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Educational Seedbeds: Scenarios For Learning, Research And Transformation

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Summary

Research Seedbeds Are Not New In Colombia; Some Have A Long History And Track Record. They Have Now Gained Momentum, With The Vast Majority Of Educational Institutions Adopting This Model To Promote Research, Innovation And Scientific Development. In The Educational Context, There Are Studies And Research Projects With Different Approaches, Predominantly Focused On Measuring The Impact Of Educational Quality. This Idea Of Research Seedbeds Leads Both Students And Teachers To Form A Collective Family Where Learning And Teaching Become Bilateral, 'We All Learn.' The Passion For Research Is The Central Axis For Persevering In The Pursuit Of The Goals Set, Leading The Team To Develop A Culture And The Fundamental Purpose For Teachers: To 'Cultivate Seeds,' To Train That Student Leader, Capable Of Facing A World Of Adversity And Negativity In A Highly Demanding Profession. Where Research Spaces Become Safe Places To Find Meaning In The Idea For Which One Must Fight. It Is There That The Teacher Has The Opportunity To Be The Coach, Training Students, Providing Support And Feedback, Committed To Generating New Knowledge, Allowing Their Best Players To Grow In Science, Technology, And Innovation, But Also As Human Beings With Comprehensive Skills Ready To Serve In The World Of Life.

In This Line Of Discourse, The Present Research Is Structured Around Significant Experiences Over Five Years As Leader Of The Crisálida Seedbed And Researcher At The Pensar Seedbed. The Strategy Used In This Research Is Quantitative Methodology. The Selected Context Is Students Of Administrative And Financial Science Programmes.

Some Of The Results Highlighted The Importance Of Seedbeds By Measuring Their Impact On Academic Participation With The Colsi Network Through Regional, National, And International Academic Participation.

Keywords: Seedbed, Pedagogical Knowledge, Research, Teaching, And Learning.

Introduction

In Colombia, The Vast Majority Of Research Seedbeds Are Merely A Strategy Employed By Educational Institutions, Giving Them Bureaucratic Formality In Order To Comply With The Requirements Demanded By The Ministry Of National Education And Thus Gain Access To Its Qualified Records. (Ministry Of National Education 2015, P.1). However, In Reality, They Do Not Fulfil The Actual Function Of What A Research Seedbed Is And What Its Purpose Is. Instead Of Promoting The Desire For Research Among Both Teachers And Learners, They Only Generate Demotivation.

According To González (2020, P. 1), Research Seedbeds Must Fulfil The Purpose Of Training Students According To Their Abilities, Skills And Needs, Through A Theoretical-Practical Educational Process, Through Which People Acquire Knowledge, Skills And Values And Attitudes To Be Competent In Their Productive Work. Also, (Jiménez, 2014, P. 19-62) Outlines The Processes Of Theory And Practice In The Reality Of Research Work, Which Lead To The Manipulation Of Various Technological Objects And Their Understanding, In Such A Way That They Generate A Series Of Scientific, Technological, Technical And Sociocultural Knowledge, Which Is The Basis For The Procedural And Operational Mastery Of Various Occupations.

On The Other Hand, It Should Be Noted That For A Seedbed To Be Successful, It Must Have A Cognitive And Participatory Pedagogy, Which Emerged In The Mid-20th Century, As Mentioned (National Learning Service Sena, 2012, P.44), With Theories That Contribute To The Construction Of Human Knowledge, Personal Foundations, Specific To Each Learner's Individual Self-Management, Accompanied By Participatory Teaching And Learning Processes, To Strengthen Skills Conducive To The Development Of Human Beings With Critical-Reflective Thinking, Self-Management And Analytical Skills, Capable Of Working In A Humanitarian And Collaborative Manner, Important Aspects For Facing The World Of Life.

Predominant Features Of The Explanatory Theory Of Learning Processes Based On Knowledge Mentioned By (Dongo, 2014, P.11 And 167), Which Emphasises That "Constructivism", A Theory Expounded By Jean Piaget (1955, P.27):

People Do Not Immediately Understand Or Use The Information Provided To Them. Instead, Individuals Feel The Need To "Construct" Their Own Knowledge. Knowledge Is Constructed Through Experience. Experience Leads To The Creation

Of Schemas. Schemas Are Mental Models That We Store In Our Minds. These Schemas Change, Expand And Become More Sophisticated Through Two Complementary Processes: Assimilation And Accommodation.

A Model Characterised By The Permanent Intellectual Dynamics Of Human Beings, Generating Teaching And Learning Processes That Construct And Develop New Knowledge Based On Past Experiences Or Teachings. This Type Of Student Learning Is Dynamic And Active, In Which All Participants Interact And Harmonise Activities, Where They Are Not Limited To Simply Observing What Is Explained, But Are Forged Through Teacher-Student Training, A Bilateral Construction In Which Each Person Builds Meaningful Knowledge Through What They Learn For Themselves.

On The Other Hand (Álvarez, 2023, P.92), Piaget's Contributions Sought To Demonstrate That Learning Does Not Occur Through The Accumulation Of Knowledge, But Because There Are Intrinsic Mechanisms Of Assimilation And Accommodation. What Is Assimilated Has To Do With Establishing Relationships Between Prior Knowledge And Newly Acquired Knowledge, And The Form Of Accommodation Is To Restructure One's Own Knowledge. For Piaget, Learning Is Conceived As An Individual Process, Where The Teacher Is Secondary, Associated With Interaction With Others Through Language. Therefore, The Social Language Mentioned By (Álvarez, 2023, P.82) Is Concurrent With Vygotsky (1978), Who States:

Like Social Constructivism, Where Each Function Develops First At The Social Level, And Later At The Individual Level, Initially Among A Group Of People (Interpsychological) And Then Within Oneself (Intrapsychological). This Applies To Voluntary Attention, Logical Memory, And Concept Formation. All Higher Functions Originate From The Current Relationship Between Individuals.

Theory That Considers The Individual As The Result Of The Historical Social Process Where The Role Of Language In Cognitive Development, Thought And Language Are Separate Systems From The Beginning Of Life, And Around The Age Of Three A Fusion Occurs, Giving Rise To Verbal Thought Called Inner Speech. It Also Describes Tools For Adapting The Intellect, In Which Children Use Strategies To Manipulate Their Basic Mental Function, Thereby Achieving Adaptation. On The Other Hand, For Vygotsky, In The Social Context, Language Is More Influential Than Attitudes And Assumptions, Profoundly Influencing How One Thinks And What One Thinks, Where Context Is Part Of Cognitive Development And Shapes Its Processes.

The Objective Of The Research Teacher's Learning Is To Focus On Providing Diverse Points Of View Of Context So That Human Beings Can Construct Their Own Understanding. What Is Proposed Is That Research Laboratories Should Sustain Multiple Perspectives Or Interpretations Of Reality, Knowledge Construction, And Activities Based On Context-Rich Experiences, As Mentioned By Hernández (2008, P. 2), Who Quotes The Author (Jonassen, 1991), The Structure Of The World That In Today's Reality Has Had A Great Impact On Humanity, Technology, Innovation, Virtual Reality, Among Others. P.2), Who Quotes The Author (Jonassen, 1991), The Structure Of The World That Has Had A Major Impact On Humanity In The Current Reality, Technology, Innovation, Virtual Reality, Among Others In Education, Has Advanced By Leaps And Bounds Due To The Covid-19 Pandemic, Where We Have Moved From Printing Texts, Creating Books As Teaching Tools, Chalkboards, Pencils And Paper To Replacing A Different Kind Of Learning With Teaching That Is Full Of More Personal Interaction, Causing These New Transformations In Research Methodology.

Innovative Teaching Methods Enable Researchers To Learn Independently And Work In Teams, Thereby Achieving Better Assimilation Of Knowledge And Developing Free-Thinking Skills That Allow Them To Analyse And Create With Versatility. These Teaching Methods Enable The Construction, Development And Appropriation Of Diverse Knowledge Based On Problems, The Innovation Of Known Elements Into New Ones, And The Integration Of Digital Tools, Which Means That Learners Will Be Immersed In A Culture Oriented Towards Creativity And Innovation.

Research Seedbeds Should Be Conceived As A Safe Place To Generate Science, Providing Theoretical, Technological And Technical Foundations, Composed Axiologically And With Methodology Provided By The Research Teacher, A Trainer Capable Of Imparting Knowledge And Skills With Integrity To Strengthen The Subjects In Their Research.

This Research Is Structured Around Primary And Secondary Sources That Provide A Scientific Basis And The Formulation Of Successful Experiences In The Seedbeds To Strengthen Concepts And Build Knowledge From Other Seedbeds.

Objectives

General Objective

To Strengthen The Comprehensive Training Of Participants By Consolidating Pedagogical Seedbeds As Spaces For Collaborative Learning, Educational Research, And The Transformation Of Pedagogical Practices, Aimed At Improving Teaching And Learning Processes.

Specific Objectives

To Foster The Development Of Critical, Reflective And Creative Thinking Through Active Participation In Research Projects That Promote Collaborative Work And The Exchange Of Knowledge Between Teachers And Students For The Collective Construction Of Knowledge.

To Promote Educational Innovation Processes That Transform Traditional Teaching Practices Into More Participatory And Contextualised Models, Linking Research With Teaching Practice To Generate Proposals That Respond To The Real Needs Of The Educational Community.

To Develop Research, Communication And Social Skills In The Participants Of The Seedbeds, Strengthening Their Leadership And Commitment To Educational Transformation.

Methodological Design

The Methodological Approach Implemented For The Organisation, Planning And Execution Of The Project Is Based On The Use Of Primary And Secondary Sources, The Systematisation Of The Author's Experiences And A Simple But Rigorous Process That Is Accessible To All Participants. In Accordance With The Statement By Fals (1987) That 'Science Does Not Cease To Be Science Because It Is Modest,' The Process Is Characterised By Active Participation And Critical Analysis Of Reality As The Cornerstones Of Educational Transformation.

The Methodological Strategy Employed Corresponds To A Quantitative Approach, Aimed At Systematically Collecting And Analysing Information To Identify The Impacts, Perceptions, And Results Of The Training Process Within The Pedagogical Seedbeds.

Breakdown Of Activities Carried Out

Phase I. Preliminary Or Diagnostic Research

In This First Phase, An Open Invitation Was Extended To The Educational Community—Students And Teachers—To Form The Research Seedbed.

The Purpose Was To Raise Awareness Of The Importance Of Pedagogical Seedbeds And The Lines Of Research That Guide Them, Thereby Fostering Interest In Inquiry, Innovation, And Collaborative Participation.

Phase Ii. Organisational Process: Identification Of Potential Participants

During This Stage, An Activity Based On The Design Thinking Technique Was Carried Out, Which Promotes The Development Of Creative And Innovative Ideas Through Empathy, Ideation And Prototyping.

The Research Laboratory Activities Were Based On The Use Of Recyclable Materials, In Accordance With Law 99 Of 1993 On Environmental Protection In Colombia, Thus Integrating The Ecological Component Into Teaching Practices.

Phase Iii. Methodological Design: Formulation Of The Problem And Definition Of Strategies.

In This Phase, The Research Problem Was Formulated, The General And Specific Objectives Were Defined, And The Appropriate Methods And Procedures For The Development Of The Project Were Selected.

The Information Collection Instruments Were Structured, Ensuring Consistency Between The Purposes Of The Seedbed And The Planned Activities.

Phase Iv. Information Collection And Analysis: Collective Action And Reflection

Data Was Collected Using Previously Validated Instruments And The Information Was Interpreted Collectively.

This Process Focused On Action-Reflection-Action, Allowing Participants To Evaluate The Results Obtained, Recognise Learning And Propose Alternatives For Improving Teaching Practices.

Phase V. Use Of Results: Planning Future Actions

Finally, The Results Obtained Were Used To Plan New Actions And Design Strategies For Continuous Improvement Within The Educational Seedbeds.

The Purpose Of This Stage Is To Ensure The Sustainability Of The Process, Strengthen The Research Culture, And Consolidate The Seedbeds As Permanent Spaces For Learning, Research, And Educational Transformation.

Results

Based On The Analysis Of The Information Collected During The Development Of The Project 'Research Seedbeds Are Creating Scenarios For Learning, Research And Transformation', The Following Main Findings Were Identified:

1. Consolidation Of Educational And Academic Spaces

In Accordance With The Annual Schedule Of Activities For The Research Seedbed, Various Educational, Academic And Research Events Were Held With The Aim Of Strengthening The Research Culture In The Educational Community. These Meetings Became Opportunities For Participation, Motivation And Training, Promoting The Interest Of Students And Teachers In Becoming Involved In Research Processes And Developing Their Skills In This Area.

2. Interdisciplinary Participation And Institutional Commitment

One Of The Most Significant Results Was The Broad Participation And Acceptance By The Educational Community.

Students And Teachers From Different Areas Of Knowledge Were Actively Involved, From Administrative And Financial Sciences To Occupational Safety, Psychology, Mathematics And Project Formulation, Which Enriched The Research Process From An Interdisciplinary Perspective.

This Diversity Strengthened The Seedbed's Capacity To Address Educational Issues From Multiple Approaches, Generating More Comprehensive And Contextualised Proposals.

3. Conceptual And Strategic Structuring Of The Seedbeds

During The Process, Activities Were Carried Out Aimed At Formally Presenting The Seedbed, Selecting And Defining The Lines Of Research, And Defining Its Teleology, Challenges And Strategic Focus.

This Process Gave The Seedbed Its Identity And Direction, Consolidating Its Conceptual Framework And Educational Objectives. Likewise, Criteria Were Established For The Projection Of New Research And For The Articulation Of Results With The Needs Of The Educational Community.

Conclusions

The Development Of The Project 'Pedagogical Seedbeds: Scenarios For Learning, Research And Transformation' Allowed For The Consolidation Of A Systematic Research Process That Integrated Creativity, Innovation And Collaborative Participation As Pillars Of Meaningful Learning.

During The Organisational Phase, The Implementation Of The Design Thinking Technique Enabled The Generation Of Innovative Ideas, Their Design And Prototyping, Using Recyclable Materials As Pedagogical Tools Within The Research Laboratory. This Methodology Not Only Fostered Creativity And Environmental Awareness, But Also Strengthened Research And Teamwork Skills Among Students And Teachers.

During The Experimentation Stage, The Prototypes Developed Underwent A Practical Validation Phase. Of The Forty (40) Prototypes Produced, It Became Clear That Some Required Adjustments, Mainly In Terms Of The Age And Motor Skills Of The Participating Children, Who Demanded Activities With Greater Movement And Sensory Stimulation. Other Projects, Although Relevant In Their Design, Were Geared Towards More Advanced Educational Levels, Suggesting The Need To Adapt Content And Materials To Different Levels Of Cognitive Development.

The Transition Grade Teacher Expressed A Positive Assessment Of The Process, Highlighting That The Prototypes Contribute Significantly To Children's Initial Learning, Especially In The Recognition Of Primary Colours, Numbers And Geometric Shapes. In Addition, She Highlighted The Potential Of These Technological Tools As Pedagogical Support For Teachers And Families, Strengthening Lifelong Learning And Educational Interaction.

Academic Participation And Outreach In The Subsequent Phases Of The Project (Iii, Iv And V) Were Aimed At Strengthening Formative Research Through The Formulation Of Methodological Design, The Collection And Analysis Of Information, And The Use Of Results To Plan New Actions.

The Impact Of The Work Was Evident In The Institutional And Academic Projection, Reflected In The Participation Of The Seedbeds In Redcolsi And Milset Events, Both Regionally, Nationally And Internationally: Redcolsi Regional (Virtual, 2021), Redcolsi National (2022), Redcolsi Regional (2023), Milset International – Brazil (2023 And 2024). Of The 40 Projects Submitted, 40 Qualified For The National Phase, Demonstrating The Quality, Relevance And Research Projection Of The Participants, And One Qualified For The International Phase.

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