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Project-Based Learning as a Pathway to Preschool Children's Creativity and Independent Learning

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Abstract

Project-based learning is often discussed as a strategy for older students, yet its basic logic also fits preschool children's natural ways of learning. Young children notice, touch, ask, imagine, make, talk with others, and try again. When projects are designed around concrete topics and supported by sensitive teachers, they can give children meaningful opportunities to create, choose, persist, collaborate, and explain their thinking. This paper discusses project-based learning as a pathway for enhancing preschool children's creativity and independent learning. It argues that preschool projects should not be treated as formal assignments or adult-like research tasks. Their value lies in providing open-ended materials, shared questions, playful exploration, gradual responsibility, and reflection. The paper first explains why projects fit preschool learning. It then analyzes how project activities support creativity through materials, exploration, and collaboration. It further discusses how independent learning grows through choice, responsibility, and supported problem solving. Finally, it proposes practical conditions for preschool project-based learning, including teacher facilitation, safe material environments, enough time, family connection, and process-based assessment. The paper concludes that project-based learning is most valuable in preschool when it protects playfulness while giving children visible reasons to think, create, and act with growing independence.

Keywords

Child Agency; Loose Parts; Classroom Inquiry; Teacher Facilitation; Collaborative Play; Reflection.

1. Introduction

Preschool classrooms are full of activities, but activity alone does not always mean that children are thinking creatively or learning independently. A child may color a worksheet, repeat a sentence, or follow a craft model very carefully, yet still have little chance to decide what to make, how to solve a problem, or how to explain an idea. This matters because early childhood is not only a period for preparing children to follow instructions. It is also a period in which children begin to form habits of curiosity, confidence, persistence, expression, and responsibility.

Project-based learning offers a useful response when it is adapted to preschool development. In a preschool setting, a project does not need to be large, technical, or adult-like. It may be as simple as building a garden corner, making a class market, designing animal homes, creating a weather station, or constructing a small vehicle from loose materials. What makes the activity a project is not its difficulty, but its learning structure. Children explore a meaningful topic, make choices, use materials, solve small problems, collaborate with peers, create a visible product, and reflect on what they have done.[1]

The evidence base for preschool project-based learning is still developing, so the method should be discussed with care. Existing studies and reviews suggest positive possibilities for

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social, cognitive, creative, and language development, while also reminding readers that implementation quality and research design vary across contexts. Project-based learning should therefore not be described as a method that automatically improves every child in every classroom. Its value depends on how projects are designed, how teachers guide children's participation, and whether children are given real opportunities to act.

This paper argues that project-based learning can become a pathway to preschool children's creativity and independent learning when it is concrete, playful, scaffolded, and reflective. Creativity and independent learning are treated here as connected abilities. A creative child needs room to explore, combine, and express ideas. An independent learner needs chances to choose, persist, repair mistakes, and take responsibility for a result. A well-designed project can hold these two abilities together because it asks children not only to imagine something, but also to carry an idea into action.[2]

2. Why Projects Fit Preschool Learning

A developmentally appropriate preschool project begins close to children's lives. Young children understand the world through familiar people, places, objects, and routines. Themes such as plants, homes, food, animals, transportation, weather, water, festivals, and neighborhood helpers are not simple decorations. They are the concrete world from which children can build meaning. A project about a class garden, for example, allows children to observe leaves, bring materials from home, talk about care, make labels, arrange spaces, and explain what plants need. The topic is ordinary, but the learning can be rich.[3]

Projects fit preschool learning because they make thinking visible. When children build a bridge from blocks, arrange bottle caps into a pattern, or decide how to make a plant label stand upright, the teacher can see more than a final product. The teacher can observe whether children compare materials, test ideas, ask peers for help, change plans, or explain their choices. This is especially valuable in early childhood, where children's thinking is often expressed through action before it is expressed through formal language.

Open-ended materials make this fit even stronger. Loose parts such as stones, bottle caps, sticks, cloth, cardboard, wood pieces, and used bottles do not tell children exactly what to do. A bottle cap can become a wheel, a coin, a button, a flower center, or part of a pattern. Because the material has no single correct answer, children must supply the meaning. Recent early-childhood project studies have repeatedly connected such material exploration with children's creativity, collaboration, independence, and active engagement.[4]

This does not mean that any pile of materials automatically becomes project-based learning. Young children still need a meaningful question, a shared purpose, and a rhythm of action. A teacher might begin with a simple provocation: "The dolls need a place to sleep. What kind of bed could we make?" or "Our class plants keep falling over. How can we help them stand?" The question should be open enough for different answers, but concrete enough for children to begin. In this way, the project protects children's freedom without losing direction.

3. Creativity Through Exploration, Materials, and Collaboration

Creativity in preschool should not be reduced to beautiful artwork. It includes the ability to generate ideas, use materials flexibly, try unusual combinations, solve small problems, and express personal meaning. Project-based learning supports these behaviors because it places children inside a process rather than in front of a model to copy. When the task is to "make the same flower as the teacher," creativity is narrow. When the task is to "make a garden where insects can live," children can decide what counts as a flower, a path, a leaf, a hiding place, or a water area.[5]

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The creative value of a project often appears in the trial rather than only in the finished object. A child who tests three ways to attach paper leaves to a twig is not simply making a craft. The child is exploring material strength, balance, representation, and personal intention. Another child who turns a cardboard tube into a tunnel, then a telescope, then a tree trunk is practicing flexible thinking. In project work, these small shifts matter because they show that the child is not merely copying. The child is searching.[6]

Loose-parts projects deepen this creative process because they invite fluency and flexibility. Fluency appears when children produce many possible uses for a material. Flexibility appears when they shift from one idea to another after seeing what works. Originality appears when two children using the same basket of objects create different products. The teacher does not need to label these behaviors with adult terminology in front of children. It is enough to create situations where they can happen, and to notice them carefully.[7]

Collaboration adds another layer to creativity. In solitary work, children may remain within their first idea. In shared project work, they hear other ideas, negotiate roles, imitate useful strategies, and revise their plans. Collaborative project-based learning has been linked with stronger creativity outcomes in kindergarten contexts, especially when play motivation and peer interaction are part of the learning design. This is important for preschool practice because creativity is often social. Children become more inventive when peers offer unexpected suggestions and when a shared product requires coordination.

The teacher's role is to keep collaboration productive. Preschool children may argue over materials, dominate a task, withdraw from a group, or become frustrated when an idea fails. These moments are not interruptions of learning. They are part of the project. The teacher can ask, "What else could we try?", "How can both ideas fit?", "What part do you want to do?", or "What did you notice when it fell down?" Such questions do not give the answer away. They return attention to observation, possibility, and shared responsibility.[8]

4. Independent Learning through Choice and Responsibility

Independent learning in preschool should not mean leaving children alone. Young children still need safety, structure, encouragement, and adult attention. A better understanding of independence is gradual agency. The child begins to make small decisions, attempt tasks, ask for appropriate help, persist through difficulty, and feel responsible for a contribution. In preschool, this independence appears in ordinary actions: choosing a material, carrying it carefully, trying again after a tower falls, finishing a role in a group, or explaining a product to classmates.[9]

Project-based learning can support these actions because projects naturally contain choices. If children are making a class market, they may choose what goods to make, what signs are needed, how to arrange tables, or who will be buyer and seller. If they are building animal homes, they may decide which animal they are helping, what the animal needs, and which materials could represent shelter, food, or water. Each choice is small, but together they create a learning experience in which children are not only following instructions. They are practicing judgment.

Responsibility also becomes concrete in a project. If the group wants the garden to stand, someone must place the stems carefully. If the class wants to show parents the animal homes, each child must remember what was made and why. If a market sign is missing, the children can see that the shared play does not work as well. Research on early-childhood PjBL and independent attitudes supports this view that project activities can help children practice decision making, task completion, confidence, and responsibility when adults provide appropriate support.

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The project process also helps children experience mistakes differently. In a worksheet, a mistake may look like failure. In a project, a mistake can become information. A roof falls, a road is too narrow, paint mixes into an unexpected color, or a paper sign will not stay upright. The teacher can turn these moments into independent learning by inviting children to observe and repair: "What happened?", "Which part is heavy?", "What could hold it?", "Who has another idea?" Over time, children learn that difficulty does not always require immediate adult rescue.[10]

This is where scaffolding matters. At the beginning of a project, the teacher may model how to look at materials, how to talk with a partner, or how to test an idea safely. Later, the teacher can step back and let children make more decisions. The adult does not disappear. The adult changes the kind of support given so that children can act more fully. This gradual transfer of responsibility is the heart of independent learning in a preschool project.[11]

5. Teacher Facilitation and the Learning Environment

Project-based learning is sometimes misunderstood as simply letting children play with materials. Free play is valuable, but a project has a different rhythm. It begins from a question or purpose, develops through exploration and making, and ends with sharing or reflection. Teachers therefore need to observe carefully, ask open-ended questions, document children's thinking, and help children revisit ideas. The quality of teacher facilitation often decides whether a project becomes meaningful inquiry or only scattered activity.

Good facilitation begins with listening. A teacher who listens can identify what children are already noticing and what problem is ready for the next step. If children are fascinated by rainwater, the teacher may guide them toward a weather station or water pathway. If they keep pretending to sell food, the teacher may help the class create a market. In this way, projects do not feel imposed from outside. They grow from children's interests while still being shaped by educational intention.[12]

The learning environment also matters. Expensive materials are not necessary, but flexible and safe materials are. Loose parts can be collected from daily life and used in many ways, but they must be selected with attention to age, size, hygiene, and safety. Teachers should organize materials so that children can see choices and return items independently. A classroom that supports project-based learning does not need to look luxurious. It needs to be readable to children: places to collect, build, draw, talk, display, and clean up.

Time is another condition. A project loses much of its value if it is rushed into a one-step craft. Children need time to enter the topic, explore materials, build, revise, and share. A short project can still be meaningful, but even a two-day project should leave room for children to change their ideas. The practical message from recent model-development and implementation studies is not that preschool projects must be large, but that they need planning, feasibility, and enough space for children's own actions.[13]

Family connection can strengthen the project without turning parents into substitute teachers. Parents may help collect safe materials, talk with children about the project, listen to project stories, or notice related examples at home. A child who brings a bottle cap, a leaf, or a family story into class is also bringing identity into the project. Teacher perception research also suggests that infrastructure, administration, teacher familiarity, classroom management, and parent involvement shape whether PjBL can be implemented realistically in early-childhood settings.

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6. Observing Ability Development in Project Work

If teachers assess only the final product, they may miss the most important learning. A crooked house may show strong planning. A messy garden may show rich collaboration. A simple drawing may represent a child's first independent explanation. Preschool project assessment should therefore focus on the process as well as the product. Teachers can observe how children generate ideas, choose materials, persist, communicate with peers, solve problems, take responsibility, and reflect on their work.

The following indicators can help teachers observe children's ability development during project activities.[14]

Table 1. Observable Ability Development in Preschool Project-Based Learning

PjBL element	Teacher support	Creativity indicator	Independent learning indicator
Meaningful question	Connect the topic to children's daily life	Children suggest varied ideas	Children show interest and make choices
Loose materials	Provide safe, open-ended options	Children combine materials in different ways	Children select and manage materials
Group making	Help children negotiate roles	Children build on peers' ideas	Children complete a shared responsibility
Testing and revising	Ask what happened and what else could work	Children try alternative solutions	Children persist after difficulty
Sharing and reflection	Invite children to explain process, not only product	Children express personal meaning	Children take ownership of their work

This table is not a scoring sheet for judging children quickly. It is a reminder that project-based learning should make ability development visible. If a child tries a new combination of materials, that is evidence of creative exploration. If a child returns to fix a fallen structure, that is evidence of persistence. If children divide roles and adjust their shared plan, that is evidence of both creativity and growing independence. Such observations help teachers protect the educational value of projects instead of reducing them to attractive classroom displays.

These indicators also show why project-based learning should be introduced realistically. Teachers may face limited resources, large classes, curriculum pressure, or uneven parent support. The answer is not to abandon projects, but to start small. A project with simple materials can still be meaningful if children have a real question, real choices, and a chance to reflect. For preschool children, the scale of the project is less important than the quality of participation.[15]

7. Conclusion

Project-based learning can enhance preschool children's creativity and independent learning because it gives children something meaningful to do with their ideas. When projects are connected to children's lives, supported by open-ended materials, enriched through collaboration, and guided by thoughtful teachers, children can move beyond copying and compliance. They can imagine, choose, test, revise, explain, and take responsibility.

At the same time, the method should be used with care. The strongest conclusion is not that project-based learning automatically produces creative and independent children. Rather, it

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can create the conditions in which these abilities are practiced. For preschool education, this is already important. A good project does not only produce a garden, a bridge, a poster, or a model house. It helps produce a child who is more willing to wonder, more able to try, and more confident in saying, "I can make something happen."

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