



Abstract

The rapid transformation of social, economic, and technological life in the twenty-first century has placed new demands on education systems at every level, including the earliest stages of childhood development. Among the conceptual frameworks that have emerged to describe the competencies required for success in this new environment, the so-called "8K" model – comprising creativity, critical thinking, communication, collaboration, computer literacy, cross-cultural understanding, career and self-reliance, and citizenship and leadership – occupies a prominent place. This article examines the pedagogical foundations of the 8K framework and explores its relevance to the formation of design competence in preschool-aged children. Design competence, understood here as the integrated ability to perceive, imagine, plan, and bring into being objects, spaces, and visual solutions, is presented as a natural meeting point for several of the eight competencies. The article discusses the theoretical underpinnings of this relationship, considers the developmental characteristics of preschool children that make early design education both feasible and valuable, and proposes pedagogical conditions and approaches through which educators can integrate the 8K framework into everyday preschool practice. The discussion concludes that a deliberate, play-based, and child-centered approach to design activity can serve as an effective vehicle for cultivating the broader competencies envisioned by the 8K model.

Keywords: 8K framework, design competence, preschool education, creativity, critical thinking, twenty-first-century skills, early childhood development, child-centered pedagogy.

Introduction

Education systems around the world are increasingly being asked to prepare children not for a fixed body of knowledge, but for a future whose specific demands cannot be fully predicted. This shift in emphasis has given rise to a family of frameworks describing the broad competencies – often referred to using mnemonic devices such as the "4Cs," the "7Cs," or, in its most expansive form, the "8K" model – that are thought to underlie adaptability, problem-solving, and lifelong learning. While such frameworks are most commonly discussed in relation to secondary and higher education, there is growing recognition that the foundations of these competencies are laid much earlier, during the preschool years, when children's habits of thought, modes of expression, and attitudes toward learning are first taking shape.

At the same time, design competence has traditionally been treated as a specialized skill associated with art education, architecture, or vocational training, and has rarely been discussed in connection with early childhood pedagogy. Yet a closer examination reveals that the everyday activities of preschool children – building with blocks, arranging objects, drawing, decorating, and inventing imaginary scenarios – are, in essence, acts of design. They involve perceiving a problem or an opportunity, imagining a possible outcome, selecting and arranging

materials, and evaluating and adjusting the result. Viewed in this light, design competence is not a separate add-on to early childhood education but an expression of several of the core competencies described by the 8K framework, working together in an integrated way.

This article therefore approaches the 8K framework not as an abstract list of skills to be taught separately, but as a lens through which the design-related activities already present in preschool classrooms can be understood, enriched, and made more intentional.

Theoretical Foundations of the 8K Framework

The 8K framework belongs to a broader family of competency-based models that emerged from international discussions about the skills needed for participation in a knowledge-based, globalized, and digitally mediated society. Unlike traditional curricular frameworks, which are organized around subject matter, competency-based frameworks are organized around capacities that cut across subjects and that are expressed through observable behavior: how a person approaches a problem, communicates an idea, works with others, or adapts to unfamiliar situations.

The first of the eight competencies, creativity, refers to the capacity to generate ideas that are both novel and appropriate to a given context. In early childhood, creativity is rarely abstract; it is expressed through concrete acts of imagination, such as inventing a story, giving a new use to a familiar object, or combining colors and shapes in an unexpected way.

The second competency, critical thinking, involves the ability to examine information, compare alternatives, and draw reasoned conclusions. Even very young children display early forms of critical thinking when they notice that a tower of blocks is unstable and adjust their construction accordingly, or when they ask why something happened the way it did.

The third competency, communication, concerns the ability to express thoughts and feelings clearly and to understand the communications of others. For preschool children, this includes not only spoken language but also the many non-verbal and symbolic forms of communication – gesture, drawing, and play – through which young children convey meaning before their verbal vocabulary is fully developed.

The fourth competency, collaboration, refers to the ability to work productively with others toward a shared goal, including the negotiation of roles, the sharing of materials, and the resolution of disagreements. Collaborative play is one of the most distinctive features of preschool social life and provides a natural setting for the development of this competency.

The fifth competency, computer literacy, encompasses the foundational skills needed to interact with digital tools and to begin to understand how information can be represented, stored, and shared electronically. At the preschool level, this competency is necessarily introduced in a limited and carefully mediated form, often through simple interactive applications, digital drawing tools, or guided exposure to multimedia resources.

The sixth competency, cross-cultural understanding, involves an awareness of and respect for the diversity of customs, values, and ways of life found among different communities. In preschool settings, this competency is cultivated through exposure to stories, songs, celebrations, and artifacts drawn from a range of cultural traditions, presented in ways that are accessible and meaningful to young children.

The seventh competency, career and self-reliance, refers to the gradual development of independence, self-assessment, and a sense of personal responsibility. For preschoolers, this is

reflected in everyday self-care tasks, the ability to make simple choices, and the growing confidence to attempt activities without constant adult assistance.

The eighth competency, citizenship and leadership, concerns the capacity to act responsibly within a group, to take initiative, and to consider the needs of others. In the preschool classroom, this competency is fostered through shared responsibilities, such as caring for classroom materials or participating in simple group decisions.

Taken together, these eight competencies describe a child who is imaginative, reflective, expressive, cooperative, technologically aware, culturally sensitive, independent, and socially responsible. The question this article addresses is how design-related activity in the preschool classroom can serve as a meeting ground for these competencies, rather than as an isolated artistic exercise.

Design Competence in Early Childhood

Design competence, in the context of early childhood education, can be understood as the integrated set of abilities that allow a child to perceive their physical and social environment, to imagine how that environment might be changed or arranged differently, and to take practical steps toward realizing that imagined change. This definition deliberately avoids restricting design competence to the production of finished artistic or technical objects. Instead, it emphasizes a process: noticing, imagining, planning, acting, and reflecting.

Several developmental characteristics of the preschool years make this period particularly well suited to the cultivation of design competence. Young children are naturally inclined toward exploratory and constructive play, in which they manipulate objects, test combinations, and observe the results of their actions. They are also highly attuned to aesthetic qualities such as color, shape, pattern, and texture, even before they can articulate why a particular arrangement appeals to them. Furthermore, the symbolic play that becomes increasingly elaborate during these years – in which a block becomes a car, a blanket becomes a roof, or a drawing becomes a map – is itself a form of design thinking, in which children represent ideas through chosen materials and forms.

When educators recognize these everyday activities as instances of design, rather than treating design as a separate subject to be introduced later, they open the door to a more intentional pedagogy. A simple block-building activity, for example, can become an opportunity to encourage children to plan before they build, to describe their intentions to a peer, to compare different structural solutions, and to revise their approach when a structure fails. In this way, a single activity can simultaneously engage creativity, communication, collaboration, and critical thinking – four of the eight competencies described above – within a context that remains playful and developmentally appropriate.

Integrating the 8K Framework into Design-Oriented Preschool Practice

The practical integration of the 8K framework into preschool education does not require the introduction of new, specialized subjects. Rather, it calls for a shift in how existing activities – drawing, construction play, storytelling, role play, and group projects – are organized, guided, and reflected upon.

A first pedagogical condition for such integration is the creation of an environment that invites exploration and design. This includes providing a varied selection of open-ended materials, such as building blocks of different shapes and sizes, natural materials, fabric, and art supplies, arranged in ways that are accessible to children and that suggest possibilities for



combination and rearrangement. The physical environment itself becomes a kind of silent invitation to design.

A second condition involves the deliberate use of questioning and dialogue to draw out the thinking behind a child's design choices. Rather than simply praising a finished drawing or construction, an educator might ask a child to explain what they were trying to make, why they chose particular colors or materials, and what they might do differently next time. Such questions encourage children to articulate their intentions – engaging communication – and to reflect critically on their own process – engaging critical thinking – without requiring them to meet any externally imposed standard of correctness.

A third condition is the organization of activities around small groups rather than individuals alone. When children are asked to design something together – a shared construction, a collective mural, or a setting for dramatic play – they must negotiate ideas, divide tasks, and reconcile differing preferences. These experiences provide some of the earliest and most concrete opportunities for the development of collaboration and, where conflicts arise and are resolved fairly, of early citizenship.

A fourth condition concerns the careful and limited introduction of digital tools as one element among many, rather than as a replacement for physical, hands-on design activity. Simple digital drawing applications, cameras used to document a child's construction process, or interactive resources that allow children to explore patterns and shapes can contribute to computer literacy while remaining firmly connected to the broader design activity in which they are embedded.

A fifth condition involves the intentional inclusion of cultural diversity within design-related materials and themes. Patterns, motifs, stories, and objects drawn from a range of cultural traditions can be incorporated into drawing, construction, and craft activities, allowing children to encounter and appreciate different aesthetic traditions as part of their everyday creative experience, thereby supporting cross-cultural understanding.

Finally, opportunities for independent choice – selecting which materials to use, which activity to pursue, or how to approach a task – support the gradual development of self-reliance, while structured opportunities for children to take on small responsibilities within a design project, such as gathering materials or explaining a plan to the group, support the early development of leadership.

Conclusion

The 8K framework, with its emphasis on creativity, critical thinking, communication, collaboration, computer literacy, cross-cultural understanding, self-reliance, and citizenship and leadership, offers a useful conceptual structure for thinking about the long-term goals of early childhood education. At the same time, design competence – understood broadly as the ability to notice, imagine, plan, and create – provides a concrete and developmentally appropriate context within which several of these competencies can be cultivated simultaneously. Rather than treating the 8K competencies as a checklist of separate skills to be addressed through dedicated exercises, preschool educators can look to the design-related activities that already occur naturally in their classrooms – building, drawing, arranging, and inventing – and ask how these activities might be organized, guided, and discussed in ways that draw out their full developmental potential. Such an approach respects the playful and



exploratory character of early childhood while laying meaningful foundations for the broader competencies that children will continue to develop throughout their education.

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