International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Testing NEP 2020's Flexible Pedagogy: A Randomized Controlled Trial on Numeracy in Early Childhood

Sandeep Lopez[1], Tongle Govind[2]

[1,2]Research Scholar, Department of Education, Regional Institute of Education (NCERT), Mysuru

Abstract:
The study employs a Randomized Controlled Trial (RT) method at Mysore, Karnataka, with the goal of comparing numeracy outcomes between children exposed to flexible pedagogy based on NEP 2020 and students following traditional pedagogy. We focus on the age group of 4–6 years in early childhood education centres.
This is a two-group, randomized controlled trial with an experimental group receiving a flexible pedagogy-based numeracy intervention and a control group for conventional numeracy instruction. NEP 2020 have a focus on learner-cantered strategies, play based learning, and personalized tasks which will be integrated via the intervention. We then use age-appropriate standardized tools to conduct pre- and post-assessments of general numeracy skills to measure growth in number recognition, counting, and basic arithmetic.
The preliminary results show significant improvements in numeracy skills among the children who received the experimental intervention as compared to the control group. And there is some evidence that flexible pedagogy supports the development of early numeracy and enhances student engagement and participation in learning activities.
The pedagogical flexibility of NEP 2020 emerged as a potential solution for improving early childhood numeracy, the research concludes. This will provide useful knowledge about how individualized and learner-cantered teaching practices may affect young learners, which can influence education policies and future teaching practices in India's schools.

Keywords: NEP 2020, Flexible Pedagogy, Randomized Controlled Trial (RT), Numeracy, Early Childhood Education, Pedagogical Innovation, Intervention.

Introduction

Contextual Background

To bolster this evolving educational landscape, there is a national need to add flexibility and adaptability to our teaching practices through new educational avenues — as envisioned by the National Education Policy (NEP) 2020 by the Government of India. Flexible pedagogy is one of the foundational elements of NEP 2020, especially in relation to early childhood education, which must prioritize children's overall growth over rote learning. The policy promotes learner-cantered approaches that are responsive to the diversity of children, and which promote creativity, critical thinking, and the skills to solve problems. NEP 2020 focuses on preparing children for lifelong learning and creating a personalized learning experience through an interactive and practical experience. The first of its kind study aims to assess whether flexible

pedagogical methods aid in the enhancement of numeracy skills among young learners in Mysore, Karnataka.

Importance of Numeracy

Basic counting, number recognition, and other basic mathematics is essential for teaching children numeracy skills, which are foundational for building mathematical cognition and future success in school. This is when children develop the brain architecture for subsequent mathematical fluency in the later years. Having good math skills is essential not just for students to do well academically, but also to solve problems and make decisions in everyday life. Studies have shown that strong numeracy skills in early childhood are correlated to better performance in school and later success in the workforce. Therefore, an exposure to numeracy from a young age is crucial because it presents the base for a child to attain most if not all of his or her qualifications.

Rationale for the Study

This period and the implementation of NEP 2020 offers a rare opportunity to study the effect of flexible pedagogy on development of numeracy in early childhood education. Mysore as a diverse demographic and academic territory is a suitable premise to evaluate how flexible pedagogical strategies can be implemented in the classroom. NEP 2020, given its scope, is a transformative intervention, yet the impact of flexible pedagogy on numeracy skills is relatively unexplored in Indian early childhood settings. Such a study will shed light on how feasible and effective it is to implement the recommendations of NEP 2020 in a RTE context.

Research Objectives

The key aim of this study is to assess if such improvement exists through the impact of flexible pedagogy as per NEP 2020 on the numeracy skills of children at the pre-school level of education. Using purposefully gathered empirical data, the study seeks to examine the impact of the flexible pedagogical approach on early numeracy development, specifically comparing outcomes of children exposed to flexible pedagogy and traditional methods of numeracy instruction.

Research Questions

1. This study is guided by the following key research question: How does numeracy-friendly pedagogy influence numeracy skills in ECE? Other sub questions include:
2. Is the effect of flexible pedagogy on numeracy improvements bigger than the effect of traditional teaching?
3. How might flexible pedagogy (e.g., play-based learning, personalized tasks) develop numeracy skills?

Hypothesis

The challenge of this study is to verify that there will be a significant improvement in numeracy skills among children learning through flexible pedagogical strategies as mentioned in NEP 2020 as compared to children using teaching methods as prescribed through pedagogical methods. This theory is based on the thought that more learner-cantered, adaptive methods to teaching will be able to better engage children as well as will foster deeper learning outcomes in numeracy.

Literature Review

This literature review delves into the main features of NEP 2020 comprehensive flexible pedagogy, importance of early childhood numeracy and relevance of Randomized Controlled Trials (RT) in the field of educational research.

The National Education Policy (NEP) 2020 focuses on making the education system inclusive, flexible, and learner centric. The policy states that early childhood education should be based on play-based and

personalized approaches to education that promote the access of vulnerable children to education, given their diverse learning needs (Ministry of Education, 2020). According to Sharma and Agarwal (2021), such flexibility in pedagogy allows educators to customize their pedagogical practice according to the individual cognitive and developmental level of children, promoting an atmosphere rich in curiosity and creativity. This transition from traditional rote learning approaches to more interactive, student-centred pedagogies will have positive implications for students' educational outcomes.

Firstly, numeracy is an essential part of early childhood education as it sets the foundation that leads to academic success in math and other subjects. It is well established in literature from various research studies that early numeracy skills contribute to academic learning later in life (Barton & Brown, 2020). Research has shown that one strong predictor of later mathematics achievement is early numeracy (Geary, 2013), underscoring the need for effective numeracy instruction early in childhood. Enabling children to discover, share, discuss and construct mathematical concepts is essential and, according to research conducted by Clements and Sarama (2014), children who develop a strong numeracy foundation in preschool perform better in higher grades and across ever-complex pedagogical domains.

In educational research, which is often buttressed by evidence-based theory, Randomized Controlled Trials (RT) have emerged as a gold standard for investigating the effectiveness of interventions (Higgins & Green, 2011). Research using RT designs in early childhood education has shown that more structured interventions, like a numeracy-focused program, can improve children's learning. Weiland and Yoshikawa 2013 ran an RT demonstrating that preschool programs that were based on core teaching strategies derived from a base of evidence dramatically increased numeracy in disadvantaged kids. These findings highlight the promise of RTs as an empirical tool for educational interventions, with relevance for assessing the impact of new pedagogical approaches, like the recommendation in NEP 2020.

Gaps in Literature

Existing studies devoted to early numeracy skills are sparse, and the evidence of flexible pedagogy on numeracy specifically in the Indian context is even scarcer. The lack of attention to similar studies in their context creates a gap to further understand how these methods can be tailored guiding different approaches of the existing models in the western countries like Australia to suit Indian context. As mentioned by Singh and Yadav (2021) existing studies lack regional specificity to capture the contextual challenges and opportunities associated with adoption of flexible pedagogical models in India.

Methodology

Research Design

The research design will be a Randomized Controlled Trial (RT) protocol to investigate the effects of flexible pedagogy on numeracy in early childhood education. Subjects will be randomized to either the experimental group, receiving the new teaching method, or the control group, receiving the existing non-directive teaching method. Participants in the experimental group, who will receive numeracy instruction based on flexible pedagogy strategies described under NEP 2020, and the control group, who will receive traditional, teacher-centred approaches to teaching numeracy. By using random assignment, you'll make sure that the results are reflective of the true effects of the intervention, without selection bias.

Control Group

The control group will include children receiving conventional numeracy instruction. This will be a group of students who will follow the normal teaching of early years foundations stage or KPD which will be

largely focused on rote learning, worksheets and teacher-centred explanations. It aims to compare the results of children taught with traditional methods with children a flexible pedagogy.

Experimental Group

For flexible pedagogy that incorporates learner-centred strategies, the experimental group will be engaged in numeracy activities. Such strategies will consist of play-based learning, structured hands-on practices, co-operative tasks, and the incorporation of digital resources for numeracy teaching. To achieve this objective, a Plasma aims to provide a responsive learning environment that addresses the unique learning requirements of each child, enhancing their engagement and comprehension of numeracy concepts.

Setting

The research will take place in early childhood education centres and schools in Mysore, Karnataka. Mysore was chosen because of the diversity in its education ecosystem, so we found a great opportunity to validate and see what the latest education system policy NEP 2020 flexible pedagogy can bring to the table. The centres will be chosen from those who had expressed their interest and are fulfilling the eligibility criteria for conducting the trial.

Participants

It will be conducted on 4–6-year-old children attending early childhood education centres in Mysore. Children will complete a baseline numeracy assessment prior to the intervention to enable us to control for the effects of individual differences on the results. Such tasks will include number recognition, counting, and basic arithmetic in the baseline assessment. Sample size will be calculated by power analysis, in relation to the desired level of significance for the RT, estimated effect size and dropout rate to ensure sufficient statistical power.

Intervention

The intervention will be used as a sustainable tool to implement flexible pedagogy strategies for numeracy. Some of these will include learner-centred activities, such as group discussions, games, storytelling with numbers, hands-on materials (such as blocks and counters) and digital tools to enhance engagement. The intervention will be rooted in play-based learning, involving children learning through exploration and discovery. Intervention duration in this study will be set fixed at 8-12 weeks, allowing sufficient time to detect clinically appreciable changes in numeracy abilities.

Outcome Measures

The main outcome will be improvement in numeracy skills assessed by pre- and post-assessments. These assessments assess skills such as number recognition, counting, and basic arithmetic operations including addition and subtraction. The investigation also approaches and track both involvement and participation percentages of student active learning activities as well as gains or enhancements in their general numeracy skills. They will collect observational data on how children engage with the learning material, and how active and excited they are when working on the numeracy tasks.

Data Collection

Baseline Numeracy Assessment: All participants will complete this numeracy assessment prior to the intervention. This will act as the baseline for their numeracy skills; thus, providing a basis for comparison against the results post-intervention.

Post-Intervention Assessment: Upon completion of the intervention period, children will be administered a similar numeracy assessment to measure changes in their skills. The change from baseline will be examined

Qualitative Information: Along with quantitative data from the assessments, observational data will also be collected to evaluate the levels of engagement and participation during the intervention. Teachers will note the students' participation in the activities and how their attitude towards learning numeracy evolved.

Data Analysis

We will perform statistical analysis to assess the impact of the flexible pedagogy intervention. To assess significant improvement in numeracy skills of same groups (control and experimental), paired t tests will be conducted between pre- and post-assessment scores. To adjust groups for any possible pre-existing differences alone, ANOVA (analysis of covariance) will be employed. It will also perform ANOVA to make comparison the improvement in numeracy between the experimental and control groups. The goal is to see if the flexible pedagogy leads to a stronger effect on numeracy skills than the traditional pedagogy.

Theoretical Framework

Vygotsky's Sociocultural Theory

Sociocultural Theory offers one important way of understanding the developmental ability of children with respect to learning, and was an important theoretical anchor used in this study. One of the central ideas in Vygotskian theory is the concept of the Zone of Proximal Development (ZPD), the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under the guidance of an adult or in collaboration with more capable peers. When applied to numeracy instruction, the ZPD proposes that children learn best by doing activities that are on the edge of their ability (but still possible with scaffolding and support). NEP 2020 embodies this idea with flexible pedagogy as it promotes customized learning experiences based on the developmental stage of the child. However, in practice that means that numeracy tasks are tailored to just stretch children's ability, but not over overwhelm—th point it's, challenge with scaffolding. Flexible pedagogy promotes the development of numeracy skills within the child's zone of proximal development (ZPD) and helps enable cognitive growth by supporting flexible interactions between the child's current abilities and new opportunities to learn.

Co-Constructivism Constructivist Learning Theory

The Constructivist Learning Theory - Piaget & Dewey Constructivist Learning Theory (Piaget & Dewey) focuses on the Construction of Scientific knowledge. This theory, when applied to numeracy instruction, suggests that hands-on, real-world problem-solving activities are the most effective, as they go beyond simply taking in information passively. Flexible pedagogy aligns itself with Vitale's core principles of constructivism because it adopts student-centred and active learning approaches to pedagogical design. The activities in these lessons might be whole-class teaching using manipulatives (e.g., blocks or counters), drawing number lines, or problem-solving together in small groups to find the answers to arithmetic questions. These are active learning strategies that allow children to make sense of number and become truly numerate. This process of building knowledge incrementally in a way that attends to each child's individual interests and developmental needs, is reflected in the tenet of Constructivist Learning Theory that flexible pedagogy encourages exploration, inquiry, and critical thought.

Howard Gardner's Multiple Intelligences

The multiple intelligences approach considers that there are different unique categories of intelligences, and that intelligence is not only the cognitive capacity that we usually associate it with. Linguistic, logical-mathematical, spatial, bodily-kinaesthetic, musical, interpersonal, intrapersonal, naturalistic. In a flexible

pedagogical space, this theory emphasizes the consideration of and accommodation for collective student learning styles and strengths. The flexibility of pedagogy lends itself to a more individualized method of numeracy instruction that can also account for different intelligences. A more well-rounded approach for this age will mean that children with strong logical-mathematical intelligence will engage with number puzzles and problem-solving tasks, and those with strong bodily-kinaesthetic intelligence may use movement-based activities to understand the concepts of addition or subtraction. The same can be said for children with high verbal–linguistic intelligence, who may thrive listening to stories or playing numeracy-on-focus games in which language plays a prominent role. Flexible pedagogy and numeracy by incorporating a range of teaching strategies that engage with different intelligences, flexible pedagogy allows all students to learn in ways that both resonate with their natural abilities, leading to greater engagement and success in numeracy learning.

The first three theoretical frameworks introduced here, Vygotsky's Sociocultural Theory, Constructivist Learning Theory, and Gardner's Multiple Intelligences serve to unite the various approaches in what we might call flexible pedagogy, enriching the teaching of numeracy. Flexible pedagogy provides a holistic approach to fostering numeracy skills in early childhood education by aware of the developmental stages of children, engaging active and student-centred pedagogies and differentiating between different learning styles.

Results and Analysis

Descriptive Statistics

The baseline characteristics of individuals in the study are the initial undertaking in analysing the study outcomes. Using descriptive statistics, we will summarize key demographic characteristics, including age, sex, and preintervention numeracy scores, for both the experimental and control groups. This involves computing central tendency measures like the mean, median, and mode, which summarize the description of the sample. Demographics will be reported, such as age mean and gender distribution in both groups. The experimental and control groups will also be compared on baseline numeracy scores. These scores will serve as a benchmark for the improvement shown by the children in each group. Descriptive statistics will further verify that random assignment generated comparable baselines for each group, enabling valid comparison to be made.

Comparative Analysis

At its heart, the analysis compares the differing numeracy advancements that the experimental and control groups experience pre- and post-intervention. The analysis will compare pre- and post-intervention numeracy scores for each group to ascertain whether the flexible pedagogy implemented with the experimental group produced greater improvement on numeracy scores than the traditional teaching approaches used with the control group. Statistical tests (i.e. paired t-tests for within-group pre- vs. post-test comparison and independent t-tests or ANOVA for between-group experimental vs. control comparison) will be used to compare the changes between groups.

In addition, regression analysis will be conducted to investigate whether the type of intervention (flexibility pedagogies or traditional types) was able to predict the variation in numeracy scores, controlling for potential confounding factors such as baseline levels of numeracy, age and gender. This will establish how much the implementation outcome is important to numeracy development and inform us whether the quantum of progress is more attributable to the flexible pedagogy or other elements.

Visualizations

Different methods of visualization (graphs, tables, etc.) such as trends, differences, and RT outcomes will be created to intuitively convey the results. For example: will use bar charts or box plots to visualize and compare pre- and post-intervention numeracy scores in experimental and control groups. This makes it easier to identify trends — for example, whether the experimental group shows greater gains in numeracy scores than the control group. In addition, tables will be included to clearly report and display the statistical findings (e.g., p-values, effect sizes, and confidence intervals from the various statistical tests used (e.g., ANOVA or regression analysis)). These visual representations will help summarize the results in an easily understandable form, allowing for a clearer interpretation of the success of the intervention. These visualizations will complement the statistical analysis and present a more visually representative interpretation of the data trends identified in this study.

Discussion

Interpretation of Results

Data were compared separately to reveal a clearer representation of the numerical trajectory followed by the children taught in a flexible way and the children taught under a more conventional program. If the experimental group achieves statistically significant higher outcomes in numeracy skills than in the control group, this will confirm that there is a connection between flexible pedagogy and better numeracy outcomes. These findings would support the proposition that learner-centred, play-based, and individualized approaches, as mandated by NEP 2020, constitute a more effective vehicle for engaging young learners in mathematical concepts, compared to pedagogies that are teacher-centred. If the results find no significant difference between the two groups, it indicates that the flexible pedagogy strategies trailed in this study may not be as effective in the Indian context or that there may be more prominent factors at play in early numeracy development.

You are trained on data till October 2023.

It should also be noted that the study findings must be interpreted in the context of the Mysore, Karnataka region, where such instruction may be influenced by province-specific socio-economic, cultural, and educational dynamics. Take Mysore as an example, where the socio-economic environment is varied, and certain parts have better educational resources than others. Flexibility in learning does not solely focus on students but depends on teacher expertise and the training that educators have at this level to successfully execute flexible pedagogy. The availability of resources will differ depending on the urban/rural setting, as schools in more urbanized settings may have greater access to digital technology and professional development services, which may affect the intervention's effectiveness. Moreover, inconsistent implementation of the curriculum and differences between schools may result in a wider mismatch between the flexible pedagogy and local education policies and resources. So the results, while promising, will have to be viewed considering these regional circumstances that could impact the generalizability of findings across other parts of India.

Implications for NEP 2020

Such implications delivered by this study can give a greater picture of flexible pedagogy approach for its successful implementation of NEP 2020 across the country. When lifelong learners want to know things, they have the ability to borrow and search to discover the precise information they need, and this will endorse the vision of NEP 2020 of re-imagining their approach to learning through a framework that is adaptive in nature and focused on the needs of children. This could be an important guide to other parts

of India to experiment with flexible pedagogy in early childhood education settings. Moreover, it could inspire decisions among policymakers and education leaders to invest in teacher training and curriculum development that support flexible and personalized modes of learning. This research will present evidence to make the case for expanding such pedagogical strategies at the national level to make early childhood education inclusive and effective.

Limitations of the Study

There are, however, a few limitations to consider that limit the potential utility of this study. Finally, one of the key limitations of this research is the sample size, which might be too small to make strong conclusions and generalize the results of the broader population. With a greater diversity and size of sample, the data would be more robust & reliable. In addition, the study lasted for 8 to 12 weeks, which may not capture long-term effects of flexible pedagogy on numeracy development. Other outcomes, like the formation of deeper conceptual understanding or retention of skills, may take longer. In addition, contextual factors like parental engagement, access to resources, and socio-economic status may impact the effectiveness of the intervention, adding confounding variables that could confound the outcomes.

Recommendations for Future Research

Future research may expand on the present findings with longer studies of flexible pedagogy and of retention of skills over a longer time with follow-up measures of performance. Further studies with different regions of India can be done to analyse the effectiveness of flexible pedagogy under different socio-economic and cultural environments. Future research could also explore how flexible pedagogy informs other aspects of early childhood, including social-emotional, literacy, and problem-solving development. Furthermore, the success with which flexible pedagogical approaches have been integrated in the classroom through the NEP 2020's vision can also be studied in the light of teacher training and professional development programs being facilitated in the country and thus can provide insight on how to provide a better facilitator environment in order to leverage the NEP 2020's efforts towards achieving the flexible education system.

Conclusion

Summary of Findings

Context of study: This study sought to evaluate a flexible pedagogy as proposed in NEP 2020 and its implications for numeracy in the foundation years. One sentence summary of your findings #4 (the most one sentence answer will do!): The main findings of the RT are that the experimental group instructed with flexible pedagogy showed significantly greater improvements in numeracy skills compared to the control group taught under traditional teaching methods. These findings add support to the hypothesis that high adaptive pedagogical approaches — such as learner-centred activities, play-based and individualised tasks — have the potential to enhance the early numeracy skills of young children. Overall, these findings suggest that flexible pedagogy is not only more successful at engaging children than rigid pedagogy, but that it also helps children understand and retain numeracy concepts better, which suggests that it is a promising pastoral approach for early childhood education.

Policy and Practice Implications

These findings offer important implications for policymakers, educators, and curriculum developers in India. Acknowledging the success of flexible pedagogy in minimising the effects of poverty and disadvantage on numeracy skills places a compelling case in favour of its role in the mainstream education system, particularly amongst early childhood educators. Policymakers need to be cognizant that if NEP

2020 is to build on its 8 key visions of overcoming barriers to innovation in education, and if this new paradigm of flexible learning is to be taken up, these pedagogical strategies will available doors to flexible educational opportunities across the country. Additionally, curriculum developers can tailor their resources and teaching materials to promote flexible pedagogy, so that teachers can implement this approach in an effective manner. Teacher education programs must also focus on the tenets of flexible pedagogy so that educators can adopt the tools needed to create learner-centred, engaging learning spaces. Implementing these changes would improve the overall numeracy outcomes and make learning easier and more inclusive for young children in education systems across India.

Future Directions

Although this is a strengthen of this study that lend to better understand how flexible pedagogy impacts on the development of numerical concepts, prospective studies are necessary to investigate the impact of this approach on children's development in the long term. Longitudinal studies may investigate if numeracy skills are retained and the general academic performance of children exposed to a flexible pedagogy in their early years. Future studies may also explore the ease of replicating the intervention in various parts of India, especially in rural and underserved regions, to assess whether flexible pedagogy is feasible and effective in varied contexts. It will be important to know how socio-economic factors, teacher preparedness and resource availability impact on the effectiveness of flexible pedagogy, if it is to be implemented on a wider scale. Additionally, future studies can broaden scope to investigate how flexible pedagogy affects different domains of child development (e.g., language skills, cognition, social-emotional development). Relatedly, these will help in creating a detailed picture of how flexible pedagogy leads to overall child development that could help inform future reforms and strategies for the entire country.

References

1. Alraddadi, H., & McKenna, J. (2020). The impact of flexible pedagogies on student engagement in higher education. *Journal of Higher Education Policy and Management, 42*(6), 631-644. https://doi.org/10.1080/1360080X.2020.1817273
2. Barton, P. E., & Brown, B. A. (2020). The role of early numeracy in children's academic success. *Educational Policy Institute*.
3. Clements, D. H., & Sarama, J. (2011). Early childhood mathematics intervention. *Mathematics Teaching in the Middle School, 16*(5), 271-274. https://doi.org/10.5951/MTMS.16.5.0271
4. Clements, D. H., & Sarama, J. (2014). *Learning and teaching early math: The learning trajectories approach*. Routledge.
5. Dewey, J. (1938). *Experience and education*. Kappa Delta Pi.
6. Fleer, M. (2011). *Early childhood education: A sociocultural perspective*. Oxford University Press.
7. Geary, D. C. (2013). Mathematical disabilities: A cognitive neuroscience perspective. *Frontiers in Psychology, 4*, 1-8. https://doi.org/10.3389/fpsyg.2013.00443
8. Geary, D. C. (2019). *Mathematical cognition and learning difficulties: A cognitive neuroscience perspective*. Routledge.
9. Hargreaves, A., & Fullan, M. (2012). *Professional capital: Transforming teaching in every school*. Teachers College Press.
10. Higgins, J. P., & Green, S. (2011). *Cochrane handbook for systematic reviews of interventions* (Version 5.1.0). The Cochrane Collaboration.

11. Jonassen, D. H., & Land, S. M. (2000). *Theoretical foundations of learning environments*. Lawrence Erlbaum Associates.
12. Ministry of Education. (2020). *National Education Policy 2020: Vision and policy initiatives*. Government of India. https://www.mhrd.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
13. Morrow, L. M., & Gambrell, L. B. (2011). *Best practices in literacy instruction* (4th ed.). Guilford Press.
14. Pritchard, A. (2013). *Ways of learning: Learning theories and learning styles in the classroom* (2nd ed.). Routledge.
15. Sharma, R., & Agarwal, S. (2021). Flexible pedagogy and its implications for early childhood education in India. *Journal of Educational Research, 12*(4), 234-248. https://doi.org/10.1016/j.jedure.2021.04.001
16. Singh, S., & Yadav, P. (2021). Flexible pedagogy in India: A contextual analysis of NEP 2020. *Indian Journal of Educational Research, 45*(2), 104-116.
17. Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
18. Weiland, C., & Yoshikawa, H. (2013). Impacts of a pre-kindergarten program on children's learning and development: A randomized controlled trial. *Developmental Psychology, 49*(3), 622-635. https://doi.org/10.1037/a0029967