferred due to its flexibility in handling small datasets that may not strictly adhere to normal distribution requirements. GSCA has been recognized and applied in a number of fields (Jung et al., 2021; Nguyen et al., 2022; Nguyen, 2022).

Results

Descriptive analysis

Overall, 571 answers were collected in total from participants. 331 items were omitted from the data during the data cleansing procedure, leaving 240 items eligible for study (see **Table 2**). In terms of sample size, literature work (Hair, 2009; Kline, 2015; Tabachnick et al., 2007) suggested that the minimum number of observations to variable should be five to one. In the context of our study, the ratio is 240:24 or 10:1, indicating a good ratio.

Data from Table 2 showed that there is parity between males (49.6%) and females (50.4%). Regarding grade level, 37.5% of children are in third grade, 43.3% are in fourth grade, and the remainder are in fifth grade. The majority of participants reside in rural or mountainous areas (53.4%), followed by city (32.9%) and district (13.7%) living conditions. In terms of parental occupations, more than half of pupils' parents are laborers (53.3%), followed by workers (24.2%), education (10%), unemployed (6.7%), and the military (5.5%).

Table 2

General information about participants (N = 240)

Variable		Frequency	Percent
Gender	Male	119	49.6
	Female	121	50.4
Grade	Grade 3	90	37.5
	Grade 4	104	43.3
	Grade 5	46	19.2
Living area	Rural, mountainous	128	53.4
	City, Province	79	32.9
	District	33	13.7
Parental professions	Military	14	5.8
	Worker	58	24.2
	Families covered by the policy	16	6.7
	Teachers	24	10
	Labor	128	53.3
Total		**240**	**100.0**

Table **3** provides a summary of the descriptive statistics for each of the six different constructs. The construct has means that vary from 3.313 to 4.367, which are both greater than the mid scale’s value of 2.5. The range of possible standard deviations is from 0.945 to 1.143.

Table 3

Means and standard deviations of the measures (N = 240)

Construct	Item	Mean	Std
Metacognition	M1	3.538	1.050
	M2	3.313	1.005
	M3	3.704	1.143
	M4	3.633	1.101
Learning attitudes	A5	4.083	1.064
	A6	4.042	1.112
	A7	3.904	1.061
	A8	3.638	0.945

Teachers' competence	C9	4.363	1.018
	C10	4.296	1.071
	C11	4.125	1.035
	C12	4.246	1.036
Learning environment	E13	4.092	1.105
	E14	3.713	1.088
	E15	4.079	1.085
	E16	4.067	1.041
Learning motivation	MT17	4.042	1.050
	MT18	4.238	1.030
	MT19	4.367	0.989
	MT20	4.304	1.012
Problem-solving ability	AS21	4.079	1.030
	AS22	3.992	1.006
	AS23	3.996	0.979
	AS24	4.133	0.963

Quantitative Analysis

In

Table **4**, the estimated loadings were accompanied with standard error (SE), a 95% confidence interval with lower and upper bounds, and the standard error (SE). In this case, the estimated parameters were regarded statistically significant if the lower and upper limits of the confidence interval did not include zero.

Table **4** displays experimental data that demonstrate all items are viable indicators since they do not have a zero value inside the constructs.

Table 4

Estimate of loadings

	Estimate	SE	95%_LB	95%_UB
M1	0.738	0.058	0.608	0.82
M2	0.708	0.052	0.579	0.781
M3	0.779	0.028	0.723	0.825
M4	0.706	0.053	0.587	0.787
A5	0.736	0.054	0.614	0.823
A6	0.78	0.042	0.683	0.85
A7	0.825	0.037	0.749	0.89
A8	0.768	0.041	0.659	0.84
C9	0.846	0.032	0.778	0.901
C10	0.825	0.036	0.73	0.884
C11	0.814	0.043	0.677	0.871
C12	0.76	0.05	0.679	0.849
E13	0.682	0.063	0.539	0.8
E14	0.716	0.047	0.615	0.803
E15	0.794	0.039	0.705	0.866
E16	0.821	0.031	0.746	0.878
MT17	0.764	0.049	0.637	0.855
MT18	0.801	0.047	0.703	0.863
MT19	0.888	0.024	0.841	0.925
MT20	0.841	0.035	0.733	0.892
AS21	0.881	0.018	0.849	0.913
AS22	0.863	0.022	0.814	0.896
AS23	0.818	0.039	0.741	0.891
AS24	0.798	0.039	0.711	0.85

This study employed Dillon-rho Goldstein's (RHO) to evaluate the internal consistency and validity of each concept. According to

Table **5**, all RHOs have values larger than 0.7, indicating that they consistently exceed the suggested threshold (Hwang & Takane, 2014). The amount of convergence may be determined in a variety of methods, including by calculating the Average Extracted Variance (AVE). According to Hair (2009), an AVE value greater than or equal to 0.5 indicates that the latent variable will account for more than half of the variance of its observables and that the scale has high convergence. The findings of the studies indicate that every AVE value is more than 0.5, indicating that the value converges (Hair, 2009; Hwang & Takane, 2014).

Table 5

Validity and reliability of the construct

Construct	Item	Rho	AVE
Teachers' competence (TC)	4	0.8897	0.7293
Learning motivation (LM)	4	0.8547	0.6624
Learning environment (SE)	4	0.8897	0.7293
Learning attitudes (LA)	4	0.8897	0.7293
Metacognition (MC)	4	0.8547	0.6624
Problem-solving abilities (PSA)	4	0.8897	0.7293

Overall, the proposed model explained 59.6% amount of variance in the dataset (FIT = 0.596, AFIT = 0.592, GFI = 0.99, SRMR = 0.046). The Goodness of Fit (GFI) is a statistical metric that assesses how well a model's predicted covariance matrix corresponds to the observed covariance matrix. It was suggested that this index should exceed 0.90 for a suitable fit. The Standardized Root Mean Squared Residual (SRMR) has the opposite meaning of the GFI, and it is preferable that this number be as near to zero as feasible. Based on our experimental findings, GFI is near to one (or more than 0.90) while SRMR is close to zero.

Table 6 shows that the majority of the tests performed virtually definitely support the hypothesis. Except for H6 (Metacognition → Problem Solving), which does not get support owing to the presence of zero values in the CI, all hypotheses are significant at the 95% level.

Table 6

Estimates of path coefficients.

Hypothesis	Estimate	SE	95%_LB	95%_UB	Decision
H1: TC → LE	0.808	0.037	0.728	0.878	Confirmed
H2: TC → LM	0.832	0.04	0.735	0.888	Confirmed
H3: LM → LA	0.717	0.052	0.587	0.804	Confirmed
H4: LA → MC	0.126	0.089	0.094	0.258	Confirmed
H5: LA → MC	0.571	0.06	0.449	0.71	Confirmed
H6: MC → PSA	0.061	0.065	-0.062	0.201	Rejected
H7: LA → PSA	0.391	0.079	0.241	0.567	Confirmed
H8: LE → PSA	0.36	0.073	0.18	0.487	Confirmed

Discussion

Theoretical implications

The acquired results have significant theoretical relevance as they contribute additional insights to previous research. This study verified 7 out of 8 hypotheses. The findings of these studies are consistent with previous studies: teacher's competency affects the learning environment (Ahdhianto et al., 2020; Brezovszky et al., 2019), teacher's competence affects learning motivation (Malangtupthong et al., 2022), learning motivation affects learning attitude (Yunus, Setyosari, Utaya, & Kuswandi, 2021), learning motivation affects students' metacognition (Acosta-Gonzaga & Ramirez-Arellano, 2021), learning attitude affects students' metacognition (M. A. Bakar, 2002), learning attitude affects problem-solving abilities (Zamir et al., 2022), learning environment affects problem-solving abilities (Karatas & Baki, 2013), learning environment and learning attitude directly affect problem-solving ability (Pimta et al., 2009), learning motivation has a direct impact on problem-solving ability (Pimta et al., 2009). The findings of the quantitative analysis of the study also strongly and correctly corroborate the qualitative results of the previous study. In addition, the results of this study show that learning attitudes, learning environment, and learning motivation influence primary students' problem-solving skills not only in mathematics but also in other areas. This adds to the study conducted by (Pimta et al., 2009), which discovered this relationship exclusively in Mathematics. The findings also indicate that the learning attitude has a favourable effect on the metacognition of primary school pupils when confronted with a problem-solving activity. This study supports the research of (M. A. Bakar, 2002) and (Yunus, Setyosari, Utaya, Kuswandi, et al., 2021), which discovered this relationship exclusively among college students. The most important contribution of this study is the confirmation of the correctness of the relationship between the simultaneous effects of factors on problem-solving ability and the identification of which factors have direct versus indirect effects on the problem-solving ability of elementary school students.

In summary, this research added significantly to the body of knowledge in two distinct aspects according to the results of the experiments conducted. First, it supported seven of the original eight assumptions about the relationships between variables that affect problem-solving skills. This verification raises the number of verified hypotheses, which is helpful for teachers who want to replicate the study using the same variables. Second, the lack of statistical significance for unexpected experimental findings calls for more study.

Practical implications

The obtained research findings indicate that the model's explanatory power is quite high (FIT = 0.596), indicating that the suggested research model would work effectively. In addition, seven study hypotheses were confirmed, demonstrating the simultaneous influence of teacher teaching skill, learning environment, learning attitude, and learning motivation on problem-solving ability. In order for primary school pupils to acquire problem-solving skills, educators must focus on influencing all of these aspects, not just one at a time.

In addition, the relationship H1 (teachers' competence → learning environment) has the highest impact coefficient, H2 (teachers' competence → learning motivation) is the second highest. This is also very meaningful. Among the relationships that indirectly affect the problem-solving capacity, the teacher's competence is the most influential factor. Therefore, educators need to pay attention to this factor when developing problem solving capacity for elementary school students. In the teaching process, teachers need to use appropriate methods, diverse and rich content, and appropriate learning materials (Liu et al., 2022) to create favourable conditions for students to develop problem-solving abilities.

Limitations

While this study has produced valuable findings that can assist teachers and future researchers in identifying specific activities to enhance problem-solving skills in elementary school students, it is important to acknowledge its limitations. Firstly, the survey utilized in the study only consisted of 24 items, potentially leaving out other variables that could have been relevant. This calls for further research to expand the scope of the investigation. Secondly, the research did not employ additional statistical approaches which could have provided more comprehensive insights into the factors influencing the problem-solving abilities of primary school students.

Conclusion

This research examined the factors that affect the problem-solving capacity of elementary school children. The survey findings validated seven out of eight hypotheses on the relationships between the influencing factors, based on a study of 240 elementary school students from diverse regions. In other words, teacher competency influences the learning environment, teacher competence influences learning motivation, learning motivation influences both learning attitudes and metacognition, and learning attitude and learning environment have a direct effect on problem-solving capacity. The last hypothesis is not supported, namely that metacognition has no direct effect on the problem-solving capacity of elementary school students. Overall, the model accounts for 59.6% of the data's variability. This study's significance has been demonstrated by its theoretical and practical implications.

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Evolution of Research Culture in Pakistan: A SWOT Analysis from the Perspective of Humanities and Management Faculty

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This qualitative study takes on to gauge the evolution of research culture in Pakistan. Primarily it revolves around SWOT analysis of past, present, and future. It seeks expert opinions of faculty members of the Departments of Humanities, and Management Sciences of COMSATS University Islamabad, Abbottabad Campus on open-ended questions. The study finds a recent emergence of certain features of research culture identified in the literature and foresees it's further strengthening in the coming days based on some assumptions .

Keywords**:** research culture, evolution, Universities, SWOT analysis

The research culture in developing countries, including Pakistan, is significantly different from that of developed nations. Unlike their counterparts in developed countries, these third-world nations often lack a strong research culture and tend to prioritize traditional teaching methods over active contribution to a knowledge-based economy (Salazar-Clemeña & Almonte-Acosta, 2007). This is evident in the low allocation of funds towards research and development (R&D) expenditure in South Asian countries, including Pakistan. While top countries dedicate an average of 2.5% (Germany) to 3.9% (Israel) of their GDP to R&D over the past 23 years, South Asian countries struggle to reach even 1%, with spending ranging from 0.1% (Sri Lanka) to 0.8% (India). Pakistan's investment in R&D stands at a mere 0.3% of its GDP (Graph 1).

This disparity in research investment is reflected in the number of researchers dedicated to R&D per million people. Israel, with its substantial investment, boasts an average of 7771 researchers in R&D per million people, while Pakistan lags behind with a count of only 157 researchers per million people, despite being the highest in the region (Graph 2). However, Pakistan has made efforts to improve its research culture, particularly with the establishment of the Higher Education Commission (HEC) in September 2002. In response to the challenges faced by higher education institutions, the HEC was created as an autonomous body specifically tasked with promoting research in higher education. The deficiencies identified by the HEC task force included ineffective administration, inadequate infrastructure, and the lack of research competence among academic staff (Akbari & Naqvi 2008).

The introduction of the HEC led to a significant increase in the higher education budget, which experienced a seven-fold growth from 2002 to 2008, setting a world record (Shaukat, 2012). Consequently, the number of universities in Pakistan rose from 74 in 2001 to 145 in 2012, accompanied by a surge in student enrollment from 276,000 to over a million during the same

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period. This upward trend continued, resulting in a total of 195 universities by 2019 Moreover, Pakistan has witnessed notable growth in research output, emerging as the top country with the largest increase in publications from 2017 to 2018 (Graphs 3 and 4).

However, it is essential to recognize that the focus should not solely be on increasing the quantity of research output. Many universities in Pakistan still face a shortage of qualified faculty members. Nevertheless, the growing number of individuals holding PhD degrees provides a reasonable pool of resources for universities in general. Complicating matters, the HEC has faced budget cuts and encountered challenges under different government administrations (Shaukat, 2012).

Considering that existing studies primarily concentrate on developed countries and may not fully capture the cultural dynamics of less developed nations like Pakistan (Jan-Benedict, & Steenkamp, 2001), it is crucial to examine the evolution of the research culture in Pakistan at this juncture.

In the context of research culture in Pakistan, it is important to acknowledge that only a limited number of studies have been conducted in this area, highlighting the need to expand the body of knowledge. Among these studies, one particular research emphasizes the significance of leadership and available resources as critical factors influencing a positive research culture (Naseem, Tahir, et al., 2019). This study examines the overall academic subjects, shedding light on the broader aspects of research culture in Pakistan.

In a similar vein, another study builds upon these findings and provides contextual references specifically within the field of management sciences as an academic discipline (Naseem, Imran, et al., 2020). By focusing on a specific discipline, this study further reinforces the importance of leadership and resources in fostering a conducive research environment.

While the aforementioned studies primarily employ descriptive analysis to explore research culture, there is a need to incorporate additional dimensions into the body of knowledge. This study takes a different approach by utilizing SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis to further enrich the understanding of research culture in Pakistan. By examining the strengths, weaknesses, opportunities, and threats associated with research culture, this study offers a comprehensive assessment of the current landscape.

Collectively, these studies contribute to the understanding of research culture in Pakistan by highlighting the role of leadership, resources, and discipline-specific factors. However, given the limited number of studies in this domain, it is evident that further research is required to gain a more comprehensive and nuanced understanding of the factors influencing research culture in Pakistan. By incorporating diverse methodologies and exploring various academic disciplines, future studies can broaden the scope of knowledge and provide valuable insights into the development of a robust research culture in the country.

Literature Review

Research culture is a concept that has been defined in various ways by different scholars. Evans (2009) suggests that it is a vague concept due to the diverse aspects highlighted in different studies. Hill (1999) defines research culture as an environment that fosters the growth and proliferation of research. On the other hand, Rosas (2013) views it as a "blind date with the unknown," emphasizing the exploratory nature of research. Mapa (2017) describes research culture as "the way we do research round here," capturing the cultural norms and practices associated with research. The concept of research culture within an organization is defined by the Hauter (1993) as the collective mindset, behavior, and decision-making processes of individuals with regard to research activities. Schein (1985) delineates six distinct dimensions of research culture, namely: behavioral regularities that are observable, research norms, prevailing research values, the research philosophy of the organization, the rules governing research within the organization, and the overall research climate.

The succeeding sections provide a comprehensive analysis of literature from diverse geographical viewpoints, elucidating the research ethos prevalent in distinct areas.

International Studies

An examination of international studies reveals notable cultural distinctions across countries (Farley & Deshpandé, 2004) (Dilworth-Anderson, Williams, & Gibson, 2002). However, in today's interconnected world, these cultural differences are becoming interconnected with other cultures, leading to cross-pollination, diversity, and hybridization (Craig & Douglas, 2006). Another study views culture as an external variable to the organization, emphasizing the comparative management approach in a contextual context (Deshpande & Webster, 1989). The limitation of a limited set of variables in fully capturing the complexity of culture (Jan-Benedict, & Steenkamp, 2001) demonstrates the challenge researchers face in identifying a comprehensive set of variables that encompass universal aspects for theoretical purposes (Bhagat & McQuaid, 1982) (Shalom, Schwartz & Maria, 1995).

The diverse nature of culture and the difficulties associated with its measurement present significant hurdles for research at the group, organizational, and national levels (Leidner & Kayworth, 2006). One of these challenges involves researchers adhering to principles of transparency, openness, and reproducibility, which are globally recognized as disciplinary norms and values but are not consistently upheld (VandenBos et al., 2015).

Nevertheless, there are common factors that contribute to the development of a research culture, including effective leadership (Bland & Ruffin, 1992) and investment in management (Slade, Philip, & Morris, 2018). Effective leaders play a vital role at both individual and institutional levels by setting clear research objectives and effectively communicating them. Providing adequate resources for faculty training and support is a fundamental requirement for cultivating a robust research culture, and flexibility in resource allocation to accommodate faculty interests is crucial (Hanover, 2014). It is equally important to foster collaboration and synergy among individuals and organizations, rather than promoting isolation, to strengthen and sustain a research culture (Bland & Ruffin, 1992) (Slade et al., 2018). Establishing a national research culture necessitates a higher level of synergy and commitment. However, even with all the necessary prerequisites in place, the evolution of a research culture can take several years (Hanover, 2014).

Although several of the global studies referenced earlier were carried out by scholars from the United States, the subsequent sections emphasize diverse geographical areas and nations. The United Kingdom is a subject of distinct discussion owing to its significant position in the developed world, alongside the United States of America. The present study centers on the independent discussion of literature pertaining to Pakistan.

UK Studies

According to a study conducted in the United Kingdom, there exists a well-established national mechanism for resource allocation that facilitates the direct provision of funding to teachers and school-level groups(Ebbutt & Ebbutt, 2006). The United Kingdom has identified eight primary indicators of research culture, which encompass the promotion of high-quality research, recruitment practices, staff development initiatives, research discussions, departmental structure, cultural considerations, management strategies, and the support of doctoral researchers (“Fostering an effective research environment,” 2017). Notwithstanding the acknowledgement of the significance of competition and distinct evaluation, the research milieu in the United Kingdom exhibits a dearth of robust emphasis on teamwork and collaboration, (Sarah, 2018). The platform lacks adequate support for activities that researchers consider crucial for conducting high-quality research and fostering a conducive research environment (Notes, 2015).

Scandinavian Studies (Netherland, Denmark, Finland)

The research conducted in the field of Scandinavian studies has provided insights into the noteworthy contribution of action research towards fostering a culture of research (Kjerholt & Hølge-Hazelton, 2018). Research emphasizes the significance of fostering competencies to promote efficient knowledge generation in a knowledge-driven economy, specifically with regards to the upcoming cohort of skilled knowledge workers (Kessels & Keursten, 2002). Within the field of digital humanities, there exists a continuous investigation into the concept of identity and the development of novel environments capable of addressing a diverse range of issues pertaining to research culture. The attainment of this objective requires the establishment of a collaborative effort at the national level, as well as the effective utilization of the capabilities of established digital humanities hubs (Matres, Oiva, & Tolonen, 2018).

Asia Pacific Studies (Australia, New Zealand)

Numerous studies conducted across different regions, including international research (Bland & Ruffin, 1992) (Slade et al., 2018), (Hanover, 2014) as well as studies focused on specific areas such as Scandinavia (Kjerholt & Hølge-Hazelton, 2018) and the UK (“Fostering an effective research environment,” 2017), Southeast Asia Schein, (1985) Rosas, (2013), and Pakistan (Akbari & Naqvi 2008) , shed light on the significance of strong leadership in fostering a dynamic research culture. Additionally, decentralization of university management structures is highlighted as a supporting factor in developing a research-oriented outlook (Pratt, Margaritis, & Coy, 2007; Marchant, 2009). Strong leadership, in conjunction with optimal resource utilization, has the potential to transform traditional teaching-focused models into research-oriented institutions, facilitating the generation of new knowledge—a crucial aspect of universities' missions (Marchant, 2009).

In the pursuit of cultivating and sustaining a research culture, the mentorship of young researchers by senior researchers plays a vital role, as a mentoring network significantly contributes to the growth of research culture (Studman, 2003). Action research, as observed in Scandinavian countries, is considered an effective approach for developing research skills (Ferguson, 1999). Research culture is nurtured at both the institutional and individual levels. At the institutional level, key factors include cohesion and ease of knowledge sharing, research direction, research support, and resource availability. At the individual level, motivation, the development of research skills, and the alignment between the study of research culture and organizational culture are important considerations (Hill, 2002).

Southeast Asian studies (Malaysia, Philippines, Vietnam):

While some studies highlight the aspiration for research, there is often a tepid response from officials in recognizing the policy-practice gap and fostering a more accommodating research culture. However, there is a growing appreciation for transitioning from conventional quantitative research to qualitative approaches (Scott, Miller, & Lloyd, 2006). The evolution of research culture may involve stages such as creation, growth, development, and nurturing (Anuar & Abdul, 2013). Significant contributing factors to research culture encompass research policies, budget allocation, benefits and incentives, research committees, organizational culture and working environment, infrastructure, and inter-institute collaboration (Mapa, 2017). Institutional support plays a crucial role in encouraging individual faculty members to embrace the research culture, with research units, incentives, expertise, research programs, and institutional policies serving as key factors Dacles et al., (2016). However, relying solely on individually targeted external incentives is inadequate for fostering a robust research culture; administrators need to adopt a holistic approach that embeds research within the overall organizational culture (Teehankee, n.d.). It's worth noting that while a strong research culture can lead to high research productivity, the reverse is not necessarily true, contrary to popular belief (Anuar & Abdul, 2013).

Similarly, in India, there is a tendency to treat research and publication interchangeably, resulting in institutions lacking a genuine research focus. Publications often stem from individual needs for survival or promotion rather than a collective passion for research (Chakaraborty, 2017). Consequently, there is a critical need to prioritize research culture over research publications. Developing countries, including Mexico, have recently recognized the importance of research orientation, leading to a growing prominence of research in the academic environment (Mendez & Cruz, 2014). Likewise, China has experienced a surge in research enthusiasm, with annual government funding for research growing at a remarkable rate of over 20%, even surpassing the expectations of the most enthusiastic scientists (Shi & Rao, 2010)(Akbari & Naqvi 2008).

Pakistan Studies

In Pakistan, the establishment of the Higher Education Commission in 2002 (Akbari & Naqvi, 2008) has resulted in an upward trend in internationally recognized publications and an increase in the number of PhD graduates (Lodhi, 2012; Naseem, Tahir, et al., 2019; Naseem, et al. 2020). Enrollment in Masters' and Doctoral programs has also seen a rise. However, despite these positive indicators, the research culture in Pakistan is still not considered inspiring. Challenges such as a shortage of third-party supervision and a lack of quality academic professionals have adversely affected the research culture (Agha, 2015). Lodhi, (2012) highlights the need for striking a balance between teaching traditions and a strong research culture in Pakistani universities.

There is an imbalance between the public and private sectors, with the public sector dominating in terms of research output (Naseem, Tahir, et al. 2019; Naseem, Imran, et al. 2020). However, it is expected that a more cohesive research culture will develop in the future as the private sector also makes significant contributions. The absence of third-party supervision and quality academic professionals has compromised the caliber of Pakistani students (Agha, 2015). The concept of research culture in Pakistan encompasses an individual's capacity for research activities, human development through an unspecified medium, and a set of common ideas, customs, and skills passed down to successors (Lodhi, 2012). Recent studies have emphasized the importance of leadership and resources as key factors in research (Naseem, Tahir, et al., 2019; Naseem, et al., 2020).

Although there has been an increase in scientific research productivity in Pakistan over the last decade, with a significant rise in the number of articles and highly cited papers (Herciu, 2016), skeptics like Hoodbhoy, (2016) question the ground reality and consider it as "playing the ranking game" and provide a different perspective.

Method

In our research, we adopted a mixed-methods approach to gain a comprehensive understanding of the research culture within the university. While both quantitative and qualitative techniques were employed, this paper focuses specifically on the qualitative aspect, utilizing the SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis method. By examining various SWOT aspects, we aimed to explore the rich research culture from the perspectives of university faculty members, considering the past, present, and future scenarios.

To collect data and capture expert opinions, we distributed open-ended questionnaires to faculty members from the Departments of Humanities and Management Sciences at COMSATS University Islamabad, Abbottabad Campus. This qualitative approach allowed us to delve into the subjective experiences and perceptions of the faculty members regarding the research culture at their institution.

Through the SWOT analysis, we aimed to assess the presence or absence of twelve crucial factors that contribute to a vibrant research culture, as identified by Bland and Ruffin, (1992). These factors encompass a wide range of elements essential for fostering a conducive research environment. They include:

1. Clear goals for coordination, ensuring alignment and coherence in research endeavors.
2. Research emphasis, highlighting the prioritization and significance of research within the university.
3. Distinctive culture, representing the unique values, norms, and practices that promote research activities.
4. Positive group climate, fostering a supportive and collaborative environment that encourages research collaboration and knowledge sharing.
5. Decentralized organization, allowing for autonomy and flexibility in research decision-making processes.
6. Participative governance, involving faculty members in decision-making and research-related policies.
7. Frequent communication, promoting regular and effective exchange of ideas, information, and feedback among researchers.
8. Resources, particularly human resources, acknowledging the importance of skilled and dedicated researchers to drive research productivity.
9. Groupage, size, and diversity, recognizing the benefits of diverse research groups and the advantages of different group sizes in generating innovative ideas and perspectives.
10. Appropriate rewards, providing incentives and recognition for research achievements to motivate faculty members and reinforce a research-oriented mindset.
11. Recruitment emphasis, prioritizing the selection of faculty members with research aptitude and potential.
12. Leadership with both research skills and management practice, emphasizing the importance of visionary leaders who possess not only strong research capabilities but also effective management skills to facilitate and nurture a research culture.

By exploring these twelve factors through qualitative analysis, we aimed to identify the strengths and weaknesses of the research culture within the university, uncover potential opportunities for growth and improvement, and recognize any threats or challenges that may hinder the development of a robust research culture.

Through this qualitative methodology, we sought to provide a deeper understanding of the research culture at COMSATS University Islamabad, Abbottabad Campus, and generate insights that can inform strategies and initiatives to enhance the research environment, promote knowledge generation, and contribute to the institution's broader mission of academic excellence.

Though in our broader scope we used mixed methodologies using both quantitative (descriptive analysis) as well qualitative (SWOT analysis) techniques this paper would only elaborate qualitative approach to see through different SWOT aspects in past, present, and future through the eyes of university faculty. For this purpose, we distributed open-ended questionnaires to the faculty members of the Departments of Humanities, and Management Sciences of COMSATS University Islamabad, Abbottabad Campus to reflect their expert opinion. Hence, this study is primarily qualitative. Studies on research culture reflect the enabling environment leading to research productivity among faculty members in Higher Education Institutes. Through our SWOT analysis, we attempted to explore the absence or presence of 12 factors of rich research culture highlighted by Bland and Ruffin, (1992) such as 1) Clear goals for coordination, 2) research emphasis, 3) distinctive culture, 4) positive group climate, 5) decentralized organization, 6) participative governance, 7) frequent communication, 8) resources (particularly human resources), 9) groupage, size and diversity, 10) appropriate rewards, 11) recruitment emphasis, and 12) leadership with both research skill and management practice.

Results

Findings: Strengths, Weaknesses, Opportunities, and Threats in Past:

In terms of **strengths**, researchers in the past used to focus on theoretical concepts primarily focusing on pure research, though applied research was also undertaken. The research was conducted only by willing hearts hence academic research contribution was based on integral orientation rather than succumbing to any pressure under the garb of number game. Since promotion was not linked with the publication, no unfair means were applied for publication. Teachers were comparatively more dedicated. Thus young researchers were growing in number whose increasing interest in the internet also increased contact with international HEIs. The prevalence of literary activities at universities used to extend appreciation for the original research work.

Weaknesses

However, there was only a shortlist of available Higher Education Programs. Less advanced technology could not facilitate easy access to information, literature, and resources resulting in poor grooming of research culture. Research Infrastructure was at a dismal stage. It was difficult to search for literature through libraries. Data gathering was much difficult than today. Research funding was not easily available. Resultantly, research had no link with policies. In absence of a conducive research environment, only a few publications were witnessed. Unstable governments coupled with rampant corruption in government institutes put a constraint on the financial health of the education sector. Less investment in the education sector barred the availability of quality mentors which further barred the number of PhDs in HEIs. Hence, the country had only a limited number of researchers resulting in minimum international collaboration.

Opportunities

Annual System of Teaching was less rigorous and hence provided ample time for research. A relatively peaceful environment at HEIs and conducive international atmosphere gave peace of mind and ease in pursuit of research. IT and computing users were less in number and enjoyed a competitive edge over non-users in the conduct of research. Since genuine researchers were scarce, even the limited financial support was able to meet their research requirements. It was easy for the limited number of researchers to publish their papers in absence of real competition. Pursuit a doctorate could give a relatively greater competitive advantage. Being in low competition they could avail themselves of almost every relevant avenue. Whereas experience at the doctorate level enhanced exposure to research activities, they could easily make their mark in the grooming of research culture.

Threats

Where poor research culture restricted the increase in the number of good researchers, the same could also be blamed for wasting the less encouraged but qualitatively better researchers. Technology users could easily misuse it to produce plagiarized and pseudo research. With literally no means of authentic verification, there were no checks on copyrights infringements. Lack of enough funds also hindered research publications and resulted in low acceptance at the international level. In absence of government patronage either people became reluctant to research or opted for abroad in search of a better future. Lack of dedicated leadership paved way for the emergence of authoritarian culture with minimum freedom of expression. A narrow mindset at higher hierarchy coupled with nepotism produced ideational freaks.

Strengths, Weaknesses, Opportunities, and Threats in Present

In terms of **strengths**, IT advancement boosted research culture through increased use of the internet, availability of advanced materials and tools, easy access to quality international journals through digital libraries etc. With HEC replacing UGC, funds increased tremendously resulting in a reasonable increased number of foreign and local qualified PhDs. This enabled availability of highly qualified faculty who is available as research mentors. Hence, an increased number of young and energetic researchers are witnessed. With the rapid growth of Higher Education Institutes, the number of HE programs also increased which fed research diversity and encouraged interaction with a multidisciplinary environment. Strength and diversity in research brought in industrial support and problem-based research got strengthened. Further, with strength and diversity also come opportunities for collaboration across the borders indicating international acknowledgement. This reflects a growth stage in research culture.

Weaknesses

A bird's eye view highlights tendencies like lack of hard work, short cut approach, in spirited and low-quality research under the garb of workload pressure resulting in low linkages of research with policies. Further, the bureaucratic approach extends the ideational treatment of good and bad researchers. Universities still depict a bureaucratic environment and lack of direction in research. There is no clear guidance in terms of successful publication. Many quality journals still require high publication fee and seeking requisite funds are still a problem. Race for Impact Factor has barred local publications. The current focus seems quantity and in this number game, many a time one work is replicated variously and advanced tools help in plagiarizing the same resulting in infringement of Copy Rights. Number game has shadowed research on current issues of Pakistan and its social impact. With the advent of the IT era, book reading and study circles have become almost dysfunctional. Although new dimensions are emerging but without mutual and proper integration speed of patching the gap between national and international research culture is quite slow. Hence, our research culture is still immature.

Opportunities

Interested scholars can benefit from the generous funding of HEC. Most of the recent governments have shown increased interest in education and we can benefit from the same. With the increasing HEIs and abundant youth large number of new vistas is open for research. With the improved quality, we can internationalize our universities, research, and ourselves. Excellence in quality research can help us adopt a research-based career growth path. Promoting research at all levels of education, ideally beginning from the school level, could inculcate true and progressive research culture in the country.

Threats

One of the most critical threats pertain to copyrights issues as many a time pseudo researchers imitate ideas and plagiarize earlier research. Improper cyber security mechanism facilitates unethical practices. Further with the ever-growing demand for PhDs, a huge number competes for the limited seats in the admission. Adding further, competition in research publications is also getting tougher day by day. With more research popping up every day, new scholars are facing problems in finding less unexplored areas. Similarly, with heated up competition, employment opportunities are getting saturated. Whereas the employed ones are facing increased pressure of publication to facilitate the employer in the number game. To give impetus to this race universities are inducting researchers without proper planning aiming just increased publications. Whereas pressure for publication is ever increasing, this is hardly complemented with proper training and motivation. Many a time, pseudo researchers receive undue acknowledgement and benefits. In absence of direction in research, conventional approaches are being more patronized in comparison to innovative ones. Number game has fueled fake race and time management for research has become increasingly challenging. Senior management expects a similar number of publications in natural and social sciences alike. This race is barring institutional coordination as it is all about number rather than relevance. Research delivery mechanism i.e. conversion into impact needs a secure environment, whereas the security issues of the country are major threats. With every changing government fund resources reflect volatility.

Strengths, Weaknesses, Opportunities, and Threats in Future

In terms of **strengths**, awareness, facilities, modern tools, and online data-sharing seem to keep increasing in the future facilitating large data estimation. With increased maturity research publication may start reflecting both knowledge addition and proper application. This would not only help create impact-oriented research but would also contribute to economic development. With growing ease to contact fellow researchers, the future may bring increased multidisciplinary and improved quality research with better-networked universities. We also assume that with growing maturity the country would see local as well as international collaboration resulting in international recognition and hence internationalization of universities. Surely, this would depend on stable government and continuation in policies.

Weaknesses

However, if the fears of past and present are not addressed, we may still be witnessing a lack of direction and coordination. The absence of a sound framework may also hinder erecting proper infrastructure. Political interference may still insist on the hiring of local faculty to earn so-called voter satisfaction instead of bringing in the intellectually enriched international academics. This would surely add to the gap between local and global research dynamics. Similarly, with continued fears, we might see inflation of scholars with scarce employment opportunities. Biased and unfair hiring may lack the motivation and required training. Resultantly, number game would still be steering the affairs with fake and plagiarized output. We fear that researchers of diversified backgrounds with little collaborations locally would keep on producing unwanted research without any societal context. Such sporadic research may also pose reliability challenges. We also fear that without strengthening and encouraging local publication, IF syndrome would keep draining valuable foreign exchange out of the country and contributing to negative effects. With the daunting legacy of unstable and frequently changing governments, resource availability may remain volatile. Adverse law and order issues may also further hammer the cultivation of the desired research culture.

Opportunities

With ever-growing awareness, the emergence of advanced IT tools and internet facilities interaction with experts through social media would further ease out. Similarly, membership of different research groups would be easily accessible. Increased awareness and public pressure may force government commitments towards education and with the provision of more scholarships and funding proper research infrastructure may emerge. This would bring in an increasingly more competent and motivated number of PhDs which would add to the research competition resulting in quality research production. Hence, international liaison and collaboration would also get strengthened and would bring acceptance at international forums. With the formulation of effective copyrights and patent legislation coupled with the strong implementation, we could make our positive imprints on global society.

Threats

Unfortunately, we do not see this number game fading to any degree shortly. This would only add to difficulties in grooming a desired research culture. Without proper motivation and incentive system, ethical issues may also keep daunting shortly. Hence, shortcuts, data manipulation, copyrights infringements, and plagiarized publications may also remain prominent threats in the coming days. We also fear that in a class conscious society researchers may emerge as a new social class, considering themselves superior to others. Virtue and vice have always competed. This makes us fear that no matter how strong data security protocols may appear, hackers would keep sneaking in and privacy may also remain at risk. We also fear that bureaucratic attitudes may keep strengthening the ideational orientation of society, refusing to accept and recognize truth. Continued practices of red-tapism and nepotism may force spirited and desperate people to leave the country if opportunities are not fairly distributed. Brain drainage would only help other more eager nations to emerge and we would keep losing a valuable human asset. If our relations with the neighbouring countries and world powers remain hostile and their agencies are left at large, militancy and terrorism may continue as dominant forces and keep disturbing peace of mind which is a basic pre-requisite for research work.

Conclusion

Based on the findings, we believe that the deficiencies in our research culture, such as the lack of clear goals for coordination, research emphasis, decentralized organization, participative governance, frequent communication, resources, appropriate rewards, recruitment emphasis, and leadership with both research skills and management practices, have persisted from the past and are still somewhat prevalent in the present. However, we remain hopeful that in the future, these shortcomings can be addressed and rectified to further enhance our research culture.

One positive aspect that has remained consistent throughout the past, present, and hopefully the future is the indicator of groupage, size, and diversity. The presence of diverse groups working together has proven to be beneficial for fostering innovation and generating new ideas. We should continue to encourage collaboration among researchers from various backgrounds to ensure a vibrant and inclusive research ecosystem.

On the other hand, the two indicators that we lacked in the past and have not seen emerging in the present are distinctive culture and a positive group climate. Unfortunately, it is unlikely that these aspects will materialize in the coming future. To improve our research culture, it is crucial to address these gaps by creating an environment that fosters a sense of identity, shared values, and mutual respect among researchers. Building a positive group climate will lead to increased productivity, collaboration, and overall satisfaction within the research community.

In order to overcome the current challenges and propel our research culture forward, several suggestions for improvement can be considered. First and foremost, establishing a secure environment that encourages critical thinking and complex reasoning is imperative. This can be achieved by instilling integrity and honesty in our youth from an early age, emphasizing the importance of ethical practices, and discouraging data breaches and manipulation.

To keep pace with the rapidly developing world, it is essential to increase public awareness about the utility of research. This can be achieved through educational campaigns and outreach programs that highlight the value of research in solving societal problems. Additionally, providing necessary training and capacity development opportunities, improving infrastructure, and implementing effective planning processes are vital steps to cultivate a goal-oriented research culture.

In terms of resources, it is encouraging to note that universities are already offering free access to journals and theses. However, the scope of this access should be expanded further. It would be beneficial to establish a macro mechanism to finance publication costs and create research excellence centers within universities. These centers would be equipped with experts in the publication process and would provide valuable support to researchers across different fields.

Looking ahead, it is crucial for the future to focus on addressing the dominant national issues in Pakistan and anticipating upcoming challenges. By doing so, we can proactively work towards mitigating risks and finding sustainable solutions. Prioritizing quality over quantity and allocating sufficient financial resources to qualified researchers will enable us to effectively tackle our national problems.

Lastly, fostering both local and international collaborative mechanisms is essential for nurturing and sustaining our research culture. Collaboration provides opportunities for knowledge exchange, cross-disciplinary research, and exposure to different perspectives. By actively engaging in collaborative efforts, we can continually enrich our research endeavors.

In conclusion, while there are still areas of improvement, we have the opportunity to shape a more robust and thriving research culture in Pakistan. By implementing the suggested improvements and remaining dedicated to the advancement of knowledge, we can pave the way for a future where research is highly valued, impactful, and contributes significantly to the betterment of our society.

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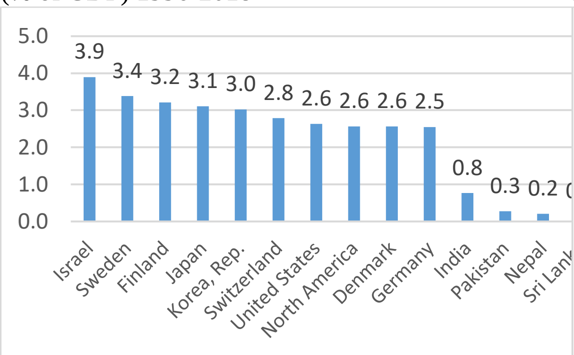
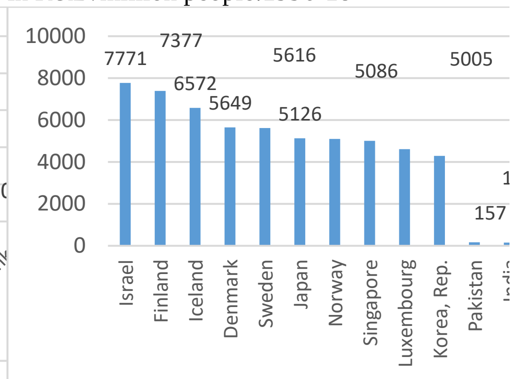
Annex 1:

Graph 1: Average of 23 years' R&D Expenditure (% of GDP) 1996-2018



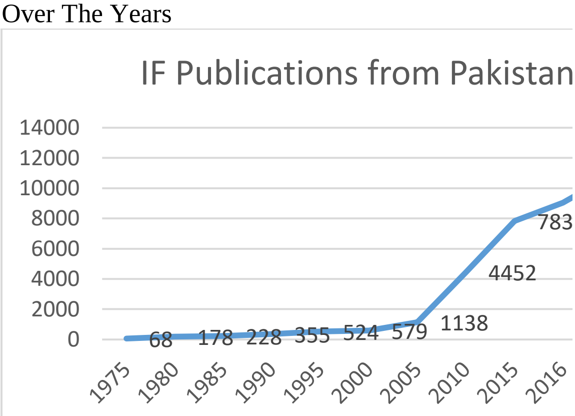
Source: (World Development Indicators, 2019)

Graph 2: Average of 23 Years' Researchers in R&D/million people:1996-18



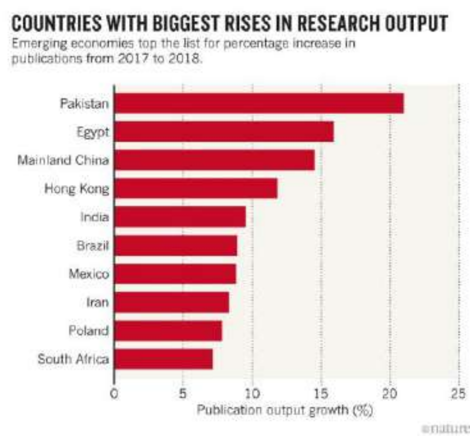
Source: Date from World Develoment Indicators 2019

Graph 3: IF Articles Published from Pakistan Over The Years



Source: Data from Word Development Indicators 2019

Graph 4



Source: Web of Science Analysis: ISI, Clarivate Analytics

GUIDELINES FOR AUTHORS

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