From Preferences to Practices: VARK Learning Preferences and Strategy Adaptation Among Arabic Secondary School Students

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ABSTRACT

This study investigates the VARK learning preferences and strategy adaptations of 41 upper-secondary Arabic school students in Melaka. Using a quantitative one-group pretest-posttest design, data were collected using the VARK Questionnaire and a pre- and post-intervention Learning Strategies Survey administered alongside a 10-hour VARK strategy-awareness workshop. Descriptive statistics analysed VARK preference distributions, while paired samples t-tests evaluated changes in strategy use. Results revealed that a majority of participants (80.5%, n=33) showed multimodal learning preferences, with two modalities being the most prevalent (46.3%) and the Aural-Kinesthetic (AK) profile the most common (34.1%) among the multimodal groups. Following the workshop, post-test mean scores increased among across all four VARK strategy dimensions; however, a statistically significant increase was only observed in Visual strategy use ($t(26)= -2.782$, $p= .010$, $d=0.54$). Kinesthetic strategies showed the largest numerical gain ($M= 2.62$ to $M= 2.90$), although non-significant ($p= .062$). These findings suggest that explicit VARK training can enhance learning strategy adaptations, particularly Visual strategies among secondary language learners.

Keywords: VARK model, learning preferences, strategy awareness, multimodal learners, learning strategy adaptation, Arabic secondary students

INTRODUCTION

The diverse learning needs inherent in modern secondary classrooms call for a shift from uniform pedagogy toward approaches that promote awareness of how students learn (Tuononen et al., 2022). By systematically integrating structured interventions such as the VARK model, educators can facilitate the development of self-regulated learning. This will effectively address the perplexing decline in metacognitive capabilities often observed during the secondary school trajectory. For Arabic secondary students, this shift is particularly critical, as the ability to integrate metacognitive strategies with individual learning preferences directly influences their autonomy and capacity for self-regulated learning (Khosravi et al., 2023; Teng, 2024).

Background of the Study

The pedagogical shift toward learner-centred instruction highlights the necessity of moving beyond uniform teaching methodologies to address the diverse profiles in secondary classrooms (Anthonysamy, 2021). This transition acknowledges that catering to diverse learning preferences can significantly enhance student

motivation and the depth of understanding of the content (Abu-Issa et al., 2024). Within this paradigm, the VARK inventory serves as a validated diagnostic instrument that identifies sensory-based preferences, enabling educators to categorise learner profiles across visual, auditory, reading-writing, and kinaesthetic modalities. However, it must be applied with caution to avoid reinforcing unfounded neurological myths (Bresnahan et al., 2024; Newton et al., 2021). Instead, this approach functions as a guideline to encourage students to reflect on and become aware of how they learn. This allows students to adjust the strategies they use when learning in alignment with varying disciplinary demands (Goosen & Steenkamp, 2023; Susanti et al., 2024). By leveraging these insights, instructors can effectively transition into facilitators who support the development of self-regulated learning.

Problem Statement

Despite the theoretical utility of learning-preference awareness, many Arabic secondary school students demonstrate a limited understanding of their own cognitive orientations. They often rely on habituated and non-strategic study behaviours. Furthermore, there remains a lack of quantitative intervention research within the Malaysian Arabic secondary school sector to validate the transition from mere awareness to the sustained adoption of personalised study techniques. Current literature lacks sufficient empirical evidence on whether VARK-based interventions effectively facilitate the actual adaptation of study strategies in these specific cultural contexts (Ayyoub & Al-Kadi, 2024; Wijaya et al., 2023). By rigorously evaluating these developmental trajectories, this study seeks to address the systemic lack of empirical data regarding the efficacy of personalised learning frameworks in Arabic secondary educational settings (Katsaris & Vidakis, 2021; Barrientos et al., 2022).

Research Objectives

1. To identify students' learning preferences based on the VARK model.
2. To examine changes in students' awareness and use of personalised strategies after the VARK Awareness Workshop.

Research Questions

1. What are the learning preferences of Arabic secondary school students based on the VARK model?
2. To what extent do students adapt their learning strategies during VARK-based workshops?

LITERATURE REVIEW

VARK & Multimodal

The VARK model identifies four sensory preferences: Visual, Aural, Read/Write, and Kinesthetic. It tracks how individuals take in and process information (Ojeh et al., 2023). These modalities are not necessarily isolated. Learners may combine strategies from different modalities rather than relying on a singular modality. Vark Learn Limited (2026) further categorised multimodal preferences into two distinct subcategories: Selective and Integrative. Learners with Selective multimodal patterns switch flexibly, depending on the context and task at hand. In contrast, Integrative multimodal learners prefer to use several of their modalities simultaneously. The framework guides personalised study strategies, which do not reflect student success or competence (Sule et al., 2021). This is because learning preference is distinct from intelligence, which shows how a student interacts with content, not their quality of understanding (Abu-Issa et al., 2024). According to Brown (2023) VARK treats learning formats as stylistic choices and is not a tool for measuring cognitive proficiency. The model helps teachers build inclusive learning environments and does not confuse style choices with intellectual ability or academic standing (Shaikh et al., 2023). In addition, Huber & Müller (2023) stated that learning preferences represent chosen methods for receiving information, which do not reflect innate academic talent. Ultimately, VARK helps students recognise their unique study habits that focus on input and output processes during learning. Therefore, educators should

interpret these results as indicators of preferred delivery modalities rather than as measures of ability or mastery, as these models categorise stylistic orientations independently.

Learning Strategies, Awareness & Learners Adaptation

Learner adaptation involves the ability to modify VARK preferences dynamically, switching study strategies in response to specific academic demands (Demberel & Baasanjav, 2025). According to Lampadan & Laung (2025), central to this adaptive process is metacognitive awareness, which enables students to monitor their internal cognitive processes and determine when a shift in learning modality is necessary to improve performance. Managing these tactical shifts is closely tied to self-regulated learning, in which metacognitive strategies serve as the primary mechanism for planning and evaluating study patterns in real time (Lee & Bosch, 2025). By prioritising strategy adaptation over static preferences, learners can bridge the gap between their initial preferred learning style and the true complexity of academic tasks (Hattie & O'Leary, 2025). Hence, being this adaptable requires strong self-awareness, enabling students to regularly check whether their current learning styles match the specific demands of a task.

Related Past Research

Past Studies on Learning Styles Among Malaysian ESL Learners

Past research on learning styles among Malaysian ESL leaners reveal that preferences vary among learners. A study by Ahmad (2007) among Malay ESL learners in a public university showed that learners mainly preferred kinesthetic, auditory, individual and tactile learning styles. Research on learning styles among Malaysian secondary school students have shown that learning preferences vary. A study by Othman (2015) on learning styles of upper secondary school ESL students in Malaysia also demonstrated that learners' preferences were related to particular English language learning activities. Although this study is relevant, it did not investigate the complete range of VARK preferences as it focused only on visual and auditory learning styles in reading.

Additionally, studies on learning style preferences also adopted Reid's taxanomy. (Ismail, 2011; Winkle Engkasan, 2013). In his study, Ismail (2011) reported that auditory learning was the major preference of the students. However, he claims that preferences may change as students' progress through the stages of education. Conversely, Winkle Engkasan (2013) revealed that the preferred style was group learning, followed by kinesthetic learning. This study focused on learning style preferences in relation to proficiency level and gender. Therefore, although both studies are related to learning styles, they do not relate to the VARK model, which provides a comprehensive picture of student preferences.

Studies on learning style have also highlighted the importance of instructors understanding learner diversity as instructional practices may not align with student preferences in learning (Wan Shaaidi, 2012; Adnan, 2011). Recent research by Ab Manan et al (2024) that examined the relationship between learning styles preferences, gender and English language achievement indicated no significant relationship.

Based on the past research, it shows that many of the studies were conducted long ago, employed different learning style frameworks and focused on Malaysian mainstream school ESL learners. Thus, there is a need to explore more research in other settings such as involving Arabic secondary school ESL learners.

VARK-Based Studies Among Malaysian ESL Learners

Various studies have examined learning styles using different frameworks such as the VARK model by Fleming and Mills (1992). This framework is popular because it has four defined learning preferences categories. Several studies have utilized the VARK model to different educational settings.

A study by Ishak et al. (2015) examined the relationship between personality and VARK learning styles among 302 Form Four secondary school students in Johor. Although the study demonstrated the use of VARK framework successfully to Malaysian secondary-school students, however, the focus was primarily

on personality traits and demographic relationships rather than students' preferences in ESL learning. Nevertheless, studies in the local context were also undertaken to investigate students' learning preferences based on the VARK model. According to Rosnan et al., (2021) most studies in the local context appear to focus on learning styles of undergraduates and national school students. In their study they investigated the relationship and application of the VAK (Visual, Auditory, and Kinesthetic) learning style across four core Arabic language skills among students at International Islamic University College Selangor. The results showed that Arabic language students were more likely to utilize kinesthetic learning style when mastering core language skills. A study by Rasdi and Rusli (2023) among undergraduates in an open distance learning programme showed visual (online content) was the dominant VARK modality. Similarly, Annamalai and Sazan (2025) investigated students learning styles in an LMS environment based on the VARK model. The findings demonstrated that visual and auditory emerged as the dominant learning styles. Muralidhara et al. (2013) in their study of preclinical medical students at a Malaysia university showed that 84% of participants preferred multimodal learning.

In a recent study, Roslan et al (2025) examined VARK learning-style preferences and English performance among 386 Malaysian students preparing for a national examination (Malaysian Certificate of Education). The study found that kinaesthetic and auditory learning preferences were the most prominent, whereas read/write was the least preferred. Notedly, the study found no significant correlation between learning-style preferences and English performance. In addition, Lampadan and Laung (2025) explored VARK learning preferences among 104 students aged between 12-17 years in a private secondary school students in Malaysia. Their study compared students'preferred and actual learning preferences. The findings revealed the most common actual learning preference was kinesthetic and nearly three quarter (74.7%) of the respondents had a multimodal learning preference. However, significant relationship was found between respondents perceived and actual preference for the visual and aural (VA) modalities while there was no correlation for the read/write and kinesthetics modalities. Othman et al., (2026) investigated learning preferences using the VARK model among 306 students learning Arabic. The authors emphasise the importance of understanding learners' preferences when designing Arabic-language instruction for non-native speakers.

In the present study the focus is on the learning preferences among students in an Arabic-school environment. The educational and linguistic context may be particularly important because students in Arabic schools have learning experiences that may differ from those of students in mainstream national secondary schools. Therefore, the utilization of the VARK model in the present study is crucial for describing learning preferences as it may assist instructors to understand learner diversity

Research Gap

There are many studies that have examined the learning styles of ESL learners as shown in the literature. However, most of the research focused on public secondary schools (Ismail, 2011; Winkle Engkasan, 2013; Othman, 2015; Ishak, 2015) or higher institutions in Malaysia (Ahmad 2007; Abd. Hamid, 2011; Ab Manan et al., 2024). There appears to be a scarcity of studies investigating the learning styles of students in religious schools that are government-assisted. In addition, these Arabic-medium school students are in a unique environment whereby they must balance their L1 (Malay), L2 (English) and Arabic. Studies conducted on Arabic learning such as by Othman et al. (2026) based on the VARK model, mainly examined preferences in Arabic learning instead of how students in Arabic school context prefer to learn English as a second language. In short, there is a contextual gap as there is over-representation of mainstream schools on VARK studies.

In addition, most VARK studies are based on quantitative survey questionnaires employing Fleming's VARK inventory. There is also lack of quantitative workshop-based studies. Limited studies adopted mixed method mode combining data from the VARK survey and student interviews, instructor interviews and observations. In other words, there is lack of qualitative data to examine if students' preferences do match with their actual performance in carrying out tasks. This clearly shows there is also a methodological gap. Furthermore, traditional Islamic education focuses on traditional rote memorization. This means the aural

and read/write modality is dominant. However, most Gen Z or Alpha learners have preference for multimodal dominance. Thus, a gap exists in examining how traditional Islamic rote learning integrates with VARK multimodal in ESL learning. Additionally, as instructors and student preferences do not align, a pedagogical gap exists due to an instructional mismatch.

To conclude, there is lack of empirical research on how Arabic medium schools in Malaysia utilize VARK modalities. Hence, the present study examines the learning preferences of Arabic secondary school students based on the VARK model to help both the students and instructors in knowing the learning styles and reviewing teaching metods to bridge the gap.

METHODOLOGY

Research Design

The study population comprised all first-year upper secondary students enrolled in an Arabic school in Melaka. The sample specifically targeted students preparing for the standardised national school-leaving examination. This study employed a quantitative one-group pretest–posttest design. The VARK Questionnaire was administered once before the workshop to identify students' learning preferences, while the adapted Learning Strategies Survey (LSS) was administered before and after the workshop to examine changes in students' use of learning strategies.

Participants

The participants were 41 Arabic upper secondary school students selected through purposive sampling. All 41 students participated in the initial data collection. However, six students were unavailable during the final session and for the post-workshop survey for school-related administrative or disciplinary reasons, resulting in 35 students with both pretest and posttest data. However, the absences were unrelated to the study intervention. Appropriate consent and ethical procedures were followed for data collection.

Ethics

Ethical procedures included obtaining approval for the study from the Research Ethics Committee of Universiti Teknologi MARA (UiTM). Informed consent was also obtained from participants as required. Participant confidentiality was maintained using identification codes (R1-R41). Permission to use the copyrighted VARK Questionnaire was also granted by VARK Learn Limited prior to the study.

Instruments

Two instruments were used.

VARK Questionnaire (Pre-Workshop)

Paper-and-pencil administration of the VARK Questionnaire took place before the workshop commenced to identify students' learning preferences. Completion of questionnaires lasted about 25-30 minutes.

Learning Strategies Survey (Pre- and Post-Workshop)

The second survey was adapted from the Learning Style Scales developed by Abdollahimohammad and Ja'afar (2014). The modified version, a Likert-scale Learning Strategies Survey (LSS; Appendix), served as both the pretest and post-test instrument. The Learning Strategy Scale comprised 20 items, with four items representing each VARK: Visual, Aural, Read/Write, and Kinesthetic. Each item was rated on a four-point Likert scale ranging from 1 (Never) to 4 (Always). Before the study, it was pilot-tested with 20 participants of a similar age group. The instrument showed acceptable internal consistency with a Cronbach's alpha of 0.70.

VARK Awareness Workshop (Intervention)

The VARK Awareness Workshop consisted of five 2-hour sessions (10 hours in total). The sessions were scheduled on a weekly basis; however, adjustments were made responsively when school tests or other school activities prevented the researchers from conducting a session. 41 students were divided randomly into four smaller groups with two accompanying facilitators for each group,

The workshop activities used a selected literature text as the main learning context. Students engaged with a common academic text through activities involving different VARK modalities.

The workshop introduced the VARK model and included activities across the VARK modalities and learning-strategy exploration. The focus was on awareness and flexible use of learning strategies.

Data Collection Procedure

The VARK Workshop was conducted as follows:

Session	Activity
A	VARK Questionnaire and pre-test Workshop briefing
1	Visual model
2	Aural model
3	Read/Write model
4	Kinesthetic model
5	Multimodalities
B	Post-test

Data Analysis

Data were analysed using descriptive and inferential statistics using SPSS. For RQ1, frequencies and percentages were calculated to describe students' VARK learning preferences, including single-modal and multimodal profiles. For RQ2, mean scores and standard deviations were calculated for the LSS pretest and posttest scores. The paired-samples t-test included 35 students who completed both pretest and posttest questionnaires.

FINDINGS AND DISCUSSIONS

RQ1: Learning Preferences of Arabic upper secondary school students based on the VARK model.

The first research question seeks to determine the learning preferences among 41 upper secondary Arabic school students in Melaka.

Table 1: VARK Modality Distribution

VARK Preference Category	**Frequency**	**Percentage**
Single-modal	8	19.51%

Two-modal	19	46.34%
Three-modal	9	21.96%
Four-modal	5	12.20%
Total	**41**	**100.00%**

The majority of participants, 33 students (80.5%), showed multimodal VARK learning preferences, while 8 students (19.5%) showed a single-modal preference. Among the multimodal group, 19 students (46.3%) preferred two modalities, 9 students (22.0%) preferred three modalities, and the remaining 5 (12.2%) showed preferences across all four VARK modalities. The distribution of VARK modality preferences is shown in Table 1.

Table 2: VARK Profile Distribution

VARK Preference Profile	**Frequency**	**Percentage**
AK	14	34.15%
ARK Integrative	4	9.76%
VARK Integrative	4	9.76%
A mild	3	7.32%
VAK Integrative	3	7.32%
RK	3	7.32%
ARK Selective	2	4.88%
K mild	2	4.88%
A strong	1	2.44%
AR	1	2.44%
K strong	1	2.44%
K very strong	1	2.44%
VA	1	2.44%
VARK Selective	1	2.44%
Total	**41**	**100.00%**

The most common individual VARK profile was aural-kinesthetic (AK), reported by 14 students (34.1%), followed by ARK Integrative and VARK Integrative, each reported by 4 students (9.8%). Similarly, VAK Integrative, RK, and A Mild profiles were each reported by 3 students (7.3%). ARK Selective and K Mild were reported by 2 students (4.8%). The remaining VARK profiles were reported by one student each (2.4%). The distribution of individual VARK profiles is shown in Table 2.

Among multimodal learners, results further revealed distinct Integrative and Selective sub-classifications. Eleven students were identified as Integrative, comprising ARK Integrative, VAK Integrative, and VARK

Integrative profiles. Three students had profiles identified as Selective, comprising ARK Selective and VARK Selective profiles. Other multimodal combinations, including AK, RK, AR, and VA, were not sub-classified as either Integrative or Selective.

Meanwhile, among the eight students who reported single-modality preferences, the profile was limited to Aural (A) and Kinesthetic (K). Specifically, three reported mild Aural preference, two mild Kinesthetic preference, and one student each reported strong Aural and strong Kinesthetic. The remaining one student showed very strong Kinesthetic preference. Overall, mild preferences were more common than strong preferences among the single-mode profiles.

As shown in the results, multimodal learning preference was the most prominent among the students. This demonstrates that most of the students used more than one learning strategy or VARK modality. This finding is consistent with Othman et al. (2026), who investigated VARK preferences among Malaysian learners of Arabic and highlighted the importance of multimodal preferences that provide opportunities for learners to engage with tasks through different modes. This finding also accords with earlier studies which showed multimodal is the most preferred learning style among learners based on the VARK model (e.g. Othman et al., 2026; Annamalai & Sazan, 2025; Roslan et al. 2025; Lampadan and Laung, 2025). However, a key difference is that the present study moves beyond identifying students' preferences to investigating their adaptation of learning tasks following a VARK Awareness Workshop.

RQ2: VARK-Based Learning Strategies Adaptation

To address Research Question 2, students' pre- and post-workshop use of VARK-based learning strategies was analysed across four dimensions: Visual, Auditory, Read/Write, and Kinesthetic. Paired-samples *t*-tests were conducted to determine whether there were significant changes in strategy use following the workshops. However, some participants did not respond to all LSS items. Unanswered items were coded as 999 and defined as user-missing values in SPSS. Therefore, they were excluded from the calculation of relevant scores and subsequent statistical analysis. As a result, the number of valid paired observations differed across the VARK dimensions, depending on the availability of valid responses at both tests. The results are presented in Table 3.

Table 3 Pre and Post Workshop Use of VARK-Based Learning Strategies

VARK Dimension	Pre-test M	Post-test M	Mean Differences	t	df	p	Cohen's d
Visual	2.72	2.99	-0.274	-2.782	26	.010	0.54
Auditory	2.93	3.04	-0.104	-0.995	26	.329	0.19
Read/Write	2.64	2.87	-0.234	-1.624	21	.119	0.35
Kinesthetic	2.62	2.90	-0.282	-1.974	21	.062	0.42

As shown in Table 3, the post-workshop mean scores were higher than the corresponding pre-workshop scores across all four VARK dimensions. A statistically significant increase was found for Visual strategy use, from M = 2.72 at pre-test to M = 2.99 at post-test, t(26) = -2.782, p = .010. The effect size was moderate (Cohen's d = 0.54). Although increases were also recorded for Auditory, Read/Write, and Kinesthetic strategies, these differences were not statistically significant. Auditory strategy use increased from M = 2.93 to M = 3.04, t(26) = -0.995, p = .329; Read/Write strategy use increased from M = 2.64 to M = 2.87, t(21) = -1.624, p = .119; and Kinesthetic strategy use increased from M = 2.62 to M = 2.90, t(21) = -1.974, p = .062. Among the four dimensions, Kinesthetic strategies demonstrated the largest numerical increase, whereas Visual strategies showed the only statistically significant pre-post change.

The higher post-workshop mean scores for all the dimensions indicate a positive change in the use of VARK-based strategies following the workshop. However, it is pertinent to highlight that although the results provide evidence of increased strategy use, it does not establish that all the students changed their learning strategy. As only the visual strategy use had statistical significance, the findings provide partial evidence of the effectiveness of the workshop instead of significant improvement for all four dimensions. It is noteworthy to highlight that students became more responsive after the workshop where they were introduced to practical techniques such as visual organisers, mind-mapping, diagrams, and flow-charts to represent information in learning English such as, when reading literary text as in the present study. These practices helped students recognise that they can modify the way they approach a task. This is supported by proponents of language learning strategies (Oxford, 2017) who emphasise the importance of making learners conscious of selecting strategies according to task.

At the dimension level, Visual strategy use demonstrated a statistically significant increase following the VARK-based workshops, while positive descriptive changes were also observed across Auditory, Read/Write, and Kinesthetic strategy use.These findings provide evidence that the workshop may have created learner awareness on the use of different or new strategies, as there was evidence of positive change. There was an expansion in students' strategy repertoire across all four VARK modalities which indicates their use of multimodal strategies. The students adapted the learning tasks in response to their awareness of different VARK modalities.

To sum up the findings, the present study both supports and extends previous research. The high number of multimodal learners is consistent with past studies that learners use multiple modalities (Othman, 2026; Annamalai & Sazan, 2025; Lampadan & Laung, 2025; Muralidhara, 2013). However, the present study extends the research by examining changes in the learners' awareness and use of learning strategies following a five-week VARK Awareness Workshop.

There are also pedagogical implications that can be drawn from the study. The findings suggest that awareness of learning strategies can be included in the curriculum. This can help students develop flexible strategies that suit different learning situations. Instead of placing students into fixed learning-style categories, teachers should encourage them to use and combine different learning modes. This may improve deeper learning and increase students' engagement with learning tasks. Additionally, students can be encouraged to reflect on the demands of a learning task and select strategies that they consider useful, rather than relying solely on their VARK preferences. Students can also practice transforming information across various VARK modalities, such as converting text into a flowchart or summarising a complex visual diagram in writing. Such approaches support higher awareness of available learning strategies and encourage students to adjust and adapt flexibly. Ultimately, the study provides useful evidence for the use of learner-centred and multimodal teaching strategies.

Additionally, rigid labelling of learners should be avoided. VARK preferences may vary according to the task and context, particularly among multimodal learners. Framing VARK as a flexible learning technique empowers students, allowing them to select or combine techniques based on their immediate environment, tasks and learning goals.

Finally, several limitations should be considered when interpreting this study. Although the study was conducted using the entire population of the school's first year of upper secondary students, the overall sample of 41 remained small. The findings should be interpreted within the context of the participating students, not as a broad representation of secondary-school learners. Attrition during the posttest phase, further reduced the number of matched pretest posttest responses. The self-report method used to collect data in this study might also affect the accuracy of the results. Additionally, the absence of a control group limits the ability to confirm causal inferences.

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APPENDIX

VARK-Based Learning Strategies Survey

Instructions: Indicate how often you used the following strategies during the VARK-based workshops. Please circle the most appropriate response for each item.

Scale:

1 = Never 2 = Rarely 3 = Often 4 = Always

1 I drew diagrams or charts to help me understand the topic.
1 2 3 4

2 I created mind maps or concept webs to help me understand the topic.
1 2 3 4
3 I used color-coded notes or highlights to organise information.
1 2 3 4
4 I watched visual demonstrations or videos to help me understand the topic.
1 2 3 4
5 I imagined how ideas or concepts would look when solving a problem.

1 2 3 4

6 I talked through problems or tasks with others to help my learning.

1 2 3 4

7 I explained concepts aloud to help myself understand them.

1 2 3 4

8 I listened to recordings, discussions, or instructions to help my understanding.

1 2 3 4

9 I repeated information verbally to remember it better.

1 2 3 4

10 I preferred to discuss with a partner or group while learning.

1 2 3 4

11 I rewrote instructions or information in my own words.

1 2 3 4

12 I made lists or bullet points to break down the topic.

1 2 3 4

13 I read articles or handouts to help my learning.

1 2 3 4

14 I took written notes to help me understand the topic.

1 2 3 4

15 I preferred reading than watching videos or having discussions when learning.

1 2 3 4

16 I participated in hands-on activities to explore the topic.

1 2 3 4

17 I learnt better when I moved around or acted out parts of the topic.

1 2 3 4

18 I connected the lesson to things that happen in real life.

1 2 3 4

19 I used physical objects or tools (like models or flash cards) to help me understand.

1 2 3 4

20 I needed to "do it myself" to understand the topic properly.

1 2 3 4