

The Confirmatory Factor Analysis Model Of Being The Smart School In The Digital Age Under The Office Of The Basic Education Commission

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Abstract

This Research Aims To Develop Indicators Of A Smart School In The Digital Age Under The Office Of The Basic Education Commission. And Examined The Harmony Of The Smart School Model In The Digital Age Under The Office Of The Basic Education Commission With Empirical Data. The Sample Consisted Of 250 People Of Educational Institution Administrators And Secondary School Teachers Under The Office Of The Basic Education Commission. They Were Selected By Multi-Stage Random Sampling. The Research Instrument Was A Questionnaire With A Total Confidence Value Of .92. The Data Were Analyzed Using The Second Baseline Statistical Calculation And Confirmatory Factor Analysis With The Lisrel Package. The Results Showed That Smart School In The Digital Era Has 3 Components And 27 Indicators. Composition Weights Ranged From .85-.97 And Were Statistically Significant At .01 For All Values. Ranking The Importance From Most To Least: Management (0.96), Media, Innovation And Technology (0.94), And Human Resources (0.83) Respectively. The Component Weights Of All Indicators Were High And Statistically Significant At The .01 Level. And The Smart School Model In The Digital Era Is In Harmony With Empirical Data Which Is Determined From The Harmonious Index Value Is $\chi^2 = 286.02$, Df = 277, Relative $\chi^2 = .99$, P-Value = .341, Rmsea = .01, Gfi = .86, Agfi = .81, Rmr = .02. It Shows That The Model Is Structurally Valid.

Keywords: Smart School In The Digital Age, Model, Confirmatory Factor Analysis

Introduction

The Current Educational Quality Management Drive Focuses On Developing 21st-Century Learners' Digital Learning Skills, The School Administrators Play A Crucial Role In Leading The Organization To Success Following Its Vision And Mission. School Administrators Must Be Good Role Models In Adapting To The Changing Context Of Digital Technology. School Administrators In The Digital Era Must Keep Pace With The Changes In Technology As Administrators Are Key To Transforming Both The Practice And The School Culture. School Administrators Who Are Leaders In Digital Technology Are Thus Representing New Ideas And Practices By Using Social Media Communications To Promote School News To Enhance The Value Of Educational Institutions, Especially Cultural Awareness, Communication, And Participation In Collaboration Using Digital Technology (Sheninger, 2014).

An Effective Education, Recognized Both Within And Internationally, Is Of Paramount Importance And Pivotal In The Development Of A Country. This Is Because People Are Considered The Most Important Resource To Drive Resources In Other Areas. The School Administrators, As Corporate Leaders, Have A Strong Need To Be Professional Administrators. This Is Because The Administrators Of The Educational Institutions Themselves Are Responsible For Leading The Organization Towards Success Following Its Objectives And Goals (Pacharawit Chansirisira. 2018). The Key Factor In Successful Education Management Is The Leadership Of The School Administrators, Which Affects The Working Behavior Of Teachers And Educational Personnel In Schools. Administrators Must Learn To Bring Change, Be Competent, Knowledgeable, Use Intelligence And Research Results To Develop And Improve The Quality And Performance Of Educational Institutions. The Most Important Thing Is To Have The Right Leadership Of The Executive Itself (Kanokorn Somprach. 2017). This Is Because The Leader Is The Person Who Plays A Role In Supporting And Empowering The Personnel In The Organization To Have Ideas And

Guidelines For Creating New Things And New Methods That Benefit The Organization. Therefore, The Development Of Digital Leadership Is Absolutely Necessary (Koolchalee Chongcharoen. 2014).

Therefore, In The Digital Era, It Has To Evolve Into A Smart School In Accordance With The Changing Direction Of Education. Have A Forward-Looking Vision, Be Able To Anticipate The Changes In Education By Applying Digital Technology To Decision-Making, And Be Able To Plan For Effective Implementation. Can Communicate And Promote The School To Be Known Through Social Media. It Can Encourage Teachers And Learners To Learn All The Time And Be Able To Work Together To Create Quality Educational Innovations. Able To Transform School Culture Into Digital Learning Culture. Digital Technology Can Be Used To Improve The Quality Of Education That Effectively Enhances Teacher Competency And Learner Skills In The 21St Century And Can Achieve Continuous Learning Throughout Life.

For The Reasons Mentioned Above, The Researcher Is Interested In Studying The Strategy Of Developing A Smart School In The Digital Age Under The Office Of The Basic Education Commission That Is Appropriate And Consistent With The New Paradigm Of Learning Management In The 21St Century To School Administrators And Teachers Will Be Able To Use The Results Of Their Studies To Develop Their Own Digital Leadership. Applications In Learning Management With Digital Technology, Planning To Improve The Quality Of Educational Institutions, Increasing The Efficiency Of Management, Which Will Result In A Link To The Development Of The Quality Of Education And The Development Of Future Skills Of Learners.

Objectives

1. To Develop Indicators Of A Smart School In The Digital Age Under The Office Of The Basic Education Commission
2. To Examine The Harmony Of The Smart School Model In The Digital Age Under The Office Of The Basic Education Commission

Research Conceptual Framework

In This Research, The Researcher Has Synthesized The Components And Indicators Of A Smart School In The Digital Age Using The Core Concept Of Hamzah (2010); Siavash Omidinia (2012); Zhi-Ting Zhu (2016); Farhad Seraji (2019) National Innovation Agency (2010); Nutavoot Pongsiri (2017); Somsak Jeewattana, Sunanta Viragoontavan And Chalida Pattarasrejerakul (2012); Office Of The Basic Education Commission (2018) It Was Found That Being A Smart School In The Digital Era Has 3 Components: 1) Management, 2) Human Resources, 3) Media, Innovation And Technology And Details Of 27 Indicators. From The Above Concepts, It Can Be Summarized As A Research Conceptual Framework As Illustrated

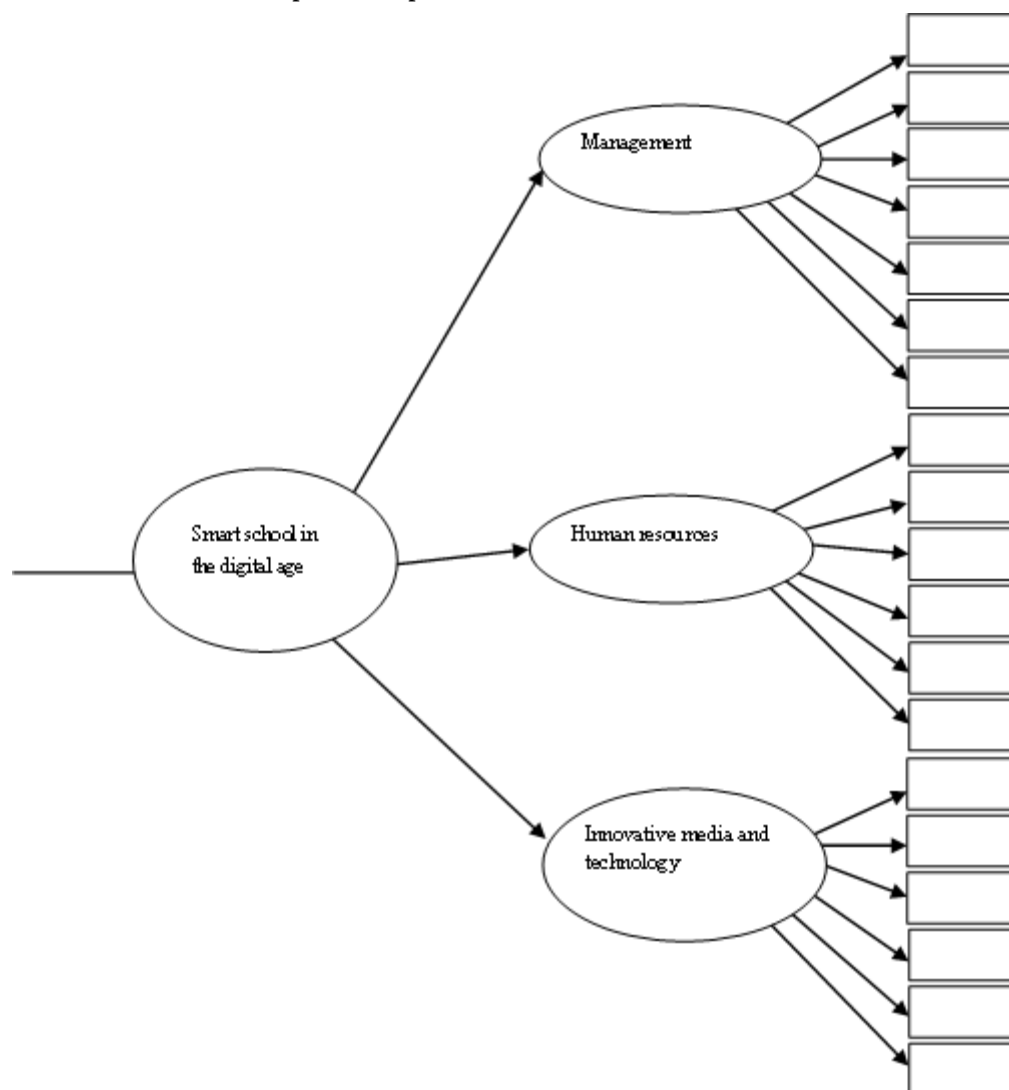


Figure 1 Research Conceptual Framework

Methodology

1. The Population Used In The Research Were School Administrators And Teachers Of Primary Schools In, Northeastern Region, Under The Office Of The Basic Education Commission Of 12,148 Schools. The Samples Were Administrators And Teachers Of Secondary Schools In, Northeastern Region, Under The Office Of The Basic Education Commission Of 250 People. However, Hair And Et Al. (2010) Stipulates That The Minimum Sample Size Should Be 100 And There Should Be At Least 5-10 People Per Indicator. This Research Has 27 Indicator Numbers. Therefore, The Sample Size Was 250 People, Obtained By Multi-Stage Random Sampling.
2. The Variables Used In The Research Were 27 Observable Variables Divided Into 3 Components: (1) Management, (2) Human Resources, (3) Media, Innovation, And Technology.
3. Research Instruments Are A Questionnaire On The Composition And Indicators Of A Smart School In The Digital Age, Under The Office Of The Basic Education Commission, Which Is A 5-Level Rating Scale. Scale) A Number Of 41 Items, Which Has A Content Validity (Cvi)

Of 1.00 And A Power Of Discrimination Between .55-.83, And Confidence In The Whole Issue (A) Was 0.92.

4. Data Collection, The Researcher Collected The Data By Himself. A Total Of 300 Questionnaires Were Submitted, 284 Questionnaires Were Returned, Representing 94.67%. After Checking The Completeness Of The Responses, 250 Questionnaires Were Used To Analyze The Data.
5. Data Analysis, Using Basic Statistical Analysis Of Variables. Analysis Of The Correlation Coefficient Between Variables In The Model To Know The Correlation Characteristics Of The Variables And To Check The Preliminary Agreement. And The Second Confirmatory Factor Analysis To Examine The Harmony Of The Smart School Model In The Digital Age, Office Of The Basic Education Commission, With The Empirical Data With The Lisrel Package.

Results

1. Preliminary Data Analysis Results

The Results Of The Basic Statistical Analysis Of The Overall Variables Revealed That All Variables Were Distributed Within The Normal Curve. The Observed Variables For All Aspects Of A Smart School In The Digital Era Were High, With Most Of Them Averaging Between 3.84-4.40. All Observed Variables Had A Low Standard Deviation Between .58-.83.

The Results Of The Correlation Analysis Between The Observed Variables Regarding The Innovators Of Secondary School Teachers Using Pearson's Correlation Coefficient. Considering The Statistical Test Of Bartlett's Test Of Sphericity และค่า Kaiser-Meyer-Olkin Measure Of Sampling Adequacy, It Was Found That The Correlation Matrix Between Observed Variables In All Groups Of Latent Variables Was Statistically Different From The Identity Matrix At The 0.01 Level. It Was Shown That All Observed Variables Were Highly Correlated And Suitable For Use In Second-Order Confirmation Element Model Analysis.

2. The Second Confirmatory Factor Analysis Result;

The Second Confirmatory Factor Analysis Result Of The Smart School Model In The Digital Age Under The Office Of The Basic Education Commission, Details Are Shown In The Illustration.

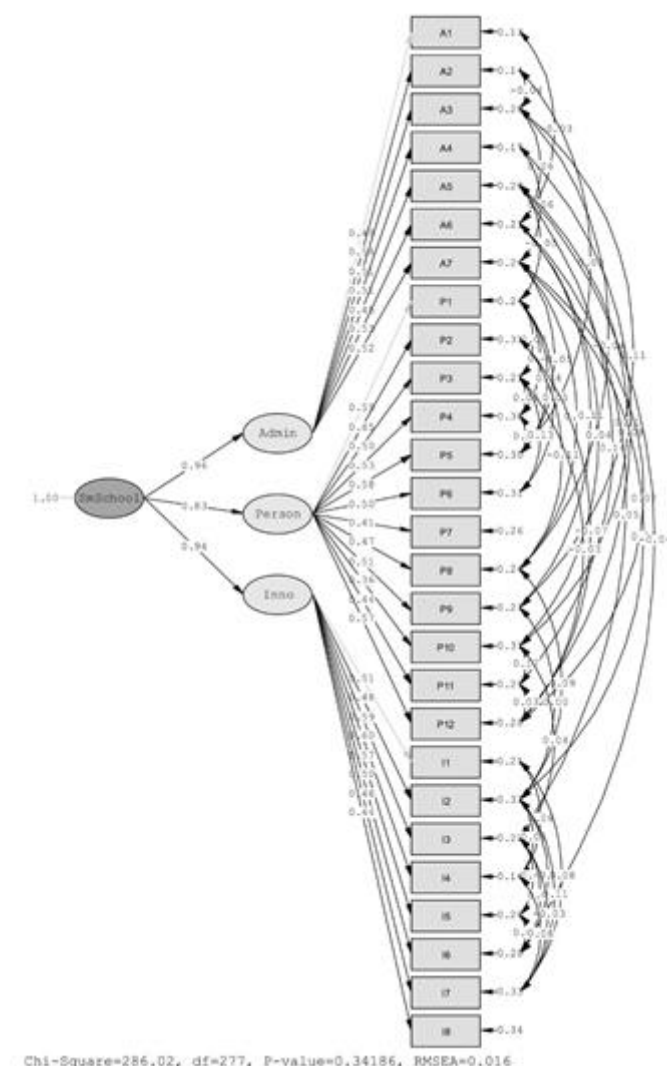


Figure 2: Model Of A Smart School In The Digital Age

The 2nd Confirmatory Factor Analysis Of The Model Of Being A Smart School In The Digital Age It Was Found That There Was Harmonization With The Empirical Data, Which Was Determined By The Harmonization Index Was $\chi^2 = 286.02$, Df = 277, Relative $\chi^2 = .99$, P-Value = .341, Rmse = .01, Gfi = .86, Agfi = .81, Rmr = .02. When Considering The Composition Of The Smart School Model In The Digital Age Under The Office Of The Basic Education Commission In The Confirmatory Factor Analysis For The Second Place, It Was Found That The Weights Of All Three Components Were High And Statistically Significant, Ranging From 0.83-0.96. Which In Descending Order Of Element Weights Are: Management (0.96), Media, Innovation And Technology (0.94), And Human Resources (0.83) Respectively. The Weight Of These Elements Indicates That The Smart School In The Digital Age Under The Office Of The Basic Education Commission Comes From More Strategic Management Elements Than Any Other Element. With 96%, 94%, And 83% Variations With Media, Innovation, And Technology, And Human Resources, Respectively.

Discussion

This Research Found Two Points To Discuss The Results. That Is To Say, The First Point Is The Result Of The Development Of Elements And Indicators Of A Smart School In The Digital Era Under The Office Of The Basic Education Commission Based On Relevant Theories And Preliminary Quality Checks. And The Second Issue, The Results Of Checking

The Harmonization Of The Smart School Model In The Digital Age Under The Office Of The Basic Education Commission With Empirical Data Which Are Detailed As Follows

1. The Results Of The Development Of Components And Indicators Of Being A Smart School In The Digital Era Under The Office Of The Basic Education Commission. From The Synthesis Of Conceptual Frameworks And Theories Related To Being A Smart School In The Digital Era, There Are 3 Elements Or Features Related To Being A Smart School In The Digital Era: 1) The Management, 2) The Media, Innovation, And Technology, And 3) The Human Resources. All 3 Elements Have A Total Of 27 Indicators. The Development Of Elements And Indicators Of A Smart School In The Digital Era Is In Line With The Core Concept Of Hamzah (2010); Siavash Omidinia (2012); Zhi-Ting Zhu (2016); Farhad Seraji (2019) National Innovation Agency (2010); Nutavoot Pongsiri (2017); Somsak Jeewattana, Sunanta Viragoontavan And Chalida Pattarasrejerakul (2012); Maliwan Tammasaeng (2015); Office Of The Basic Education Commission (2018)

1.1 Management, There Are 7 Indicators: 1) Determine The Structure, Roles, Responsibilities. 2) Determine The Knowledge, Skills Of Personnel And Students. 3) Determine The Course Structure. 4) Establish A Vision And Conceptual Framework. 5) Potential Analysis, Technology Assessment, Basic Information. 6) Determine Guidelines For Personnel Development. And 7) Establish A Method For Assessing The Effectiveness Of Schools And Personnel To Initiate Useful New Initiatives.

1.2 Human Resources, There Are 12 Indicators: 1) Teachers Plan Activities To Design Content And Provide Educational Resources According To Student Needs. 2) Teachers Can Manage Technology In Learning Management By Controlling The Implementation Of Technology In The Classroom. 3) Teachers Are Assessed To Verify Their Expertise In Teaching And In Organizing The Learning Environment. 4) Teachers Manage Effective Learning, Motivate Students. 5) Teachers Continually Evaluate Students' Learning Performance. 6) Teachers Create Communities To Exchange Learning With Colleagues And Parents. 7) Students Have Creative Problem-Solving Skills In New Situations. 8) Students Are Encouraged To Make Their Own Decisions Based On Reasonableness. 9) Students Can Search For Information From Online Libraries. 10) Students Can Search Online By Efficiently Collecting Information From Both Local And International Sources. 11) Students Can Have Online Teleconference Through Video Conferencing And Discussion. And 12) Students Are Successfully Developed To Be Ready To Compete In The Modern World Society.

1.3 Media, Innovation, And Technology Have 8 Indicators As Follows: 1) There Is An Internet And Intranet System For Searching Information. Research From Both Domestic And International Sources. 2) There Is An Up-To-Date Online Library. 3) There Are Facilities To Enhance Learning Management Such As Video Cameras And Quality Audio Systems. 4) There Is A Network For Interaction Between Students, Teachers, And People Around The World. 5) There Are Enough Computers For All Personnel. 6) There Is A Software System To Help With The Management. 7) Allocate Personal Computers To Students. And 8) Have Appropriate Materials And Equipment For Students That Encourage Students To Be Able To Search Anywhere And Anytime.

2. The Results Of The Examination Of The Harmonization Of The Smart School Model In The Digital Era Under The Office Of The Basic Education Commission With Empirical Data Found That Is Harmonious With The Empirical Data, Which Is Determined By The Harmonization Index Is $\chi^2 = 286.02$, Df = 277, Relative $\chi^2 = .99$, P-Value = .341, Rmse = .01, Gfi = .86, Agfi = .81, Rmr = .02. It Shows That The Elements And Indicators Of A Smart School In The Digital Age Under The Office Of The Basic Education Commission

Between The Appearance In The Theoretical Framework And The Real, Harmonious And Coherent.

The Confirmatory Factor Analysis Found That The Three Components Of A Smart School In The Digital Age Explain The Variability Of Smart Schools In The Digital Education Era. Strategic Management Has The Highest Component Weight (0.96), Human Resources Have The Lowest Component Weight (0.83), Which Reflects The Variability Of Smart Schools In The Digital Age Due To Management And Media, Innovation, And Technology More Than Any Other. While The Study Results Of Hamzah (2010); Siavash Omidinia (2012), Consistent With The Concept Of Zhi-Ting Zhu (2016); Farhad Seraji (2019) Confirming That Management, The Media, Innovation And Technology, And Human Resources Influence Smart Schools In The Digital Age. However, The Weight Of The Components Of The Remaining Aspects Is Still High As Well, Indicating That To Be A Smart School In The Digital Era, The Office Of The Basic Education Commission Must Have All Three Elements Intact.

Recommendation

1. Applying The Research Results Suggestions

The Research Found That Smart School In The Digital Era Is More From Management And Media, Innovation, And Technology Elements Than Any Other Aspect. Therefore, To Develop A Smart School In The Digital Era, Both Elements Should Be Used As Leading Elements Which Will Help Drive Other Elements Along. Whereas Human Resources Should Be Intensively Promoted And Developed To Develop Teachers Into Smart Schools In The Digital Era.

2. Further Research Suggestions

This Research Is A Study Of Expectation Conditions Only. Therefore, To Cover All Issues, The Actual Characteristics Should Be Assessed So That The Results Reflect Their Implementation. A Combination Of Several Analytical Techniques May Be Used To Make The Indicator More Reliable.

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