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RESEARCH ARTICLE

ASSOCIATION BETWEEN MUSIC, SOCIO-CULTURAL ENVIRONMENT AND COGNITIVE PATTERN AMONG SCHOOL GOING CHILDREN

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Abstract

The current study aimed to determine the association between music (interest/no interest) and socio-cultural environment (urban/rural location) and field-dependent/independent cognitive style. A total of 200 junior secondary school children drawn from rural and urban communities in Enugu State participated in the study. The Latent test developed by Withkin et al. (1976) and a self-develop scale measuring music interest were used for data collection. An independent t-test was conducted on the data, and the result showed no significant difference between music and field-dependent/independent cognitive style. However, a statistically significant difference was found between the socio-cultural environment and field-dependent/independent cognitive style. Discussion and conclusion are discussed.

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Introduction: -

Over the years, the issue of cognitive style has been widely explored among researchers. Learner's styles and learning strategies are thought to be an essential issue that has received much emphasis and consideration in recent decades (Nozari & Siamian, 2015). Cognitive style is a concept in psychology that represents the perceived consistencies observed in an individual's manner of cognitive processes relating to how information is acquired and processed. Cognitive style means the heuristics that individuals use to process data about their environment (Maria, 2007). Amazue (2007) saw the cognitive style as the characteristics self-consistent mode of functioning found pervasively throughout an individual's perceptual and intellectual activities. In other words, these cognitive learning styles describe a learner's approach toward learning (Farmaki et al, 2019). Research suggests that cognitive style remains a psychological issue that is important in teaching and learning (Noroozi, 2003).

Cognitive style theory was first proposed by Herman Witkin (Witkin, 1976). According to the theory, there are two different ways of processing information called field-dependent (FD) and field-independent (FI) (Farmaki et al,2019). The predominant approach to this subset of cognitive style has been the construct of field dependence-field independence (Pithers, 2002). Field dependent/independent cognitive style refers to the observed individual differences in perceptual style. In other words, some people are field-dependent, which means that they perceive things in a way that lacks imagination and could be regarded as being convergent in reasoning. On the other hand, field-independent people are those who can draw unconventional connections in perception. They experience no stress in identifying and bringing out important information from the environment. They could be regarded as being divergent in reasoning. When information is presented in an ambiguous, unstructured format, the field independent will impose his/her structure on the information

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Music and Cognitive pattern

Previous studies in human developmental inquiries have explored much of the relationship between music lessons and cognitive abilities. Music training in childhood has positive associations with abilities in a variety of domains, including speech perception, other language abilities (i.e., reading, vocabulary, spelling, second-language acquisition), and visuospatial abilities, as well as with domain-general abilities such as memory, executive functioning, intelligence, and academic achievement (Schellenberg & Weiss, 2013). Cognitive abilities also tend to increase in tandem with the duration of music lessons (Corrigall, Schellenberg & Misura, 2013)

Socio-Cultural Environment and Cognitive Pattern

Socio-cultural environment describes people's behavior and mental processes as shaped in part by their social and cultural contact, including race, gender, and nationality (Sanderson, 2010). Socio-cultural environment refers to those factors that characterize a particular set of people and which shapes a person's behavior, such as child-rearing practice, cultural values and beliefs, education, and reference groups. Shavitt, Lee, & Johnson (2008) noted that culture includes shared elements that provide standards for perceiving, believing, evaluating, communicating, and acting among those who share a language, historical period, and geographical location. Filippo and Benedetto (2010) provided strong evidence that research on cognitive processes should consider the socio-cultural context's influence. Nisbett et al. (2001) and Miyamoto et al. (2005) have supported those different cultures produce diverse cognitive styles that influence how one processes environmental information and stimuli. In addition, Hill et al. (2010) found that cognitive styles are learned through personal and cultural socialization processes.

Previous studies in cognitive learning style have examined the degree of Field dependent/independent cognitive style in various fields (Pithers, 2002). For example, cognitive styles have been implicated in student's academic achievement (e.g., Damavandi et al., 2011; Dragon, 2009), brain activities (Farmaki et al., 2019), English language learning (Nozari & Siamian, 2015), mathematical problem-solving reading tasks (Evans, 2004). Thus, understanding individual differences based on their adopted cognitive style has implications for many aspects of human endeavor. The current study explores the influence of music and socio-cultural environment on school-going children's cognitive patterns. The following hypothesis was formulated:

H¹ There will be a significant difference between participants who are interested in music and those who do not have an interest in music in field-dependent/independent cognitive styles.

H² There will be a significant difference between urban and rural participants in the field-dependent/independent cognitive style.

Method: -

A total of 200 students drawn from urban and rural secondary schools in Enugu state participated in the study. The students between the age range of 12 -14 years, comprising males and females from the junior secondary class, were randomly selected from two schools in the states.

Measure: -

The cognitive style (Field Dependence and Field Independence) was measured using the Latent Test developed by Witkin et al. (1976). The instrument comprised 25 pictures that allow the respondents to locate and shade a geometric shape. The instrument is consisting of 3 parts ranging from the simple task to the most challenging task. The score ranges from 0-15, with a higher score indicating field-independent cognitive style.

Interest in music was measured with a self-developed self-report scale designed to elicit interest or no interest in music from the respondents. The 5 -item scale was validated following a pilot study, and the Cronbach alpha .87 coefficient was recorded.

Result: -

Table 1: - Table showing the Mean and Standard Deviation of participant's score on the difference between music and field-independent/dependent cognitive pattern.

Music	N	Mean	SD
Interest in Music	91	1.54	0.50
No Interest in Music	109	1.46	0.50

The above table shows the mean and standard deviation of the score on the difference between music and field-independent/dependent cognitive pattern. It indicates that participants who have interest in music scored slightly high on the mean ($M = 1.54$, $SD = 0.50$) than those with no interest in music ($M = 1.46$, $SD = 0.50$).

Table 2: - Table showing the Mean and Standard Deviation of participant's score on the difference between urban and rural location and field-independent/dependent cognitive pattern.

Location	N	Mean	SD
Urban	113	1.79	0.40
Rural	87	1.12	0.33

The above table shows the mean and standard deviation of the score on the difference between urban and rural locations and field-independent/dependent cognitive patterns. It indicates that participants who have interest in music scored slightly high on the mean ($M = 1.79$, $SD = 0.40$) than those with no interest in music ($M = 1.12$, $SD = 0.33$).

Table 3: - Table showing the t-test result comparing interest in music and no interest in music on field-independent/dependent cognitive pattern.

Music	N	Mean	SD	t	df	Sig
Interest in Music	91	1.54	0.50	1.147	198	253
No Interest in Music	109	1.46	0.50			

A t-test was conducted to compare field-dependent/independent cognitive patterns on interest in music and no interest in music groups. There was no significant in the scores for interest in music ($M = 1.54$, $SD = 0.50$) and no interest in music ($M = 1.46$, $SD = 0.50$) groups at $t(198) = 1.147$, $p = 253$. Indicating that there is no difference between interest or no interest in music and field-dependent/independent cognitive pattern. Thus, our first hypothesis, which stated that there would be a significant difference between participants who have an interest in music and those who do not have an interest in music in field-dependent/independent cognitive style, was rejected.

Table 4: - Table showing the t-test result comparing the difference between a participant's location on field-independent/dependent cognitive pattern.

Location	N	Mean	SD	t	df	Sig
Urban	113	1.79	0.41	12.508	198	.000
Rural	87	1.12	0.33			

The above table shows the t-test analysis results to compare the difference between urban and rural locations in the field-dependent/independent cognitive pattern. There was statistically significant difference in the score for urban location ($M = 1.79$, $SD = 0.40$) and rural location ($M = 1.12$, $SD = 0.33$) conditions; $t(198) = 12.508$, $p = .000$. The result showed that the urban participants scored high on field-independence cognitive patterns compared to their rural location counterparts. Thereby confirming our second hypothesis, which stated that there would be a significant difference between urban and rural participants in music in field-dependent/independent cognitive style.

Discussion: -

The current study aimed to examine the association between music (interest/no interest) and socio-cultural environment and field-dependent/independent cognitive patterns among school-going children. The findings indicate that there is no significant difference in field-dependent/independent cognitive patterns based on interest in music and no interest in music. Meaning that whether one has an interest in music or not does not determine the cognitive pattern. The result supports the literature indicating no association between music and cognitive style (Dolegui, 2013; Harmon et al, 2008). This study's result challenges the report of Hallam et al. (2002), who found an association between music and arithmetic ability.

The result of the second hypothesis (h^2) that socio-cultural environment (urban/rural location) will significantly differ in field-dependent/independent cognitive pattern was supported. This means that the participants in the urban areas are more field-independent compared with their rural counterparts with more field-dependent. The current finding is aligned with previous studies that implicated the socio-cultural environment in the field-dependent/independent cognitive style. (e.g., Amazue, 2007). This revelation is evidence that the socio-cultural environment is a positive determinant of the cognitive pattern.

Conclusion: -

The study conducted to ascertain the association between music and cognitive patterns showed no statistically significant difference between interest in music and no interest in music in field-dependent/independent cognitive patterns. We assumed that children who show interest in music is doing so because of their cognitive pattern (i.e., field-independent). However, the study concludes that music is not a determinant factor in the type of cognitive style a child exhibit. Additionally, we expected that the participants would differ based on the socio-cultural environment (i.e., urban/rural location) in their cognitive pattern. Because of the result, it is concluded that the socio-cultural environment significantly determines cognitive pattern, with urban areas been favored. Despite this revelation, the study is challenged with some limitations; firstly, caution should be applied in generalizing the result due to the sampling method and the study's inability to establish cause-effect. However, future researchers should continue exploring factors capable of influencing cognitive style and also expand the scope to fully understand cognitive styles.

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References: -

1. Amazue, L.O. (2007). A confirmatory study of the socio-cultural determinant of the field-independent/dependent cognitive style. *Esut journal of psychological studies*, 32-40.
2. Dasen, P. R., & Mishra, R. C. (2013). Cultural differences in cognitive styles. In B. R. Kar (Ed.), *APA human brain development series. Cognition and brain development: Converging evidence from various methodologies* (p. 231–249). American Psychological Association
3. Dolegui, A. S. (2013). The Impact of Listening to Music on Cognitive Performance. *Inquiries Journal*, 5(9), 1-1
4. Evans, C. (2004). Exploring the relationship between cognitive style and teaching style. *Educational psychology*, 24(4), 509–530.
5. Farmaki, C., Sakkalis, V., Loesche, F., & Nisiforou, E. A. (2019). Assessing Field Dependence–Independence Cognitive Abilities Through EEG-Based Bistable Perception Processing. *Frontiers in Human Neuroscience*, 13, 1-18
6. Greenberg, D. M., Baron-Cohen, S., Stillwell, D. J., Kosinski, M., & Rentfrow, P. J. (2015). Musical Preferences are Linked to Cognitive Styles. *PLoS ONE*.
7. Hallam, S., Price, J., & Katsarou, G. (2002). The effects of background music on primary school pupils' task performance. *Educational Studies*, 28, 111-122.
8. Harmon, L., Troester, K., Pickwick, T., & Pelosi, G. (2008). The Effects of Different Types of Music. *Journal of Undergraduate Psychological Research*.
9. Hill, J., Puurula, A., Sitko-Lutek, A., & Rakowska, A. (2010). Cognitive Style and Socialization: An exploration of learned sources of style in Finland, Poland, and the UK. *An International Journal of Experimental Educational Psychology*, 285-305.
10. Maria K (2007) Cognitive Styles in the Context of Modern Psychology: Toward an Integrated Framework of Cognitive Style. *Psychological Bulletin*, Vol. 133, No. 3, 464–481
11. Miyamoto, Y., Nisbett, R. E., & Masuda, T. (2005). Culture and the physical environment: Holistic versus analytic perceptual affordances. *Psychological Science*, 17(2): 113-119.
12. Muhammad, T., Daniel, E. G., & Abdurauf, R. A. (2015). Cognitive Styles Field Dependence/Independence and Scientific Achievement of Male and Female Students of Zamfara State College of Education Maru, Nigeria. *Journal of Education and Practice*.
13. Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and system of thought: Holistic versus analytic cognition. *Psychological Review*, 108(2): 291-310.
14. Noroozi, D. (2003). *Cognitive styles of Students and their relationship with learning*. Tehran: Islamic Azad University, the South Branch
15. Nozari, A. Y., & Siamian, H. (2015). The Relationship between Field Dependent-Independent Cognitive Style and Understanding of English Text Reading and Academic Success. *Mater Sociomed*, 39-41.
16. Pithers, R. T. (2002). Cognitive learning style: a review of the field-dependent-field independent approach. *Journal of Vocational Education and Training*, 117-132.
17. Sanderson, C. A. (2010). *Social Psychology*. Hoboken, NJ: Wiley.
18. Sinha, D., & Shrestha, A. B. (2007). Ecoculturd Factors in Cognitive Style Among Children from Hills and Plains of Nepal. *International Journal of Psychology*, 49-59.