The Effect of Using Color in The Counting Task in French on The Performance Of Pre-School Children.

مقال
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الملخص:

يتسم العصر الحالي بالتغيرات السريعة والمتلاحقة، فضلاً عن ثورة المعرفة التي شملت كافة المجالات العلمية، الأمر الذي تطلب من القائمين على العملية التعليمية في الكويت إعداد الأفراد القادرين على التعامل مع المتغيرات إن تعليم الرياضيات من أهم المجالات التي تهتم بها المجتمعات في العصر الحديث، مع التأكيد على الدور الذي تلعبه المناهج في هذا الصدد. إن مناهج رياض الأطفال لها أهمية خاصة حيث تعتبر محوراً حيوياً لإعداد أطفال هذه المرحلة لمواجهة التطورات المستقبلية المستمرة. إن الرياضيات من المجالات التي تساهم في تنمية الفضول والرغبة في المعرفة والتميز في الرياضيات والثقة بالنفس والاستمتاع وتحسين فهم المفاهيم والعلاقات النوعية في البيئة الطبيعية للطفل. كما أنها تساعد في تنمية قدرته على تطبيق المعلومات التي اكتسبها في حياته اليومية، بالإضافة إلى تنمية القدرة على التفكير في الأشياء المحيطة به. وفي هذا الصدد أكدت العديد من المنظمات العالمية التي تهتم بتعليم وتعلم الرياضيات ، وكذلك المنظمات العالمية التي تركز على تعليم طفل رياض الأطفال على أهمية توجيه المزيد من الرعاية لدعم تعلم الرياضيات في السنوات الأولى من الطفولة يمكن التعرف على اللون باعتباره الإحساس البصري الناتج عن التباين في الأطوال الموجية الضوئية في الأشعة المتطورة. "إن هذا الاختلاف يؤدي إلى الإحساس بالعين بالألوان المختلفة". ومن الناحية الفسيولوجية يعرف اللون بأنه "التأثير الناتج على شبكة العين، سواء أكان ناتجاً عن المادة الملونة أم عن الضوء الملون. ومن ثم فهو إحساس لا وجود له خارج الجهاز العصبي للكائنات الحية". ومن الناحية الفيزيائية فهو أحد مكونات الطاقة في الأشكال البصرية ومجموع التفاعل بين مواصفات الضوء والمادة.

الكلمات المفتاحية: The effect ؛ of using color ؛ in the counting task in French on the ؛performance of Pre؛ school children

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Introduction

The current age is characterized by rapid and successive changes, as well as knowledge revolution that covered all scientific fields. This required the individuals responsible for the educational process in Kuwait to prepare the individuals who are able to work with variables of the modern era, with the emphasis on the role played by the curriculum in this regard. The kindergarten curriculum has a particular importance as it is considered a vital focus to prepare the children of this stage to face the continuous future developments. Mathematics is one of the fields that contributes to develop the curiosity, desire to knowledge, excellence in mathematics, self-confidence, enjoyment and improving the understanding of the concepts and the qualitative relations in the natural environment of the child. Also, it helps in developing its ability to apply the information which he acquired in his daily life, in addition to developing the ability to think of the things surrounding him. In this regard, many international organizations which care for teaching and learning of mathematics, as well as the global organizations which focus on the education of the kindergarten child assured the importance of directing more care to support the learning of mathematics in the early years of childhood (16:4)

Since mathematics is not only considered merely isolated routine operations, but rather elaborate structures connected to each other closely, by the way that constitutes a complete and robust structure. Also, the essential building blocks of this structure are mathematical concepts, as the

Since rules, theories, and skills depend on the concepts to be formed and acquired. Thus, the child understands the computational, spatial, and logical relationships through his interactions with his environment. (9:91)

Therefore, learning mathematical concepts is the foundation of mathematical knowledge, as mathematics becomes more meaningful if the learners realize the mathematical concepts and their meanings. (15:3). Many Previous studies help to develop mathematical concepts and counting tasks due to their importance in learning mathematics for the kindergarten child. Ali Hassanin study (2000) (7) affirmed the effectiveness of a suggested strategy to develop some mathematical concepts (belonging, symmetry, straight line, circle, closed and open curve), in addition to the creative thinking of the child before school. Moushera Moustafa Study (2003) (8) proved the effect of the discovering environment in developing the sensitive understand patterns for the preschool children.

The color is considered one of the design elements that characterized by its artistic abilities and aesthetic value with its effective role in the work of fine art. The aesthetic color values are generated through the management of color relationships and their developmental role in the work of art. The artists from ancient times used it as an expressive symbol in conveying their thoughts and actions, so it is the first thing that attract the viewer when looking at the work of art.

Herbert Red said that “there are two elements in any work of art, the first one is the form, and the other is the color. The color is the surface trait for all kinds of the tangible forms. Color has a direct impact on our senses”

Colors are closely connected to the human life and deeply affects it. The man’s view of color differs according to its culture, interests and previous experience. The artist considers the color as a means by which he can add and express. Color is one of the most important expressive and plastic art used by the artist in the field of visual arts to provide his opinions and ideas. (24:6)

Color is the effective drive in the process of visualization, as it is considered the item that could decipher the forms and transform it to color shades red by the human eyes. The researchers and physics scientists identify the color as “one of the light energy forms and its reflection on the different surface of materials. It is receipted and interacted by the human eye to realize the color. Thus, the color is a result from the interaction between three sides, which are modalities of the light, modalities of the reflective material, and the work modalities of the visual system.” (55:4)

The color may be identified as the visual sensation resulted from the variance in optical the wavelengths in the developed rays. This difference results in the eye sensation of the different colors”. Physiologically, the color is known as “the resulted effect on the eye network, either comes from the colored substance or the colored light. Hence, it is a sensation with no existence outside the nervous system of the living creatures”. Physically, it is one of the energy components of the visual forms and a sum of the interaction between the specifications of the light and the material. (8:5)

Ability to perform the different computational activities is a base part of the individual’s life. Counting and numbers are used to perform the various life activities, either intentionally or accidentally. The computing skills that should be learned by the children, vary. These skills include reading and writing numbers, counting things in groups, Identifying the times, using money, finding a page in a book, and other computing activities faced by the person during his daily life. All these skills include some complication more than appear to the person firstly. Numbers do not bear only one meaning. For example, Number Five may be a name for a TV channel, page of a book, room number, bus number, a number following Four, a number preceding Six in the figures’ hierarchy. Thus, variety in the numbers’ meanings provides it a kind of complications in the process of its acquisition. (66:3)

Researchers have previously disagreed about the fact that the computing concepts are a process aiming at realizing the counting measures supported only by the mental capacity, like: deduction, remembering, short term memory, long term memory, or the child born with special counting abilities enabling him to understand the figures (Butterworth) . Nevertheless, there are some factors that control the difficulty or easiness of the understanding of counting and numbers. Some of the elements include the harmony between things used in the counting task. This means that, when teaching counting to the child, is it better to use some cubes and puppets with same or different shape? Also, does the position of them affect the task? Are they placed closed or far from each other. Finally, does the using of difference color of cubes or puppets affect the children understanding of counting and figures or not?

In addition, the factors include the referring to cubes or puppets or any other things during counting, by any individual. This method is used by the mothers to teach the children how to

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count in French. The task, then, becomes easier than the child's referring to the cubes himself (18:11) (24:12)

In the light of previously mentioned about the psychological side of the color and the psychological indications of the color, it is proved that the preference of colors and its psychological influence are a relative process. This process depends on some different factors that affect the receiver positively or negatively. The human brain tends to interpret the color in the light of its relation with the other surrounding colors interacting with it. Sometimes, the indications of the color vary according to the variation of its position, relation, and density.

Accordingly, the problem of the study aimed at identifying the reality of using colors in enhancing the computing concepts and French numbers for the preschool students. The previous foreign studies recommended to do more research to identify the impact of such factors on understanding the numbers and counting, like: porter 1999), Abdelhameed, H. & Porter, J. (2006) (10) ،Abdelhameed, H. (2006) (11) ،Hanrahan, J. and Newman, T. (1996) (14).

Study problem:

Color is the effective drive in the process of visualization, as it is considered the item that could decipher the forms and transform it to color shades red by the human eyes. The researchers and physics scientists identify the color as "one of the light energy forms and its reflection on the different surface of materials. It is receipted and interacted by the human eye to realize the color. Thus, the color is a result from the interaction between three sides, which are modalities of the light, modalities of the reflective material, and the work modalities of the visual system."

Regarding the color influence, they proved that the color affects the children performance when accompanied by the convergence. It means that that when positioning the cubes closely, the difference of their colors results in simplifying the counting process. When positioning them at intervals, the effect of color disappeared. The study of bdelhameed (2006) proved that the performance is not affected by color when accompanied by the order of the cubes that are placed or far apart, or placed either in a liner or a circle way. However, some children revealed enthusiasm to count things with different colors (11).

In spite of the importance of the counting skills to make an independent individual, it is strange that the previous studies did not handle them extensively, as opposed to the great interest in the language studies. Nay et al (2001) (17) indicated to that the researcher did not pay attention to develop the counting skills. Also, Hanrahan and Newman (1996 (15) affirmed that there are numerous studies that interpreted the way to teach the counting concepts to the normal children. In addition, there is scarcity in the foreign and Arabic research- within the researcher's knowledge- that handled the effect of factors included in the task of enhancing the counting concepts and the learning of counting in French on the easiness and difficulty of the task, particularly the understanding of the task.

Accordingly, it is proved that there is a need to do more research- especially Arabic ones- to reveal the extent to which the enhancement of the computing concepts and number in French with the preschool children are affected by color.

Objective of the study:

The current study aims at identify the effect of the color on enhancing the computing concepts and numbers in French with the preschool students.

Hypothesis of the study:

- Is there a relation between the effect of color on enhancing the computing concepts and numbers in French for the preschool students?

Research question:

- What is the effect of using color in a counting task in French on the performance of preschool children?

Study limitations:

Experiment in this study is restricted by investigating the role of color on enhancing the computing concepts and numbers in French for the preschool students.

Importance of the study:

It is represented in highlighting the aesthetics of color in the computing concepts and numbers in French for the preschool students.

Terms of the study

The color:It is defined as the psychological effect results from the eye network, either comes from natural substance of color or from the colored light. It is a sense with no existence outside the nervous system of the living creature. It is a form of the light energy. The real meaning of seeing the colors of things is a light reflection on the surfaces of the different materials. These reflections vary in the width and length of waves. They are received by the devices prepared to receive and interact with light in the human eye (66:1)

Counting:A complicated skill contains learning of words and indications of counting.

Kindergarten Child:It means the children of the first level in the kindergarten, aged from 4 to 5 years.

Procedures of the study:

Methodologies of the study

The study relied on the descriptive and quasi-experimental approach through the experimental participations conducted by the researcher on the role of color in counting in the French language and its effect on the preschool child.

Population:

Population of the study is deliberately chosen from the children from the second level of the kindergarten in Kwait for the academic year 2021-2022. Hey were (60) children.

Sample of the study

They are chosen randomly. It contains (50) children, two classes. The sample was divided to two equal groups. One group represents the first experimental group (same color), the other group represents the second experimental group (different colors).

Tools and procedures of the study

The tools included one white puppet made of cloth and fur while holding a red hurt- plastic similar cubes, with different size and same size (length 2.5, width 2.5, height 1.8 Cm), some plastic soldiers of one and different colors (length 5, width about 2 cm), some fruits, animals, small trees with the same and different colors. Their length ranged from 4-5 cm. The tools included, also, a piece of black cloth with light traces to set the positions of cubes- some small toys, with similar and different colors. These tasks are used in many previous studies, like: Fuson (1984) (14)

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on the normal children (10), Abdelhameed, (2006) Abdelhameed & Porter (2006) (10). The same tools are used with the children in other tasks, like giving certain number of things. This provides tools of the study with accepted credibility and validity.

Firstly: Basic counting task:

The researcher introduced the puppet to the children (it was represented by the researcher). They were asked by the puppet to count from one to ten orally and loudly for ten times. When the child finishes the first attempt of counting, the puppet asks him to repeat until he finishes the 10 attempts. Counting to ten aims at knowing the fixed counting line of the child. This means that if the child counts from one to five correctly in the ten attempts and counts from five to ten wrongly, the fixed counting line of the child is from one to five. This made to be sure that the child has the ability to count from one to ten, as the following task will require the children to count some things range from one to ten.

Secondly: color task

To measure the effect of color, the puppet asks the children to count a group of cubes with the same color and which ordered in a liner form, in addition to another liner group with different color, and placed on equal distances from each other. Like both previous tasks, the children are asked to count two cubes, then three, four, etc.

Using the puppet in counting aims at overcoming the idea that the teacher makes no mistakes, in addition to make the children feel freedom in response to the task. Also, it aims at attract the child attention and inspires them to response and eradicate the boredom. Knowing that, the puppet is made of cloth, the number of attempts in the first task are ten and eighteen in each of the following three tasks. The tasks were exchanged in each session to eliminate boredom, and to be sure that the child will not circulate his response to every task. If the child does not want to complete the task or feels tired, the session will stop and be completed in the following one. The period of session ranges from 15-20 minutes.

Statistical methods

To answer the study hypothesis, the following statical methods were used:

1. Arithmetic average
2. Standard deviation.
3. "T" test to identify the significant difference in the performance of the consistent and inconsistent puppet task, and the task of cubes arranged either closed or far from each other. Also, "T" test was used to identify the significant difference in the performance of the task of cubes with similar or different colors using SPSSV.12 program to do the statical analysis.

Results:

The test of the study hypothesis validity stipulated in: There are statically significant differences in using the cubes with similar and different color in the task of counting in French. "T" test was used to identify the performance differences of the children, samples of the study:

Table (1)

"T" value between the differences averages of the sample performance in the task of counting in French.

Groups (cubes)	N	M	r	T value	Level of significant difference
One color	25	3.62	2.51	3.87	.01
Different colors	25	6.27	2.67		

The previous table indicates that "T" is statistically significant at 0.01, which means that there are differences in the children performance in the color task. The sample found it difficult to count the cubes with the same color, while enjoyment in counting the cubes with different colors. Their performance in counting task with different colors was better than the same with the similar colors. Like other tasks, the sample could count the small groups of cubes better than the big groups.

About the faults made by the children while counting. All of them were Multiple words- one-point errors, point no word errors, and Object skipped errors. By analyzing the error rate of the children, it was proved that the more similarity were the colors, the more errors appeared. Also, the less similarities were the colors, the less errors appeared.

The study revealed that using a counting task contains cubes with different colors is better than using cubes with similar colors. This result consists partially with Abdelhameed, (2006) (10), as both studies tested the effect of color when the cubes arranged in a close or far manner. I n addition, they study of the effect of color in case of placing the cubes either in liner or circle manner, as in Abdelhameed, (2006) (11). Both studies proved that when the color variable accompanies with the nearness and arrangement, the effect of color decrease. Both studies revealed that when placing the cubes in a close manner, the effect of color appears, and the children. When placing the cubes in a far manner, the effect of color disappears. This means that the effective variable is convergence and arrangement. Regarding the study, only the effect of color on the children performance was chosen, as the cubes placed in a liner manner and equal distances from each other in both tasks. Thus, the color was the only variable whose effect was tested.

The study consisted with Fuson, (1988) (14), which conducted on the preschool children. They are coincided in the idea that the kinds of errors made by the children during counting in this study are similar to the errors made by the ordinary children. Both studies differed in the idea that there was no specific error for this task, as the children errors varied between leavin a cube uncounted, or giving more than one number to a cube, or not referring to a cube despite being counted. The common mistake in her study was giving more than a number to one cube, while being referred to. However, this pattern was not common in the sample of our study. Thus, the fourth hypothesis was proved.

From all of the above, this study concluded that the use of counting tasks that contain different shapes,

different colors, and arranged at different distances, may facilitate the task of learning how to count in the French language. These factors may be ignored by teachers while teaching preschool children.

This study also included that counting small groups is easier than counting large groups, and the higher the cognitive requirements of the task is, the more difficult it becomes.

Recommendations:

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1. The teacher must present the counting task in French in the form of small groups gradually increased, and not move from one task to another except when the child masters counting the small groups first.
2. The teacher should reduce as much as possible the variables in the task to teach the children how to count, such as pointing, at the beginning of teaching counting, on objects intended to be counted rather than leaving the child to point to them.
3. in one session, it is also necessary to use various counting tasks based on the results of studies. So that the teacher saves time and effort, in addition to eliminating the problems that both the teacher and the student go through in this case of the child failure to count.

List of references

اولاً: المراجع باللغة العربية

1. أحمد مختار عمر 2003 اللغة واللون عالم الكتاب القاهرة طبعا الثانية.
2. إسماعيل شوقي 2000 مدخل إلى التربية الفنية كنز المعرفة القاهرة.
3. بطرس حافظ بطرس (2004) تنمية المفاهيم والمهارات العلمية لأطفال ما قبل المدرسة عمان، الأردن دار المسيرة للنشر والتوزيع والطباعة.
4. حسن حسن أحمد الخلفي 2000 حلول متنوعة لخلفيات الأشكال في اللوحة الزخرفية كمدخل لتنمية التصميم لدى طلاب كلية التربية النوعية"، رسالة ماجستير، كلية التربية النوعية جامعة عين شمس.
5. حنان إبراهيم أحمد 2006: التوظيف التشكيلي للأسطح الملونة كبدائل لخامات التلوين التقليدية التحقيق القيم الفنية في اللوحة الزخرفية"، رسالة دكتوراه كلية التربية النوعية، جامعة عين شمس
6. شاكر عبد الحميد 2001: "التفصيل الجمالي "دراسة في سيكولوجية التذوق الفني: عالم المعرفة. .7 على عبد الرحيم حسانين (2000). استراتيجية مقترحة لتنمية بعض المفاهيم الرياضية والتفكير الإبداعي
7. والمهارات الاجتماعية لدى أطفال ما قبل المدرسة مجلة تربويات الرياضيات كلية التربية بينها جامعة الزقازيق
8. مشيرة مصطفى على عطية (2003). أثر البيئة الاستكشافية في تطور الفهم الحدسي للمفهومات الرياضية لدى أطفال ما قبل المدرسة الابتدائية رسالة ماجستير غير منشورة كلية التربية جامعة الإسكندرية.
9. وليم تاوضروس عبيد (2004) تعليم الرياضيات لجميع الأطفال في ضوء متطلبات المعايير وثقافة التفكير. الكويت. دار الفلاح.

ثانياً: المراجع باللغة الاجنبية

10. Abdelhameed, H. & Porter, J. (2006): Counting in Egyptian children with Down syndrome, International Journal of Special Education, 21, 3, 176-187.
11. .Abdelhameed, H. (2006): Counting and Egyptian children with Down syndrome. Unpublished thesis, Birmingham University, UK.
12. Abdelhameed, H. (2007): Do children with Down syndrome have difficulty in counting and why? International Journal of Special Education, 22, 2, 129-139.
13. Fuson, K. C. and Hall, J. W. (1983). The acquisition of early number work meanings. In H. Ginsburg (Ed.), thee development of children's mathematical thinking. New York: Academic Press.
14. Hanrahan, J. and Newman, T. (1996). Teaching addition to children. In B. Stratford and P. Gunn (Eds.) New approaches to Down's syndrome. London: Cassell.
15. NCTM & NAFYC (2002). "Childhood Mathematics: promoting Good Beginnings. A joint position Statement of the National Association for the Education of Young Children (NAEYC) and the National Council for Teachers of Mathematics" (NCTM) Available at:
16. http://www.naeyc.org/about/positions/PDF.
17. Nye, J., Fluck, M. and Buckley, S. (2001). Counting and cardinal understanding in children with Down syndrome and typically developing children. Down Syndrome: Research and Practice, 7 (2), 68-78.