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# Learning preference among accounting students of the University of Mindanao

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**Abstract**. Learning preferences are a way to enhance the learning experiences. Students can adjust learning processes and techniques if they understand the impact of different experiences. This study utilized cluster analysis to categorize the learning dimensions on the index of learning preferences of first-year accounting students at the University of Mindanao. A survey was conducted on accounting students, and a method of quantitative correlation was employed. Data were collected using a modified research questionnaire. To determine the learning preferences of first-year accounting students, the researchers use gender, age, and socio-economic status as indicators. The statistical treatments used to analyze and interpret data were principal component analysis and clustering analysis. The study's results indicated the following: (a) most students gain the most knowledge from what they hear; (b) the method that the students utilized is Auditory and Visual. In contrast, group and kinesthetic learning preferences are the students' least preferred.

**Keywords**. Learning Preference, Clustering Analysis, Accounting Students, quantitative correlation, University of Mindanao

## 1. Introduction

Several issues of students in this generation that hinder their success are that they easily quit school and have poor academic performance. Researchers are looking for the root of these issues to help the students in their school endeavors (Veloso, et al., 2023.) Most of the studies explored the factors affecting student performance. This paper will focus on understanding the student's learning preferences, which could positively impact their academic performance (Chetty et al., 2019).

Students have unique attributes when it comes to learning; therefore, teaching methods are expected to vary (Kurniawan, Setyosari, Kamdi, & Ulfa, 2018). The millennial generation has gained more concentration on the uniqueness of their characteristics than the older generations, so millennials were born into a "techy" world where technology is everywhere (Phillips & Trainor, 2014). In today's era, the following concern on the information usually available to college officials only sometimes allows them to understand the specific needs of the students they assist (Baumgartner, Hallgren, Person, & Santos, 2014). Most students need help on developing practical study skills or appropriate strategies that they prefer (Tsai, 2013). Instructors usually use the traditional lecture method in teaching without considering such

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students' characteristics as their learning preferences and other factors, except if the teaching strategies match the characteristics of the student (Khan, Arif, & Yousuf, 2019). When there is a mismatch between the learning preference in a class, students become distracted and bored in class, which possibly results in failing grades, get discouraged with the curriculum, and, worse is that they might change their curriculum and drop out of the course that they chose (Tsai, 2013).

Many generations have evolved regarding the teaching methods, methods of learning, and the productive application of the skills they learned; therefore, the awareness of students on their preferences in learning could help them develop their capabilities (Phillips & Trainor, 2014). Teachers should also profoundly choose the most suitable learning preferences, and teachers must be aware of the different learning styles that students express in classrooms and build a more structured and organized teaching strategy (Veena & Shastri, 2013). A student's excellence in higher education depends on the relationship between learning style and style of teaching. Tsai (2013) claimed that determining students ' learning styles may help develop instruction by providing a way of delivering strategies adapted to different learning preferences. Carjuzaa (2013) suggest that teachers consider the learning styles and plan teaching on their basis. Hipsky (2011) recommends various ways teachers can adapt to match students' learning styles.

Few studies were conducted by local researchers concerning the issue of learning preferences, particularly among accountancy students. In the Philippines, the number of dropped-out students increases annually. Due to this issue, it is encouraged to conduct more studies on learning preferences, specifically among first-year accountancy students. Bachelor of Science in Accountancy is one of the most challenging courses. This should not disregard the importance of choosing the appropriate learning method to suit students' learning preferences, for this plays a crucial role in learning development and achievement.

## 2. Review of Related Literature

### Learning Style Model

Dunn (1979) explained learning style as how a learner focuses and retains new and challenging information. Given the importance of perception, Dunn and Dunn's learning theory is anchored in the current study. Since 1990, the Dunn and Dunn Learning Style Model has been researched by over 50 educational institutions in both the US and abroad (Mitchel, 2009). Results from the research have shown that by learning through a student's learning style preference, student achievement increases, and the information from the teaching is retained longer by the student (Mitchel, 2009). In comparison, Mitchel (2009) states that Dunn and Dunn's learning style is based on the theory that each person has their strengths when it comes to learning. The model theory is represented through five environmental, emotional, sociological, physiological, and psychological stimuli. Dunn and Dunn believed that each stimulus contains individual elements contributing to academic mastering skills. One reason for the popularity of the Dunn and Dunn model is that it was generated by classroom experience and therefore has ecological validity. Thus, Dunn and Dunn's learning style model is more relevant to the study (Mitchel, 2009).

Many students fail because of the curriculum but due to instructional approaches incompatible with their learning styles (Oweini & Daouk, 2016). When an innovative instructional strategy is applied, such as fitting the student's learning preferences using the Dunn and Dunn model, the researcher looks at the student's accomplishment scores in reading comprehension and his attitude toward learning English. Higher motivation and greater reading

comprehension were attained when the student's learning style preference was integrated into the instructional tactics and the learning environment. This conclusion backs up research from more than 120 institutions, which indicated a significant impact on student achievement (Oweini & Daouk, 2016). Furthermore, a meta-analysis undertaken in the mid-90s at thirteen colleges found that students whose learning styles were accommodated might anticipate accomplishing 75 percent of a standard deviation higher than those without (Oweini & Daouk, 2016).

Dunn and Dunn's model takes preferences for tasks and activities into account. Listening, reading, writing, touch, and practical experience are all used to explain learning as an essential dimension (Khan, Arif, & Yousuf, 2019). According to the study of Khan, Arif, and Yousuf 2019, this study observed one of the five significant stimuli strands discovered in the Dunn and Dunn model of learning preferences was used to examine teenage learning preferences. The study's findings contribute to our understanding of visual, auditory, and kinesthetic learning preferences by demonstrating the relative dominance of visual learners among male teenagers in a specific area of learning. Pakistan has shown a more vital link between auditory learning preferences and academic success. Therefore, Dunn and Dunn's model has been extended to the field of education (Khan, Arif, & Yousuf, 2019).

**Learning Preferences**

Research on student preferences established learning preferences as one of the primary factors corresponding to the learners' access to learning. Santos (2018) believes recognizing students' learning preferences would eventually boost their educational experience. Alavi and Toozandehjani (2017) concluded that having a history of students' learning preferences may strengthen their learning while helping them to enhance self-realization. It also relates to each person's learning process or approach(Gokalp, 2013).

Glakjani (2012) revealed that matching students' teaching styles and learning preferences may not imply that teachers should adapt the teaching style to the learning preferences of the individual student, nor will teachers use a comprehensive teaching style for all students. In addition, Bandura (2012) suggested that teachers have different learning methods since not all students learn using the same method. Frey (2018) asserted that one way to change the teaching styles and better understand the student's learning process is by considering the student's learning preferences while teaching. Rahman (2017) claimed that undergraduate accounting students, who embrace a range of learning preferences, are more fulfilled and perform better, implying that versatility matters to the students.

A research group claims that a correlation between teaching and learning preferences helps significantly improve the students' learning process (Glakjani A, 2012). As eloquently stated by Hou (2015), over the past several years, variations in learning preferences have come into focus at all levels of education. They have prompted most encouraging teachers to acknowledge the diversity of students in course management. Students may embrace a different learning preference in some situations but tend to maintain a preference for a particular learning style. There are no inferior learning preferences to others, but the learning preferences have different characteristics (Mkonto, 2015).

## 3. Methods

**Research Respondents**

First-year students of the College of Accounting Education are the respondents of this research. A total of 814 first-year students were enrolled in the accountancy course. The

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probable sample size for a finite population was calculated by Slovin's formula using the confidence level or interval, 95%, and the margin of error, 5%. The response distribution or the prevalence rate of 50% and we came up with a sample size of 262 respondents and asked to participate and represent the whole population as they answered the adapted survey questionnaire. They were chosen as the study respondents because the researchers wanted to know the learning preferences of the first-year College of Accounting Education students at the University of Mindanao.

**Research Instrument**

In this study, the data were gathered by administering the adapted instrument from the (Obralić & Akbarov, 2012). The instrument has undergone validation to ensure that the contents will achieve the purpose of the study. The Perceptual Learning-Style Preference Questionnaire is a 30 items question regarding learning preference. The first part was determining the participant's basic demographic information. The second part was selecting the learning preference of students by indicating their preference on a given statement on a five-point Likert scale. A Likert scale where the students will rate each item from 5 for highly preferred, 4 for preferred, 3 for moderately preferred, two somewhat preferred, and 1 for not preferred at all is used to interpret students' responses in terms of their preferred learning style.

**Statistical Tool**

The statistical tools employed for this study are:

**Cluster Analysis**

It is a set of tools and algorithms that are used to classify different objects into groups in such a way that the similarity between two objects. This tool was used to determine and identify each student with similar characteristics grouped together in clusters.

**Frequency Factor Analysis**

This involves grouping similar cases and grouping similar variables into dimensions. This process is used to identify latent variables or constructs. This was used in this study to describe variability among preferences of students.

## 4. Results and Discussions

**Profile of the first-year accounting Students**

Table 1.0 presents the frequency and percentage of distribution of respondents' age. The table shows that 60.3% of the sample size is less than twenty years of age, and 39.7% of the sample size is twenty years old and above. It can be observed that most of the respondents are twenty years old or below. Age indicated an effect as higher life satisfaction among older people based on the data gathered from research; as age levels rise, life satisfaction often increases. It is, therefore, essential to study to what extent age affects student satisfaction (Mercado, Bayugo, Leynes, Lontok, Medilla, & Manongsong, 2016)

**Table 1.0**

*Frequency and percentage distribution of the respondent's age.*

| Indicators | Frequency | Percentage |
|---|---|---|
| Below 20 years old | 158 | 60.3 |
| 20 years old above | 104 | 39.7 |
| **Overall** | **262** | **100.0** |

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Table 1.1 presents the frequency and percentage of distribution of respondents' gender. After the data was analyzed, the table reveals that female students outnumbered the male students with 191 females compared to the male, which consisted of 91 respondents only, which means 65.3% of the student sample size was female. Only 34.7% of the whole sample size was male. A study shows that the impact of being older and female does not merely explain the ability to employ successful approaches to research among more senior students and women. Among the male and female students who took part in their studies, some learning style preferences differed; however, those differences were not statistically significant (Anjali, Garkal, Yadav, Salwe, & Rainer, 2016).

**Table 1.1**
*Frequency and percentage distribution of the respondent's gender.*

| Indicator | Frequency | Percentage |
|---|---|---|
| Male | 91 | 34.7 |
| Female | 171 | 65.3 |
| **Overall** | **262** | **100.0** |

Table 1.2 represents the significant differences in their learning preference according to their socio-economic status.

**Table 1.2**
*Frequency and percentage distribution of the respondent's social classes based on household income.*

| Indicator | Frequency | Percentage |
|---|---|---|
| Below 15,000 | 179 | 68.3 |
| 20,000 and above | 83 | 31.7 |
| **Overall** | **262** | **100.0** |

Results show that most of the respondents' parents' income ranges from P15,000 below, and 31.6% state that their parents' income goes from P20,000 and above. In addition, most of the respondents belong to a family with an income ranging from P15,000 below. In Pakistan, parents' responsibilities are consciously or unconsciously passed to their children throughout their culture**.** Income was seen as a decisive factor, and a large family carries more responsibilities (Akhtar Z. , 2012).

**Learning preferences used among the first-year accounting students.**

Table 2.0 reveals the top 5 highest statements ranging from 3.8779 to 4.0573 out of a maximum 5. The table depicts the most elevated statement about auditory preference: "I learn better in class when the teacher gives a lecture." The second highest statement is "I understand better when I read instructions." The table also reveals the top 5 lowest statements garnering a mean of 3.6718 to 3.5916.

The table also shows statement 4 has the lowest mean: "I learn more when I study with a group." The second lowest statement is statement 15: "I enjoy learning in class by doing experiments." Students rely on visual representations and other learning resources and references to understand a particular topic, so if teachers do not use teaching aids, it can be

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challenging. Students often find it difficult to understand the lessons because teachers often explain issues at a difficult level (Mercado, Bayugo, Leynes, Lontok, Medilla, & Manongsong, 2016).

The results in Table 4.0 show students' clustering based on the index of the learning preference questionnaire. Based on the results, cluster 1 is categorized as visual learners, meaning individuals learn by seeing words in books or workbooks. They understand and recall information and instructions better if they read them. They remember things by sight and learn best using primarily visual methods. In cluster 2, they are group learners, consisting of two or more students working together to complete a task.

**Table 3.0**
*Learning Preferences among First-Year Accounting Students*

| **Components** | **Mean** |
|---|---|
| I learn better in class when the teacher gives a lecture. | 4.0573 |
| I understand better when I read instructions. | 4.0534 |
| When I study alone, I remember things better. | 4.0267 |
| When the teacher tells me the instructions, I understand better. | 4.0076 |
| When I work alone, I learn better | 3.8779 |
| When I do things in class, I learn better. | 3.8702 |
| I learn better by reading than by listening to someone | 3.8664 |
| I learn more when I can make a model of something. | 3.8664 |
| When I read instructions, I remember them better. | 3.8626 |
| When someone tells me how to do something in class, I learn it better. | 3.8397 |
| I learn best in class when I can participate in related activities. | 3.8244 |
| I prefer to work by myself | 3.8092 |
| In class, I learn best when I work with others. | 3.8092 |
| I learn better by reading what the teacher writes on the chalkboard. | 3.8015 |
| I prefer to study with others. | 3.8015 |
| I prefer to learn by doing something in class. | 3.7977 |
| I enjoy working on an assignment with two or three classmates. | 3.7977 |
| When I build something, I remember what I have learned better. | 3.7939 |
| I learn better in class when I listen to someone. | 3.7863 |
| In class, I work better when I work alone. | 3.7481 |
| I learn more by reading textbooks than by listening to lectures. | 3.7366 |
| I understand things better in class when I participate in role-playing. | 3.7366 |
| I learn more when I make something for a class project. | 3.7252 |
| I enjoy making something for a class project. | 3.7137 |
| I get more work done when I work with others. | 3.7061 |
| I prefer working on projects by myself. | 3.6718 |
| I remember things I have heard in class better than things I have read. | 3.6565 |
| I learn better when I make drawings as I study. | 3.6336 |
| I enjoy learning in class by doing experiments. | 3.6107 |

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| | |
|---|---|
| I learn more when I study with a group. | 3.5916 |

**Clustering of Students**

They prefer to work or learn in a group and share insights or ideas with others. While in cluster 3, they are considered auditory learners, where students usually learn from listening to discussions and oral explanations. They remember and retain information by reading aloud or moving their lips as they read. In cluster 4, they are identified as kinesthetic/tactile learners; students need to touch or try something to learn the concept best physically. They would instead perform physical activity to learn something as an active participant. Lastly, cluster 5 refers to individual learners who often work or study alone.

**Table 4.0**
*Clustering of students*

| Cluster | Learning Preference | Components |
|---|---|---|
| Cluster 1 | Visual | Q12. I understand better when I read instructions.<br>Q13. When I study alone, I remember things better.<br>Q1. When the teacher tells me the instructions. I understand better.<br>Q2. I prefer to learn by doing something in class.<br>Q6. I learn better by reading what the teacher writes on the chalkboard.<br>Q7. When someone tells me how to do something in class, I learn it better.<br>Q8. When I do things in class, I learn better.<br>Q11. I learn more when I can make a model of something.<br>Q10. When I read instructions, I remember them better.<br>Q17. I learn better in class when the teacher gives a lecture.<br>Q18. When I work alone, I learn better. |
| Cluster 2 | Group | Q23. I prefer to study with others.<br>Q5. In class, I learn best when I work with others.<br>Q3. I get more work done when I work with others.<br>Q4. I learn more when I study with a group. |
| Cluster 3 | Auditory | Q24. I learn better by reading than by listening to someone.<br>Q20. I learn better in class when I listen to someone.<br>Q9. I remember things I have heard in class better than things I have read.<br>Q26. I learn best in class when I can participate in related activities. |

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| | | |
|---|---|---|
| Cluster 4 | Kinesthetic/Tactile | Q16. I learn better when I make drawings as I study.<br>Q15. I enjoy learning in class by doing experiments. |
| Cluster 5 | Individual | Q28. I prefer to work by myself<br>Q27. In class, I work better when I work alone.<br>Q29. I learn more by reading textbooks than by listening to lectures.<br>Q30. I prefer working on projects by myself. |

Table 4.1 presents the cluster cross tabulation based on gender. Based on the results, cluster 1 consists of 17 (6.49%) males and 21 (8.02%) females, cluster 2 consists of 17 (6.49%) males and 19 (7.25%) females, cluster 3 consists of 22 (8.4%) males and 42 (16.03%) females, cluster 4 consists of 7 (2.67%) males and 23 (8.78%) females, and cluster 5 consists of 28 (10.69%) males and 66 (25.19%) females with a total of 91 males and 171 females. The majority of the male and female respondents used cluster 5. Most male students preferred one learning mode, while more female students preferred multimodal learning (Anjali, Garkal, Yadav, Salwe, & Rainer, 2016).

**Table 4.1**
*Gender * Cluster Crosstabulation*

| Cluster | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | Total |
|---|---|---|---|---|---|---|
| Male | 17 | 17 | 22 | 7 | 28 | 91 |
| Female | 21 | 19 | 42 | 23 | 66 | 171 |
| **Overall** | **38** | **36** | **64** | **30** | **94** | **262** |

Table 4.2 presents the cluster crosstabulation of the respondents according to their age. Regarding their age, cluster 1 consists of 23(8.78%) students aged less than 20 and 15 (6%) students aged 20 years or above. Cluster 2 consists of 26 (10%) students aged 20 years old and below and 10 (4%) students aged 20 years old and above, cluster 3 consists of 35 (13.5%) students ages 20 years old and below and 29 (11.3%) students ages 20 years old above, cluster 4 consist of 18 (7%) students ages 20 years old below and 12 (4.6%) students ages 20 years old above, and lastly, cluster 5 consists of 56 (21.5%) students ages 20 years old below and 38 (14.3%) students ages 20 years old above with a total of 158 respondents ages less than 20 years old and 104 respondents ages 20 years old and above. The age might be helpful, but the results do not affect students' academic performance. Matured students did well in most academic settings compared with younger students. Nonetheless, the results obtained in this study show that although age may lead to better scores, age has no significant impact on academic performance (Jayanthi, Balakrishnan, Ching, Latiff, & Nasirudeen, 2014).

**Table 4.2**
*Age * Cluster Crosstabulation*

| **Cluster** | **1.00** | **2.00** | **3.00** | **4.00** | **5.00** | **Total** |
|---|---|---|---|---|---|---|
| Age less than 20 years old | 23 | 26 | 35 | 18 | 56 | 158 |
| 20 years old and above | 15 | 10 | 29 | 12 | 38 | 104 |
| **Overall** | **38** | **36** | **64** | **30** | **94** | **262** |

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Table 4.3 presents the cluster crosstabulation according to socio-economic status. Based on the income of respondent's parents, cluster 1 consists of 44 (4.3%) students where parents earn P15,000 below and 18 (7%) students whose parents earn P15,000 above, and cluster 2 consists of 37 (14.2%) students whose parents have an income of 15,000 below. In addition, 15 (6%) students whose parent's income is 15,000 above, cluster 3 consists of 48 (18.5%) students whose parents have an income of 15,000 below and 23 (9%) students whose parents has an income of 15,000 above, and cluster 4 consists of 27 (10.5%) students whose parents have an income of 15,000 below and 10 (4%) students whose parent's has an income of 15,000 above. Lastly, cluster 5 consists of 23 (8.73%) students whose parents earn P15,000 below and 17 (5.5%) students whose parents earn P15,000 above.

**Table 4.3**
*Socio-economic status * Cluster Cross-tabulation*

| **Cluster** | **1.00** | **2.00** | **3.00** | **4.00** | **5.00** | **Total** |
|---|---|---|---|---|---|---|
| Below 15,000 | 44 | 37 | 48 | 27 | 23 | 179 |
| 15,000 and above | 18 | 15 | 23 | 10 | 17 | 83 |
| **Overall** | **62** | **52** | **71** | **37** | **40** | **262** |

Multimodal learning style was the most popular and preferred among students who belonged to the lower income community and had no experience in paternal schooling; therefore, socioeconomic status does affect students' abilities (Nazir, Farooqi, & Al-Ansar, 2018).

## 5. Conclusion

Students' poor academic performance has been a major issue faced by schools for the last decades. This problem could lead to students retaking their subject, and the worst is dropping out the school. The students' different learning preferences could explain this issue. Schools can only use one teaching method at a time per topic which could result in student learning style mismatch. This information should be important in designing and developing courses, instructional, or training programs. Learning intuitive preference appeal ensures that the discussion will continue, and influencing teachers' and instructors' attitudes about learning styles is a tremendous task. Science may make progress in the end.

Individualizing instruction is a good idea. Individualization in a heterogeneous classroom can be accomplished through differentiation. Focusing on the learning styles of pupils offers little if any educational value. The differences in learning preferences affect learning; hence, if addressed appropriately, there will be an enormous improvement in learning, and more learning will occur substantially faster. Combining learning preferences can also lead to a more structured learning approach and better understanding, comprehension, and retention.

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