Identifying Diversity in Learning

19L038　Katrina Persons-Nishi

Abstract

Learning can be a hard task without the understanding of how learning occurs. Often classroom settings cannot create a diverse set of opportunities for all learners to succeed. Both students and teachers rarely recognize diversity in learning to an in-depth degree. Failing to know and understand students on a deeper learning level obstructs teachers from teaching with efficacy. Being capable of identifying student's differences or uniqueness in learning allows for teachers to better support their students. Through the analysis of Howard Gardner, Neil Fleming and David Kolb's theories, and how it can be applied to learners will allow for a better understanding of identifying the diversity in the individual. Creating a beneficial and effective way of identifying learning diversity will allow students to be supported in a way that best suits them from an early age in learning.

学習がどのように行われるかを考慮しなければ、学習は難しい作業になる可能性があります。多くの学習の場では、すべての学習者が成功体験をするための多様な機会を生み出すことが出来ていません。生徒も教師も、学習の多様性を深く認識していないことがよくあります。より深い学習レベルで生徒を知り、学習方法を理解しなくては効果的な学習には取り組めません。 学習における生徒の違いや特性を理解することで、教師は生徒をよりよく支援できるようになります。 学習理論の分析と、それを学習者や他の理論にどのように応用できるかを分析することで、個人の多様性を特定するための理解を深めることができます。 学習の多様性を特定するための有益で効果的な方法を作成することで、生徒は幼い頃から学習に最も適した方法でサポートされるようになります。

Identifying Diversity in Learning

Terminology

Student individuality can be seen through their unique thought process or how the way the brain processes and perceives information. This diversity results in labels such as neurodiversity and neurotypicality. Neurodiversity is used to describe cognitive diversity and refers to people who have cognitive differences, such as dyslexia, dysgraphia, dyspraxia, dyscalculia, and ADHD (Lewisham Virtual School, 2019). These cause the brain to function differently than those who are not neurodiverse or who are neurotypical. Neurotypicality refers to individuals whose brain functions are not classified as atypical. Multiple terms categorize neurodiversity. Learning disability is biological in idea and "often implies that the 'problems faced by the individual are part and parcel of their disease" (Kormos, 2017, as cited in Norbury & Sparks, 2013). Learning difference, a term with sociological roots, "suggests that if adaptations are made by society, the individual can successfully overcome their difficulties." Specific learning difficulties (SpLDs) is a term that recognizes both the terms learning disability and learning difference. Adding the term "specific" allows for the understanding that students may struggle with particular features in learning. (Kormos, 2017)

The Ministry of Foreign Affairs of Japan in their convention on the rights of persons with disabilities in article 24 states that those with disabilities such as SpLDs have the right to quality education and can receive "reasonable accommodation" (MOFA, 2014). Accommodations are not warranted without proof, and so many students in contrast can fall into what is known as the "gray zone." Many students go without diagnosis concerning SpLDs because their symptoms are not as prevalent and fall in between a spectrum running from severe to mild (Himeno, 2018, as cited in Ooiwa & Yap, 2020). In return, many students who need accommodations cannot receive accommodations. This calls for a need for teachers to be able to create non-medical accommodations in the classroom. SpLDs are also one factor amongst many in the classroom as all students are affected by learning differences. Learning differences can be defined as an umbrella term that also includes neurodiversity. Learning differences not only cover neurodiversity but also the diversity that affects learners that are neurotypical as well. Such diversity consists of the learner's individuality in the preferences, styles, or ways of learning. This is because every brain is different regardless of mental difficulties (Armstrong, 2015).

To support this universal diversity in learners, differentiated instruction and universal

design for learning have been focused upon in research that aims to understand how to accommodate such diversity in the classroom. Such ideologies are aimed "to maximize the potential of all learners by proactively designing learning experiences in response to the needs of diverse learners" (Santangelo & Tomlinson, 2012, as cited in Ginja & Chen, 2020). These learning experiences are differentiated to create multiple ways to reach the same goal of attainment.

Universal design for learning follows similar criteria. The difference being that differentiated instruction is a direct approach while universal design is an indirect approach to learning. Universal design sets out to create plans and designs that eliminate barriers for students to succeed in their learning without having to fail and rethink teaching (Stanford & Reeves, 2009). These philosophies' base foundation is diversity in learning that can be better identified by teachers through the lens of multiple types of learning theory.

Learning Theories

Multiple Intelligences Theory

Howard Gardner's multiple intelligences (MI) theory explores the different intelligences that affect the efficacy of certain ways of teaching. Gardner describes intelligence as "the capacity to solve problems or to fashion products that are valued in one or more cultural setting" (Gardner & Hatch, 1989). It "is a theoretical framework for defining/understanding/assessing/developing people's different intelligence factors" (Prashing, 2005), meaning that there is also diversity in the innate intelligences people possess. These intelligences are significant because they can be the link to understanding new information more efficiently and effectively. They consist of verbal-linguistic (word smart), logical-mathematical (logic smart), visual-spatial (art smart), bodily-kinesthetic (body smart), musical (music smart), interpersonal (people smart), intrapersonal (self smart), and naturalistic (nature smart) (Prashnig, 2005). Concerning having multiple intelligences, learners also have sensory-based learning differences.

VARK Theory

Neil Fleming's VARK theory stands for visual, aural or auditory, reading/writing, and kinesthetic (Fleming, 2011). All four can be identified as sensory-based learning differences because they are based on the five senses the general population possesses. Examples of these sensory modes of learning would include understanding information better through pictures and graphs for visual learners. Auditory learners are those who are able to comprehend information better through discussion or lectures for auditory learners. Reading/writing learners are those who understand information through written text which differs from visual aids. Kinesthetic learners are

those who understand best through physical movement or by reproducing the information learnt. VARK "is a questionnaire that determines a person's sensory modality preferences" as "sensory modality preferences are part of learning styles or methods used to process information." Sensory in this case relates to how VARK consists of the five senses the majority of people have. Modality in learning preference is also diverse and is not limited to being categorized singularly (Marcy, 2001). VARK defines the particular method which suits a particular learner the best. This method is then utilized through experience or the execution of a certain modality.

Learning Styles Theory

Experiences that elicit learning are best represented by David Kolb's learning styles theory, which is based on experiential learning. Kolb (1984) states experiential learning as being "the process whereby knowledge is created through the transformation of experience" in which "knowledge results from the combinations of grasping and transforming the experience." This is represented through a cycle of learning which begins with concrete experience or encountering an experience, then reflecting on that experience or a process known as reflective observation. The cycle then moves into learning from the experience after reflection or abstract conceptualization and onto implementing what was learned from reflection, which is called active experimentation. Active experimentation refers to implementing what was learned from reflection on the experience. Learners, based on the part of the cycle they are more preferable to focus on, are one of the four types of learners in the cycle consisting of accommodators, divergers, assimilators, and convergers. These four types of styles are influenced by the four different stages; concrete experience, active experimentation, reflective observation, and abstract conceptualization. Accommodators focus on concrete experience and active experimentation, divergers focus on concrete experimentation and reflective observation, assimilators focus on abstract conceptualization and reflective observation, and convergers focus on abstract conceptualization and active experimentation. While learners have sensory-based learning differences, they also have experience-based learning preferences as well.

Methodology

Participants and Measures

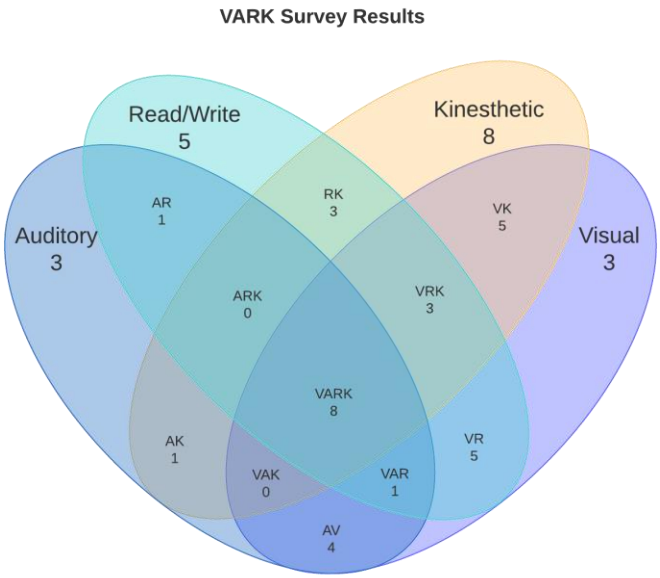
This pilot study was conducted to investigate the reality and self-perception of student's diversity in learning. 50 students at Keiwa College took part in a three-question survey that asked them to self-evaluate their perceptions of personal learning differences. The duration of the data collection was four day period beginning on the first day of January 2021, and was conducted

through Google Forms. The participants involved in this pilot study were all anonymous and so the data collected does not reflect a certain year. The questions asked were based on and referenced Gardner's multiple intelligence theory supporting the diversity of innate intelligence, Fleming's VARK theory supporting the diversity of sensory-based learning, and Kolb's learning styles (LS) theory supporting the diversity of experience-based learning. These theories were used in this survey to measure and compare different forms of learning differences to see the broadness of learning diversity. Each question was presented after a brief explanation of the elements of each learning theory as presented in Appendix A.

Question 1

The first question's results indicate high percentages of all learning styles except for auditory learners. This question asked the participant to identify which modalities of VARK best suited them, as shown in Appendix A. It is important to note that the question allowed multiple choices to be selected and influenced the percentages of each type of learner. Results consisted of 21 participants who identified themselves as being visual learners, 18 as auditory, 26 as reading/writing, and 28 as kinesthetic learners in their answers. 20 participants chose only being a single type of learner in the highest category, as shown in Figure 1. Figure 1 consisted of 8 participants that believed that they were solely kinesthetic learners, while only 3 of the 20 evaluated themselves as being only visual learners. When the participant's answers were looked at individually, there was no correlation between participants' answers. This is reflected in the diversity in answers that can be seen in Figure 1.

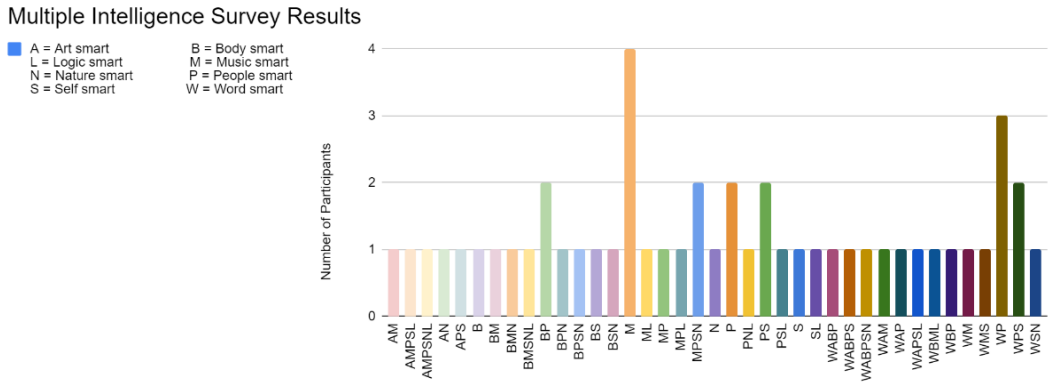
Figure 1



Question 2

The results of the second question concerning multiple intelligences indicated a somewhat high percentage of students who found themselves to be interpersonally intelligent (people smart) as 28 of the 50 participants included this intelligence in their assessment. In contrast, only 10 of the 50 participants included being logically intelligent. There was no definite correlation between the participant's answers. The number of intelligences that were the same was between those who believed themselves to be only musically intelligent (music smart) which consisted of 4 of the 50 participants. This was also noticeable in the belief of the participants that identified themselves to be verbal-linguistic (word smart) and interpersonally intelligent (people smart). In comparison to VARK, there were few examples of there being a correlation with intelligences which seemed to occur at random, Figure 1 also had more visible groupings compared to Figure 2 and Figure 2 was also higher in diversity compared to Figure 1. There was also a low chance of participants having the same types of intelligences.

Figure 2

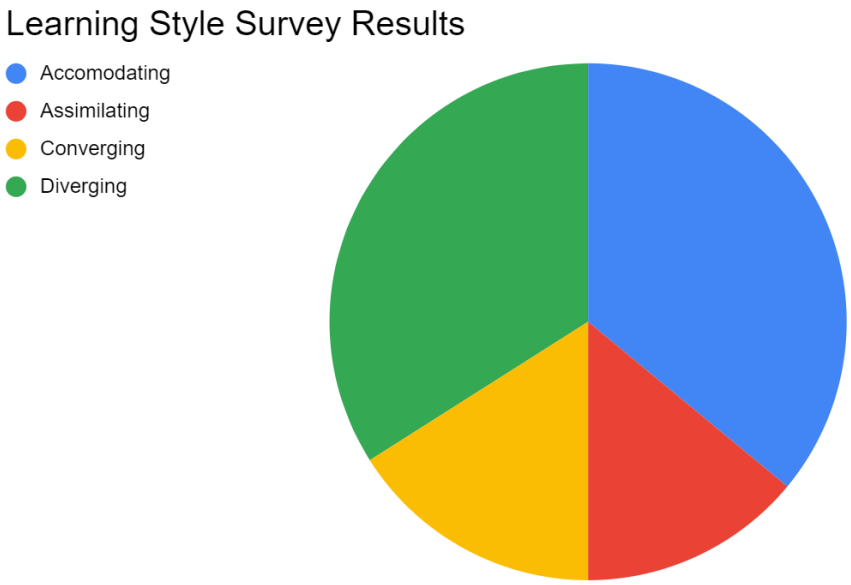


Question 3

The results of the third question indicated an equal number of participants identifying as either accommodators which consisted of 18 participants or divergers with which 17 participants identified with, as shown in Figure 3. This correlates accordingly with how Kolb's process of experience cycle functions. Both categories are based on concrete experience and diverge between the processing of said concrete experience, which results in active experimentation or reflective observation. There were an equal number of convergers, which consisted of 8 participants and assimilators consisting of 7 participants. Convergers and assimilators are both based on abstract

conceptualization but vary based on whether learners focus on active experimentation or reflective observation.

Figure 3



Survey Results

The pilot study found a wide diversity in learners in higher education from a self-perceived point of view. Some points of data found several participants evaluating themselves in similar ways, yet ultimately every answer was unique to the individual. The correlation between participant's evaluation compared to other participant's evaluations was nonexistent as there was no noticeable majority in the data, which furthers the idea of diversity in learning from a subjective point of view. Because learners in higher education evaluate themselves to be individuals in regards to learning diversity, this supports the idea of learners in primary education and early childhood being so as well. MI theory describes and is based on intelligence being innate (Gardner & Thatch, 1989). In regards to this notion, this can also be connected back to the idea that MI is present and diversifies younger learners. Intelligences then presented in MI theory can also be seen to be prominent in adult learners as they are identified and influence other learning differences, as noticed in the hypothesis below.

Analysis of Data

Hypothesis

After analysis of the data collected, the pilot study then showed a correlation between theories when focusing on the individual. The data showed a trend of correlation between MI, VARK then LS in consecutive order. A key to better identify the correlation between learning theories was hypothesized to check the validity of this correlation, which is described in Figure 4. The key created considered MI to be the base of an individual's learning process which connects to VARK, the sensory aspect of learning, and recognized VARK as the conductor between MI and LS. LS then was considered to be the result or style that labeled the learner. All three components could be seen to create a unique learning style which could somewhat be predicted through the below key. This key focused on basing the correlations on MI, resulting in multiple different outcomes. All definitions of each component were taken into account to create multiple possibilities concerning correlation. Because Gardner's intelligences are innate abilities particular to the individual, they are not directly connected to learning style but create the foundation for input (Prashing, 2005). The correlation between MI and VARK is not a direct connection but can be seen as the base on which VARK stands upon. VARK is solely focused on sensory learning preferences, which are included in two of the eight smarts of MI. MI is then a collection of abilities that are outputted through VARK. This as a result creates learning experiences for an individual that shape their LS. LS is based on experience and how one interacts with experience. This interaction can be influenced by other aspects of learning because it reflects the learning behaviors an individual possesses. Ability and how the ability is used results in experience and so creates a correlation between the three theories.

Examples

One example is individuals who are body smart, or good with connecting thought to physical action, would then be predicted to be kinesthetic learners, considering kinesthetic learners learn best through concrete and physical means. This can be connected to the learning style of accommodator since this style is grounded in concrete experience and active experimentation, which follows in line with the predicted abilities of an individual who is both body smart and has a strong kinesthetic learning preference.

Because some intelligences contain multisensory and multiple aspects, the conductor and result style also contain multiple possibilities. This can be seen through word smart. Being word smart includes the multiple ways of utilizing words; speaking and reading being major components. Regarding the linguistic nature of word smart, the outcome connection with VARK would then

result in the broader possibility of having a visual, auditory, and reading/writing preference. The diversity of word smart leads to a diverse pool of possibilities when considering other learning processes. This then lends itself to having more possibilities because of learning style. Because of the broadness that comes with being word smart, the spectrum in which an individual could fall into relating to learning style also becomes wider. Taking into consideration the multiple possibilities that each intelligence contains, this key was developed to analyze each participant's answers and see if there is any relevant correlation between the three theories.

Table 1

Hypothesis Key for
Correlation Analysis

Base: Multiple Intelligences	Conductor: VARK	Result Style: Learning Styles
Word Smart	Visual, Auditory, Reading/Writing	Converger, Diverger
Art Smart	Visual, Kinesthetic	Assimilator, Diverger
Body Smart	Kinesthetic	Accommodator
Music Smart	Auditory	Diverger
People Smart	Auditory	Accommodator, Diverger
Self Smart	Auditory	Accommodator, Diverger
Nature Smart	Visual, Kinesthetic	Accommodator
Logic Smart	Reading/Writing	Assimilator, Converger

Note. The figure shown above should be categorized by each individual intelligence that connects with single or multiple sensory learning styles and experienced-based styles as well.

Results

Through the application of the hypothesized key based on the singular components of each theory, came a result of there being a noticeable correlation in each individual as seen in Appendix A. This table shows participants 1 through 7 having no correlation between theories when applying the former key and participants 8 through 17 having little to some correlation. Participants who had major correlation through all three theories are listed from 18 through 50 in Appendix A.

Individuals that had somewhat to full correlation with the created key comprised 43 of the 50 participants. This results in the full accuracy of the key being 66%, and when including the participants that had somewhat of a correlation in these results causes the percentage to rise to 86%. Only 7 participants had zero correlation in the data collected. It is important to note that these numbers are influenced by multiple factors.

The key factor of the variability in this data can be the subjectiveness of the answers collected. Because participants were asked to evaluate themselves, this causes the results to be opinionated and self-perceived. This also causes some data collected from an individual to be low or extremely high, based on how many answers were chosen in the selection of intelligences and VARK. With consideration of the subjectiveness of the data, there is still a significant correlation between the translation of multiple intelligence to VARK to learning style in which could be predicted over half the time with the key created through correlation of the three learning theories applied.

Conclusion

These results are significant because it is proof of both diversity existing in learning and there being a possibility that there is a correlation between different forms of learning in the individual as well as a connection between the multiple theories used. This further means that there is a possibility to predict other aspects of an individual's learning process from a single component. Creating a foundation in which could create a plausible way to identify a learner's learning diversity that could benefit teachers in all levels of education greatly. For students who have SpLDs or neurodiversity, early acknowledgment and diagnosis are beneficial to support while reducing negative experiences in learning (Harwell & Jackson, 2008). While teachers cannot diagnose students regarding SpLDs, they can identify ways in which a student learns best. To have a better and more accurate understanding of each individual, such methods similar to the one applied in this pilot study may be a useful aid in learning diversity identification once better observed. Creating an easier and more accessible way of identifying the diversity beginning from primary learning can benefit both teacher and student equally. It is important to note that the ideas presented are not the ultimate solutions to understand students from all angles. If research similar to the pilot study conducted is looked into further, they could be utilized to identify learning diversity and be support in the practice of differentiated instruction and universal design for learning.

This pilot study and its result show there is a need for more understanding of learner diversity from both an objective and subjective perspective. Applying a similar key to objective

data can make clearer the correlation between learning theories and different components of learning in an individual. Further research could be explored to understand the correlation between theories, as well as learning differences that are included in each theory. Collecting data from an unbiased perspective and comparing it to the results found through the usage of the hypothesized key and how one perceives themself through an improved questionnaire is one method of deeper exploration. Exploring the diversity of the pilot study results through objective testing and with a larger number of participants could also improve the understanding of learning diversity. Understanding diversity in all fronts of the individual differences from both an objective and introspective point of view will better allow learners and teachers to understand the thinking of the individual that this pilot study attempted to explore.

References

Armstrong, T. (2015). The Myth of the Normal Brain: Embracing Neurodiversity. *AMA Journal of Ethics*, *17*(4), 348–352. https://doi.org/10.1001/journalofethics.2015.17.4.msoc1-1504

Fleming, N.D. (2011, September 20). Describe the Different Learners VARK Identifies. [Video]. YouTube.

Fleming, N., and Baume, D. (2006). Learning Styles Again: VARKing up the right tree!. Educational Developments, SEDA Ltd, (7.4), 4-7.

Gardner, H., & Hatch, T. (1989). Multiple intelligences go to school: Educational implications of the theory of multiple intelligences. Educational Researcher, 18(8), 4-9.

Ginja, T. G., & Chen, X. (2020). Teacher Educators' Perspectives and Experiences towards Differentiated Instruction. *International Journal of Instruction*, *13*(4), 781–798.

Harwell, J.M., & Jackson, R. W. (2009). *The Complete Learning Disabilities Handbook (text only) 3rd (Third) edition by J. M. Harwell, R. W. Jackson* (3rd ed.). Jossey-Bass.

Himeno, K. (2018). *Hattatsu shougai gurei zo-n*. [Developmental Disorder Gray Zone]. Fusosha Shinsho; Tokyo.

Kolb, D. A. (1984). Experiential Learning: Experience as the Source of Learning and Development. New Jersey: Prentice-Hall.

Kormos, J. (2017). The Second Language Learning Processes of Students With Specific Learning Difficulties. *Second language acquisition research series*, 3.

Lewisham Virtual School. (2019). Understanding Neurodiversity: A Guide to Specific Learning Differences. http://lewishamvirtualschool.org.uk/wp-content/uploads/2019/04/Understanding-Neurodiv

ersity.pdf

Marcy, V. (2001). Adult Learning Styles: How the VARK© Learning Style Inventory Can Be Used to Improve Student Learning, *Perspective on Physician Assistant Education*, *12*(2).

MOFA. (2014). *Nihon no anzen hoshō to kokusai shakai no heiwa to antei*. [Convention on the Rights of Persons with Disabilities]. https://www.mofa.go.jp/mofaj/fp/hr_ha/page22_000900.html

Norbury, C. F., & Sparks, A. (2013). Difference or Disorder? Cultural Issues in Understanding Neurodevelopmental Disorders. *Developmental Psychology*, *49*, 45-58.

Ooiwa, A. and Yap, M. (2020). Empowering learners towards self-sufficiency in an inclusive classroom environment. Annual Report of Keiwa Liberal Arts Research Institute, 18, 59-74.

Prashnig, B. (2005). Learning styles vs. multiple intelligences: Two concepts for enhancing learning and teaching. Creative Learning in Action, 106(1), 8-9

Stanford, B., & Reeves, S. (2009). Making It Happen: Using Differentiated Instruction, Retrofit Framework, and Universal Design for Learning. *TEACHING Exceptional Children Plus*, *5*(6).

（指導教員　大岩　彩子）

Appendix A

Question 1

Neil Fleming's VARK

Learners have different types of preferences in order to understand and process information. What types of learning preferences help you learn?

Descriptions of each type of learning preference will be listed and defined below.

Visual → You learn better by being able to see information

Auditory → You learn better through hearing information and discussing

Read/Write → You learn better through reading information and writing

Kinesthetic → You learn better by using all of your senses

What type of learner are you?

Visual	□
Auditory	□
Reading/Writing	□
Kinesthetic	□

＊Multiple Choice

Question 2

Gardner's Multiple Intelligences

All learners have fields they excel in. What do you find to be your strengths in learning or, what types of "smart" are you?

Descriptions of each type of smart will be listed and defined below.

Word Smart → being good at writing, reading, speaking and utilizing language

Art Smart → being good at understanding designs, patterns, and graphs or enjoying creating art and drawing

Body Smart → enjoying physical performances or physical education

Music Smart → being good at understanding rhythms and sounds or enjoying listening or creating music

People Smart → being good at understanding others and their feelings

Self Smart → being good at understanding yourself and your feelings

Nature Smart → enjoying nature, animals, and the outdoors

Logic Smart → being good at reasoning, analyzing, and logical thinking

---

What style suits you best?

Word Smart □

Art Smart □

Body Smart □

Music Smart □

People Smart □

Self Smart □

Nature Smart □

Logic Smart □

*Multiple Choice

Question 3

Kolb's Learning Styles

Each learner has their own learning style based on the way one prefers to process information.

Descriptions of each type of learning style will be listed and defined below.

Accommodating → Doing & Feeling → you like to be hands-on and apply your own thinking to situations

Diverging → Feeling & Watching → you observe and then apply your own thinking to situations

Converging → Doing & Thinking → you like to learn about ideas and theories and apply them to situations

Assimilating → Watching & Thinking → you like to observe and learn about ideas and theories

---

What learning style suits you best?

Accommodating □

Diverging □

Converging □

Assimilating □

Appendix B

Participants	Multiple Intelligence Answer	VARK Answer	Learning Styles Answer
1	Word Smart, People Smart	Kinesthetic	Assimilating
2	Music Smart, People Smart	Visual, Reading/Writing	Assimilating
3	Body Smart	Reading/Writing	Diverging
4	Music Smart	Kinesthetic	Assimilating
5	Music Smart	Kinesthetic	Accommodating
6	Music Smart	Kinesthetic	Accommodating
7	Music Smart	Kinesthetic	Accommodating
8	Music Smart, Logic Smart	Visual	Converging
9	Word Smart, People Smart	Auditory, Visual, Reading/Writing, Kinesthetic	Assimilating
10	People Smart	Auditory, Visual, Reading/Writing, Kinesthetic	Converging
11	Art Smart, Nature Smart	Auditory, Kinesthetic	Converging
12	People Smart, Self Smart	Visual, Reading/Writing, Kinesthetic	Accommodating
13	Self Smart	Auditory, Visual	Diverging
14	Nature Smart	Visual, Reading/Writing	Assimilating
15	Body Smart, Music Smart	Visual, Reading/Writing	Diverging
16	People Smart, Nature Smart, Logic Smart	Kinesthetic	Accommodating
17	Body Smart, People Smart	Reading/Writing	Accommodating

18	Art Smart, Music Smart, People Smart, Self Smart, Nature Smart, Logic Smart	Reading/Writing, Kinesthetic	Converging
19	Word Smart, Art Smart, Music Smart	Auditory, Visual, Reading/Writing, Kinesthetic	Assimilating
20	People Smart	Auditory, Reading/Writing	Accommodating
21	Word Smart, Art Smart, Body Smart, People Smart	Reading/Writing	Accommodating
22	Music Smart, People Smart, Logic Smart	Visual, Reading/Writing, Kinesthetic	Converging
23	Body Smart, People Smart	Visual, Kinesthetic	Diverging
24	Body Smart, Self Smart	Visual, Kinesthetic	Diverging
25	Art Smart, Music Smart	Auditory	Diverging
26	Art Smart, Body Smart, Music Smart	Kinesthetic	Diverging
27	Body Smart, Self Smart, Nature Smart	Visual, Reading/Writing	Diverging
28	Word Smart, Music Smart, Self Smart	Visual	Diverging
29	People Smart, Self Smart, Logic Smart	Auditory, Visual	Accommodating
30	Word Smart, Art Smart, Body Smart, People Smart, Self Smart	Auditory	Diverging
31	Music Smart, People Smart, Self Smart, Nature Smart	Kinesthetic	Accommodating
32	Self Smart, Logic Smart	Reading/Writing	Accommodating
33	Art Smart, People Smart, Self Smart	Auditory , Visual	Diverging
34	Word Smart, Body Smart, People Smart	Visual, Reading/Writing	Accommodating
35	Word Smart, Music Smart	Reading/Writing	Converging
36	Body Smart, People Smart, Nature Smart	Visual	Accommodating
37	Word Smart, People Smart	Reading/Writing, Kinesthetic	Accommodating
38	Art Smart, Music Smart, People Smart, Logic Smart	Visual, Reading/Writing, Kinesthetic	Diverging
39	Word Smart, Art Smart, People Smart, Self Smart, Logic Smart	Auditory, Visual, Reading/Writing	Converging
40	Body Smart, Music Smart, Self Smart, Nature Smart, Logic Smart	Auditory, Visual	Diverging
41	People Smart, Self Smart	Auditory	Diverging

42	Word Smart, Self Smart, Nature Smart	Reading/Writing, Kinesthetic	Accommodating
43	Word Smart, People Smart, Self Smart	Auditory, Visual, Reading/Writing, Kinesthetic	Accommodating
44	Body Smart, Music Smart, Nature Smart	Visual, Kinesthetic	Accommodating
45	Word Smart, Art Smart, Body Smart, People Smart, Self Smart, Nature Smart	Auditory, Visual, Reading/Writing, Kinesthetic	Diverging
46	Music Smart, People Smart, Self Smart, Nature Smart	Auditory, Visual, Reading/Writing, Kinesthetic	Diverging
47	Word Smart, People Smart, Self Smart	Auditory, Visual, Reading/Writing, Kinesthetic	Diverging
48	Word Smart, Art Smart, People Smart	Visual, Kinesthetic	Converging
49	Body Smart, People Smart, Self Smart, Nature Smart	Visual, Kinesthetic	Accommodating
50	Word Smart, Body Smart, Music Smart, Logic Smart	Auditory, Visual, Reading/Writing, Kinesthetic	Assimilating

Note. Participant answers highlighted in yellow acknowledge that not the majority of points of data correlated with the hypothesized key. Answers highlighted in blue found no correlation with the key.