PIONEER AND INNOVATIVE RESEARCH IN EDUCATIONAL SCIENCES

All Sciences Academy

PIONEER AND INNOVATIVE RESEARCH IN EDUCATIONAL SCIENCES

Editor
Prof. Dr. Yavuz DEĞİRMENCİ

Pioneer and Innovative Research in Educational Sciences
Editor: Prof. Dr. Yavuz DEĞİRMENCİ

Design: All Sciences Academy Design
Published Date: June 2026
Publisher's Certification Number: 72273
ISBN: 978-625-8993-89-9

www.allsciencesacademy.com
allsciencesacademy@gmail.com

CONTENT

Anxiety and Problem-Solving Skills in Preschool Children: Developmental, Emotional, And Educational Perspectives

Hakan ŞAHİN

ABSTRACT

This chapter examines the relationship between anxiety and problem-solving skills in preschool children from developmental, emotional, and educational perspectives. The preschool years represent a critical period in which children acquire not only early cognitive competencies but also the capacity to regulate emotions, negotiate social relationships, tolerate mistakes, and cope with everyday challenges. Within this framework, problem solving is conceptualized as a multidimensional developmental competence involving attention, working memory, cognitive flexibility, inhibitory control, emotion regulation, and social competence. Anxiety, in turn, is considered a central emotional factor shaping how young children perceive, interpret, and respond to problem situations, particularly when these situations involve uncertainty, separation, social evaluation, possible mistakes, or the risk of failure. International epidemiological evidence indicates that anxiety is among the most common forms of psychopathology in early childhood, with pooled prevalence estimates of roughly 8% to 9% in community samples of young children (Vasileva et al., 2021), underscoring the developmental and educational significance of the topic. Drawing on attentional control theory, executive function research, self-regulation theory, emotion regulation perspectives, temperament models of behavioral inhibition, and social problem-solving frameworks, the chapter discusses how anxiety may constrain or reorganize children's problem-solving processes. It also synthesizes meta-analytic evidence on assessment, prevention, and intervention, and addresses pedagogical strategies that can reduce anxiety and strengthen problem-solving skills in preschool settings, with practical implications for teachers, families, and early childhood institutions. The central argument is that anxiety should not be understood as a variable that simply weakens problem-solving skills in a linear way. Rather, its influence depends on the child's developmental characteristics and temperament, the quality of adult support, the emotional climate of the classroom, and the opportunities provided for guided participation in problem-solving experiences.

Keywords: preschool education, anxiety, problem solving, executive functions, emotion regulation, behavioral inhibition

INTRODUCTION

The preschool years constitute a foundational period in which cognitive, emotional, social, and behavioral development unfold in close

interaction. Children at this age make sense of the world through play, movement, social engagement, and everyday routines. At the same time, they begin to acquire basic life skills such as waiting, trying, making mistakes, revising strategies, negotiating with peers, and starting again after failure. For this reason, problem solving in early childhood education should not be reduced to a narrow cognitive skill. It is more appropriately understood as a multidimensional developmental process in which attention, memory, cognitive flexibility, emotion regulation, and social adjustment operate together (Best & Miller, 2010; Diamond, 2013; Garon et al., 2008).

In early childhood, problem solving refers to the child's ability to identify a difficulty, generate possible responses, select a strategy, try it out, evaluate the result, and, when necessary, search for an alternative course of action. Yet this process is rarely neutral or purely rational. When preschool children encounter a problem, they may also experience curiosity, excitement, frustration, hesitation, anger, or anxiety. Thus, the development of problem-solving skills cannot be adequately explained through executive functions alone; it must also be examined in relation to self-regulation and emotion regulation (Blair & Razza, 2007; Korucu et al., 2022; McClelland et al., 2007; Ursache et al., 2012).

Anxiety is one of the emotional factors that may shape how preschool children approach problem situations. Situations involving uncertainty, possible mistakes, separation from a caregiver, peer evaluation, unfamiliar tasks, or perceived failure may increase anxiety in some children. When anxiety becomes intense, children may withdraw, freeze, seek excessive adult reassurance, avoid trying, or abandon the task quickly rather than engage in solution generation (Edwards et al., 2010; Mian et al., 2012; Spence et al., 2001). Far from being a marginal concern, anxiety is one of the most prevalent and earliest-emerging forms of psychopathology in childhood. A meta-analysis of international community studies estimated the pooled prevalence of any anxiety disorder at 8.5% among children aged one to seven years (Vasileva et al., 2021), and population-based studies of preschoolers have reported even higher rates of clinically relevant anxiety symptoms once subthreshold presentations are included (Paulus et al., 2015). These figures indicate that,

in a typical preschool classroom, several children are likely to experience anxiety at a level that may influence their learning and problem-solving experiences.

Research suggests that anxiety may interfere with children's problem-solving performance by disrupting attentional control, reducing working-memory efficiency, constraining cognitive flexibility, and affecting decision-making processes. An anxious child may focus less on the cues embedded in the problem and more on the possibility of making a mistake, failing, or being negatively evaluated. This attentional shift may narrow the cognitive resources available for noticing alternatives, testing strategies, and persisting in the problem-solving process (Eysenck et al., 2007; Hadwin et al., 2006; Orbach et al., 2020; Visu-Petra et al., 2014).

However, the relationship between anxiety and problem solving should not be interpreted as linear or uniformly negative. Not every experience of anxiety weakens performance. Low and manageable levels of anxiety may, in some situations, increase alertness and prepare the child for task engagement, and attentional control theory itself distinguishes between effects on processing efficiency and effects on the ultimate effectiveness of performance (Derakshan & Eysenck, 2009). The developmental concern emerges when anxiety becomes intense, persistent, and functionally limiting. In such cases, anxiety may consume cognitive and emotional resources, reinforce avoidance, and increase dependence on adult assistance. Therefore, the educational goal should not be to eliminate anxiety entirely, but to help children remain engaged with problems while learning to regulate anxiety in functional ways (Blair & Raver, 2015; Diamond, 2013; Spence et al., 2001).

THEORETICAL FRAMEWORK

Understanding the relationship between anxiety and problem-solving skills in preschool children requires a framework that extends beyond observable behavior. Anxiety may influence how children interpret a problem, where they direct their attention, which solution options they can access, and how long they remain engaged when their first attempt fails. Accordingly, this chapter draws on attentional control theory, executive function research, self-regulation theory, emotion regulation perspectives, temperament models, and social problem-solving

frameworks (Diamond, 2013; Eysenck et al., 2007; Fox et al., 2023; Rubin & Rose-Krasnor, 1992).

Attentional control theory provides a useful explanation for how anxiety may affect problem solving. According to this view, anxiety shifts attentional resources away from task-relevant information and toward perceived threat, impairing the efficiency of the goal-directed attentional system while increasing the influence of the stimulus-driven system (Eysenck et al., 2007). In preschool problem-solving contexts, this may mean that the child becomes preoccupied with thoughts such as "What if I cannot do it?" rather than focusing on "How can I solve this?" Importantly, the theory predicts that anxiety often reduces processing efficiency (the cognitive cost of performing) before it reduces performance effectiveness (the quality of the outcome), because anxious children may compensate through additional effort (Derakshan & Eysenck, 2009). Such a shift may nevertheless reduce the child's capacity to identify relevant cues, generate possible strategies, and remain engaged in the task (Hadwin et al., 2006; Visu-Petra et al., 2014).

The executive function perspective offers another important foundation for understanding problem solving in early childhood. Executive functions include working memory, inhibitory control, and cognitive flexibility (Miyake et al., 2000). When a preschool child encounters a problem, the child must hold relevant information in mind, inhibit impulsive responses, and shift to a new strategy when the initial attempt does not work. In this respect, problem-solving behavior is closely tied to the developmental level of executive functions (Best & Miller, 2010; Diamond, 2013; Garon et al., 2008).

The self-regulation perspective further clarifies the anxiety–problem-solving relationship by emphasizing the coordinated regulation of attention, behavior, and emotion. Problem solving requires more than knowing what to do; it also requires waiting, tolerating frustration, managing disappointment, and trying again. Empirical work indicates that self-regulation in the preschool years is best modeled as a common, overarching capacity that nonetheless comprises distinguishable executive and emotional components, each predicting school readiness and social-emotional competence (Korucu et al., 2022; Rademacher & Koglin, 2019).

For this reason, self-regulation functions as a central developmental mechanism that enables children to sustain effort during problem-solving situations (Blair & Razza, 2007; McClelland et al., 2007; Ursache et al., 2012).

Emotion regulation is equally central to this relationship. A child who cannot regulate anxiety when faced with a challenge may disengage from the task rather than search for a solution. In contrast, a child who can recognize and regulate emotional arousal may divide the problem into smaller steps, ask for appropriate help, and attempt the task again. Thus, emotion regulation helps explain why some anxious children withdraw from problem situations, whereas others remain engaged when adequate support is available (Cole et al., 2004; Denham et al., 2012; Spinrad et al., 2006).

The social problem-solving perspective highlights that problem solving in early childhood is often embedded in peer interaction. Children solve problems when they initiate play, share materials, wait for a turn, negotiate rules, or respond to peer conflict. Elevated anxiety may lead some children to withdraw from these social situations, avoid expressing their needs, or transfer the problem-solving process to adults. Therefore, social problem-solving models are particularly useful for understanding how anxiety is reflected in peer relationships and classroom participation (Denham et al., 2012; Rubin & Rose-Krasnor, 1992; Spence et al., 2001).

Behavioral Inhibition and the Temperamental Roots of Anxiety

A comprehensive account of anxiety in early childhood must also consider temperament, because individual differences in reactivity to novelty are observable long before anxiety disorders can be diagnosed. Behavioral inhibition is a temperament, identifiable in the first years of life, characterized by heightened distress and wariness in response to unfamiliar people, objects, and situations. It is one of the most robust early risk markers for later anxiety, and meta-analytic evidence indicates that behaviorally inhibited children are roughly two to three times more likely to develop an anxiety disorder, with the strongest prospective link to social anxiety disorder (Clauss & Blackford, 2012; Sandstrom et al., 2020). This temperamental lens is directly relevant to problem solving, because the same wariness toward novelty that defines behavioral inhibition may also

shape how a child approaches an unfamiliar task, a new material, or a problem with an uncertain outcome.

Crucially, behavioral inhibition is a probabilistic rather than deterministic risk factor: a substantial proportion of inhibited children, by some estimates more than half, do not go on to develop clinically significant anxiety (Fox et al., 2023). Contemporary developmental models attribute this divergence in trajectories to the interplay between automatic, stimulus-driven processes (such as heightened detection of and orienting toward novelty or threat) and goal-driven, planful control processes (such as the flexible regulation of attention and behavior). When attentional and inhibitory control develop in ways that allow the child to override initial wariness and engage flexibly with the environment, risk for anxiety is mitigated; when control processes instead amplify threat monitoring, risk is potentiated (Fox et al., 2023). This framework carries an optimistic implication for early childhood education: because control processes are malleable and responsive to experience, supportive classrooms and guided problem-solving opportunities may function as protective contexts for temperamentally vulnerable children, helping them convert initial hesitation into approach and exploration rather than avoidance.

DSM-5-TR Perspective on Anxiety Disorders and Problem-Solving Processes in Preschool Children

Anxiety may appear as part of normative development in early childhood; however, in some cases, it may reach a level that interferes with children's daily functioning, social relationships, and learning experiences. In the DSM-5-TR, anxiety disorders are defined with reference to fear and anxiety that exceed developmentally expected levels, persist over time, and lead to functional impairment (American Psychiatric Association [APA], 2022). Epidemiological work confirms that such disorders are already present and identifiable in the preschool years: generalized anxiety disorder, separation anxiety disorder, and social phobia are each detectable in community and primary-care samples of two- to five-year-olds, and many affected children meet criteria for more than one condition (Franz et al., 2013; Paulus et al., 2015). Although not all anxiety disorders are equally common or equally visible in the preschool years, separation anxiety disorder, selective mutism, social anxiety disorder, generalized

anxiety disorder, and specific phobias are among the most relevant anxiety-related patterns for early childhood. These conditions are important not only because they affect children's emotional well-being, but also because they may shape how children engage with problem situations.

Separation anxiety disorder involves developmentally inappropriate and excessive fear or anxiety concerning separation from attachment figures (APA, 2022). Preschool children with elevated separation anxiety may resist being away from caregivers, have difficulty staying at school, avoid being alone, or show persistent worries related to separation. From the perspective of problem solving, these children may struggle particularly with tasks that require independent engagement. They may hesitate to begin a new activity, seek reassurance before making decisions, or avoid attempting solutions without immediate adult support. In this way, excessive reliance on adult proximity may limit opportunities for autonomous problem-solving experiences (Edwards et al., 2010; Hirshfeld-Becker et al., 2010).

Selective mutism is classified within the anxiety disorders in DSM-5-TR and is characterized by a consistent failure to speak in specific social situations despite speaking in other settings (APA, 2022). Its implications for problem solving are especially visible in social and communicative contexts. Many problem-solving situations in preschool classrooms require children to share ideas, ask for help, negotiate with peers, and express preferences. Children with selective mutism may have adequate cognitive understanding of the problem but may be unable to communicate their proposed solution in the classroom context. As a result, their problem-solving competence may remain underused or less visible in group-based activities (Kotrba, 2015; Muris & Ollendick, 2021).

Social anxiety disorder refers to marked fear or anxiety about social situations in which the individual may be exposed to possible evaluation by others (APA, 2022). Its prevalence increases markedly across development, rising from roughly 5% in childhood to far higher rates in adolescence and youth (Salari et al., 2024), and its developmental antecedents are frequently observable in the preschool classroom as reluctance to join group activities, difficulty initiating peer interaction, avoidance of responding to teacher questions, or fear of making mistakes

in front of others. Social anxiety is particularly relevant to social problem solving. Children with elevated social anxiety may have difficulty resolving peer conflicts, expressing needs, or offering suggestions during group tasks. Thus, social anxiety may reduce opportunities for collaborative learning and limit children's participation in naturally occurring social problem-solving experiences (Rubin & Rose-Krasnor, 1992; Spence et al., 2001).

Generalized anxiety disorder is characterized by excessive and difficult-to-control worry across multiple domains of life (APA, 2022). In preschool children, such worries may involve making mistakes, failing, disruptions in daily routines, or concerns about the safety of caregivers. In relation to problem solving, generalized anxiety may interfere with attention and decision making. Rather than focusing on the problem and its possible solutions, the anxious child may become preoccupied with negative outcomes. This pattern is consistent with attentional control theory, which suggests that anxiety draws cognitive resources toward threat-related information and away from task-relevant processing (Eysenck et al., 2007; Visu-Petra et al., 2014).

Specific phobia involves excessive fear of a particular object or situation (APA, 2022). During early childhood, fears related to animals, darkness, loud sounds, medical procedures, natural events, or unfamiliar objects may be observed. Specific phobias may affect problem solving indirectly through avoidance. For example, a child who fears animals may avoid a science activity involving animal figures, or a child who fears darkness may refuse to participate in certain exploratory play scenarios. Such avoidance reduces opportunities to encounter problems, test solutions, and develop flexible coping strategies (Muris & Field, 2010).

A key point in applying the DSM-5-TR framework to preschool children is that not every fear or anxious reaction should be interpreted as a disorder. Fear of separation, hesitancy around unfamiliar adults, fear of darkness, or anxiety in novel situations may be developmentally expected at certain levels. Clinical concern arises when these reactions exceed developmental expectations, persist over time, and substantially restrict the child's participation in play, learning, peer interaction, and daily routines. The distinction matters because early anxiety shows meaningful continuity

into middle childhood and is associated with later internalizing problems, making the preschool period an important window for prevention and early support (Bufferd et al., 2012; Vasileva et al., 2021). Therefore, anxiety in early childhood must be interpreted in light of developmental norms, functional impairment, family context, and the educational environment (APA, 2022; Bufferd et al., 2011).

The Development of Problem-Solving Skills in Early Childhood

Problem solving refers to the process through which an individual recognizes a difficulty, defines the problem, evaluates possible responses, selects an appropriate strategy, and acts toward a solution. In early childhood, problem-solving skills develop through a wide range of everyday experiences. Sharing toys, joining a game, building a structure, waiting for a turn, resolving disagreements, and completing a new activity all provide children with opportunities to encounter problems and test possible solutions (Garon et al., 2008; Rubin & Rose-Krasnor, 1992).

In the preschool years, problem solving is not purely cognitive. It also requires children to manage emotions, tolerate frustration, sustain social interaction, and remain engaged when an initial attempt does not succeed. Thus, problem solving should be viewed as a multidimensional developmental construct shaped by the interaction of cognitive, emotional, and social processes (Denham et al., 2012; Diamond, 2013; McClelland et al., 2007).

Classical developmental theories provide useful foundations for understanding problem-solving development. From a Piagetian perspective, children construct knowledge through active engagement with the environment and through the challenges they encounter. Preschool children, who are generally in the preoperational period, tend to interpret problems differently from adults and often rely on concrete experiences rather than abstract logical reasoning. Consequently, early problem solving is grounded in exploration, trial and error, and hands-on experimentation (Piaget, 1962).

Vygotsky's sociocultural perspective places greater emphasis on the social nature of problem solving. Children can perform at higher levels when they receive guidance from more competent others within the zone of proximal development. In this sense, the teacher's or parent's role is not

to solve the problem for the child but to provide scaffolding that enables the child to move gradually toward more independent problem solving (Vygotsky, 1978). This sociocultural emphasis on guided participation provides the theoretical bridge between developmental theory and the pedagogical strategies discussed later in this chapter.

The cognitive dimension of problem solving involves the child's ability to understand the nature of the problem, hold relevant information in mind, consider possible strategies, and select an appropriate response. These processes require the coordination of attention, memory, reasoning, and decision making. Executive functions therefore constitute an essential cognitive foundation for problem solving in early childhood (Diamond, 2013; Miyake et al., 2000).

A substantial portion of preschool problem solving occurs within social interaction. Social problem solving refers to the ability to respond effectively to interpersonal difficulties. Sharing toys, negotiating rules, waiting for a turn, and resolving peer conflicts are common examples of social problem-solving situations in early childhood classrooms. These situations require children not only to express their own needs but also to recognize others' perspectives and negotiate mutually acceptable solutions (Rubin & Rose-Krasnor, 1992).

Problem-solving processes also depend on emotion regulation. When children encounter obstacles, they may experience anger, disappointment, anxiety, or frustration. If these emotions are not regulated, they may interrupt the problem-solving process. Children with stronger emotion regulation skills are more likely to persist, try again after failure, and remain engaged with the task. In contrast, children who struggle to regulate emotional arousal may cry, withdraw, or wait passively for adult intervention (Blair & Razza, 2007; Cole et al., 2004; Denham et al., 2012).

Empirical Evidence on Anxiety and Cognitive Performance in Young Children

Beyond theoretical models, a growing body of empirical research has tested how anxiety relates to the cognitive components of problem solving in young children specifically, rather than extrapolating from adult or adolescent samples. Experimental studies with preschoolers indicate that the effects of anxiety are graded according to the executive demands

of the task. When children are required only to store information passively, high-anxious children may show reductions in processing efficiency without clear deficits in accuracy; when tasks additionally require active manipulation or updating of information in working memory, both efficiency and accuracy may decline (Visu-Petra et al., 2014). This pattern is precisely what attentional control theory predicts: anxiety taxes the central executive most when control demands are high.

Longitudinal evidence extends this picture by showing that early individual differences in attentional and memory capacities, together with anxiety symptoms, prospectively predict the later development of executive functions such as working memory and shifting, even after accounting for age and nonverbal intelligence (Visu-Petra et al., 2014). Converging research on math anxiety in older children further demonstrates that the relationship between anxiety and academic performance is partly carried by core executive functions, particularly inhibition and working memory, rather than reflecting a direct or uniform effect (Orbach et al., 2020). Although this work spans different ages and domains, it consistently supports a mechanistic account in which anxiety influences performance by competing for the limited attentional and executive resources that problem solving also requires. For early childhood educators, the practical message is that an anxious child's difficulty with a task may reflect a temporary constraint on available cognitive resources rather than a stable limitation in ability.

The Relationship Between Anxiety and Problem Solving

The relationship between anxiety and problem-solving skills in preschool children should not be understood as a simple cause-and-effect association. Anxiety may shape how children perceive a problem, which cues they attend to, how flexibly they generate solutions, and how persistently they remain engaged after an unsuccessful attempt. For this reason, the anxiety–problem-solving relationship needs to be examined through the combined lenses of attentional control, executive functioning, emotion regulation, self-regulation, and social participation (Diamond, 2013; Eysenck et al., 2007; Visu-Petra et al., 2014).

One of the first ways in which anxiety may influence problem solving is by redirecting children's attention away from task-relevant cues

and toward possible threat. According to attentional control theory, anxiety consumes cognitive resources by increasing attention to threat-related information. In a preschool classroom, this may be observed when a child focuses less on how to solve the problem and more on thoughts such as "What if I make a mistake?" or "What if the teacher does not like my answer?" This attentional shift may make it more difficult for the child to understand the problem accurately and identify possible solutions (Eysenck et al., 2007; Hadwin et al., 2006).

Anxiety may also interfere with the use of executive functions during problem solving. When children attempt to solve a problem, they need to hold relevant information in working memory, inhibit impulsive reactions, and flexibly shift to a different strategy when the first one fails. Intense anxiety places an additional burden on these cognitive processes and may reduce the child's capacity to act in a planned, flexible, and goal-directed manner (Best & Miller, 2010; Diamond, 2013; Miyake et al., 2000).

The emotional dimension of this relationship is equally important. Problem solving often involves uncertainty, frustration, temporary failure, and the need to tolerate delay. An anxious child who cannot regulate emotional arousal may withdraw, cry, become angry, or abandon the activity. In contrast, children with stronger emotion regulation skills may remain engaged, divide the problem into smaller steps, ask for help appropriately, and try again even when they experience anxiety (Cole et al., 2004; Denham et al., 2012; Spinrad et al., 2006).

From a social problem-solving perspective, anxiety may influence how children participate in peer interactions. Children with social anxiety may hesitate to join play, express their needs, defend themselves during conflict, or offer suggestions in group activities. As a result, they may have fewer opportunities to practice social problem solving and may assume a more passive role in peer relationships (Rubin & Rose-Krasnor, 1992; Spence et al., 2001).

It is also important to recognize that the relationship between anxiety and problem solving does not manifest uniformly across children. Temperament, previous experiences, family attitudes, teacher support, classroom climate, and peer relationships may all influence the direction

and intensity of this relationship (Fox et al., 2023). For example, in a supportive and mistake-friendly classroom, an anxious child may still participate in problem-solving activities. In contrast, in a highly evaluative or outcome-focused environment, a child with a similar level of anxiety may avoid the problem entirely (Bufferd et al., 2012; Edwards et al., 2010; Hirshfeld-Becker et al., 2010).

Assessment of Anxiety and Problem-Solving Skills in Early Childhood

Because anxiety and problem solving are both multidimensional and only partly visible in any single behavior, their assessment in early childhood requires careful, multi-method approaches. For anxiety, developmentally validated instruments are essential, because young children cannot reliably self-report internal states and because anxiety must be distinguished from normative fear. Caregiver-report measures such as the revised Preschool Anxiety Scale were specifically developed and validated for this age group and capture distinct symptom dimensions corresponding to separation anxiety, social anxiety, generalized anxiety, and specific fears (Edwards et al., 2010). Combining information from multiple informants, including parents and teachers, and across multiple settings improves accuracy, because anxiety may be expressed differently at home and at school (Bufferd et al., 2011; Mian et al., 2012).

Assessment of problem-solving skills should likewise extend beyond whether a child reaches the correct solution. Teachers should also observe how the child behaves during the problem-solving process. Freezing, excessive help seeking, avoiding the activity, disengaging from peers, or persisting with solution attempts are all meaningful indicators. It is particularly important to distinguish anxiety-based withdrawal from cognitive difficulty. For instance, a child who can verbally describe a solution but avoids implementing it may be showing anxiety or low confidence rather than a lack of cognitive understanding. By contrast, difficulty understanding instructions, identifying relationships, or generating alternatives may indicate a need for more direct cognitive problem-solving support (Diamond, 2013; McClelland et al., 2007; Zelazo et al., 2016). Standardized, performance-based and observational tools for executive functioning and behavioral regulation can complement teacher

observation, providing a fuller picture of the cognitive resources a child brings to problem situations (Korucu et al., 2022).

Finally, assessment should attend to the learning environment itself, not only the individual child. Validated observational systems of classroom quality, which capture dimensions such as emotional support, classroom organization, and instructional support, allow educators and researchers to evaluate whether the conditions that promote engaged, low-anxiety problem solving are actually present. Such environmental assessment is meaningful because the quality of teacher–child interactions is consistently, if modestly, associated with children's self-regulatory and social-emotional outcomes (Perlman et al., 2016; Rucinski et al., 2018).

Pedagogical Approaches to Reducing Anxiety and Supporting Problem-Solving Skills in Preschool Education

Understanding the link between anxiety and problem solving has direct implications for pedagogy in early childhood education. The development of problem-solving skills is not determined solely by individual child characteristics; it is also shaped by the quality of the learning environment, the teacher's approach, the emotional climate of the classroom, and the nature of the experiences offered to children. For children with elevated anxiety, supportive educational environments may serve a protective function by enabling participation in problem-solving experiences that might otherwise be avoided (Blair & Raver, 2015; Denham et al., 2012; Raver et al., 2011).

A secure and supportive classroom climate is one of the most important pedagogical conditions for reducing anxiety. Children are more likely to engage in problem solving when they feel accepted, valued, and emotionally safe. A secure classroom climate is one in which mistakes are not punished, multiple perspectives are welcomed, and children can express their thoughts without fear of humiliation or harsh evaluation (Hamre & Pianta, 2005; Pianta et al., 2008). Empirical work confirms that the emotional quality of teacher–child interactions and the broader classroom climate are linked to children's social-emotional adjustment and self-regulation, and that high-quality dyadic relationships can buffer risk for children who might otherwise struggle (Rucinski et al., 2018). Encouragingly, the quality of these interactions is not fixed: meta-analytic

evidence shows that targeted in-service professional development can meaningfully improve teachers' emotional support, classroom organization, and instructional interactions (Egert et al., 2020).

Play is one of the most natural and powerful contexts for learning in the preschool years. Play-based learning allows children to develop problem-solving skills without experiencing the pressure often associated with formal tasks. During play, children create rules, negotiate meanings, use materials creatively, resolve disagreements, and adapt continuously to changing situations. These processes provide natural opportunities for problem solving (Denham et al., 2012; Rubin & Rose-Krasnor, 1992). Intervention research reinforces the value of structured, playful contexts: a systematic review of interventions targeting early self-regulation and executive functioning found that approaches such as mediated play, mindfulness, and physical activity tended to yield the most consistent benefits, particularly when they embedded genuine cognitive challenge (Muir et al., 2023), and group-based play programs have produced measurable, durable gains in preschoolers' working memory and inhibitory control (Arslan Çiftçi et al., 2023).

Self-regulation and emotion regulation should be deliberately supported in preschool classrooms because they lie at the center of the anxiety–problem-solving relationship. Emotion cards, stories, emotion boards, guided discussions, and group activities focused on feelings can help children become more aware of their emotional states. Children who can recognize and name emotions are more likely to remain engaged in problem solving instead of withdrawing when anxiety arises (Cole et al., 2004; Denham et al., 2012).

Children also need open-ended learning environments that allow for more than one correct answer. Problem-solving skills are strengthened when children are invited to explore, test, revise, and reconstruct their ideas. Such environments provide opportunities for independent thinking, creativity, flexible strategy use, and sustained engagement with uncertainty (Diamond, 2013; Zelazo et al., 2016).

Collaborative learning environments are especially valuable for the development of social problem-solving skills. Small-group work, shared projects, and cooperative play help children encounter different

perspectives and generate solutions together. Through these experiences, children not only solve practical or academic problems; they also practice sharing, turn-taking, negotiation, and conflict resolution (Denham et al., 2012; Rubin & Rose-Krasnor, 1992).

Peer conflict is one of the most natural contexts in which social problem-solving skills develop during the preschool years. Disagreements about sharing toys, joining play, waiting for a turn, or negotiating rules should not be treated merely as discipline problems. Rather, they can be transformed into guided problem-solving opportunities. For instance, a teacher may say, "You both want the same toy right now. Let us first explain what happened, and then we can think of two possible solutions together." Such guided interactions help children express emotions, consider alternatives, and participate in the problem-solving process. They are particularly valuable for anxious children who might otherwise withdraw from peer conflict (Denham et al., 2012; Rubin & Rose-Krasnor, 1992; Spinrad et al., 2006).

Evidence-Based Prevention and Intervention for Early Childhood Anxiety

When anxiety exceeds developmentally expected levels or begins to restrict a child's participation, universal classroom strategies may need to be supplemented by structured prevention and intervention programs. The evidence base for treating anxiety in young children, although younger than that for older age groups, has matured considerably. A systematic review and meta-analysis of cognitive-behavioural interventions for prevention and treatment of anxiety in young children, synthesizing 43 samples with a mean age of about five years, found substantial reductions in anxiety following intervention and significantly greater improvement for treated children than for controls, with gains maintained over follow-up (Howes Vallis et al., 2020). Randomized trials adapted specifically for the early childhood period, in which parents are taught to support exposure and coping rather than to remove anxiety-provoking situations, have likewise demonstrated efficacy for four- to seven-year-olds (Hirshfeld-Becker et al., 2010).

These findings carry two implications for early childhood settings. First, anxiety in young children is treatable, and early intervention may

alter developmental trajectories before avoidance becomes entrenched, which is particularly important given the continuity between early and later anxiety (Bufferd et al., 2012). Second, the active ingredients of effective programs, namely graduated exposure to feared situations, the building of coping and emotion-regulation skills, and the central involvement of parents and teachers, align closely with the everyday pedagogical practices described in this chapter. Rather than constituting a separate clinical track, evidence-based intervention principles can inform how educators structure support for anxious children within the ordinary life of the classroom, while ensuring that children whose anxiety reaches clinical thresholds are referred for appropriate professional assessment.

Recommendations for Teachers and Families

When the relationship between anxiety and problem-solving skills in preschool children is considered, teachers and families emerge as central sources of developmental support. Children's problem-solving abilities do not develop solely as a result of cognitive maturation; they are also shaped by secure relationships, supportive environments, and appropriate adult guidance. Therefore, teachers and families need to provide intentional support that both helps children regulate anxiety and increases their opportunities to engage in meaningful problem-solving experiences (Blair & Raver, 2015; Denham et al., 2012).

One of the primary responsibilities of teachers is to create a learning environment in which children feel emotionally safe. A sense of security makes children more willing to try new experiences, tolerate mistakes, and participate actively in problem situations. For children with elevated anxiety, warm, accepting, and responsive teacher behaviors may function as a protective factor that supports participation and reduces avoidance (Hamre & Pianta, 2005; Pianta et al., 2008; Rucinski et al., 2018).

Teachers should focus on the problem-solving process rather than only on the final outcome. Children's attempts to generate solutions, try alternative strategies, and remain engaged despite difficulty should be recognized and supported. Process-oriented feedback can reduce fear of failure and strengthen children's sense of competence in problem-solving situations (Dweck, 2006; Raver et al., 2011).

Families constitute the first and most influential learning environment for children's problem-solving development. Children's earliest experiences with everyday problems often take place at home. For this reason, parental attitudes toward problem solving and the type of support offered to the child are critically important. When families allow children to participate in age-appropriate decisions and everyday problem-solving situations, they create opportunities for autonomy, confidence, and self-regulation (Bronfenbrenner & Morris, 2006).

Parents should acknowledge children's anxiety without reinforcing avoidance. Accepting the child's emotional experience is important; however, removing every anxiety-provoking situation on behalf of the child may limit the development of problem-solving skills over time. Children should be allowed to face developmentally appropriate challenges and should be supported in trying to solve them rather than being protected from all difficulty. This balanced stance, sometimes described as supportive autonomy granting, is consistent with both resilience research and the logic of evidence-based anxiety interventions, which deliberately replace accommodation with graduated, supported exposure (Hirshfeld-Becker et al., 2010; Masten, 2014; Rutter, 2012).

The foundations of school–family collaboration are often established during the first registration, introductory meetings, and adaptation period. At this stage, not only the child's anxiety but also the parents' anxiety may influence school adjustment and problem-solving experiences. Parental worries about separation, the child's ability to adapt, or early academic performance may unintentionally narrow the child's opportunities for independent attempts. Therefore, school administrators and teachers should use a reassuring communication style from the first contact onward, explaining the child's developmental rhythm and emphasizing that problem-solving skills develop gradually through experience. Such an approach may reduce the transmission of parental anxiety to the child and support a healthier basis for school–family collaboration (Bronfenbrenner & Morris, 2006; Epstein, 2018; Sheridan et al., 2019).

Teacher–family collaboration is particularly important in supporting both anxiety regulation and problem-solving development.

When children encounter similar supportive approaches at school and at home, developmental gains are more likely to be maintained. Meta-analytic evidence indicates that family–school interventions produce small but reliable improvements in children's social-emotional functioning, underscoring the value of coordinated adult support (Sheridan et al., 2019). Regular communication between teachers and families can help adults better understand when children become anxious, which problem situations they avoid, and what forms of support help them remain engaged (Epstein, 2018).

Cultural Context and Cross-National Perspectives

Much of the foundational research on anxiety, executive function, and classroom quality has been conducted in Western, high-income contexts, which raises important questions about cultural generalizability. Anxiety is expressed, interpreted, and socialized differently across cultural settings, and the behaviors that one community regards as adaptive caution another may regard as problematic withdrawal. National epidemiological work outside the most frequently studied populations is therefore valuable: a representative study in urban Turkey, for example, reported that the prevalence of any childhood anxiety disorder was 16.7% without an impairment criterion and 5.2% when functional impairment was required, figures broadly consistent with international estimates while also reflecting region-specific predictors (Mutluer et al., 2022). Such findings caution against assuming that prevalence rates, risk factors, or intervention effects established in one context will transfer unchanged to another.

At the same time, cross-national research on classroom quality suggests that the core dimensions of supportive teacher–child interaction, emotional support, organization, and instructional support, are observable and meaningful across diverse cultural settings, even as their average levels and specific manifestations vary. For early childhood educators working in any given context, the implication is twofold: the general principles articulated in this chapter, namely emotional safety, guided participation, process-oriented feedback, and graduated support for facing challenges, are likely to be broadly applicable, but their concrete implementation should be culturally responsive, attentive to local norms around emotion

expression, autonomy, and the respective roles of families and schools (Rademacher & Koglin, 2019; Rucinski et al., 2018).

DISCUSSION

The theoretical and empirical arguments reviewed in this chapter suggest that the relationship between anxiety and problem-solving skills in preschool children cannot be reduced to a simple causal explanation. Anxiety may influence how children approach problem situations, yet its effects are shaped by age, temperament, self-regulatory capacity, executive functioning, social experiences, and the quality of adult support. Therefore, the influence of anxiety on problem solving should be evaluated not merely in terms of whether anxiety is present, but also in terms of its intensity, persistence, and functional impact on the child's everyday participation (APA, 2022; Bufferd et al., 2012; Diamond, 2013).

A first major point concerns the need to distinguish carefully between developmental anxiety and clinically significant anxiety in early childhood. Fear of separation, hesitancy around unfamiliar adults, fear of the dark, or difficulty adapting to new environments may be expected to some degree during the preschool years. However, when such reactions persist and substantially restrict participation in play, learning, peer relationships, and daily routines, they may reflect anxiety patterns that require closer developmental or clinical attention (APA, 2022; Bufferd et al., 2011; Spence et al., 2001).

A second issue concerns the mechanisms through which anxiety affects problem solving. Attentional control theory, supported by experimental and longitudinal evidence in young children, suggests that anxiety may redirect children's cognitive resources away from problem-relevant cues and toward perceived threat, and that this cost is greatest when executive demands are high. Thus, anxiety may not eliminate the child's problem-solving ability directly; rather, it may make existing skills less accessible by increasing cognitive load and threat monitoring (Eysenck et al., 2007; Orbach et al., 2020; Visu-Petra et al., 2014).

A third point is that problem solving should not be understood as a purely cognitive competence. When preschool children encounter problems, they also encounter emotional experiences such as uncertainty, failure, frustration, and disappointment. For this reason, the development

of problem-solving skills must be considered together with emotion regulation. Children who can regulate emotional arousal are more likely to remain engaged, try again, and use adult support constructively (Cole et al., 2004; Denham et al., 2012; Spinrad et al., 2006).

A fourth consideration concerns temperament and the heterogeneity of developmental pathways. Behavioral inhibition increases the probability of later anxiety but does not determine it, and the divergence between vulnerable children who develop anxiety and those who do not appears to depend substantially on the development of attentional and inhibitory control within supportive contexts (Fox et al., 2023; Sandstrom et al., 2020). This heterogeneity reframes the educational task: rather than treating all hesitant children identically, educators can attend to whether a given child is moving toward flexible engagement or toward entrenched avoidance, and can calibrate support accordingly.

These considerations place the teacher's role at the center of early childhood practice. The teacher's response may determine whether an anxious child experiences a problem as a threat or as an opportunity for learning. Adult behaviors that overemphasize correct answers, immediately correct mistakes, or take over the solution process may unintentionally reinforce avoidance. In contrast, teachers who ask open-ended questions, validate the child's emotions, divide the problem into smaller steps, and support the process can reduce the negative effects of anxiety on problem solving (Blair & Raver, 2015; Dweck, 2006; Raver et al., 2011). Crucially, the capacity to provide such support is itself learnable and can be strengthened through professional development (Egert et al., 2020).

Limitations and Directions for Future Research

Several limitations of the current evidence base warrant attention. First, much of the research linking anxiety to specific problem-solving processes in the preschool years is correlational or relies on tasks adapted from older populations, leaving questions of directionality and ecological validity partly unresolved. Second, anxiety, executive function, and problem solving are each measured in heterogeneous ways across studies, and the lack of a uniform, developmentally grounded definition of self-regulation in particular complicates the synthesis of findings (Rademacher

& Koglin, 2019). Third, as noted above, the cultural concentration of existing research limits confidence in cross-context generalization (Mutluer et al., 2022).

Future research should therefore prioritize longitudinal, multi-method designs that follow children across the transition into formal schooling and that integrate behavioral, observational, and, where appropriate, physiological indicators. Studies are needed that examine how contextual variables, including family practices, teacher–child relationships, classroom climate, and peer interaction patterns, moderate the impact of anxiety on children's problem-solving trajectories during the preschool years. Intervention research that directly tests whether improvements in emotion regulation and classroom emotional support produce downstream gains in problem solving for temperamentally vulnerable children would be especially valuable, as would cross-cultural replication of both mechanistic findings and intervention effects.

CONCLUSION

The preschool period is a critical stage in which cognitive, emotional, and social development are deeply intertwined. During this period, problem-solving skills should not be viewed merely as intellectual abilities; rather, they should be understood as multidimensional developmental competencies shaped by attention, executive functions, emotion regulation, social participation, and adult support. Understanding problem solving in preschool children therefore requires attention not only to how children think when they encounter difficulty, but also to how they feel and how they are supported in that moment (Best & Miller, 2010; Diamond, 2013; Garon et al., 2008).

The literature discussed in this chapter indicates that anxiety may influence preschool children's problem-solving processes through multiple mechanisms. Anxiety may redirect attention away from problem-relevant information and toward perceived threat, increase cognitive load on working memory, constrain cognitive flexibility, and affect decision making. As a result, the child may become more focused on making mistakes, failing, or being negatively evaluated than on generating solutions (Eysenck et al., 2007; Orbach et al., 2020; Visu-Petra et al., 2014).

At the same time, anxiety should not be treated as a variable that affects all children in the same way or always produces negative outcomes. Its impact depends on developmental characteristics, temperament, self-regulation, executive functioning, family attitudes, teacher support, and classroom climate. For this reason, anxiety in early childhood should be approached not only as a difficulty to be reduced, but also as a developmental experience that can become manageable through sensitive adult guidance and emotionally secure educational environments (Blair & Raver, 2015; Bufferd et al., 2012; Fox et al., 2023; Raver et al., 2011).

In conclusion, anxiety and problem-solving skills in the preschool years are not independent developmental domains. Strengthening children's problem-solving skills also requires supporting their emotional security, self-regulatory capacities, and ability to cope with anxiety. Early childhood education should therefore integrate cognitive and emotional development, offering children safe opportunities to encounter problems, try solutions, make mistakes, revise their thinking, and engage in guided problem solving within supportive pedagogical environments (Blair & Razza, 2007; Cole et al., 2004; Diamond, 2013).

Beyond its implications for individual child development, understanding the interplay between anxiety and problem-solving skills may contribute to the design of emotionally responsive early childhood environments that foster resilience, adaptive coping, and lifelong learning competencies. Because both the conditions that promote engaged problem solving and the capacity of adults to provide them are demonstrably malleable (Egert et al., 2020; Howes Vallis et al., 2020; Muir et al., 2023), the integration of cognitive and emotional support in the preschool years represents not only a developmental ideal but an achievable educational goal.

REFERENCES

American Psychiatric Association. (2022). Diagnostic and statistical manual of mental disorders (5th ed., text rev.; DSM-5-TR). American Psychiatric Publishing. https://doi.org/10.1176/appi.books.9780890425787

Arslan Çiftçi, H., Uyanık, G., & Acar, İ. H. (2023). Supporting preschool children's executive functions: Evidence from a group-based play intervention. Early Childhood Education Journal. Advance online publication. https://doi.org/10.1007/s10643-023-01607-3

Best, J. R., & Miller, P. H. (2010). A developmental perspective on executive function. Child Development, 81(6), 1641–1660. https://doi.org/10.1111/j.1467-8624.2010.01499.x

Blair, C., & Raver, C. C. (2015). School readiness and self-regulation: A developmental psychobiological approach. Annual Review of Psychology, 66, 711–731. https://doi.org/10.1146/annurev-psych-010814-015221

Blair, C., & Razza, R. P. (2007). Relating effortful control, executive function, and false belief understanding to emerging math and literacy ability in kindergarten. Child Development, 78(2), 647–663. https://doi.org/10.1111/j.1467-8624.2007.01019.x

Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), Handbook of child psychology: Theoretical models of human development (6th ed., pp. 793–828). Wiley.

Bufferd, S. J., Dougherty, L. R., Carlson, G. A., & Klein, D. N. (2011). Parent-reported mental health in preschoolers: Findings using a diagnostic interview. Comprehensive Psychiatry, 52(4), 359–369. https://doi.org/10.1016/j.comppsych.2010.08.005

Bufferd, S. J., Dougherty, L. R., Carlson, G. A., Rose, S., & Klein, D. N. (2012). Psychiatric disorders in preschoolers: Continuity from ages 3 to 6. American Journal of Psychiatry, 169(11), 1157–1164. https://doi.org/10.1176/appi.ajp.2012.12020268

Clauss, J. A., & Blackford, J. U. (2012). Behavioral inhibition and risk for developing social anxiety disorder: A meta-analytic study. Journal of the American Academy of Child & Adolescent Psychiatry, 51(10), 1066–1075. https://doi.org/10.1016/j.jaac.2012.08.002

Cole, P. M., Martin, S. E., & Dennis, T. A. (2004). Emotion regulation as a scientific construct: Methodological challenges and directions for child development research. Child Development, 75(2), 317–333. https://doi.org/10.1111/j.1467-8624.2004.00673.x

Denham, S. A., Bassett, H. H., & Zinsser, K. (2012). Early childhood teachers as socializers of young children's emotional competence. Early Childhood Education Journal, 40(3), 137–143. https://doi.org/10.1007/s10643-012-0504-2

Derakshan, N., & Eysenck, M. W. (2009). Anxiety, processing efficiency, and cognitive performance: New developments from attentional control theory. European Psychologist, 14(2), 168–176. https://doi.org/10.1027/1016-9040.14.2.168

Diamond, A. (2013). Executive functions. Annual Review of Psychology, 64, 135–168. https://doi.org/10.1146/annurev-psych-113011-143750

Dweck, C. S. (2006). Mindset: The new psychology of success. Random House.

Edwards, S. L., Rapee, R. M., Kennedy, S. J., & Spence, S. H. (2010). The assessment of anxiety symptoms in preschool-aged children: The revised

Preschool Anxiety Scale. Journal of Clinical Child & Adolescent Psychology, 39(3), 400–409. https://doi.org/10.1080/15374411003691701

Egert, F., Dederer, V., & Fukkink, R. G. (2020). The impact of in-service professional development on the quality of teacher-child interactions in early education and care: A meta-analysis. Educational Research Review, 29, Article 100309. https://doi.org/10.1016/j.edurev.2019.100309

Epstein, J. L. (2018). School, family, and community partnerships: Preparing educators and improving schools (2nd ed.). Routledge. https://doi.org/10.4324/9780429494673

Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive performance: Attentional control theory. Emotion, 7(2), 336–353. https://doi.org/10.1037/1528-3542.7.2.336

Fox, N. A., Zeytinoglu, S., Valadez, E. A., Buzzell, G. A., Morales, S., & Henderson, H. A. (2023). Annual research review: Developmental pathways linking early behavioral inhibition to later anxiety. Journal of Child Psychology and Psychiatry, 64(4), 537–561. https://doi.org/10.1111/jcpp.13702

Franz, L., Angold, A., Copeland, W., Costello, E. J., Towe-Goodman, N., & Egger, H. (2013). Preschool anxiety disorders in pediatric primary care: Prevalence and comorbidity. Journal of the American Academy of Child & Adolescent Psychiatry, 52(12), 1294–1303. https://doi.org/10.1016/j.jaac.2013.09.008

Garon, N., Bryson, S. E., & Smith, I. M. (2008). Executive function in preschoolers: A review using an integrative framework. Psychological Bulletin, 134(1), 31–60. https://doi.org/10.1037/0033-2909.134.1.31

Hadwin, J. A., Garner, M., & Perez-Olivas, G. (2006). The development of information processing biases in childhood anxiety: A review and exploration of its origins in parenting. Clinical Psychology Review, 26(7), 876–894. https://doi.org/10.1016/j.cpr.2005.09.004

Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? Child Development, 76(5), 949–967. https://doi.org/10.1111/j.1467-8624.2005.00889.x

Hirshfeld-Becker, D. R., Masek, B., Henin, A., Blakely, L. R., Pollock-Wurman, R. A., McQuade, J., DePetrillo, L., Briesch, J., Ollendick, T. H., Rosenbaum, J. F., & Biederman, J. (2010). Cognitive behavioral therapy for 4- to 7-year-old children with anxiety disorders: A randomized clinical trial. Journal of Consulting and Clinical Psychology, 78(4), 498–510. https://doi.org/10.1037/a0019055

Howes Vallis, E., Zwicker, A., Uher, R., & Pavlova, B. (2020). Cognitive-behavioural interventions for prevention and treatment of anxiety in young children: A systematic review and meta-analysis. Clinical Psychology Review, 81, Article 101904. https://doi.org/10.1016/j.cpr.2020.101904

Korucu, I., Ayturk, E., Finders, J. K., Schnur, G., Bailey, C. S., Tominey, S. L., & Schmitt, S. A. (2022). Self-regulation in preschool: Examining its factor structure and associations with pre-academic skills and social-emotional

competence. Frontiers in Psychology, 12, Article 717317. https://doi.org/10.3389/fpsyg.2021.717317

Kotrba, A. (2015). Selective mutism: An assessment and intervention guide for therapists, educators & parents. PESI Publishing & Media.

Masten, A. S. (2014). Ordinary magic: Resilience in development. Guilford Press.

McClelland, M. M., Cameron, C. E., Connor, C. M., Farris, C. L., Jewkes, A. M., & Morrison, F. J. (2007). Links between behavioral regulation and preschoolers' literacy, vocabulary, and math skills. Developmental Psychology, 43(4), 947–959. https://doi.org/10.1037/0012-1649.43.4.947

Mian, N. D., Godoy, L., Briggs-Gowan, M. J., & Carter, A. S. (2012). Patterns of anxiety symptoms in toddlers and preschool-age children: Evidence of early differentiation. Journal of Anxiety Disorders, 26(1), 102–110. https://doi.org/10.1016/j.janxdis.2011.09.006

Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex frontal lobe tasks: A latent variable analysis. Cognitive Psychology, 41(1), 49–100. https://doi.org/10.1006/cogp.1999.0734

Muir, R. A., Howard, S. J., & Kervin, L. (2023). Interventions and approaches targeting early self-regulation or executive functioning in preschools: A systematic review. Educational Psychology Review, 35(1), Article 27. https://doi.org/10.1007/s10648-023-09740-6

Muris, P., & Field, A. P. (2010). The role of verbal threat information in the development of childhood fear: "Beware the Jabberwock!" Clinical Child and Family Psychology Review, 13(2), 129–150. https://doi.org/10.1007/s10567-010-0064-1

Muris, P., & Ollendick, T. H. (2021). Selective mutism and its relations to social anxiety disorder and autism spectrum disorder. Clinical Child and Family Psychology Review, 24(2), 294–325. https://doi.org/10.1007/s10567-020-00342-0

Mutluer, T., Görmez, V., Sönmez Sezer, M. E., Hesapçıoğlu, S. T., Özgür, B. G., Dönüş, F., & Kuru, E. (2022). Prevalence, comorbidities and mediators of childhood anxiety disorders in urban Turkey: A national representative epidemiological study. Social Psychiatry and Psychiatric Epidemiology, 58(6), 919–929. https://doi.org/10.1007/s00127-022-02396-7

Orbach, L., Herzog, M., & Fritz, A. (2020). State- and trait-math anxiety and their relation to math performance in children: The role of core executive functions. Cognition, 200, Article 104271. https://doi.org/10.1016/j.cognition.2020.104271

Paulus, F. W., Backes, A., Sander, C. S., Weber, M., & von Gontard, A. (2015). Anxiety disorders and behavioral inhibition in preschool children: A population-based study. Child Psychiatry & Human Development, 46(1), 150–157. https://doi.org/10.1007/s10578-014-0460-8

Perlman, M., Falenchuk, O., Fletcher, B., McMullen, E., Beyene, J., & Shah, P. S. (2016). A systematic review and meta-analysis of a measure of

staff/child interaction quality (the Classroom Assessment Scoring System) in early childhood education and care settings and child outcomes. PLOS ONE, 11(12), Article e0167660. https://doi.org/10.1371/journal.pone.0167660

Piaget, J. (1962). Play, dreams and imitation in childhood. Norton.

Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). Classroom Assessment Scoring System (CLASS) manual: Pre-K. Brookes.

Rademacher, A., & Koglin, U. (2019). The concept of self-regulation and preschoolers' social-emotional development: A systematic review. Early Child Development and Care, 189(14), 2299–2317. https://doi.org/10.1080/03004430.2018.1450251

Raver, C. C., Jones, S. M., Li-Grining, C., Zhai, F., Bub, K., & Pressler, E. (2011). CSRP's impact on low-income preschoolers' preacademic skills: Self-regulation as a mediating mechanism. Child Development, 82(1), 362–378. https://doi.org/10.1111/j.1467-8624.2010.01561.x

Rubin, K. H., & Rose-Krasnor, L. (1992). Interpersonal problem solving and social competence in children. In V. B. Van Hasselt & M. Hersen (Eds.), Handbook of social development: A lifespan perspective (pp. 283–323). Plenum Press. https://doi.org/10.1007/978-1-4899-0694-6_12

Rucinski, C. L., Brown, J. L., & Downer, J. T. (2018). Teacher–child relationships, classroom climate, and children's social-emotional and academic development. Journal of Educational Psychology, 110(7), 992–1004. https://doi.org/10.1037/edu0000240

Rutter, M. (2012). Resilience as a dynamic concept. Development and Psychopathology, 24(2), 335–344. https://doi.org/10.1017/S0954579412000028

Salari, N., Heidarian, P., Hassanabadi, M., Babajani, F., Abdoli, N., Aminian, M., & Mohammadi, M. (2024). Global prevalence of social anxiety disorder in children, adolescents and youth: A systematic review and meta-analysis. Journal of Prevention, 45(5), 795–813. https://doi.org/10.1007/s10935-024-00789-9

Sandstrom, A., Uher, R., & Pavlova, B. (2020). Prospective association between childhood behavioral inhibition and anxiety: A meta-analysis. Research on Child and Adolescent Psychopathology, 48(1), 57–66. https://doi.org/10.1007/s10802-019-00588-5

Sheridan, S. M., Smith, T. E., Moorman Kim, E., Beretvas, S. N., & Park, S. (2019). A meta-analysis of family-school interventions and children's social-emotional functioning: Moderators and components of efficacy. Review of Educational Research, 89(2), 296–332. https://doi.org/10.3102/0034654318825437

Spence, S. H., Rapee, R., McDonald, C., & Ingram, M. (2001). The structure of anxiety symptoms among preschoolers. Behaviour Research and Therapy, 39(11), 1293–1316. https://doi.org/10.1016/S0005-7967(00)00098-X

Spinrad, T. L., Eisenberg, N., Cumberland, A., Fabes, R. A., Valiente, C., Shepard, S. A., Reiser, M., Losoya, S. H., & Guthrie, I. K. (2006). Relation of emotion-related regulation to children's social competence: A longitudinal study. Emotion, 6(3), 498–510. https://doi.org/10.1037/1528-3542.6.3.498

Ursache, A., Blair, C., & Raver, C. C. (2012). The promotion of self-regulation as a means of enhancing school readiness and early achievement in children at risk for school failure. Child Development Perspectives, 6(2), 122–128. https://doi.org/10.1111/j.1750-8606.2011.00209.x

Vasileva, M., Graf, R. K., Reinelt, T., Petermann, U., & Petermann, F. (2021). Research review: A meta-analysis of the international prevalence and comorbidity of mental disorders in children between 1 and 7 years. Journal of Child Psychology and Psychiatry, 62(4), 372–381. https://doi.org/10.1111/jcpp.13261

Visu-Petra, L., Stanciu, O., Benga, O., Miclea, M., & Cheie, L. (2014). Longitudinal and concurrent links between memory span, anxiety symptoms, and subsequent executive functioning in young children. Frontiers in Psychology, 5, Article 443. https://doi.org/10.3389/fpsyg.2014.00443

Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.

Zelazo, P. D., Blair, C. B., & Willoughby, M. T. (2016). Executive function: Implications for education (NCER 2017-2000). National Center for Education Research, Institute of Education Sciences, U.S. Department of Education. https://ies.ed.gov/ncer/pubs/20172000/

Student Intension towards Entrepreneurship Development – A Bibliometric Review

[1]Usha Rani J

[2]Senthil Kumar J.P

[1]Research Scholar & Assistant Professor,
[2] Associate Professor, GITAM School of Business, GITAM Deemed to be University, Bengaluru, Karnataka, India.
[1]Corresponding author email: ujayanna@gitam.edu

ABSTRACT

The main purpose is to define the topic trends in Student intension towards entrepreneurship development, and what are the top authors and institutions significantly influence in Student intension towards entrepreneurship development field over the past 25 years. In this study, we used the Scopes dataset to get the research data, after we search via keywords and select the explosion criteria we reach 1600, then we used Microsoft Excel to clean our data set, and after that, we used R studio software and VOS software to get our results. The results established the development status in the field of student intension toward entrepreneurship development. Further, we demonstrated the growth rate, sources, publication, and the relationship between co-authors. The finding will assist researchers to guide new research topics in the area of study.

Keywords: Entrepreneur, Student Intention, Entrepreneurship development.

INTRODUCTION

Since the 1980s, academic research has placed a greater emphasis on the study of entrepreneurship as a result of the significant socioeconomic importance of the phenomenon in the context of socioeconomic development in an environment characterized by neoliberal monetarist policies. The ability of entrepreneurs to develop novel businesses and products that result in the creation of new jobs is a significant factor in the modern economy. This factor contributes to the expansion, growth, and development of local economies, as well as national economies and the economic development of the world in general. Furthermore, in addition to the benefits it offers in terms of societal and economic development, entrepreneurship also offers benefits in terms of the individual fulfillment it can bring. Finding unmet needs in a market, conceiving novel solutions to those needs, and materializing those solutions in the form of goods and services—all of these are essential components of the entrepreneurial process (Alawamleh et al., 2023).

Any nation can benefit from the creation of new job opportunities through the practise of entrepreneurship; furthermore, the contributions of female entrepreneurs to any nation's economy are indispensable. In addition, entrepreneurship can be defined as the ability and behaviour of an individual to initiate, establish, and manage a business enterprise despite the existence of barriers to profitability. Therefore, being an entrepreneur requires careful

planning, getting the ball rolling, and expert management. a newly established company that sells a good or renders a service (Abebe & Kegne, 2023). As digital economies begin to emerge on a global scale, nations are redoubling their efforts to capitalise on the opportunities presented by digital commerce, which is resulting in the development of innovative economic frameworks. Existing companies can completely transform their offline activities to online ones or run parallel online branches (both of which are examples of digital entrepreneurship). Digital entrepreneurship is a subcategory of entrepreneurship in which some or all business activities are digitised. This shift towards digital settings is inevitable(Ilyas et al., 2023; Kok et al., 2023).

Small and medium-sized businesses (SMEs) have the potential to create many jobs across a wide variety of industries and in a wider variety of geographic locations. Nevertheless, there are a number of obstacles that stand in the way of the success of small and medium-sized enterprises (SMEs), such as insufficient funding, poor management, a lack of skills, the absence of mentoring, inadequate infrastructure, and a low demand for locally produced goods and services. In South Africa, the operational structure and performance of SMEs are both significantly impacted by corruption to a significant degree.

There is some evidence that participation in microfinance programmes can lead to the long-term viability of small and medium-sized enterprises (SMEs), but this is not conclusive. Microfinance has helped lift people out of poverty. The level of expertise and inventiveness of business owners, as well as their willingness to adopt new technologies, are critical factors in determining the success of small and medium-sized enterprises (SMEs). Even though 65 percent of university graduates across South and Southern Africa are without jobs, the region's propensity for technological innovation and adoption is low. Despite falling short of their full potential, technology transfers have a great deal of untapped potential to reduce global poverty. The process of transferring the technology, problems with local support, insufficient "socio-cultural entrenchment," and a lack of adequate marketing strategies are the causes of failures to fully capitalise on the transferred technology. However, if one draws upon the enormous pool of intellectual capital that is readily available in Africa, it is possible to develop workable business strategies at the local level. It is possible to establish innovation or technology clusters that are connected to one another and can share resources with one another through collaborative networks in order to collectively develop locally and regionally relevant products derived from the core technology. This initiative can be

repeated, it can be generalised, and it offers a great potential for community-led programmes that aim to alleviate poverty and promote sustainability(Cordes & Marinova, 2023). Sashi suggests bundling microfinance with strategic and market advice to give business owners the ability to produce and sell their own goods. This is an activity that increases income and aligns with technology transfer programmes and export-led initiatives. Urquhart and colleagues argue that while information and communications technology (ICT) may help to alleviate poverty, the specifics of how this can be accomplished have not yet been fully developed. In order to conceptualise interventions for the alleviation of poverty, Urquhart and colleagues frame social capital and knowledge within the context of information technology. This framework suggests what Pefers et al. refer to as a methodical and iterative approach to the development of artefacts to address a problem, in this case the alleviation of poverty. This approach was developed to address a problem. However, there has not yet been the development of viable theoretical constructs that can define a path forward for sustainable development programmes aimed at reducing poverty. ICT policy interventions in Africa, according to Diga et al., promote a techno-centric approach that places emphasis on economic outcomes while neglecting other aspects of wellbeing. They call for a more "contested, discursive policy environment." When this occurs, having access to information becomes absolutely necessary for any meaningful discourse on public policy. Within the framework of ICT, the dissemination of information occurs in a recursive fashion across different levels of media (radio, television, and social media), with the goal of informing the community and getting them involved in relevant discourse. Gebremichael and Jackson introduce the concept of "information poverty" to add to the complex nature of poverty and to identify a digital divide that is emerging as a new delineator of poverty. They do this in order to accomplish two goals: (1) to add to the complexity of poverty; and (2) to identify a digital divide (Cordes & Marinova, 2023; Magbondé et al., 2023).

Numerous studies have been carried out with the goal of determining the factors that influence the level of success that women entrepreneurs have in micro and small businesses. According to Kamberidou (2020), the numerous and varied benefits of women's entrepreneurship have been researched in great detail since the middle of the 1980s. These benefits are repeatedly associated with concepts of empowerment, leadership, and professional development, as well as increasing women's quality of life and contributing to the economy,

particularly in western societies. She also brings up the fact that there is a growing body of research being conducted in the twenty-first century that "continues to discuss the skills, characteristics, motives, and leadership styles of the female entrepreneur, along with the obstacles confronted, documenting case studies and strategies for success (Ayinaddis, 2023).

This paper determines to review research in the Student intension towards entrepreneurship development and its insights and overview through science mapping review methodology. This paper addresses the following research questions:

RQ 1: Which authors, institutions, and journal articles from emerging regions have significantly influenced Student intension towards entrepreneurship development over the past 25 years?

R.Q 2: What does the social structure of the knowledge base have on Student intension towards entrepreneurship development?

R.Q 3: What topics in Student intension towards entrepreneurship development literature have been studied with the most significant frequency and are currently attracting the most incredible attention?

RESEARCH METHODOLOGY

In this study we used the Scopes dataset to get the research data, after we search via keywords and select the explosion criteria we reach 1465 (study see table1), then we used Microsoft Excel to clean our data set, and after that, we used R Studio software and VOS software to get our results, see figure 1.

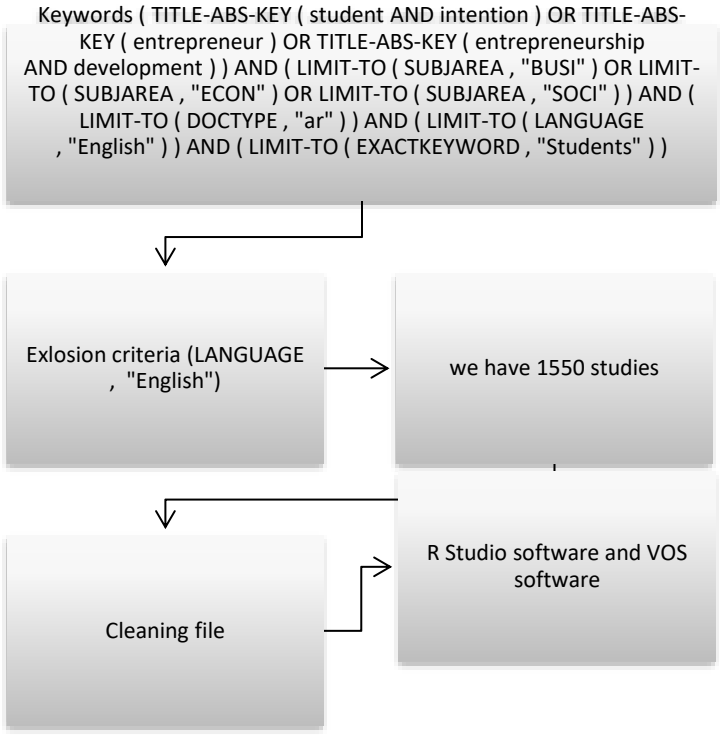

Figure. 1. Methodological Flowchart of Bibliometric analysis

Query Strings:

(TITLE-ABS-KEY (student AND intention) OR TITLE-ABS-KEY (entrepreneur) OR TITLE-ABS-KEY (entrepreneurship AND development)) AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ECON") OR LIMIT-TO (SUBJAREA , "SOCI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (EXACTKEYWORD , "Students"))

The selected manuscripts that met the inclusion criteria were exported in CSV format and converted into VOS viewer software and an R Package data frame using the Open-Source R Package BIBLIOSHINNY to achieve precise findings.

Using the dimensionality-reduction approach, the quantity of data in the data set that was unrelated to the research was removed. Through extensive network mapping of those filtered data, the V.O.S. viewer and Biblioshiny from the R package assisted with data visualization, parameter filtering, and the construction of the data's social structures.

To reach our objectives we apply Main information, authors, document, topic trends, cluster affiliation, and journal analysis via using R & VOS soft wares.

RESULTS

In figure 2 we illustrate the annual production for Real-Time Surveillance Video Analytics, as we can observe from table 3 the first articles published in this field start in 1992, but the real production started from 2003 and stile increased till 2023, from 2012 to 2023 we have just one publication per year,

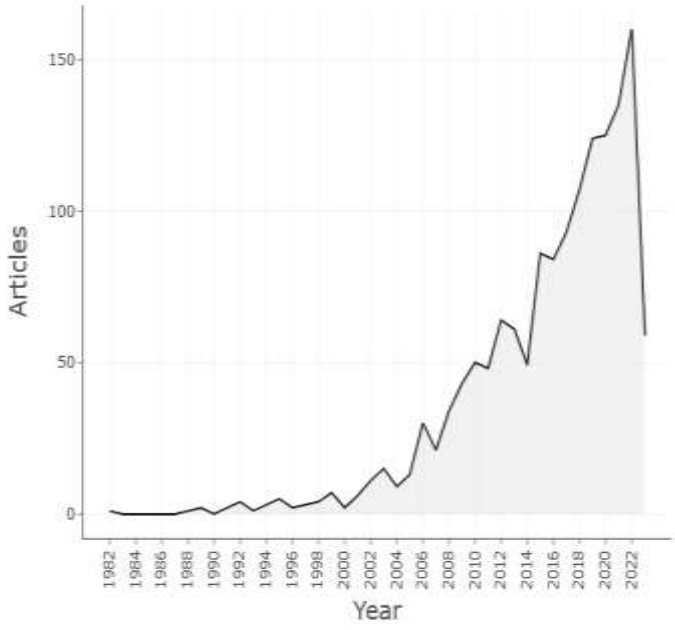

Figure 2: Annul production

Authors' Production over Time

In figure 3 we demonstrate the authors' production for every year from 1998 to 2023, as we can observe in figure LI X have a large amount of citation from

2017 tile 2023, based on this analysis we can say WABG J is the best author during last five years.

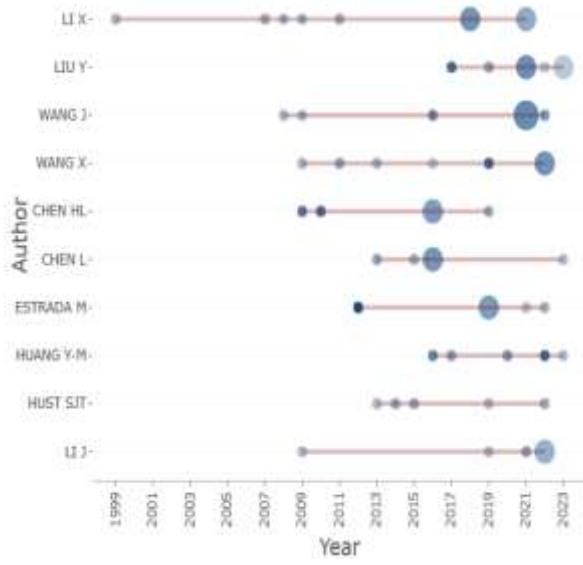

Figure 3 Authors' Production over Time

Co-occurrence author keywords

In this section we illustrated the keywords co-occurrence analysis as we can see in figure 4 we have four basic nodes and every node represents a different color, each node of the network represents a keyword and the basis nods are Hier education in red color, learning strategy purple color, Student blue color, and entrepreneurship in orange color. Every node indicates the occurrence of the keyword, in the Student intension towards entrepreneurship development.

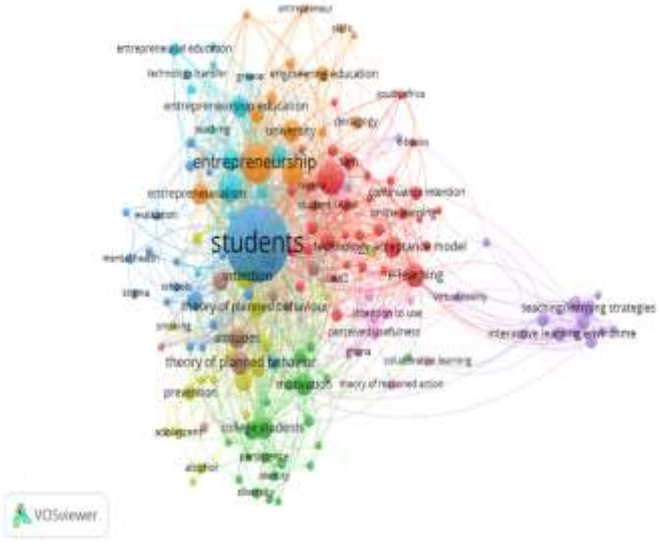

Figure 4: Co-occurrence author keywords

Citation analysis Country

In this analysis we will demonstrate the link between the country, The link among the nodes appears as the relationship between authors, so the thickness of the link signals the occurrence of citations between the authors, consequently, the thicker line represents the strong relationship among the authors, while the thinner line represents the weak relationship between the authors, as we can see there is a high link between USA with Canada, UK, China, France, and Ireland. Although, there is an insignificant relationship between South Korea, Australia, Ireland, Taiwan Hong Cong, and Canada.

Figure 5: Citation analysis

CONCLUSION

This paper determines to review research in the Student intension towards entrepreneurship development and its insights and overview through science mapping review methodology. This paper addresses the following research questions:

RQ 1: Which authors, institutions, and journal articles from emerging regions have significantly influenced Student intension towards entrepreneurship development over the past 25 years?

R.Q 2: What does the social structure of the knowledge base have on Student intension towards entrepreneurship development?

R.Q 3: What topics in Student intension towards entrepreneurship development literature have been studied with the most significant frequency and are currently attracting the most incredible attention?

we illustrate the annual production for Real-Time Surveillance Video Analytics, as we can observe from table 3 the first articles published in this field start in 1992, but the real production started from 2003 and stile increased till 2023, from 2012 to 2023 we have just one publication per year. While, we

demonstrate the authors' production for every year from 1998 to 2023, as we can observe in figure LI X have a large amount of citation from 2017 tile 2023, based on this analysis we can say WABG J is the best author during last five years. In addition, we illustrated the keywords co-occurrence analysis as we can see in figure 4 we have four basic nodes and every node represents a different color, each node of the network represents a keyword and the basis nods are Hier education in red color, learning strategy purple color, Student blue color, and entrepreneurship in orange color. Every node indicates the occurrence of the keyword, in the Student intension towards entrepreneurship development.

we demonstrated the link between the country, The link among the nodes appears as the relationship between authors, so the thickness of the link signals the occurrence of citations between the authors, consequently, the thicker line represents the strong relationship among the authors, while the thinner line represents the weak relationship between the authors, as we can see there is a high link between USA with Canada, UK, China, France, and Ireland. Although, there is an insignificant relationship between South Korea, Australia, Ireland, Taiwan Hong Cong, and Canada.

REFERENCES

Abebe, A., & Kegne, M. (2023). The role of microfinance institutions on women's entrepreneurship development. *Journal of Innovation and Entrepreneurship*, *12*(1). https://doi.org/10.1186/s13731-023-00285-0

Alawamleh, M., Francis, Y. H., & Alawamleh, K. J. (2023). Entrepreneurship challenges: the case of Jordanian start-ups. *Journal of Innovation and Entrepreneurship*, *12*(1). https://doi.org/10.1186/s13731-023-00286-z

Ayinaddis, S. G. (2023). Socio-economic factors affecting women's entrepreneurial performance in MSEs in Bahir Dar City, Ethiopia. *Journal of Innovation and Entrepreneurship*, *12*(1). https://doi.org/10.1186/s13731-023-00289-w

Cordes, D. L., & Marinova, D. (2023). Systematic literature review of the role of e-commerce in providing pathways to sustainability for poverty alleviation in Sub-Saharan Africa. *Discover Sustainability*, *4*(1). https://doi.org/10.1007/s43621-022-00109-3

Ilyas, M., ud din, A., Haleem, M., & Ahmad, I. (2023). Digital entrepreneurial acceptance: an examination of technology acceptance model and do-it-yourself behavior. *Journal of Innovation and Entrepreneurship*, *12*(1), 1–19.

https://doi.org/10.1186/s13731-023-00268-1

Furth, M. T., & Rutebemberwa, E. (2023). Using telehealth to support community health workers in Uganda during COVID-19: a mixed-method study. *BMC Health Services Research*, *23*(1), 284. https://doi.org/10.1186/s12913-023-09217-w

Magbondé, K. G., Mignouna, D., Manyong, V., Adéoti, R., & Sossou, A. O. (2023). Impact of informal institutions on youth agribusiness participation in Southern Benin. *Agricultural and Food Economics*, *11*(1), 1–26. https://doi.org/10.1186/s40100-023-00250-1

Teachers' Perspective on the effectiveness of Phonics-based Instruction in Reading, Spelling and Pronunciation Fluency among Yemeni Primary EFL Learners

Ameen Ali Mohammed Algamal[1]

Maha Abdeh Saleh Altairi [2]

[1]Assistant Professor & Head, Department of English Language, Faculty of Education, Thamar University, Yemen
Director of Thamar University English Language Center
Orchid ID: 0000-0003-1824-5797
[2] Independent Researcher
Correspondence: Dr. Ameen Ali Algamal, Teaching Faculty, Department of English Language, Faculty of Education, Thamar University, Republic of Yemen. B.O. Box: 87246 (Thamar University-Yemen), E-mail: ameenalgamal@tu.edu.ye

ABSTRACT

The present study aimed at exploring teachers' perspective on the effectiveness of phonics instruction in improving reading, spelling and pronunciation fluency among Yemeni primary English as foreign language (EFL, hereafter) learners at school level. The study sample comprised 33 EFL teachers from Dhamar City's schools in Yemen giving their views and sharing their experience about the efficacy of phonics-based instruction. The participants were asked to respond to a questionnaire consisting of 15 statements developed by the researchers. The data obtained were analysed using the SPSS program to display descriptive statistics quantitatively. The study results revealed that teaching phonics is so crucial for the development and improvement of learners' reading fluency, spelling mastery, and pronunciation proficiency. In addition, the study results revealed that phonics teaching contributes in reducing and/or eliminating the learners' errors in spelling, reading, and pronunciation. The findings highlighted the importance of integrating phonics teaching in the curricula of English teaching from an early stage at Yemeni schools.

Keywords: phonics; phonics-based instruction; reading, spelling and pronunciation; Yemeni EFL learners; teachers' perspective

1. INTRODUCTION

Phonics refers to the relationship between letters and their corresponding sounds. It is a part of learning how to read efficiently (Xu, 2018). In addition, phonics is a phonetic system for students to learn English reading, spelling, and pronunciation. Its core task is to establish the correspondence between letter and sound. Students can read a word by looking at the letters that make the word without the aid of phonetic symbols (Sun, 2019). English teachers have experimented with and put into practice a range of strategies to help pupils improve their speaking, listening, reading, and writing skills. However, teachers do not spend enough time teaching students helpful spelling and pronunciation rules that would enable them to recognize words more rapidly (Smith, 2021). For El-Sherify (2001), the teaching of reading by using language sounds is referred to 'phonics instruction'. He added that teachers may adapt the teaching of sounds before the teaching of letters in order to generate better pronunciation for words and even sentences.

Teaching phonics to young EFL students has been proven to be an effective method for improving their language skills in several studies Xu's (2018), Yin (2018), Cao (2017), Nasrawi & Al-Jamal (2017), Tomás (2016), Beltrán-Herrera, Andrade-Chávez, and lvarez-Rojas (2016), Wang (2015) Zang (2014), Martinez (2011), and Fletcher's (2009). Reading phonograms is crucial in the early stages of English learning. It can improve spelling

abilities in children and help them become more phonetically conscious. By encouraging students to read a lot, the phonics method can help them develop more fluent reading skills and expand their vocabulary. Native English speakers who have mastered English phonics can read the various letter combinations effortlessly as long as they read words and sentences. Students learn to listen before starting primary school in English-speaking countries (Pham, 2021).

Native English speakers get accustomed to the sounds of words before learning phonics. On the contrary, students in non-English speaking nations, like Yemen, do not have a suitable language environment to learn English language because they do not frequently hear and speak it in their own environment. The introduction of phonics should be done methodically by teachers in these countries. For instance, students are taught the alphabet before letter sounds in the early stages of primary school. Students study letter sounds, short vowels, and long vowels after which they learn how to combine the letters into simple words (Wright, 2016).

According to El-Sherify (2001), teachers who teach English to Arabs usually use three steps when teaching reading to their students. First, they start by teaching the shape of the letter. Then they introduce the name of the letter, and finally (and least importantly to the teachers) they teach the sound of the letter. Here, for example, the consonant letter [t] has the shape *t*, the name /ti:/, and the sound /tə/(as in the initial part of the words 'tan and tank'. Similarly, the vowel letter [i] has the shape *i*, the name /aɪ/, and the sounds /ɪ and aɪ/ (as in the words 'sit' and 'site', respectively). In El-Sherify, there are two modes to teach word reading. First, teachers may begin by teaching the single sounds (phonemes) of the word and then move to the whole word as in /pə - ʊ - tə/ for the word 'put', and this is called synthetic phonics. On the other hand, teachers may begin by teaching the whole word and then move to the teaching of its sounds as in the word 'flat' /fə - lə - æ - tə/, and this is called analytic phonics.

2. REVIEW OF LITERATURE

When studying English, students get a better gain from the usage of phonics. There is no denying that phonics instruction in primary school can considerably enhance students' reading skills. In order to investigate how English phonics instruction is effective in primary schools, Xu (2018) conducted an experiment. He selected 78 students from a primary school and divided them into an experimental group and a control group. Students in the experimental group got training in phonics instruction. The pupils in the controlled group received standard English teaching based on textbooks. According to the results, the experimental group's students greatly enhanced

their reading and spelling abilities. Pupils developed a better understanding of how to pronounce English words.

To avoid having students develop bad pronunciation patterns, teachers should take advantage of young students' enthusiasm to speak and the fact that they are less self-conscious about making mistakes. School years might be the perfect time to improve learners' pronunciation abilities and prepare them to use English as an international language more confidently and fluently at higher levels, when students tend to feel more self-conscious about their errors (Ioup, 2008). Here, the phonics teaching can aid develop the basic language skills among learners such as the proper articulation and spelling of words.

Furthermore, it has been suggested that younger students could achieve a higher level of skill in EFL pronunciation than more experienced students. Lower-order skills, like pronunciation, are reportedly best learnt at an early age. In addition, the author notes that a young learner is better in learning second language (L2) phonology in accordance with the research done by Ioup (2008) on the association between age and the acquisition of L2 phonology. Lightbown & Spada (2021) emphasized that a number of elements, such as phonetic aptitude, level of exposure to L2, individual cognitive variables, or interference with first language (L1), must be taken into account. Regarding the last element, it is obvious that the native language impact on speech sound generation has a significant impact on the production of L2 sounds.

By combining phonemic awareness, phonics education encourages learners to become more conscious of the relationship between sounds and letters. Phonics training, according to Doty et al. (2015), teaches students how to relate the letters of written language to the sounds of spoken language. Although phonics instruction is typically used to advance literacy in the L1, there are instances of this approach being employed in EFL classes to advance either reading or pronunciation abilities. Phonics training is used in EFL situations to aid students' reading comprehension and pronunciation.

Corresponding to this, Tomás (2016) conducted a study using 25 phonemes and phonics teaching. 50 children from Spain, aged 5 and 6, participated in the study. Verifying whether there were variations in how English sounds were perceived and produced after phonics instruction was one of the goals of that study. The outcomes showed that pronunciation was enhanced and phonological sound production was aided by teaching phonics. Also, a study by Beltrán-Herrera, Andrade-Chávez, and lvarez-Rojas (2016) found that young EFL learners who received phonics training made progress in their pronunciation. This study focused on the contrast of sounds /θ/-/ð/ and /**I**/-/**I**:/ and included 13 participants, aged 10 to 12 years old.

Martinez (2011) also conducted research on the use of explicit phonics instruction in EFL classrooms with the goal of determining whether it had a good impact on the literacy of the 85 participants who were first-graders enrolled in a bilingual school. It was concluded that reading with the help of using phonics helped young learners pronounce words more clearly. Moreover, Nasrawi & Al-Jamal (2017) looked into how the Jolly Phonics system affected reading abilities. 58 young Jordanian EFL learners in the first grade took part in the study. Five weeks of phonics training were given to half of the participants, while the other half received the conventional approach. The experiment group demonstrated enhanced reading abilities.

Ultimately, phonics-based instruction for beginning EFL students shows significant improvement in word reading and spelling. In order to determine if phonics instruction can effectively increase the vocabulary, reading, and spelling skills of primary school kids, Zang (2014) investigated that. He wanted to find out whether phonics instruction might increase children' enthusiasm in learning new words. 77 third-grade children were chosen, and they were split into an experimental group and a control group. Students in the experimental group received instruction in phonics. 18 weeks were spent on the experiment. There are still certain restrictions even though the findings indicated that phonics instruction was substantially more successful in primary schools.

3. EFFICACY OF TEACHING PHONICS

Teaching phonics increases pupils' motivation to learn. Also, it enhances their reading and word recognition skills. Students can spell and write words with ease by deciphering words that adhere to the spelling rules. To determine if the phonics teaching approach is superior to the conventional vocabulary learning method, Yin (2018) used pre-tests, post-tests, questionnaires, and an interview method. She used two concurrent classes that were split into the experimental group and the control group for this experiment. In the two groups, there were 74 second-graders. This research took a full semester. According to the findings, experimental group students outperformed control group students in vocabulary, spelling, and learning interest.

In terms of acquiring English reading, Cao (2017) noted that phonics instruction is superior to the conventional letter teaching method. He argued that teaching phonics was essential to learn how to read in English. He added that phonics instruction can boost kids' learning enthusiasm and confidence in addition to their English reading and spelling skills. Moreover, Wang (2015) demonstrated how phonics instruction is a successful vocabulary-teaching approach in Chinese primary schools. He carried out the study with the aim to investigate how teaching phonics to elementary school kids is

effective. He chose 50 pupils from a local elementary school. He assigned 25 pupils as an experimental group and the other 25 as a control group. The study took 120 hours to complete across all of the classes. The study demonstrated how teaching phonics to primary school pupils can aid them in reading and writing English words.

From the above studies and the numerous scientific investigations and research, it can be clearly stated that kids who learned phonics at a younger age knew more than those who did not. Learning phonics can help pupils become more proficient readers and spellers of English. Teaching phonics is an effective strategy for helping new students learn English.

4. STRATEGIES FOR TEACHING PHONICS TO EFL STUDENTS

The primary goal of the English phonics teaching approach is to help children become more proficient readers and spellers by teaching them the spelling of words and the sounds that the letters make. The systematic teaching of reading and spelling through the use of appropriate activities is a hallmark of high-quality phonics instruction. The alphabet's 26 letters of English language can be used in various ways to represent the 44 phonemes that make up this language. Modeled, guided, and independent teaching are three suggested phonics teaching methods. These might be better suitable for EFL beginners.

4.1 Modeled Teaching

A planned, systematic sequence for teaching phonics is used by the teacher to explicitly and directly teach new phonics abilities and ideas. The teacher leads, explains, and models the phonics ability that has to be acquired while also thinking aloud about the learning procedures involved. The teacher builds on existing knowledge of phonics, activates prior knowledge of phonics, provides new phonics vocabulary, and scaffolds pupils in tangible and obvious ways (Fletcher, 2009).

This method is used by teachers to introduce students to new phonics skills and ideas, such as phonics connections and single letter-sound identification. This approach is more instructor-led. With the instruction of the teacher, students pick up new phonetic knowledge. For instance, a teacher can assign the letter dance, a fun activity for younger children. The letter dance can let students get the 26 letters' basic sound quickly. For example, the letter "A" makes the short vowel sound /æ/ and letter "B" makes the sound /b/. Students can quickly learn the fundamental sound of the 26 letters by dancing the letters. After children get the letter sound, a teacher explains how to use the letter sound to read and spell. The segmenting CVC words are available for use by students. The teacher can utilise flip cards in this phase to instruct children on reading and spelling. Children should be able to read CVC words and pronounce the letter sounds (ibid).

According to Fletcher, the teacher can use word frames to model. For example, the word “cat” should be broken into individual sounds, e.g. /k/ /æ/ /t/. The teacher hands out flip cards to the kids while simultaneously writing the base short vowel letter on the board. Pupils can be grouped into pairs or small groups, and they can each take turns saying the word and the individual letter sounds. Turning the cards over allows students to create more CVC words such as 'put, bus, run, that, get, chat, sad, fan, yes, etc.'. Students can take notes on paper if they can write the words. The teacher should carefully read each word that the kids write when they are asked to write some words. Students occasionally use words that are not actually words. Because some words do not follow the phonics rules, the teacher should also pay attention to how the words are pronounced.

A teacher can next use modeling to teach letter combinations in the following stage. The teacher can choose some words that include sounds that the pupils are already familiar with before teaching the letter combinations and unfamiliar words. The instructor can assist pupils in creating a word form. The emphasis word is written by the teacher in the central circle. Students draw as many circles as they can and write words with comparable letter combinations. Students can use the word web to help them associate words with one another, such as 'sack, sick, back, pack, etc.'. In this situation, the teacher can also teach the students CCVC vocabulary as in 'stop, flat, trip', plan, etc.'.

4.2 Guided teaching

With guided teaching, the teacher still follows a set plan and procedure but gives the students additional authority. The new phonological knowledge that was taught during the modeled teaching is the main topic of the literacy exchanges. The instructor is aware of what is expected of them based on student assessment data and understanding of the phonics learning sequence. The teacher corrects mistakes, gives feedback, scaffolds pupils with just enough support to succeed as needed, and gives specific explanations when necessary. With their phonics lessons, the learners are more actively engaged and hands-on, discussing, demonstrating, arranging, practicing, and applying what they already know and can accomplish (Fletcher, 2009).

Students who require guided support can practice and apply new phonics skills and concepts with the aid of guided teaching from teachers. Teachers can offer feedback, correct mistakes made by pupils, and assist with learning if necessary. For instance, students should initially practice reading new words with each other when practicing in groups. Teachers should support their students if they ask for assistance. In this step, the teacher can allow pupils play word bingo game to practice. The words with various combinations of the recognized sounds are used to create some sets of bingo word grids in the word bingo game. A teacher yells out words using various

combinations of the recognized sounds while each student has a card. As the teacher calls, the students pay attention and, if the word is on their card, they place a counter on it. The winner is the first student to correctly spell every word on their card. The victor takes over as the caller. Students can then choose a fresh word grid for a fresh game. Some pupils may need step-by-step instructions when playing this game because they are unfamiliar with it (ibid).

Based on Fletcher, the "guess the word" game is another enjoyable one. The pupils are asked to create new words using the vowel digraph "ai" after the teacher writes a word on the board, such as 'rain, train, main, brain, pain, tail, mail, nail, snail, explain'. When assisting pupils in reading, teachers should encourage them to make use of their blending skills. As they read, students should double-check their facts using different sources.

4.3 Independent Teaching

For students to actively design, control, regulate, examine, evaluate, and alter themselves in the application of their phonics learning, independent instruction is a construction process. Just offering a choice of activities will allow pupils to self-monitor. Students illustrate how they may use phonics to master various areas of English by participating in class activities (Fletcher, 2009).

When kids only require a little assistance in using and demonstrating new phonics skills, teachers will employ this tactic. At this stage, pupils are already aware of when and where to apply their phonics knowledge. This tactic is frequently used in reading classes. Students who have mastered phonics can use those skills when reading texts. Differentiated assignments and more opportunities for student self-direction and self-monitoring should be offered as needed by the teacher. By putting their phonics knowledge into practice, practicing, applying, and reflecting, students can gain more control. Students demonstrate their ability to apply their phonics knowledge to various contexts and circumstances (ibid).

Fletcher suggests that a teacher should ensure that students really employ their phonics knowledge when reading or writing. For instance, it is possible to assign reading assignments to groups of pupils who must read picture books. They are able to read the book independently. They should try to ask their companions or fellow students for assistance if they see words they are unable to read. When using this approach, teachers are not greatly involved in the process (ibid).

5. THE PROBLEM

Phonics teaching promotes the association between letters and sounds. Yemeni schools offer inadequate instruction in English, and that is also noticeable among many students who even join English departments in

which the fundamentals of pronunciation and spelling are the resinous challenge they face. Therefore, this research seeks to investigate the effectiveness of using phonics teaching as a method to develop EFL learners' phonemic awareness of English sounds in order to enhance their pronunciation skills in terms of phonemes perception and production and be proficient in reading and spelling.

6. STUDY OBJECTIVES

The present study intends to achieve the following objectives:

1. To identify the effectiveness of teaching phonics to EFL beginning students from their teachers' point of view in Dhamar city schools.
2. To identify the effective strategies for teaching phonics and discuss the methods in which they can be implemented.

7. Study Questions

1. What is the effectiveness of teaching phonics to EFL beginning pupils in Dhamar city schools?
2. What are the effective strategies for teaching phonics to beginning EFL pupils in Dhamar city schools?

8. STUDY SIGNIFICANCE

To master the four English skills and interact with English native speakers, EFL students should study and master English phonics. Students who study phonics will be able to speak clearly and pronounce words properly. This study is beneficial since it offers Dhamar city school students, and others schools in and outside the Republic of Yemen, useful teaching methods for teaching English phonics. It is also helpful to instructors, educational institute administrations, and students. Moreover, the study findings can be of help to teachers to teach English phonics more easily and enhance their understanding of and ability to produce sounds.

9. METHODOLOGY

9.1. Study Approach

The present study utilised the descriptive, analytical approach and survey method. The data were collected through a questionnaire, developed by the researchers, to probe the teachers' views on the effectiveness of teaching phonics to Yemeni primary EFL learners at 6 selected schools in Dhamar City. These schools were Almithaq School, Alwahdah School, Alqimmah Private School, Kitab School, Alnahdhah School, and Aljawdah School. The results were analysed statistically and qualitatively.

9.2 Population and Sample Size

The population of this study was limited to the teachers of English language at 6 selected schools in Dhamar city in the second semester of the school year 2022/2023. The sample of the study included 33 EFL teachers. The table and figure below show the sample of the study based on their gender. The female sample was more than the males (60.6%) because they were the majority of the teachers in the city, especially for beginning level students.

Table 1. Participants' Gender

Gender	Frequency	Percent
Male	13	39.4
Female	20	60.6
Total	33	100.0

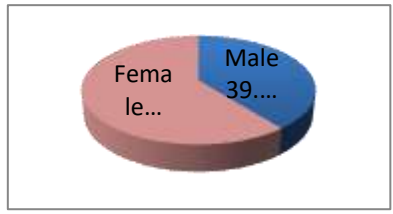

Figure 1. Participants' Gender

The table and figure below show the years of experience of the study sample who were English language teachers in Dhamar City, Yemen. Most of the participants (63.6%) had 1 – 4 years of experience. 33.3% had an experience of 5 – 8 years. Only 3% had an experience of 9 – 12 years.

Table 2. Participants' Years of Experience

Years of Experience	Frequency	Percent
1 - 4 years	21	63.6
5 - 8 years	11	33.3
9 - 12 years	1	3.0
Total	33	100.0

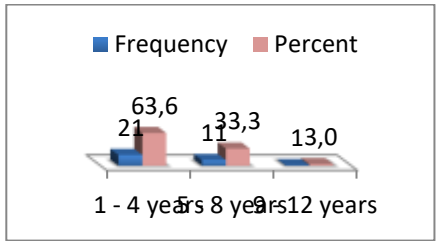

Figure 2. Participants' Years of Experience

9.3 Instrument and Data Analysis Technique

The researchers developed the instrument of the study, a questionnaire, in the form of multiple-choice questions for the teachers at Dhamar city schools in Yemen. The questionnaire was designed to investigate the effectiveness of teaching phonics to beginning EFL students from the point of view of English language teachers at 6 selected schools in Dhamar city. The questionnaire was designed based on extensive survey of related literature. The questionnaire was in a three-point on the Likert

10. ANALYSIS OF THE RESULTS

The first statement in the questionnaire stated that "Building strong phonics skills is key to strengthen my pupils' language skills". As the table above shows, 84.8% of the participants responded with an agreement to the statement. This indicates that the teachers in Dhamar City believe that building strong phonics skills among young leaners is so crucial to develop their skills in reading, spelling and pronunciation fluency.

The second statement in the questionnaire read "Teaching phonics is essential for learners to read unfamiliar words by themselves". The highest percentage of all the responses for this statement was "Agree" 72.7%, followed by "not Sure" 15.2%. This means that phonics is very essential for the EFL learners to read unfamiliar words with ease.

The third statement read "Phonics instruction provides learners' with letter-sound knowledge". As expected, 78.8% of the participants agreed to the statement. This emphasizes the idea that teaching phonics grants learners with letter-sound knowledge, which in turn helps them master the other skills such as reading properly, having accuracy in spelling, and having efficiency in pronunciation.

In the fourth statement, which stated "Teaching phonics makes sound to symbol recognition faster", 69.7% % of the participants agreed to the statement. They reported that acquiring phonics makes students comprehend sounds and symbols faster, which in turn leads to better pronunciation of words and identification of stress, as well.

The fifth statement was about the effect of phonics on reading and writing skills. The statement read "Phonics is essential for learners to become successful readers and writers". 75.8 % of the participants agreed to the statement. However, 18.2 % were not sure. This shows the necessity of teaching phonics for better reading and writing among learners.

In the sixth statement, the researchers discussed breaking the words into parts to be easy to pronounce. The statement read "Phonics helps students break the words and say them easily and correctly ". 72.7 % of the participants agreed to the statement, while 18.2 % were not sure. This indicates that phonics is so crucial to help pronounce words correctly by dividing them into segments.

The stage at which learners can learn phonics is discussed in statement 7, which stated "In the early years at school, children can learn phonics better". The participants responded with 45.5% agreement, 42.4% were uncertain, and only 12.1% disagreed with the notion. This shows that age is not important. All people can learn phonics at any age, but earlier is better.

With regard to investigating the effectiveness of phonics instruction on developing language skills such as listening and speaking, statement 9 was developed which read "Phonics improves the students' skills in listening and speaking". As shown in the responses, nearly two-third of the teachers (72. 73%) reported that phonics is a helpful strategy that lead to improving a learner's comprehension in listening and also the production through speaking intelligibly.

The statement ninth read "Phonics is of great help for EFL learners" had 75.8% of the participants' agreement. Therefore, most of the participants believed that almost all EFL students need phonics as it helps them read and pronounced well.

As soon as learners master phonics, their spelling mistakes will be reduced. This notion was presented in statement 10 of the questionnaire which read "When students master phonics, their spelling mistakes will be reduced". 57.6% of the participants thought so. This reveals that the obstacle of spelling mistakes can be reduced by having learners study and master the skill of phonics.

In the eleventh statement of the questionnaire, the researchers included one of the possible recommendations for teaching phonics. The statement stated that "Phonics should be part of the English teaching process". In this case, 72.7% of the participants agreed that phonics should be integrated into the English teaching curriculum. Therefore, it ought to be involved in the English curricula of all stages.

Statement 12 read "When teachers focus on phonics, the learners' mistakes will be eliminated". 43.2% of the participants replied with agreement. However, 36.4% were not sure. This shows that teaching phonics, to some extent, eliminates students' mistakes in both spelling and pronunciation of words.

"Parents should master the skill of phonics to assist their children" was discussed in statement 13. 33.3 % of the participants agreed to the statement, 39.4% were neutral and 27.3% disagreed. This indicates that parents should have knowledge on phonics to help their children master phonics.

Statement 14 stated that "Children should be exposed to phonics from an early age". In their responses, 48.5% of the participants showed their agreement to the statement, 36.4% were not sure, and 15.2% disagreed. This shows that children can be exposed to phonics at an early age and stage.

Finally, the last statement in the instrument which read "Mastering phonics is the first step towards better language learning" is met by 78.8% agreement. This shows the importance of phonics in language learning and

the benefits that learners can generate through having solid knowledge in phonics.

11. DISCUSSION OF THE RESULTS

The study findings indicated that phonics can have a significant, positive impact on students' language skills. Phonics instruction helps students develop letter-sound knowledge, which is an essential foundation for reading and writing. By understanding the connection between letters and sounds, students are better equipped to sound out unfamiliar words, leading to improved reading comprehension and vocabulary acquisition. In addition to reading and writing, phonics instruction can also improve students' listening and speaking skills. By learning how to pronounce words correctly, students are better able to communicate effectively and confidently. Furthermore, mastering phonics can help eliminate mistakes and reduce spelling errors, improving overall written communication.

The findings suggested that phonics should be included as an essential part of the curriculum in the beginning stages at schools and language institutes. This is because phonics instruction can provide students with a strong foundation in language skills, which can have a positive impact on their academic performance and future success. Moreover, the findings highlighted the importance of parental involvement in phonics instruction. Parents can help their children practice phonics at home, reinforcing the skills taught in the classroom and helping to ensure that their children are able to master phonics and develop strong language skills.

The findings of the present research are in line with the results of many previous studies, which dealt with the importance of teaching phonics to EFL learners, such as Sun (2019), Xu (2018), Cao (2017), Wang (2015), Krashen (2011), and Martinez (2011). The findings of this study provided strong evidence that phonics can be an effective tool for improving learners' language skills. To maximize the benefits of phonics instruction, it should be included as part of the curriculum, and parents should be encouraged to support their children's learning at home. Ultimately, mastering phonics is an essential first step towards better language learning, and it can provide students with the skills and confidence they need to succeed both academically and in their future endeavors.

12. CONCLUSION

The present study aimed at investigating 33 teachers' perspective on teaching phonics to EFL learners at primary schools in Dhamar city, Yemen. The results revealed that phonics is a crucial tool for strengthening students' skills in many language areas. Firstly, phonics helps students read new words with ease. By learning the sounds that each letter makes, students can

sound out unfamiliar words and understand their meanings. This also provides them with letter-sound knowledge, which is essential for reading and writing in English. By understanding the sounds that each letter makes, learners can spell words correctly and write with confidence. This also leads to improved pronunciation, as learners learn to say words correctly by sounding them out. In addition, phonics improves listening and speaking skills. By learning the sounds of each letter, students can better understand spoken English and communicate more effectively. This also helps eliminate mistakes in both speaking and writing, leading to better overall communication. Finally, phonics reduces spelling mistakes. By understanding the sounds of each letter, students can spell words correctly and avoid common spelling errors. To put into a nutshell, this study showed that teaching phonics to beginning EFL students in Dhamar schools in Yemen is incredibly important. It helps strengthen linguistic skills in reading, writing, speaking, and listening, while also reducing mistakes and improving overall communication. The findings of this research would be of help and encourage more teachers to incorporate phonics into their lessons and help their students succeed in learning English effectively and effortlessly.

REFERENCES

Beltrán-Herrera, M. A., Andrade-Chavez, L.L., & Álvarez-Rojas, D. F. (2016). Pronunciation improvement in EFL young learners through phonics instruction, *Revista Praxis,* 12, 52-62. DOI: http://dx.doi.org/10.21676/23897856.1847

Cao, M. (2017). An analysis of phonics teaching in mainland China. *Journal of Language Teaching and Research, 8*(2), 286-290. DOI: http://dx.doi.org/10.17507/jltr.0802.09

Doty, S. J., Hixson, M. D., Decker, D. M., Reynolds, J. L., & Drevon, D. D. (2015). Reliability and validity of advanced phonics measures. *Journal of Psycho-educational Assessment, 33*(6), 503-521. DOI: https://doi.org/10.1177/0734282914567870

El-sherify, S. (2001). A Handbook of teaching English as foreign language. Dar Alkhareji for Publishing and Distributing. Riyadh.

Fletcher, T. (2009). *Literacy teaching guide: Phonics*. New South Wales Department of Education and Training. Retrieved on October 14 2023 from https://www.scribd.com/document/216323480/1-Literacy-Teaching-Guide-Phonics

Ioup, G. (2008). Exploring the role of age in the acquisition of a second language phonology. In J. G. H. Edwards & M. L. Zampini (Eds.), *Phonology and second language acquisition 36*, (pp. 41-62). Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/sibil.36.04iou

Krashen, S. & Hastings, A. (2011). Is phonemic awareness training necessary in second language literacy development? Is it even useful? *International*

*Journal of Foreign Language Teaching, (7)*1, 130. DOI: https://doi.org/10.12973/eu-jer

Lightbown, P. M. & Spada, N. (2021). *How languages are learned?* (5th ed.). Oxford: Oxford University Press. Retrieved on October 14 2023 from https://books.google.com/books?id=7GUzEAAAQBAJ&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

Martinez, A.M.M. (2011). Explicit and differentiated phonics instruction as a tool to improve literacy skills for children learning English as a foreign language. *Gist Education and Learning Journal*, 5, 25-49. https://files.eric.ed.gov/fulltext/EJ1062615.pdf

Nasrawi, A., & Al-Jamal, D. (2017). The effect of using jolly phonics on Jordanian first grade pupils' reading. *International Online Journal of Education and Teaching (IOJET), 4*(2), 106-119. http://iojet.org/index.php/IOJET/article/view/172/155

Pham, T. (2021). The effectiveness of phonics in EFL teaching: A literature review. *Journal of English Language Teaching, 8*(2), 34-46.

Smith, J. (2021). The importance of spelling and pronunciation rules in English language teaching. *Education Today*, *34*(2), 45-52.

Sun, S. (2019). *How to teach phonics to EFL students in primary schools in China*. [Doctoral dissertation, University of Wisconsin-Platteville].

Tomás, J. H. (2016). *Didáctica de los métodos fónicos para la enseñanza de la lectura del Inglés como Lengua extranjera en los primeros niveles de enseñanza primaria (Didactics of phonic methods for teaching reading of English as a foreign language in the first levels of primary education)*. [Master's thesis, Universidad de Murcia] Murcia, Spain. https://oa.mg/work/2488098741

Wang, B. Y. (2015). How to teach phonics. *English Language Learning, (4)*7, 177.

Wright, C. (2016). Why we have to teach phonics to children in China. *English Language Learning*, *(3)*6, 43-47.

Xu, S. W. (2018). *An empirical study on the application of phonics to primary English teaching*. Jiangsu Normal University.

Yin, L. L. (2018). *The application of multimodal resources in phonics teaching in primary schools, (9)*12, 214-242.

Zang, P. (2014). Phonics: A double-edged sword in English class in primary schools. *Journal of Weekly Learning*, (19) 136.