

The Socio-Ecological Fractality in Learning Philippine Folk Dances

Montano L. Tapanan Jr, JundyLaurente, SheffanySecuya
University of San Jose-Recoletos

Abstract:- The foundation of the development of interest for Philippine folk dance has been abundantly expressing in the world of research. This study investigates the fractal dimensions on the societal and ecological parameters of respondents' interest in learning Philippine folkdances despite the advancement of millennial students nowadays to various genres of dances. It was found out that indeed the Junior High School participants registered a fluctuation in their interest motivators. In fact, the research has sought that from amongst all probable sources to motivate one's self, school has become the main contributing factor (with the highest mean and ranks first from the deviation in the graph of respondents' social and ecological interest towards learning Philippine folk dances. In other words, school becomes an impeccable avenue to generate the interest of the young learners to Philippine Folk Dances. Due to this very reason, academic institutions are actively called for program innovations to widen their scope of influence to interest the young, their friends or peers and design greater support system from home.

Keywords:- Fractal, Fractal Dimension, Philippine Folk Dance, Interest, Motivation, Socio-Ecological System.

I. INTRODUCTION

Philippine folk dance is a vibrant reflection from the colonization of diverse countries with unusual and beautiful traditional dance from particular cultures, such as European, Spaniards, and some parts of the ASIA. In every country, there is a distinctive variation of dances that they performed during festivals and local shows. Even though in the present generation, Philippine folk dance has progressed itself to compete for the global trends, but still the honor was gained from the origin of the dance. It is because of the colorful costumes', the graceful and splendid execution of dance steps, and lively and soulfully kind of music played in dancing. This revealed the true Filipino identity and culture. The majority of the dance in the country was inspired by the daily living of a typical Filipino, such as harvesting rice and fetching some water, as well as courting a lady, and celebration of the feast, wedding, and births. However, in today's status about the culture of the Philippines, it becomes weak because of the quick change of the world. Most of the millennials can't relate anymore to most of the cultural dances presented in any occasions. Others laughed on the ways the tribes' costume be used in a dance presentation. With this, it only implies that mostly Filipino children now lost their appreciation on Philippine folk dances and it seems that these dances have lost its appeal to

the eclectic new breed of Filipino youth (Tullao& Cruz, 2015). Empowering and preserving these cultures, traditions, and activities can be a great task to every Filipino (Poralan, 2012). As the world become more develops, the centennial children today slowly leave the old customs and culture of their respective countries. They use to enjoy the newly discovered kind of dance styles, like K-Pop, hip-hop and break dancing. Thus, this study would like to investigate on which societal and ecological factors do the interest of the Filipino youth to Philippine folk dance is highly developed and enhanced.

According to Santos (2012) folk dance is an integral part of Filipino culture like Carinosa, Maglalatik, Itik-itik, Singkil, Tinikling, Kuratsa, Rigodon and Pandangosailaw, to name a few, impeccably depict its people's values and way of life and mirror the influence of hundreds of years under foreign rule. Its higher value lies in the wholesome recreation and spiritual satisfaction it can provide, and the preservation of the people's culture. Since dancing was formed and recognized across generation, this in turn that it makes culture embrace modern performances (Babiera II, 2014). A study was conducted in CIC-Cebu by Refuerzo (2013) about the possible reasons of the Grade 8 students that lack interest in learning Philippine folk dance. It was found out that students lack the interest due to the lack of participation and idea, complex dance steps, tedious figures and formations and due to the Physical Education teacher's aspect. Krapp and Fink (1993) found out too that even in kindergarten and preschool levels, learners can specify the stableness of interest regardless of their young age to dancing Philippine folk dance. However, over the time, the object-specific structure becomes progressively more differentiated. A realistic study by means of the cross-sectional method and longitudinal scheme had shown the negative side of the students' interest for school through the years. The reason of some scholastic efficiency to the interest in the subject has been revealing in the first year of elementary school, but it becomes more precise in the second year (Helmke, 1993). Moreover, a study on Maloleno youth's point of view (2015) determined the main reasons behind the loss of interest of the Filipino youth in Folk dancing namely: the introduction of mainstream music and dances, such as hip-hop, Latin and sensual dances, and other modern dances from foreign countries especially of Western origin which has significantly influenced and instantly appealed to the youth (Tullao& Cruz, 2015). Colonial mentality which had been cultivated in Filipino minds due to protracted years under foreign rule is also seen as a contributing factor. Maloleno youth find Philippine folk

dance irrelevant, boring, out-of-style, and embarrassing to perform.

With the various study presented and reviewed by the researches, this literature review manifested the sources and reasons of students declining interest to Philippine folk dance which are grounded to the personal and developmental growth of the person as a whole affecting environmental activity. The study on interest to Philippine folk dances is statistically and normally distributed phenomenon. However, the possibility of statistical distribution of interest from societal and ecological perspective is still questionable and unheeded.

Taking this opportunity in studying the limited completion of fractals, this research paper intends to impart new knowledge by initiating the interest of students to Philippine folk dance in a new dimension using fractals. Presentation of fractals into the linear dynamical systems and finally to review more comprehensively the state of the art in numerical methods for estimating the Fractality of a peculiar motivator to Philippine folk dancing by most millenials. A novice science of Fractal was eminently expanding and eventually leads us to think about what we do not see but on what does it takes to produce of what we can see. This study will look into the best source of interest to Philippine folk dance among the Junior High School in USJ-R Basak Campus, that already undergone the course. Furthermore, this study attempts to determine the top factor in providing the interest level of the students to Philippine folkdance based on the indicators provided from the home, school, society, peer group, and media. Then it ranks the corresponding normal mean and identifies how fractal dimension affects each factor included in the study. Lastly, it gives new understanding and knowledge on the societal and ecological perspective of interest to Philippine folk dances using fractal statistics.

II. THEORETICAL FRAMEWORK

The study is anchored on these theories such as the Self- Determination Theory by Ryan & Deci, Theory of Interest by Krapp, Vicarious Learning Theory by Bandura and Ecological System Theory by Bronfenbrenner.

The Self-Determination Theory by Ryan and Deci (1997) is an approach to the human motivation and personality that practices the traditional empirical methods, at the same time engaging organismic Meta Theory that highlights the prominence of human's evolved inner resources for personality development and behavioral self-regulation. It focuses on human motivation and personality. The theory highlights the internal and external factors. In other words, a person is interested to do and perform something based on his or her extrinsic and intrinsic motivational factors. This theory is supported by the Theory of Interest by Krapp (2005). This theory posits the two types of interest namely: situational interest and individual interest. Situational interest is stimulated by the learning environment (Schiefele, 1999) while individual interest is the intrinsic motivator of a person to learn. According to

Schiefele in 2001, interest and motivation are highly related to the process of learning. Interest shows an important role as the descriptive factor in the subject theories of teachers and educators. Therefore, individual's interest is conceived as a relatively enduring preference for certain topics, subject's areas, or activities. Additionally, based on the Vicarious Learning Theory of Albert Bandura (1962) states that people imitates when they can observe a particular person, event or activity marvelously in a period of time. It also provides the significance of the observational learning, and modeling. This theory incorporates an endless interaction from other people, their behavioral aspect, and individual thinking abilities. In dancing, appreciation and execution of folk dance steps is mirrored by the students from their teachers. A good and effective dance instructor is able to produce good folk dancers with discipline which is one way a reflection of himself or herself. And lastly, the Ecological System Theory of Urie Bronfenbrenner (2013) which tells on how the environment influences a particular behavior or interest of a person in the presence of family or at work, at school and everything around us. This theory assumes that a child developed according to the characteristics of the external environment in which where the child can interact with others and influence by others. And this context, he classified five different levels that can affect the child's development specifically the microsystem, the mesosystem, the exosystem, the macrosystem, and the chronosystem. With this theory, the researches intend to utilize the microsystem which means the system closest to the person and the one in which they have direct contact. Some examples would be home, school, daycare, or work. A microsystem typically includes family, peers, or caregivers. Relationships in a microsystem are bi-directional. In other words, your reactions to the people in your microsystem will affect how they treat you in return. And this is the most influential level of the ecological systems theory in learning specifically, Philippine folk dances.



Figure 1. The Conceptual Framework of the Study

The instruction of dance education has been expressing vividly until t Xoday's generation, and it is changing gradually in the different genre from diverse places and origins. Dance training and workshop has habitually a step-by-step way of teaching, where the dancers can learn easily the particular movement from the expert instructor (Bolwell, 1998). In addition to that idea, dance is a form of response that required cognitive, affective and psychomotor skills of individual experiences from the world (Bannon, 2010). Anu Soot and EleViskus(2005) studied about the feedback of the interest of a particular student in the field of dance, wherein unambiguous type of dance they love to performand a competitive as well as an operative regimen for the dancers reviewed the new styles in teaching dance in the 21st Century.

III. RESEARCH DESIGN AND METHODS

This is a quantitative type of research where the researchers conduct a survey to find out how many students among the Junior High School of the University of San Jose- Recoletos still have the interest in Philippine Folk Dance. Specifically, it employs exploratory data analysis to determine the fractal dimension λ and rank of source of interest (in fractal) was determined for in-depth comparison and results. Through a Likert Scale questionnaire to acquire the data sets which was validated and tested on its reliability using Cronbach alpha, the tool had significantly aided the researchers to retrieve the interest of learners on Philippine folk dances based on the identified variables to be measured in this study. A random sampling technique was utilized by the researchers in selecting its corresponding respondents of the study. Moreover, for actual data gathering, the researchers provided a permission or transmittal letter to the

faculty and head of Physical Education department to conduct the survey among their students. After which, the gathered data had been tallied, tabulated, computed and analyze using fractal statistics. This form of statistics was used to exhibit self-similarity, scale invariance, and fractional dimension(Mandelbrot, 1982). Then, the study used the Histogram (A Graphical Test for Normality) and The Smirnov-Kolmogorov Test (Analytical Test of Normality) in which it was part of taking the result more reliable. In the arithmetical view, fractal dimension was considered as $= \frac{\log(f(x))}{\log(\frac{\theta}{x})}$, where $\theta = \min\{x_i\}$. This extent describes the space-filling property of the arithmetic object. While in figures, the fractal dimension λ can be assessed through getting the average of the values from the formula:

$$\lambda = 1 - \left(\frac{\log(1 - \alpha)}{\log(\frac{x}{\theta})} \right)$$

where $x = \text{data}$, $\alpha = \frac{\text{rank of data}}{n}$ (where $n = \text{no. of population}$), $\theta = \text{minimum data}$

After gathering all the data, the researchers came up with the result and rank those sources of interest to Philippine folk dance from 1st sources of interest to the 5th rank. The result was compared and contrast to the normal distribution of the datasets to the fractal dimension of the result. Lastly, the researcher gives the implication of the delinquent discovery in this study.

IV. RESULTS AND DISCUSSIONS

After all relevant data were gathered; they were organized, tabulated and analyzed in this section. The first results show the "normally-assumed" data with the corresponding average as a form of analysis. The mean indicates the numbers of the respondent's answer to a particular indicator in the survey.

SOURCES OF FOLK DANCE INTEREST: A DE

Indicators: Interest from School	School average	st de
I appreciate dancers in Philippine Folk Dance in our school.	3.38	
I'm willing to join the dance club designed by the class adviser.	2.48	
I'm active in dancing specially in the room presentation.	2.45	
I find the Philippine Folk Dance very interesting.	3.03	
I like Philippine Folk Dance because of their costumes.	2.80	
I love the way the dancers interpret the dance.	3.30	
I like to learn Philippine Folk Dance because of my classmates.	2.33	
I like to wear the costumes of the Philippine Folk Dance during the presentation in school.	2.33	
I know some of the dances of Philippine Folk Dance because it is one of my subjects.	2.78	
I actively join presentation especially in Philippine Folk Dance.	2.38	
Factor Average	2.72	

Table 1. Extent of Interest to Philippine Folk Dance




-  **The result of the Average Mean.**
-  **The result of the Highest Mean.**
-  **The result of the Lowest Mean**

Table 1 shows the extent of the respondents' interest to folk dance in the school environment. This type of academic setup has been Agreed (with an average of 2.72) to have showcased different elements of folk dancing that made it appealing to them. In fact, highest rating was recorded for the item "I appreciate dancers in Philippine Folk Dance in our school" which achieved an average of 3.38 or equivalently Strongly Agreed. Also, the way how the dancers interpreted the dance (3.30) also affected heavily to the fact that schools have indeed enabled Junior High School students to appreciate Philippine Folk Dances. However, the respondents disagree with their thought that they learn from their classmate with 2.33 average and equal with the statement of "I like to wear the costume of the Philippine folk dance during the presentation of the school. (2.33)

In the Philippine framework of Philippine Folk Dances, conveyed that Philippine Custom is shown in and out of school premises, in academic standards and in common practices. In the school setting, the teachers are required to teach the learners in the proper way of executing dance steps with accompanying syllabi and the scheme while in the community, they teach the common events, from means to games, from work to parties (Villruz, 2015).

Table 2. Extent of interest in society to Philippine folk dance

Indicators: Interest in Society	average	s d
I love to see people dancing folk dance on the street during fiesta.	3.45	
I like to join dance troupe in our barangay.	2.13	
I like to join workshop in our barangay about folk dance.	2.15	
I find Philippine Folk Dance new in our society.	2.58	
Philippine Folk Dance in our place is very popular to everyone.	2.70	
Philippine Folk Dance is easy to teach on the children in the street.	2.55	
I'm interested to learn folk dance that teaches me with my neighbors.	2.48	
I want to teach Philippine Folk Dance to the children so that they learn it early.	2.55	
I like to see folk dancers will join the barangay contest.	2.95	
I want people who did not go to school will also learn Philippine Folk Dance.	3.18	
factor average	2.67	

Table 2 displays the levels of interest of respondents to Philippine folk dance in society aspect. The respondents have agreed with the average of 2.67 from the different side of the indicators. Especially when the folk dancers are dancing on the street during fiesta (with an average of 3.45, strongly agree) while on the opposing side of the results, the students disagreed with the idea of joining the dance troupe in their barangay and even knowing through teaching from their relatives or neighbors, with the average of 2.13 which means disagree.

Agreeing with the idea of Kwaantes (2000), every Filipino loves to witness festival and even though a small fiesta in a barangay. Because of this particular occasion, the Filipino celebrates also the time for friends, family and also

time for food, events, and parties. However, the fiesta is the special time to celebrate to dance and presenting our native culture and tradition. Filipino that lives in a small barangay is a simple type of person, yet they find the way to celebrate life's blessings in a form of dancing in the street. In another view, the closest thing to Filipino's heart was the dances from the countryside Christian valleys. They believed that in a form of dance, they celebrate the love of life in every Filipino community.

Table 3. Extent of interest in peer/ friends to Philippine folk dance

Indicators: Interest in Society	average
I love to see people dancing folk dance on the street during fiesta.	3.45
I like to join dance troupe in our barangay.	2.13
I like to join workshop in our barangay about folk dance.	2.15
I find Philippine Folk Dance new in our society.	2.58
Philippine Folk Dance in our place is very popular to everyone.	2.70
Philippine Folk Dance is easy to teach on the children in the street.	2.55
I'm interested to learn folk dance that teaches me with my neighbors.	2.48
I want to teach Philippine Folk Dance to the children so that they learn it early.	2.55
I like to see folk dancers will join the barangay contest.	2.95
I want people who did not go to school will also learn Philippine Folk Dance.	3.18
factor average	2.67

Table 3 shows the interest in Philippine folk dance in Peer/Friends aspect. The respondents agreed that peers/friends influence respondents' interest in Philippine folk dance (with an average of 2.51) through different colorful fashioned costumes which are interesting to them. The highest mean recorded was the indicator of "Philippine Folkdance had very colorful fashioned costumes" (with 3.2 average). On this note, respondents showed interest to Philippine folk dances because of the amazing and colorful costumes and accessories used by dancers during dance presentations. But, most of the respondents disagree that they love Philippine folk dance because of having a friend or peer who is a dance instructor.

A life experience of the Executive Director of Hiyas Philippine Folk Dance Company, Jeff Bado, justified the effect (for interest and loss of interest) of friends and peers for folk dancing through an interview. In his college years, he had a classmate who was a member of a dance troupe who focused more in folk dancing. His friends and classmates encouraged him to join the dance troupe and learn folk dance. But he preferred more dancing jazz, R&B music and disco dance craze. Then in the year 2002, Annie gave Jeff first exposure in folk dance in which he became more inspired and interested about the said dance genre. With that, Jeff and his whole family founded a very well-known country's premiere dance ensemble until today.

Table 4. Extent of interest from media

Indicators: Interest from Media	average	st	de
I love to watch Philippine Folk Dances in television.	3.00		
I mostly search Philippine Folk Dances in YouTube.	2.50		
I make videos in Philippine Folk Dances and upload on Facebook.	1.85		
I find Philippine Folk Dance interesting because it's on the internet.	2.10		
Some students prefer to watch cultural shows on the internet.	2.75		
I love to listen to Philippine Folk Dance music.	2.70		
I upload videos of Philippine Folk Dances in my phone.	1.80		
Philippine Folk Dances are easy to teach when using video.	2.30		
Philippine Folk Dances are trending on media during <u>Buwan ng Wika</u> .	3.25		
I Love to take pictures while wearing Philippine Folk Dance costumes.	2.85		
factor average	2.51		

Table 4 illustrates the interest of students to Philippine folk dance from media. This type of set up has been agreed with the average of 2.51, that media can help students to know more about Philippine folk dance and media can give more information especially to the person who has no idea about Philippine folk dance. Specifically, the indicator "Philippines folk dances are trending in media during "Buwan ng Wika"" with an average of 3.25, and interpreted as "strongly agree". However, the respondents' description of the statement "I upload videos of Philippine folk dance in my phone" with an average of 1.80 which is interpreted as disagree.

It is very proud to know that our culture was recognized in the international arena in terms of folk dancing. In fact, the Adamson University had their event of

celebration that concentrated on the different culture in which unites in promoting world peace and Philippines had been known to its various and splendid folk dances because on what they see mostly from the internet. Even they were not Filipinos and they were too apart from our country but still they have appreciation of the Philippine folk dances because of using media nowadays.

more important than folk dancing. Ever since the Philippine folk dance were taught and discussed in the school or in the four corners of the classroom, after which it continues when the students or the learners go back in the school premises.

Table 5. Extent of interest from home

Indicators: Interest from Home	average	st de
I find Philippine Folk Dance interesting because it is already in our family tradition.	2.38	
My parents are folk dancers and I want to be like them	1.88	
We want our family preserve the Philippine Folk Dance in the society.	2.43	
My mother wants me to join Philippine Folk Dance because she is a P.E. teacher.	1.95	
I want to encourage my siblings to dance Philippine Folk Dance.	2.38	
Philippine Folk Dance is the favorite dance of my parents.	2.33	
I love to dance Philippine Folk Dance because of my grandparents.	2.30	
I like to learn Philippine Folk Dance because of my cousins.	2.18	
I want my family to be part of Philippine Folk Dance history.	2.28	
Philippine Folk Dance is the favorite dance in my family.	1.98	
factor average	2.21	

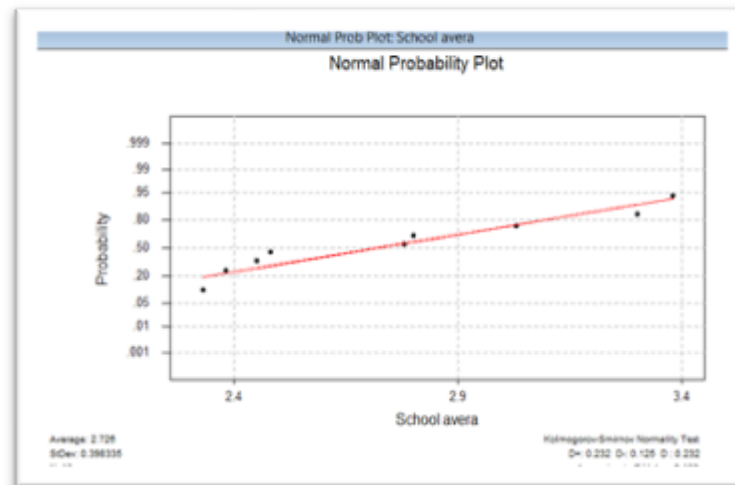
Table 5 presents the extent of respondents’ interest from their home. It shows that the respondents disagree in all the indicators presented. Among the indicators, the statement, we want our family to preserve the Philippine Folk Dance in the society." Has the highest mean average of 2.43. It means that family somehow wanted to preserve the Filipino culture through its dances. On the other hand, the statement “My parents are folk dancers and I want to be like them” has the lowest mean average in all the indicators presented. This finding means that most of the respondents had no folk dancer parents.

Hence, this result implies that most of the students did not discuss and even talk about the Philippine folk dances at home. Moreover, the parents did folk dancing in their early age but it did not give them the opportunity to discuss in them in their house setting. However, the students know about it but it is not usually tackled in the house during casual conversation as most family discussed other matter

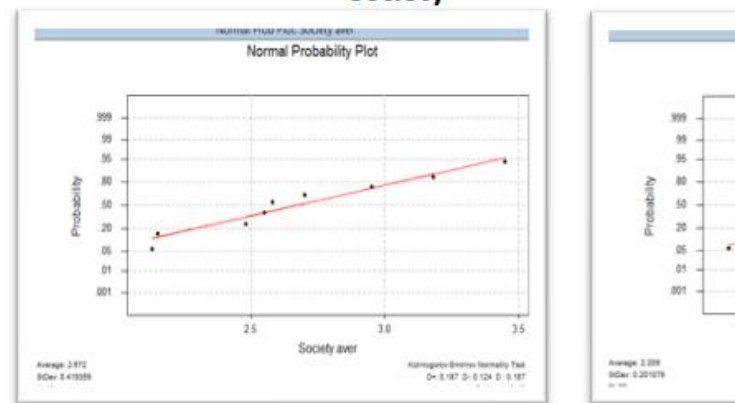
The data gathered from the survey was tested for normality or its non-normality. The normal distribution is essential in statistics and it is common in some of the ordinary and communal sciences. The results revealed that the datasets followed non-normal distribution. Hence, Fractal Analysis was utilized in testing further analysis.

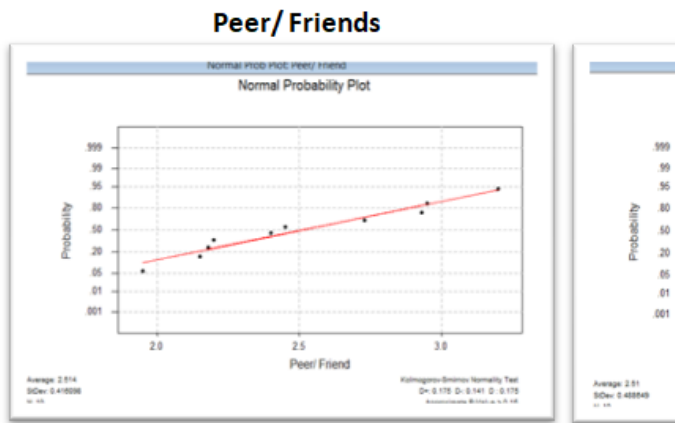
The graphs provided below show the visual evidence that the data at hand do not behave in normal pattern. The Kolmogorov Test statistically verifies this claim. With p-values consistently found to be greater than the level of significance of 0.05, then the data behaves in a non-normal fashion.

The Smirnov-Kolmogorov Test Results School

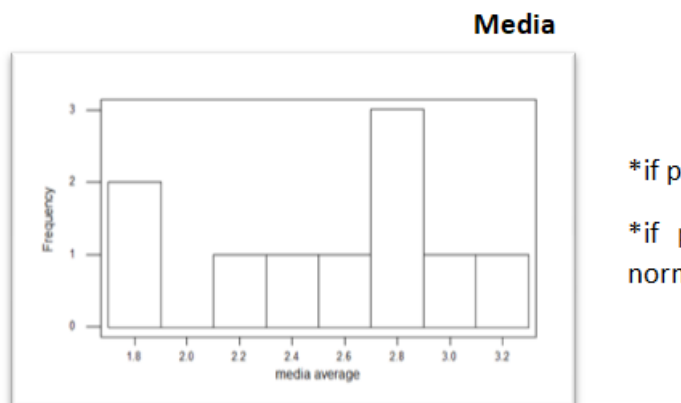
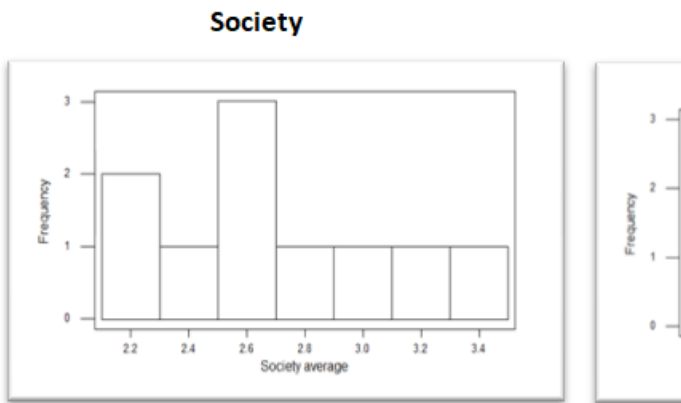
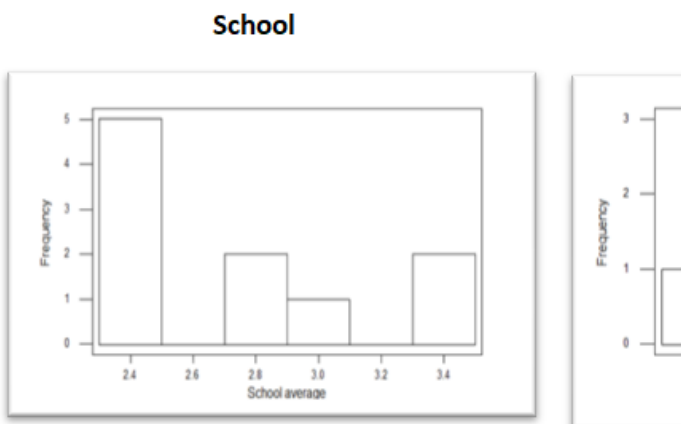


Society





The Histogram



Source of interest	Average (normal assumption)	Standard Deviation	Rank of Source of Interest Normal	Fractal dimension
school	2.72	0.85	1 st	0.9805
society	2.67	0.86	2 nd	1.1282
peer/ friends	2.51	0.82	3.5 th	0.734
media	2.51	0.91	3.5 th	1.0927
home	2.21	0.90	5 th	0.8639

The Fractal Dimensions and the Normal Average

V. DISCUSSION

The school is consistent with the normal assumption of data gathered and from the fractal dimension results. The deviation of the results in school means that many of the students believe that the school is the main source of increasing the interest of students in Philippine folk dance than from their homes or even peers. The respondents strongly agree about school as an ecological factor in enhancing their level of interest but the extent on why they agree was irregular. This means that many reasons on why they answer that the school is the main source of interest to Philippine folk dance and why it is a good avenue where student’s interest in Philippine Folk Dancing is forwarded. Even if variations in the ranks of sources were recorded from the table presented, it became consistent however that peer/friends and home as probable sources of Philippine Folk Dance interest are either perceived with more irregularity (in peer/friends with deviation at 0.27 from the norm) and the disparity found from the raw data on the perception if home can be a good source of interest.

Implications for Philippine Folk Dance Programs

The preceding results indicated the possible sources of Philippine Folk Dances' interest and it has been pinpointed that it is with peers, friends, and home that the importance of the dance is least forwarded. Hence, using the very institution, the school, to make these interest sources aggressive towards inflicting awareness to the dying culture of Filipino dance, the implications are discussed as follows:

THE USE OF SCHOOL TO INFLICT INTEREST TO FRIENDS/PEERS

- The School will create a culture that the Philippine folk dance will preserve through the events and activity to the youngsters in school.

For instance, in every Flag Ceremony in the school, each section and grade level will be assigned to have a folk

*if p-
*if p-
norm

dance presentation just to refresh and inculcate the mind of the students the basic dance steps in every Philippine Folk Dance.

- The teacher will train students that will be a dance master in Philippine folk dance.
- The school will make an activity that the students will be required to attend in experiencing Philippine folk dance by peers.

THE USE OF SCHOOL TO INFLICT INTEREST AT HOME

- The teacher gives a task to the students to gather experiences of their parents in Philippine folk dance.
- The school invites the parents to watch Philippines folk dance show in school. Even if it's not "buwan ng wika".
- The school makes a concert or cultural shows that the parents will be dancing Philippine folk dance in the school and one of good examples will be the Family Days, and the parents will be dancing and presenting Philippine folk dance together with their child.

Since the school has the biggest part in the level of interest among the student in the junior high school in Philippine folk dance it will surely start from it. The school provides activities and programs that can be helpful to everybody in remembering our culture as a Filipino, especially to the presence of the member of the family. In which it is new to their traditional gathering in the school. The best example of it is the school family day, and it has an activity in which dancing Philippine folk dance will be executed with the family members. With that, the experience gain in the said activity was discourse at home and also sharing happy moments from it. However, it is new to the home environment and topics that usually the family will tackle. After the familiarity and knowledge from the event, then the sharing of experience and ideas of Philippine folk dance will be shared with the friends.

VI. CONCLUSION

Folk dance as an academic program in any academic institution has received less attention and interest due to the rise of globalization that in turn makes culture adopt modern behaviors. Because of this challenge, motivation and its corresponding sources to increase exposure and interest become greatly valued to affect the teenagers take on knowing, valuing and practicing the Philippine folk dance. This research has sought that from amongst all probable sources to motivate one's self, schools have become an impeccable avenue to generate the interest of the young. Due to this very reason, academic institutions are actively called for program innovations to widen their scope of influence to interest for the young's friends/peers and their home. School, with the support of every student's family could increase better the level of interest of students and their appreciation to Philippine folk dances.

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