

Development Of Innovator Indicators Of Secondary School Teachers Under The Office Of The Basic Education Commission

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Abstract

This Research Aims To Develop Indicators Of The Innovators Of Teachers In Secondary Schools Under The Office Of The Basic Education Commission., And Examine The Consistency Of The Model Of The Innovators Of Teacher's Secondary Schools With Empirical Data. The Sample Was School Administrators And Teachers Of The Northeastern Secondary School, Under The Office Of The Basic Education Commission, The Academic Year 2020, Totaling 340 People. They Were Selected By Multi-Stage Random Sampling. The Instrument Used Was A Questionnaire With A Total Confidence Value Of .94. Data Analysis Was Performed Using A Baseline Statistical Analysis Of Variables And A Second Confirmatory Factor Analysis. The Results Showed That; (1) The Innovator's Indicator Of Teachers In Secondary Schools Under The Office Of The Basic Education Commission Has 5 Compositions, 28 Indicators, Of Which The Composition Weight Is Between 0.85-0.95 And All Values Are Statistically Significant At 0.05. In Order Of Importance From Least To Greatest, They Are: Questioning (0.95), Associative Thinking (0.94), Observation (0.93), Experiment (0.88), And Networking (0.85) Respectively. (2) Model Of The Innovators Of Secondary Schools Are Consistent With Empirical Data, With Statistical Indicators As Follows: Chi-Square=259.70, Degree Of Freedom=286, Relative Chi-Square= 0.908, P-Value= 0.867, Gfi= 0.95, Agfi = 0.93, Rmr = 0.013, And Rmsea = 0.000. It Is Shown That The Innovator Of The Teacher's Model Of Secondary Schools Is Structurally Valid.

Keywords: Indicator Development, The Innovators Of Teachers, Confirmatory Factor Analysis

Introduction

Education Is An Important Tool In Raising The Quality Of Thai People To Have Skills, Knowledge, And Abilities That Will Serve As A Base For The Development Of The Country. The Trend Of Education Management For The 21St Century Is Becoming A Popular And Important Thing Nowadays. 21St-Century Learners Must Possess The Necessary Knowledge, Abilities, And Skills, As Well As The Factors That Support Learning. In This Regard, Educational Institutions Should Focus On Developing Learners To Be Quality Individuals Through The Learning Process For Continuous Learning Throughout Life (Pacharawit Chansirisira. 2020). The Current Approach To Educational Management Has Changed Dramatically, Especially Intending To Create The Desirable Characteristics Of Learners. The Knowledge And Understanding Of The Course Content Are Enhanced On Complex Thinking Skills Including Analytical Thinking, Creative Thinking, Social Skills, Ability To Work With Others And Communicate Effectively, Innovation Skills Both In The Form Of An Invention Or Method. Including Awareness Of Morality, Ethics, And Good Citizenship To Society. In Addition, The Educational Model Has Been Digitized To Be In Line With The Social And Economic Conditions. Innovations Are Therefore Created And Distributed To Society Continuously. Therefore, Cultivating Learners To Be Innovative Or Innovators Is An Important Goal For 21St-Century Education And An Essential Skill For Future Education. 21St-Century Learning Management Aims To Develop Relevant Skills Of Learners To Be Ready For Higher Education Or To Develop Advanced Skills For Professional Use, One Of Those Skills Is Creative And Innovative (Baker. 2014). Innovation Is The Creation Of New Ideas That Lead To The Creation Of New Things In The Form Of Products, Processes, Or Services By Not Only Creating New Inventions But Also Enabling People To Be Accepted To The Market To Add Value Or The Quality Of That Process Or Service. In Addition,

Innovation Creates New Technologies And Introduces Out-Of-The-Box Ideas That Can Create Different Values In Society. The Starting Point Of Innovation Is Innovative Thinking, Encouraging People To Think Innovatively Consists Of Many Factors. Because Innovation Thinking Is An Important Skill, It Needs To Be Trained Until Deep Behavior Becomes A Skill. The Starting Point For Developing Innovative Thinking Skills Is Questioning And Comparing And Thinking Of Things That Are Needs But No One Has Created Them Yet (Nelson. 2012). Those With Innovative Thinking Skills Or Innovators Are Those Who Can Create New Ideas Or Creatively Change Existing Ones. A Group Of People Who Are Always Innovating In The Form Of Ideas, Processes, Or Products. These Individuals Have What Is Known As Creative Intelligence, Which Differs From Other Types Of Intelligence In That It Is More Intelligent Than Recognizable Or Right-Brained. Those Who Call Themselves "The Innovators" Must Be Able To Connect The Two Hemispheres To Work Together Through The Skills Necessary To Create New Ideas (Dyer And Et Al. 2011).

Office Of The Basic Education Commission, Ministry Of Education, Plays A Key Role In Preparing Young People To Have The Characteristics And Skills Of Learning In The 21st Century, Have The Basic Knowledge And Skills Necessary To Develop Innovation Or Be An Inventor To Be An Innovator. Therefore, The Management Of Education To Create Learners To Be Innovators And To Create Manpower With Competencies That Meet The Needs Of The Country Is A Great Challenge (Office Of The Basic Education Commission. 2019). Therefore, Education Management Needs To Adjust The System To Be In Line With The Approach That Drives Towards This Goal By Emphasizing The Importance Of Developing Learners To Have Competency Innovators, Especially Those In Secondary School. As Wagner (2012) Suggests, Innovative Competence Is Something That Can Be Cultivated And Learned Especially By High School Students. The Secondary Schools Should Therefore Be The Starting Point And Give Importance To Education To Provide Students With Innovative Competencies That Can Create New Ideas, Innovations, And New Processes. This Is An Important Part Of Creating New And Added Value.

From The Above Importance, It Can Be Seen That The Learning Management To Enhance The Capacity Of Innovators For Learners To Be Effective Depends Partly On The Role Of The Teacher. For This Reason, The Researcher Is Interested In Developing The Innovator's Indicator Of Teachers, Secondary Schools Under The Office Of The Basic Education Commission. This Research Aims To Provide A Clear And Relevant Approach To The Development Of The Innovators Of Teachers, Which Will Result In An Efficient And Effective Link To Improving The Quality Of Education And The Development Of Students' Future Skills.

Objectives

1. To Develop The Innovator's Indicator Of Teachers In Secondary Schools, Under The Office Of The Basic Education Commission.
2. To Examine The Consistency Of The Model Of The Innovators Of Teachers Of Secondary Schools With Empirical Data.

Research Conceptual Framework

The Researcher Studied The Indicators From Concepts, Theories, Documents, And Related Research Using The Main Concepts Of Dyer And Et Al. (2011); Wagner (2012); Boyd (2011); Sandberg And Stenroos (2014); Courus (2014); Furr And Dyer (2014); Navarro And Et Al. (2015); Kieu (2017); Wasan Sutthawart And Phitak Siri Wong (2015); Marut Patphol (2017); Office Of The Basic Education Commission (2019); Sukanya Chaemchoy (2020), And National Innovation Agency (2020) To Establish The Innovators Of Teachers Model

(Innov), It Consists Of 5 Compositions, 28 Indicators: (1) Associative Thinking (Assoc) 5 Indicators, (2) Questioning (Quest) 6 Indicators, (3) Observation (Obser) 6 Indicators, (4) Experiment (Exper) 6 Indicators, And (5) Networking (Netwo) 5 Indicators.

Methodology

1. The Population Used In The Research Were School Administrators And Secondary School Teachers In The Northeastern Region, Under The Office Of The Basic Education Commission, The Academic Year 2020, Totaling 39,545 People. The Sample Group Is School Administrators And Teachers, Which Determines The Sample Size As Hair And Et Al. (2010) It Is Proposed To Be At Least 100 Samples, And The Proportion Of The Sample Size To The Number Of Parameters To Be Estimated Is 10-12 Samples Per Parameter. Therefore, The Sample Size In This Study Was 340 People And Was Obtained By Multi-Stage Random Sampling.
2. The Research Instrument Was A Questionnaire On The Composition And The Innovator's Indicators Of Teachers Of Secondary Schools, Which Is A 41-Item 5-Level Rating Scale. Content Validity (Cvi) Is 0.80 - 1.00, Item Total Correlation Is Between 0.552 - 0.836, Alpha Coefficient Is 0.94.
3. Data Collection, The Researcher Submitted A Questionnaire To Collect Data From A Total Of 400 Samples, Of Which 369 Questionnaires Were Returned, Representing 92.25 Percent. And Examined The Returned Questionnaires And Selected Only The Complete 340 Copies.
4. Analyzing The Data, The Researcher Performed A Basic Statistical Analysis Of The Variables To Find The Mean And Standard Deviation And Analyzed The Correlation Coefficient Using The Formula Of Pearson's Product-Moment Correlation Coefficient. Examined The Correlation Matrix Of The Data By Using Values Of Kaiser-Meyer-Olkin Measure Of Sampling Adequacy. The Uniqueness Of The Matrix Using The Value Of Bartlett's Test Of Sphericity, And Using The Confirmatory Factor Analysis To Verify Structural Validity By Considering The Coherence Between Hypothetical Models And Empirical Data.

Results

1. Development Results Of The Innovator's Indicator Of Teachers, Secondary Schools, Affiliated With The Faculty Office The Basic Education Committee Found That There Were 5 Compositions, 28 Indicators As Follows; (1) Associative Thinking, 5 Indicators Were; Open To New Modern Ideas, Eager To Invent Useful New Things, Have New Ideas Or Creatively Change Old Ideas, Using A Multi-Faceted Way Of Thinking, And Connect Ideas Based On Information And Knowledge Well. The Weight Of The Composition Is Between 0.66-0.77. (2) Questioning; 6 Indicators Were; Set Challenging Goals For Yourself, Identify The Problem And What Needs To Be Discovered In A Relevant Way, Have Doubts And Want To Find Answers, Raise Questions That Challenge The Current State Of Affairs, Ask Questions To Create New Perspectives And Directions, And Ask Questions Based On Feasibility. The Composition Weight Is Between 0.66 - 0.81. (3) Observation, 6 Indicators Were; Observant And Remembering Things, Curious And Wanting To See Insatiable, Seldom Accepting The State Of Things As It Is Today, Seeing Opportunities And Possibilities Of New Things, See Every Dimension Of The Problem And Its Possible Out-Of-The-Box Solutions, And Are Concerned About The Possibility Of The Future. The Weight Of The Composition Ranges From 0.72 -0.79. (4) Experiment, 6 Indicators Were; Flexible And Adaptable, Endure Disappointment As An Opportunity Rather Than Failure, Doing Things Differently Or Doing Things That Have Never Been Done Before, Take Risks And Take Risks,

Can Predict, And Trial And Error And Come Up With New Solutions. The Weight Of The Composition Is In The Range Of 0.71 - 0.86. (5) Networking, 5 Indicators Were; Open And Respond To New Opinions Of Others, Exchange Learning With Others Who Have Different Perspectives And Expertise From Their Own, Respect The Ideas Of Others, Both Following And Inconsistent With One's Own, Communicate Your Thoughts To Others Effectively, And Can Coordinate With Others. The Weight Of The Composition Is In The Range Of 0.76 -0.83.

Table 1 The Second Confirmatory Factor Analysis Results

Variable	B	Se	T	R ²
Assoc [Associative Thinking]	.94	.08	12.54	.89
Quest [Questioning]	.95	.06	15.17	.90
Obser [Observation]	.93	.06	15.34	.86
Exper [Experiment]	.88	.07	12.90	.77
Netwo [Networking]	.85	.05	14.75	.72
$\chi^2 = 259.70$ Df = 286 P-Value = .867 Gfi = .95 Agfi = .93 Rmr = .013 Rmsea = .000				

2. The Second Confirmatory Factor Analysis Found That The Innovators Of Teachers Of Secondary School Have 5 Compositions, The Weight Of A Composition Is Between 0.85 - 0.95 And Were Statistically Significant At The 0.05 Level For All Values, Weighted In Descending Order Of Importance As Follows: Questioning (.95), Associative Thinking (.94), Observation (.93), Experiment (.88), And Networking (.85) Respectively. The Model Of The Innovators Of Teachers Of Secondary School Is Consistent With Empirical Data. Which Has The Following Statistical Values: Chi-Square = 259.70, Degree Of Freedom = 286, Relative Chi-Square = 0.908, P-Value = 0.867, Gfi = 0.95, Agfi = 0.93, Rmr = 0.013, And Rmsea = 0.000. It Shows That The Model Of The Innovators Of Teachers Of Secondary Schools Is Structurally Validity.

Discussion

1. The Results Of The Development Of The Innovator's Indicator Of Teachers Of Secondary Schools, Under The Office Of The Basic Education Commission Found That The Model Of Indicators Generated Statistically Significant Among All Indicators, Showing That The Composition Discovered Is An Important Component Of The Innovators Of Teachers For Secondary Schools. This Is Because The Development Of Indicators Is Derived From The Theoretical Definition, In Which The Development Of Indicators Based On Theoretical Definitions Is Very Reliable In Framing The Indicators. In Line With The Views Of Padungchai Poopat (2018) That The Development Of Indicators Based On Theoretical Definitions Is The Development Of Indicators By Selecting A Group Of Variables Related To The State Or Feature Of Interest And Prioritizing The Variables. Assign Weights To Variables Based On Rationality Or Theoretical Basis To Synthesize Variables Into Theoretical Indicators. Therefore, The Development Of Theory-Based Indicators Is One Of The Most Reliable Processes.

2. The Results Of Examining The Coherence Of The Model Of The Innovators Of Teachers For Secondary Schools With Empirical Data Found That The Model Is Consistent With The Following Empirical Data:

2.1. Associative Thinking, There Is A Second Weight Of The Composition (0.94) And The Indicators That Have The Greatest Composition Weight Are: New Ideas Or Creative Changes To Existing Ideas (0.77). This Is Because Associative Thinking Is A Behavior That Expresses The Perception Of Associative Thinking In Conjunction With The Understanding Of New Information. This Will Lead To The Innovator Where There Is An Associative Thinking Of Different Fields Of Science And Different Ideas Together. Dyer And Et Al. (2011) View

Associative Thinking As An Essential Skill And Necessary For New Creative Thinking. This Is Consistent With Wagner (2012) That Thinking Allows The Innovator To Develop Associative Thinking To Cultivate New Insights.

2.2. Questioning Is The Weight Of The Component First (0.95) And The Indicators That Have The Most Weight Of The Composition Are: Ask Questions That Challenge The Status Quo (0.81). This Is Because Questioning Is A Skill That Truly Represents An Innovator, Since Good Questioning Is More Difficult Than Answering Questions, A Good Innovator Is Less Accepting Of The Current State Or Status Quo (Dyer And Et Al. 2011). Consistent With Wagner (2012) Who Views The Skills That Make Someone With The Innovator Different From Someone Who Doesn't, The Innovator Starts With Questioning. Which Questioning Allows The Innovator To Step Out Of The Status Quo And Consider New Possibilities.

2.3. Observation Is The Third Weight Of The Composition (0.93) And The Indicators That Have The Greatest Composition Weight Are: Curiosity And Want To See Insatiable (0.78). This Is Because The New Business Ideas That Are Born Are Produced By Observing The Behavior Of Individuals, Especially The Behavior Of Customers Or Prospective Customers, Which Is Known To Act As A Studying Anthropologist. Human Behavior. At The Same Time, Observing Behaviors, No Matter How Small, Can Become Important Information For Organizations To Recognize New Opportunities (Dyer And Et Al. 2011). Consistent With Wagner (2012), The Innovator Captures Subtle Behavioral Details In Customer, Manufacturer, And Other Company Activity With Observations, Suggesting New Ways To Do Things.

2.4) Experiment Is The Fourth Weight Of The Composition (0.88) And The Indicators That Have The Greatest Composition Weight Are: Take Risks And Take Risks (0.86). This Is Because The Experiment Is A Behavior That Shows The Constant Testing Of New Ideas, Spending Time Constantly Proving Hypotheses Ready To Learn New Things. That Happened To Receive New Information That Was The Source Of The Idea And Finally The Innovator. Dyer And Et Al. (2011) Argue That This Experiment Emphasizes Trial And Error While Being Ready To Learn And Correct From Mistakes. Therefore, An Organization That Focuses On The Innovator Does Not Prevent Employees To Learn By Trial And Error To See Opportunities And Possibilities Of New Things. Kieu (2017) Also Suggested That The Innovator Sees Opportunities To Experiment Everywhere, Constantly Testing New Ideas Without Worrying About Sticking To The Status Quo, And This Way Of Experimenting Can Lead To Unexpected Discoveries, Opening Doors To New Opportunities. The Innovator Understands That Experiments Will Not Bring Immediate Success But Will Recognize The Long-Term Benefits And Potential For Growth.

2.5 Networking Has The Last Component Weight (0.85) And Indicators With The Greatest Weight Of The Composition Are Being Open To And Respond To New Opinions Of Others (0.83). This Is Because Networking Represents A Great Deal Of Effort To Find And Test Ideas With Different People. With A Variety Of Perspectives That Are The Source Of New Ideas From Different Perspectives. Kieu (2017) Views That Good Innovators Tend To Have Good Relationships, Their Natural Curiosity, And A Tendency To Ask Questions, Making Them Good Conversation Starter And Excellent Listener. For Networking. Thus, A Good Network Will Have A Wide Variety Of People, This Diversity Allows The Innovator To See Different Approaches And Ways Of Thinking, Helping Them Expand Their Knowledge Base With A Wide Network. The Innovator Can Take Advantage Of A Variety Of New Ideas And Opportunities, At The Same Time As Wagner (2012) Also Came Up With The Idea Of Networking That Networking And People From Different Backgrounds Would Give Them A Completely Different Perspective.

Recommendation

1. Applying The Research Results Suggestions

According To The Research, The Innovators Of Teachers Of Secondary School Are More Motivated By The Composition Of Questioning Than Any Other Aspect. Therefore, The Development Of The Innovators Of Teachers Of Secondary Schools Should Use This Composition As A Composition Leader, Helping To Move Other Compositions Along. Meanwhile, The Composition Of Networking Should Be Intensively Promoted And Teacher Development To Further Develop Teachers Into Innovators Effectively And Efficiently.

2. Further Research Suggestions

An In-Depth Study By Interviewing Relevant Personnel At Both Policy And Practice Levels Should Be More Clearly Reflected In The Innovators Of Teachers Of Secondary Schools To Gain Useful Insights Into Continue To Develop The Innovators Of Teachers.

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