Higher Education Institution Students' Preference of Educational Technology according to BaZi Profiling

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Abstract

This study investigates the relationship between student personality and learning style which includes preference of educational technology among higher education institution undergraduates. An online questionnaire is distributed to gain input from undergraduates. The result shows that students with different BaZi profiling has different learning style and preference of educational technology. Meanwhile, common learning style and preference of educational technology are also identified. This study serves as a preliminary research on the relationship between personality and learning style which contributes to the future learning technology development.

Keyword: BaZi, Day Master, learning behaviour, learning environment, learning technology

1. Introduction

Every individual has their own BaZi according to their date of birth [10]. BaZi is used in discovering individual's strengths and weaknesses [11]. BaZi has also been widely used in predicting an individual's career path [12]. There is a possibility that individual with different BaZi personality will result in different learning style [1, 8].

Meanwhile, software system or educational technology are important tools in improving students' productivity and learning satisfaction. Educational technology is able to boost student's performance and focus [3, 4, 6, 7]. Nevertheless, not all students prefer same educational technology or lecturing environment. It is crucial to identify the difference preferences between the undergraduates in order to effectively conduct lecture/tutorial to disseminate knowledge.

This research aims to discover the relationship between BaZi profiling with learning styles, educational technology preference, and personality of undergraduates in term of higher education pursue.

2. Materials and Methods

2.1 Questionnaire

Online questionnaire (Google form) is used to collect data from undergraduates in Tunku Abdul Rahman University College. 5-point Likert scales is used in which: 1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disagree, and 5-Strongly Disagree. Two parts of questionnaire are: 1. Bazi, personality, and learning style, and 2. Preference of educational technology. There are ten sets of questionnaires according to ten day master in BaZi profiling (Table 1 and Table 2). These questions are constructed based on the personality traits (Table 3) identified by Joey [10, 11].

Table 1: Personality according to BaZi day masters

Day Master	Personality Test Questions
Yang Wood	• YaW1: I am perseverant and loyal in accomplishing all my assignments from the beginning to the end perseverant, having resistant which not easily affected by the others. • YaW2: I will always think that my idea is the best. (E.g. Contribution of solution when discussing assignment) • YaW3: My attitude towards the others will always adapt according to the environment around and mood. (E.g. When times are good (e.g. good environment, good lecturers, good teammates), I tend to praise and reward friends that contribute to my work. When times are bad, I will not willing to offer rewards. • YaW4: I will only be good to those that could help me and seldom talk to people that bring less benefits to me.
Yin Wood	• YiW1: I am fluid and motivated. I like the classroom environment that allows me to express my idea freely and some motivation for me to rest. • YiW2: I can easily influence other team members to complete the tasks that I want. • YiW3: Team spirit and equality is important to me. The involvement of power distance and everyone are important. • YiW4: I cannot work in environment with tight dateline/ last minute.
Yang Fire	• YaF1: I am normally the motivator or cheer leader in the assignment group. • YaF2: I am able to perform task effectively and efficiently if I am given personal space. • YaF3: Trust and reliable is important to me while in a group assignment. • I value members' relationship in a team seriously.
Yin Fire	• YiF1: I always offer my help when my friends or teammates request to. • YiF2: I will only share my ideas if I feel comfortable with respective person. • YiF3: I usually follow the instructions for the task given. • YiF4: I am often being misunderstood and into emotional unstable state.
Yang Earth	• YaE1: I always work consistently and always stick to my plan. (E.g. I always meet assignment deadlines) • YaE2: I prefer to work alone and don't feel like participating in group discussion. • YaE3: I am willing to offer help to my friends whenever they need. (E.g. explain lecture notes, tutorial questions, assignment) • YaE4: I am willing to listen to different opinions from my teammates when discussing solutions for my assignment. After listening to all the opinions only then I will make final decision.

Yin Earth	• YiE1: I am able to accomplish my tasks earlier than my friends. • YiE2: I am comfortable with multitasking. • YiE3: I tend to get power to control over my teammates in a group assignment. However, I am also open to their opinions. • YiEP4: I constantly look out for the wellbeing of my teammates
Yang Metal	• YaM1: I always rush to get assignment done even faster than my classmates. I am not the detail-oriented type. (E.g. person that look into details of work) • YaM2: I am ready to go forward without waiting for my group member. I am prepared to fight anyone that disturb along my way to get things done. • YaM3: If I am a team leader, most of the time I prefer to stick to my own solution/decision in an assignment discussion. • YaM4: I prefer to have my own style of leadership and management which is different from other teams.
Yin Metal	• YiM1: I am lack of determination and always feel can't wait to see the result of my work. (E.g. wanted to check section of work before proceed to the other section) • YiM2: I am good at delegating, assigning job to my team members. • YiM3: I always keep a distance with others, do not like to hang out with teammates after school. • YiM4: I like playing politics, using different strategies/tactics to reach my goal. (E.g. use alternative to be surrounded by people who can help me) • YiM5: I like to collect facts and figures to convince others. (E.g. complete my assignment by including as many details as possible to score that subject)
Yang Water	• YaR1: I do not like to wasting time in idle moment. (E.g. proceed to task without long thinking) • YaR2: I like to socialize with people and make friends. • YaR3: I like to have everything in control and care. (E.g. Everything must inside the plan) • YaR4: I like to listen to all the members' opinion before deciding the conclusion.
Yin Water	• YiR1: I am emotional affective, my action for doing something is depends on my mood. • YiR2: I enjoy multitasking, doing several things at a same time. • YiR3: I am not a detail oriented person, I am more to a big picture person. (E.g. Do not focus on the detail) • YiR4: I will unhappy if my idea is rejected in group discussion

Table 2: Learning style according to BaZi day masters

Day Master	Learning Style Test Questions
Yang Wood	• YaW5: I prefer lecturer/tutor who provides long-term goal. • YaW6: I prefer lecturer/tutor to provide a clear weekly plan for my assignment. • YaW7: I prefer lecturer/tutor to set a specific and common goal for me to achieve in every class or throughout the semester. • YaW8: I prefer open-ended discussion which involves listening to student's opinion. • YaW9: I prefer a clear goal and open discussion that will not lead students into endless discussion/gossips.
Yin Wood	• YiW5: I wish that a fair rewards and punishments are applied in class. • YiW6: I prefer lecturer use clear written rubrics in assessing the students' work to avoid unfairness. • YiW7: I prefer a group leader should consistently check his team members' assessment to ensure their work done accordingly. • YiW8: I prefer delegate work and responsibility to my team member if I am the group leader for assignment. • YiW9: I prefer individual assignment because it encourages me be more independent
Yang Fire	• YaF5: I prefer to have some competition or pop quiz during class. • YaF6: I prefer referring to past example which gives me guidance in my future. • YaF7: I prefer lecturers have some integrate activity in class for improving my technique of debating and speech. • YaF8: I prefer activity that allows us to voice out our opinions and idea.
Yin Fire	• YiF5: I prefer task consist of different difficulty levels of question allowing me to identify my level of understanding. • YiF6: I prefer lecturer/tutor gives a clear evaluation measurement systems on evaluating our task. • YiF7: I prefer lecturer/ tutor provide the list of reference book or extra external sources for me so that I can easily complete well in my assignment. • YiF8: I prefer lecturer/ tutor have a weekly checking individual assignment progress to ensure a fair contribution of works among the team members. • YiF9: I prefer lecturer/ tutor gives individual presentation in class to ensure that every member complete their part of assignment
Yang Earth	• YaE5: I prefer lecturer/tutor gives a clear evaluation measurement systems on evaluating assignment/ presentation. • YaE6: I prefer lecturer/tutor to assign me as a leader in my team during class activity. • YaE7: I prefer lecturer/tutor to use fair punishment and rewards system in the classroom. • YaE8: I prefer a consistent evaluation system throughout the semester.
Yin Earth	• YiE5: I prefer that that lecturer or tutor should plan a proper schedule before proceed to the lesson. (E.g. Well-planned schedule sent to student via E-mail) • YiE6: I prefer that lecturer/tutor should give a clear presentation in explaining the topics. (E.g. PowerPoint presentation's sequential flow gives students concrete idea about their topic) • YiE7: I prefer that lecturer should give credit for student's excellence performance and behaviour. (E.g. Students are rewarded as they show outstanding performance in their reports) • YiE8: I agree that lecturer should not show power authority in controlling students. • YiE9: I agree that lecture should assign us the responsibility to delegate task to team members
Yang Metal	• YaM5: I prefer tutor/lecturer to give activities that could guide me in building my charisma. (E.g. assign me as leader in a class activity) • YaM6: I prefer tutor/lecturer gives examples of past success stories to motivate me. • YaM7: I prefer tutor/lecturer gives right/correct/very related material for our study. (E.g. external source other than original lecture notes) • YaM8: I prefer a fair reward/punishment system on the students
Yin Metal	• YiM6: I prefer open-ended discussion which involves listening to student's opinion. • YiM7: I prefer friendly group discussion activities instead of debates. • YiM8: I prefer lecturer/tutor who give credit. (E.g. recognize, reward, praise) to students that do well (E.g. answer well in tutorial, do good assignment report) • YiM9: I prefer classroom activities that is mysterious. (E.g. reward and punishment of the activity will only be announced after the activity) • YiM10: I do not prefer weekly assignment progress check
Yang Water	• YaR5: I prefer tutor/lecturer gives examples of past success stories to motivate me. • YaR6: I think that having group discussion can encourage me to voice my issues/ opinion in completing the tasks given. • YaR7: I prefer lecturer/tutor gives a clear evaluation measurement systems and delegate works equally on evaluating assignment/ presentation. • YaR8: I prefer to have a cheerful group member in completing assignment. (E.g. supportive and caring member) • YaR9: I prefer activity that required fast decision making that help me think and react fast. (E.g. brainstorming).

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Yin Water	• YiR5: I prefer lecturer/tutor gives a clear instruction in the beginning of each classes, assignments, and activities. • YiR6: I prefer lecturer/tutor provides clear weekly plan for my assignment. • YiR7: I prefer a weekly assignment progress check to ensure I complete the task given. • YiR8: I prefer lecturer/ tutor having brainstorming activity that encourage me to have a quality decision. • YiR9: I prefer lecturer/ tutor ask student to give their opinion and suggestion in group discussion

Table 3: Personality traits [10, 11]

Day Master	Personality	Idea and Tips in Career
Yang Wood	1. Perseverant and loyal 2. Rigid and unyielding 3. Chameleon leaders 4. Fair-weather leader	1. Build clear philosophies 2. Plan, plan, and plan 3. Have a goal to work towards 4. Listen to others 5. But avoid the gossip 6. To thine self be true
Yin Wood	1. Fluid and motivated 2. Manipulative 3. Team spirited 4. Moderate and calm	1. Rewards those who has been nice 2. Establish clear rules 3. Maintain clear boundaries 4. Leave it to the experts 5. Don't be afraid to fly solo, at times
Yang Fire	1. Energetic 2. Independent 3. The gentle leader 4. Friendly	1. Study politics and strategy 2. Look to the classics for guidance 3. Improving their technique of debating and speech 4. Integrate their unique perspectives with those of others.
Yin Fire	1. Tolerant 2. Dormant Talent 3. Rules based 4. Empathetic	1. Be reasonable about rules 2. Learn the rules inside out 3. Read the right books, take the right classes 4. Play fair 5. Maintain boundaries
Yang Earth	1. Immovable 2. Quiet 3. Kind and understanding 4. Not a pushover	1. use rationality as a yardstick 2. study leadership and management 3. don't try to please 4. bank on their reputation 5. no shame in morals

Yin Earth	1. Productive 2. Caring 3. Having control 4. Protective	1. pay attention to their philosophy and beliefs 2. delegate 3. give clear instructions 4. keep personal and professional separate 5. don't play politics 6. be generous with praise
Yang Metal	1. Aiming for the finish line 2. Dogged 3. Authoritative 4. A style of their own	1. build character 2. learn from great leaders of the past 3. read the right books 4. maintain clear boundaries 5. altruism aside 6. reward fairly
Yin Metal	1. lack of determination 2. Good at delegating 3. Keeping a distance 4. playing politics 5. facts and figures	1. Be more flexible 2. Exercise humility 3. Share the spotlight 4. Be mysterious 5. Don't over-manage
Yang Water	1. Ambitious 2. Sociable 3. Number driven 4. The accepting leaders	1. Be aware of their strengths 2. Be conscious of their pride 3. Be less sensitive about image 4. Lighten up 5. Make quicker decisions
Yin Water	1. Unpredictable 2. Multitasking 3. Transformational leaders 4. Mixing Personal with professional	1. Seek stability 2. Focus 3. If you start, you must finish 4. Quality decision 5. Consistency breeds trust

3. Results and Discussion

There are 360 respondents feedback in this study. Each day master has at least 30 samples. Table 4 summarizes the mean for each day master's personality and learning style.

Table 4: Mean for personality and learning style test

Personality Code	Mean	Learning Style Code	Mean
Yang Wood			
YaW1	2.63	YaW5	2.30
YaW2	3.00	YaW6	2.10
YaW3	2.63	YaW7	2.23
YaW4	3.17	YaW8	2.20
		YaW9	2.20
Yin Wood			
YiW1	2.53	YiW5	2.50
YiW2	2.90	YiW6	2.23
YiW3	2.40	YiW7	2.60
YiW4	2.87	YiW8	2.27

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		YiW9	2.77
Yang Fire			
YaF1	3.13	YaF5	3.33
YaF2	2.63	YaF6	2.27
YaF3	2.37	YaF7	2.87
YaF4	2.63	YaF8	3.00
Yin Fire			
YiF1	2.40	YiF5	2.27
YiF2	2.07	YiF6	2.37
YiF3	2.30	YiF7	2.47
YiF4	2.70	YiF8	2.43
		YiF9	2.03
Yang Earth			
YaE1	2.70	YaE5	2.20
YaE2	2.80	YaE6	3.17
YaE3	2.47	YaE7	2.50
YaE4	2.17	YaE8	2.53
Yin Earth			
YiE1	2.73	YiE5	2.33
YiE2	2.70	YiE6	2.03
YiE3	2.30	YiE7	2.23
YiE4	2.30	YiE8	2.43
		YiE9	2.23
Yang Metal			
YaM1	2.83	YaM5	2.43
YaM2	2.93	YaM6	2.57
YaM3	3.00	YaM7	2.43
YaM4	2.97	YaM8	2.73
Yin Metal			
YiM1	2.20	YiM6	2.17
YiM2	2.93	YiM7	2.07
YiM3	3.57	YiM8	2.43
YiM4	3.07	YiM9	2.87
YiM5	2.47	YiM10	2.97
Yang Water			
YaR1	2.13	YaR5	2.33
YaR2	2.53	YaR6	2.37
YaR3	2.33	YaR7	1.97
YaR4	2.23	YaR8	2.03
		YaR9	2.43
Yin Water			
YiR1	2.37	YiR5	1.93
YiR2	3.20	YiR6	2.13
YiR3	3.13	YiR7	2.27
YiR4	3.07	YiR8	2.30
		YiR9	2.67

3.1 Yang Wood

The result of Yang Wood shows that seven statements describe correctly student's personality and learning style (mean<=3.0). Only one statement (YaW4 – fair weather leader) does not reflect true personality of student. The most preferred learning style is "clear weekly plan for assignment". Majority have stated "online classroom through video" as

preferred technology enhanced learning environment.

3.2 Yin Wood

The result of Yin Wood shows that all statements reflects student's personality and learning style. The most preferred learning style is "written rubrics in accessing the student's work to avoid unfairness" (YiW6, mean=2.23). Majority have stated "recorded video from university lecturer" as the preferred technology enhanced learning environment.

3.3 Yang Fire

The result of Yang Fire shows that five statements correctly describe their personality and learning style while two are not (YaF1 - energetic, YaF5 - friendly) reflecting student's personality. The most preferred learning style is "pass example that gives me guidance in future" (mean=2.27). Majority have stated "e-learning" as preferred technology enhanced learning environment.

3.4 Yin Fire

The result of Yin Fire shows that all the statements correctly describe students' personality and learning style. The most preferred learning style is "individual presentation in class to ensure that every member complete their part of assignment" (YiF9, mean=2.03). Majority have stated "mobile devices used in teaching" as the preferred technology enhanced learning environment.

3.5 Yang Earth

The result of Yang Earth shows that seven statements correctly describe students' personality and learning style. Only one statement does not reflect Yang Earth's learning style (YaE6 - study leadership and management). The most preferred learning style is "willing to listen to different opinion". Majority stated "online educations or classes" as the preferred technology enhanced learning environment.

3.6 Yin Earth

The result of Yin Earth shows all the statements correctly describe students' personality and learning style. The most preferred learning style is "a clear presentation in explaining topics". Majority have stated that "integrating mobile devices such as IPad, tablets with teaching and learning" as preferred technology enhanced learning environment.

3.7 Yang Metal

The result of Yang Metal shows that all statements correctly describe students' personality and learning style. The most preferred learning style is "given activities that could guide in building charisma," and "right/correct/very related material". Majority have stated "virtual reality learning experience" as preferred technology enhanced learning environment.

3.8 Yin Metal

The result of Yin Metal shows that eight statements correctly describe students' personality and learning style. Two statements (YiM3 – keeping a distance, and YiM4 – playing politics) do not reflect the student's personality. The most preferred learning style is "friendly group discussion activities instead of debates". Majority have stated "flipped classroom or gamification classroom" as preferred technology enhanced learning environment.

3.9 Yang Water

The result of Yang Water shows that all the statements correctly describe students' personality and learning style. The most preferred learning style is "clear evaluation measurement systems and delegate works equally on evaluating assignment/ presentation" (YaR7, mean=1.97). Majority have stated "virtual reality learning experience" as the preferred technology enhanced learning environment.

3.10 Yin Water

The result of Yin Water shows that six statements correctly describe their personality and learning style. Three statements (YiR2 - multitasking, YiR3 – transformational leaders, YiR4 – mixing personal with professional) do not reflect the students' personality. The most preferred learning style is "clear instruction in the beginning of each classes, assignments and activities". Majority have stated "online lecture or online classroom" as the preferred ICT enhanced learning environment.

4. Conclusion

This research is a preliminary study which relate BaZi profiling of a student with their personality and learning style in term of higher education pursue. The results showed that most of the questions (statements) reflect their personality and learning style. This study will be continued in testing larger sample size in different higher education institutions. The result is important in identifying the best solution preferred by different group of undergraduates and thus enable educators to effectively disseminate knowledge to the students in a harmony and preferable environmental setting.

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