The certainty on how schema influences students' writing in gathering ideas: Reconstructing schema theory

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Abstract

Learning other cultures requires someone to understand attributes of cultural understanding, including concepts of religion, values and beliefs, and customs or traditions. In fact, not everyone is familiar with the other culture, even their own culture. Sometimes, they use their schema or background knowledge when they are involved in discussing it. This research intends to find whether Piaget's theory of Schema is still relevant to the conditions and situations because of the advanced technology. A change in students' habits might cause a difference in their learning. This research aims to ascertain how schema influences students' writing process, including the gathering and managing of ideas and information. There were 24 students from the English Literature Department and 33 from the English Department of Mulawarman University participating in the research. Quantitative data was obtained to determine whether the students did assimilation and/or accommodation. The data were gained by using questionnaires with 2 points Likert-Scale. Meanwhile, the analysis of whether schema influenced students' writing process was calculated using a percentage, and the results were shown using diagrams. The results show that accommodation has more influence or impact than assimilation. This indicates that students nowadays change schemas to fit the new information.

Keywords: Accommodation; assimilation; schema.

INTRODUCTION

Learning other cultures requires someone to understand knowledge about culture, including concepts of religion, values and beliefs, and customs or traditions. They become some attributes of cultural understanding. Exploring various cultures as the subject matter to be discussed is the center of designing self-development and training. However, not everyone is familiar with the other culture, even their own culture. Sometimes, they use their schema or background knowledge when they are involved in the discussion. The basic assumption of schema theories describes the influence of an individual's prior experience on how new information is perceived, comprehended, and remembered (Brewer &Treyens, 1981). Some students do not know or have already known about the concepts discussed. They try to search for the explanation of the concepts so the activity is running properly. It happens especially when the concepts are new to them. But if they know the concepts well, they are easily involved in the discussion.

Concerning schema theory, the grounded theory of the research is based on Piaget's theory. Piaget (1952) defined a schema as "a cohesive, repeatable action sequence possessing component action that is tightly interconnected and governed by a core meaning. Furthermore, Piaget and Inhelder (1973) show that schema development changes memory through learning and recall. Schemas can be changed and reconstructed throughout a person's life. The two processes for doing so are assimilation and accommodation. Assimilation is the process of integrating new knowledge into existing schemas by editing the new knowledge to ensure an acceptable fit. Accommodation, in contrast, is the process of adjusting the cognitive organization of schemas in response to new knowledge. This occurs when the existing structure cannot account for the new information (Nickerson, 2023). This research aims to

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reconstruct schema theory to determine whether assimilation or accommodation has more impact or influence on learning about cultures.

Previously, people obtained knowledge by reading printed materials, watching television, and listening to the radio. However, since the Industrial Revolution 4.0, technology and communication have grown fast. Advanced technology is supported by internet networks that are spread all around the world. Education is also changing because technology is being applied in the process of teaching and learning. Students need computers and the Internet to facilitate their learning. Accidentally, printed reading materials are replaced by e-books and e-learning sources. They do not need to go to a library or a bookstore to find books; otherwise, they can immediately find the sources of information easily by clicking the buttons or touching the screen of their computer, laptop, or mobile phone. Life becomes easy and quick.

Based on the lecturer's observation during class activities, students prefer to find knowledge and information by googling or searching any devices, like websites and applications, by using the internet. Advanced technology today has changed people's habits. Previously, they enjoyed reading books to obtain knowledge, but today, by quickly searching and finding it, they can immediately get the information they need. It raises the question of whether prior knowledge is still in demand today. If the researcher goes further on the theory of schema proposed by Jean Piaget in Cognitive Development, that is, assimilation and accommodation, there must be some changes in the process of getting new information. Based on Piaget's theory, the process of learning requires the learners to undergo adaptation through assimilation and accommodation.

During class discussions, learners make an adaptation through assimilation by using the existing schema to deal with a new learning/situation to understand a new concept. Otherwise, learners do not use their existing schema in the process of accommodation since the schema does not work and needs to be changed to deal with new learning (Rahmat, Othman, Muhammad, Shirin, & Arepin, 2019). So, in the learning situation where the students involved in communication need to search for concepts and information using learning devices whether they undergo both assimilation and accommodation or not.

As mentioned previously, this research is also intended to find whether Piaget's theory of Schema is still relevant to the conditions and situations right now because of the advanced technology. There is a change in students' habits that might cause a difference in students' learning, especially when they discuss multicultural knowledge and perspective. The researcher hopes this research is beneficial to people who are aware of cultural differences and to build tolerance in society by discussing the subject matter of culture. Similarly, this research gives an idea of being able to assimilate with other communities or to adapt quickly when encountering groups from unfamiliar cultures. In line with adaptation theory, observing class activities is undertaken to ensure that having prior knowledge is not a problem to be involved in the discussion, depending on the results of the research, since the technology of communication enables them to search for information immediately. It means students minimize their anxiety by not being successfully involved in particular discussions because of a lack of knowledge and information since they could abuse the internet and technology.

In brief, the aim of the research is to ascertain how schema influences students' writing process, including gathering and managing ideas and information.

Piaget's theory of cognitive development
There is the notion in Piaget's theory that learning is a process of construction, where the thing being constructed is the child's internal model of the world or 'reality' more generally. This foundational theoretical assumption is called 'constructivism' (Gandhi & Mukherji, 2021). Constructivism frames learning not as a process of absorbing knowledge that's already out there in the world but rather as a process of making knowledge from scratch by using cognitive tools that learners have at their disposal to interpret incoming information and translate it into knowledge (Smith, 2022).

Furthermore, Piaget identified cognitive development as having four stages: Sensorimotor Stage, Pre-Operational Stage, Concrete Operational Stage, and Formal Operational Stage. Piaget explained that in the Sensorimotor Stage, infant intelligence is demonstrated through motor activity based on physical Interaction. In the sensorimotor stage, a schema might be chewing, which encodes a set of instructions relating to how to chew and the motivations for chewing (e.g., chewing feels satisfying and

stimulates hunger). In the Pre-Operational Stage, intelligence is demonstrated through the use of symbols and language. They develop memory and imagination. In the Concrete Operational Stage, intelligence is demonstrated through logical and systematic manipulation of concrete objects. In the concrete operational period, schemas contain more detailed representations of the properties of objects. Finally, Piaget states that in the formal operational stage, intelligence is demonstrated through the logical use of symbols related to abstract concepts (Huitt & Hummel, 2003).

Schema and Schemata (Schemas)
Pankin (2013) states that schema theory is a branch of cognitive science concerned with how the brain structures knowledge. Jean Piaget was the first to create a cognitive development theory that included schemas in which new information is added or assimilated into current schemas. Cognitive dissonance is caused by new information which cannot be easily integrated. Schemas are forced to change or accommodate this new information. In addition, Mcleod (2023) states when Piaget talked about the development of someone's mental processes, it meant the increasing number and complexity of the schema that it learned. Nusser (1967) uses the computer program analogy to clarify the concept of schema. He defines the program as a recipe for selecting, storing, recovering, combining, outputting, and generally manipulating information.

The plural form of schema is schemata or schemas. According to Rumelhart (1980), schemata are knowledge structures or sets of expectations at various levels of abstraction based on past experience, and they vary in their structural complexity. Next, Anderson and Pichert (1978) have shown that an activated schema can aid the retrieval of information in a recall task. Brewer and Treyens (1981) say that schema is the process of perception, language comprehension, and memory that involves the interaction of new (episodic) information with the old schema. The basic assumption of schema theories describes the influence of an individual's prior experience on how new information is perceived, comprehended, and remembered. In addition, Meriam, Cafarella & Baumgartner (2007) state schema theory reinforces the importance of prior knowledge to learning and the use of tools such as advanced organizers and memory aids to bridge new knowledge to older knowledge stored in schema. In terms of prior knowledge, the difference between schema and schemata is that schema refers to a single, specific mental framework or structure that an individual uses to understand and interpret information in a particular situation or context, while schemata (plural) refer to a collection or network of interconnected schemas that an individual has developed over time through their experiences and learning. Essentially, schemata represent a person's overall understanding and knowledge base in a particular domain or area of experience (AI Chat. https://deepai.org/chat).

Assimilation and accommodation
Concerning schema theory, schemas can be changed and reconstructed throughout a person's life. The two processes for doing so are assimilation and accommodation. Schemas have been pivotal in influencing theories of learning as well as in teacher instruction methods (Nickerson, 2023). In addition, these processes are known as adaptation, which is another way to describe using the most sophisticated cognitive tools available to keep schemas up to date. Adaptation involves two complementary sub-processes: assimilation and accommodation (Scott & Cogburn, 2021).

To Piaget, assimilation is how humans perceive and adapt to new information. This process fits the new information into the pre-existing schemas or cognitive background knowledge. There is a process of reinterpretation of new experiences to assimilate with old ideas. In contrast, accommodation is a process of changing pre-existing schemas to fit in the new information. In this matter, the existing schemas or background knowledge does not work and needs to be altered to deal with new information (Ansari, 2020).

Piaget described two processes in an individual's attempt to adapt: assimilation and accommodation. As the person increasingly adapts to environments in a more complex manner throughout life, these two processes are utilized. Moreover, Piaget explained that assimilation is the transformation process in the environment so that pre-existing cognitive knowledge can be placed in it. In contrast, accommodation is the process of changing cognitive structures to accept something from the environment. An example of assimilation happens when an infant uses a sucking schema by sucking

a small bottle and then sucking a large bottle. On the other hand, accommodation happens when an infant sucks on a pacifier, and then he is successful in sucking on a bottle (Huitt & Hummel, 2003).

According to Mcleod (2023), assimilation occurs when new experiences and previous knowledge are not very different. However, accommodation occurs when the new experience is very different from the previous knowledge we encountered so that we can change our existing schema and create a new radical schema. According to Rahmat et al. (2015), the process of assimilation of ideas helps learners to accept new knowledge through agreement. Otherwise, the process of accommodation allows learners to justify reasons for disagreement.

Culture

Culture constitutes human products during their life, including what they think (knowledge, ideas, values), feel (beliefs, interests), and act (attitude, behavior, arts, tradition) which are inherited by the next generation in their community (Harris, 1975; Critical Thinking Consortium, 2011). Culture is also defined as a set of traits or human characteristics that are shared and transmitted by non-genetic means (Mulder, Nunn, Towner, 2006). The other idea is that culture has been developed by the human race and is successively learned by each generation, containing the whole complex of traditional behavior (Brumann, 1999). Culture is a wide range of phenomena, including norms, values, shared meanings, and patterns of behavior that can be learned and associated with groups of people (Axelrod, 1997). Carley (1991) considers culture as the distribution of information (ideas, beliefs, concepts, symbols, technical knowledge, etc.) across the population and proposes a model for knowledge transfer based on interactions.

Advanced technology

The fast growth of advanced technology and the impact of Industrial Revolution 4.0 influenced scholars to prepare, design, manage, and apply the technology of computers in teaching and learning (Skephe, Caga, and Buadzo, 2020; Blinder, 2006). Furthermore, information and communication technology (ICT) in the form of e-learning and the Internet enable the integration of virtually unlimited multimedia learning materials from external sources into the curriculum where there is a computer, mobile phone, or tablet device with Internet access (Alsunbul, 2002). In addition, Bruce and Levin (2001) suggest that technology can encourage inquiry, help communication, construct teaching products, and assist students' self-expression in classroom situations. Teachers understand that using technology for learning changes their teaching methods (Brown 2004). Additionally, Sharpe (2004) found that teachers view technology adoption as an important strategy for improving education.

METHODS

This research applied a quantitative method to find information on whether the students did assimilation and/or accommodation during the process of classroom activities to discuss cultural topics in which the schema influenced students' writing process, including gathering and managing the ideas and information. The data were gained by using questionnaires with 2 points Likert-Scale. This data was necessary to reveal whether or not schema theory is still functional in this advanced technology nowadays. In brief, the questionnaire was the instrument to ascertain whether the students reconstructed their existing knowledge to assimilate or fit with the new knowledge (assimilation) or reconstructed their knowledge by changing their existing knowledge into new knowledge they had already obtained (accommodation) when they were involved in discussion.

The subject of the study was the second-semester students of the English Literature of Cultural Sciences Faculty and Students of the English Department of Teacher Training and Education Faculty of Mulawarman University in the academic year 2023/2024. There would be 24 students from the English Literature and 33 students from the English Department of Mulawarman University. They represented 25% of students who took writing classes in English Literature and the English Department of Mulawarman University.

To take quantitative data, the questionnaire was distributed to students to find out whether reconstructing schema theory was available or whether the students utilized assimilation and/or

accommodation during the discussion in which the schemata influenced students' writing process, including gathering and managing the ideas and information. The link to the questionnaire for the schema is: https://docs.google.com/forms/d/e/1FAIpQLSfEtIHJHZ3o1xewoC0mkIPGlyQICG5bqePT_MTfwwp Z7UoCYQ/viewform?usp=sf_link.

Meanwhile, to analyze whether schemata (assimilation and/or accommodation) influenced students' writing process, including gathering and managing the ideas and information, was calculated by using a percentage of assimilation and accommodation utilized by students and showing the results by using diagrams. There were two options for every item in the questionnaire: yes or no. So, for assimilation questions, if the answer supported/advocated the assimilation point, the score was 1 (one), but if it was not supporting/advocating, the score was 0 (zero), and the score would be given to accommodation for 1 (one) point. It was also applied by using the same procedures for accommodation questions. If the answer supported/advocated the accommodation point, the score was 1 (one), but if it was not supporting, the score was 0 (zero), and the score would be given to assimilation for 1 (one) point. There were eighteen (18) questions as a whole, nine (9) questions for assimilation, and nine (9) questions for accommodation; the remaining four (4) questions asked for inclusion. The formula to calculate the percentage of assimilation and/or accommodation is as follows:

$$\frac{\text{The whole score for assimilation/accommodation} \times 100\%}{18}$$

RESULTS AND DISCUSSION

Finding out the data on assimilation and accommodation enables this research to reconstruct the schema theory of Jean Piaget and whether adaptation for learning in the form of assimilation and accommodation has more impact on learning about cultures. There are nine (9) questions that advocate assimilation and nine (9) questions that advocate accommodation. The following findings show the results of students' opinions and experiences during the writing process to discuss cultural topics, whether assimilation or accommodation has more influence on learning. Based on the data presented in Figure 1, 51.8% of students are familiar with the concept or the topic of Dayak & Kutai Culture, but 48.2% of students are not familiar. Since the number of familiar is higher than the unfamiliar, it means students advocate assimilation on this matter. As can be seen in Figure 2, based on the data, 60.7% of students who are familiar with the concept or the topic of Dayak & Kutai Culture do not remember it, but only 39.3% still remember it. Students need to change their insight and add new knowledge because they do not remember anymore. This means that the number of students who advocate accommodation is higher than the number of those who are assimilated in this matter.

Figure 1
Results of Eighteen Questions for Finding Assimilation and Accommodation (1)

Assimilation 1. Are you familiar with the concept or the topic of Dayak & Kutai Culture? (Dayak Culinary, Dayak Traditional Music, Dayak Benuaq Tr...ny of Mecaq Undat, Kutai Belenggang Ritual, etc).
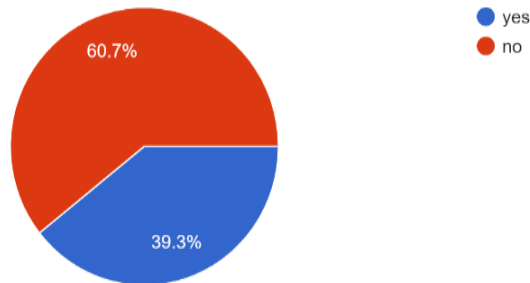56 responses
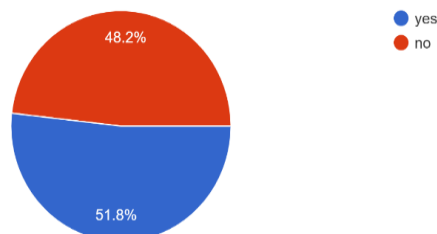
Figure 2
Results of Eighteen Questions for Finding Assimilation and Accommodation (2)

Assimilation 2. If you are familiar with the concept or the topic of Dayak & Kutai Culture, do you still remember about it?
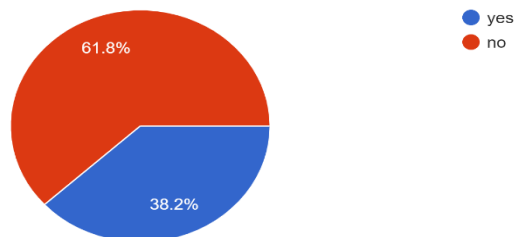56 responses

Then, Figure 3 shows that students who are familiar with the concept or the topic of Dayak & Kutai Culture 38.2% get the information by reading the books/printed reading materials/real performance. This means that they get more information from other sources. Based on the data in Figure 4, students who are familiar with the concept or the topic of Dayak & Kutai Culture, 71.4% get the information by googling or searching on the internet. It means they get more information by googling or searching on the internet if it is compared with other sources.

Figure 3
Results of Eighteen Questions for Finding Assimilation and Accommodation (3)

Assimilation 3. If you are familiar with the concept or the topic of Dayak & Kutai Culture, do you get them by reading the books/printed reading materials/real performance?
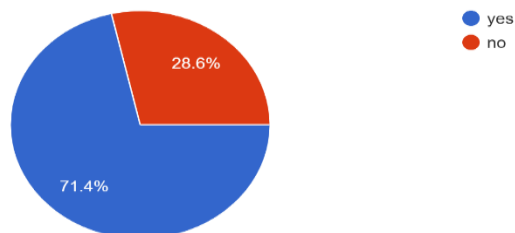55 responses

Figure 4
Results of Eighteen Questions for Finding Assimilation and Accommodation (4)

Assimilation 4. If you are familiar with the concept or the topic of Dayak & Kutai Culture, do you get them by googling or searching on the internet?
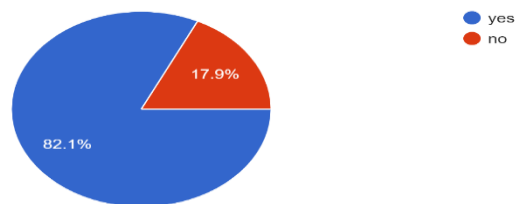56 responses

Based on the data presented in Figure 5, 82.1% of students think that the discussion about culture reminds them of the concept or the topic of Dayak & Kutai Culture. Only 17.8 % still remember about the concept. It means they reconstruct their knowledge by changing their existing knowledge into new knowledge they already obtain (accommodation) when they are involved in discussion. It advocates more accommodation than assimilation. As displayed in Figure 6, 76.4% of students who are familiar with the concept or the topic of Dayak & Kutai Culture do not remember and cannot recall/retell it now. This means that their prior knowledge cannot fit with the new information and that it needs to be changed into new knowledge that they have already obtained. It advocates more accommodation than assimilation.

60.7% of students think that their memory of Dayak & Kutai culture makes them remember and understand when they are involved in discussion (see Figure 7). It means their prior knowledge fit with their new information. It advocates assimilation more than accommodation.

Figure 5
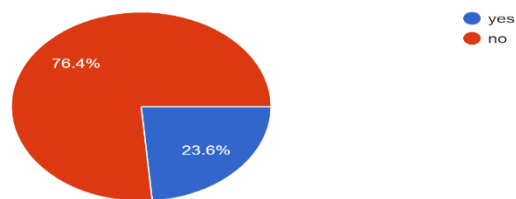*Results of Eighteen Questions for Finding Assimilation and Accommodation (5)*

Assimilation 5. Do you think that the discussion about cultures will remind you about the concept or the topic of Dayak & Kutai Culture?
56 responses

Figure 6
*Results of Eighteen Questions for Finding Assimilation and Accommodation (6)*

Assimilation 6. Do you remember about Dayak & Kutai culture for a long time and can recall/retell it now?
55 responses

Figure 7
Results of Eighteen Questions for Finding Assimilation and Accommodation (7)

Assimilation 7. If you are involved in discussion about Dayak & Kutai culture, does your memory help you to remember and understand it because you are familiar with the topic?
56 responses
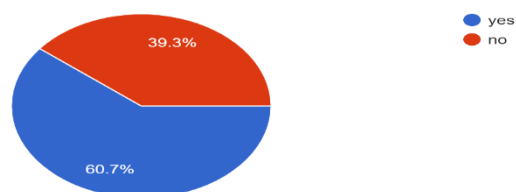
Based on the data in Figure 8, 50% students feel easy to understand the topics about Dayak & Kutai culture because it is not a new issue for them, but 50% feel difficult to understand because it is new issue for them. It means 50% students advocates to assimilation and 50% students advocates to accommodation. Also, Figure 9 shows that 60.1% of students feel comfortable participating in class discussion because they are familiar with it. Their prior knowledge makes them feel comfortable. It advocates assimilation. Then, based on the data in Figure 10, 68.4% are not familiar with the concept or the topic of Dayak & Kutai Culture, but 31.6% of students are familiar. Since the number of unfamiliar is higher than familiar, it means students advocate accommodation on this matter.

Figure 8
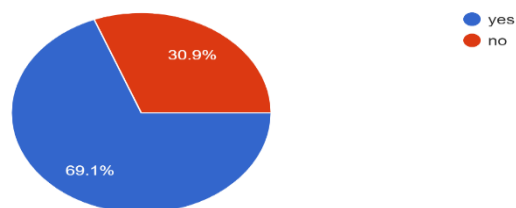*Results of Eighteen Questions for Finding Assimilation and Accommodation (8)*

Assimilation 8. Do you feel easy to understand the topics about Dayak & Kutai culture because it is not a new issue for you?
56 responses
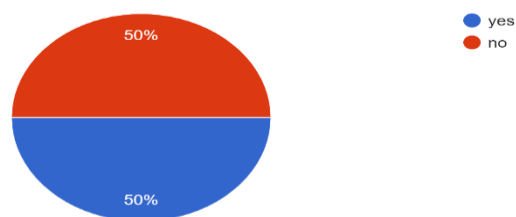
Figure 9
*Results of Eighteen Questions for Finding Assimilation and Accommodation (9)*

Assimilation 9. Do you feel comfortable if you are participating in class discussion about Dayak & Kutai culture because you are familiar with it?
55 responses

Figure 10
Results of Eighteen Questions for Finding Assimilation and Accommodation (10)

Accommodation 1. Do you think that the concept or the topic of Dayak & Kutai Culture stated in bracket () is new for you? (Dayak Culinary, Dayak Tra...Mecaq Undat, Kutai Belenggang Ritual, etc).
57 responses
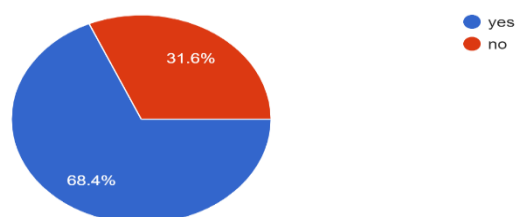
The data displayed in Figure 11 indicates that 96.5% students who are not familiar with Dayak & Kutai culture want to get information about them. It indicates that they have not got existing knowledge and need new knowledge about it. It advocates accommodation in this matter. In Figure 12, it is found
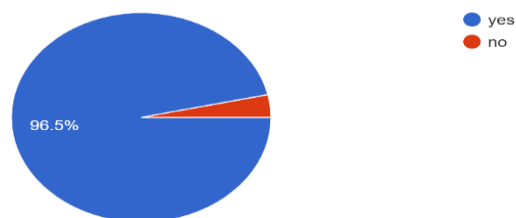
that 57.1% of students who are not familiar with Dayak & Kutai culture want to find information by reading books/printed reading materials, but 42.9%   want to find it from other sources. Interestingly, in Figure 13, 100% of students who are not familiar with Dayak and Kutai culture want to find the information by googling or browsing the internet. This indicates that this source of information is preferable to other sources.

Figure 11
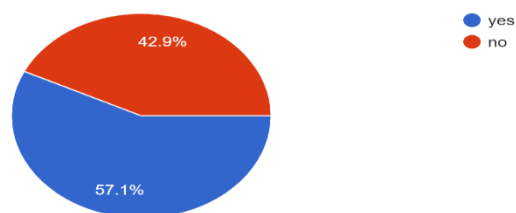*Results of Eighteen Questions for Finding Assimilation and Accommodation (1)*

Accommodation 2. If you are not familiar with Dayak & Kutai Culture, do you want to get information about them?
57 responses

Figure 12
Results of Eighteen Questions for Finding Assimilation and Accommodation (12)


Accommodation 3. If you are not familiar with Dayak & Kutai Culture and want to find the information, will you search for the information by reading the books/printed reading materials?
56 responses

Figure 13
Results of Eighteen Questions for Finding Assimilation and Accommodation (13)

Accommodation 4. If you are not familiar with Dayak & Kutai Culture and want to find the information, will you search for the information by googling or browsing the internet?
57 responses
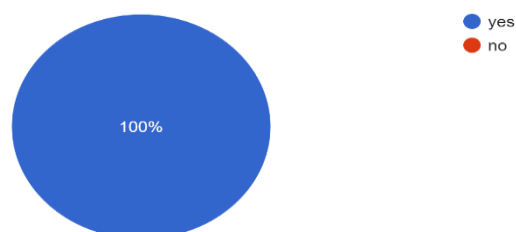
Based on the data, 100% students who are not familiar with Dayak & Kutai culture think that the discussion about culture make them familiar or add knowledge about Dayak & Kutai culture (see Figure 14). It means they do not have existing knowledge about it and want to add new knowledge. It advocates

to accommodation. Figure 15 indicates that 100% of students think that discussion about Dayak & Kutai culture changes their insight and new things. It means that they reconstruct their knowledge by changing their existing knowledge into new knowledge they already obtain (accommodation) when they are involved in discussion. It advocates accommodation. Figure 16 shows that 80.4% of students who do not know about Dayak & Kutai culture feel comfortable being involved in a discussion because they can abuse the information on the internet. It means having prior knowledge or not is not a big matter since they can easily abuse the information on the internet, so they can get new insight immediately. Students advocate accommodation in this matter.

Figure 14
Results of Eighteen Questions for Finding Assimilation and Accommodation (14)

Accommodation 5. Do you think that the discussion about cultures will make you familiar or add your knowledge about Dayak & Kutai Culture?
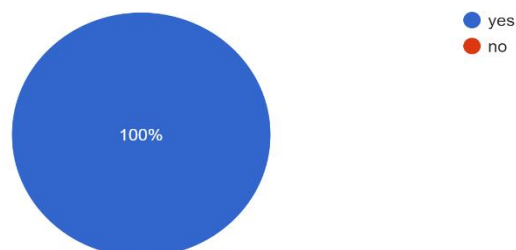57 responses
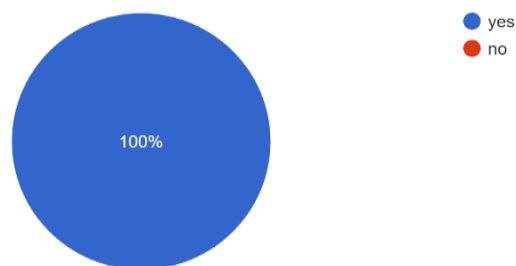
Figure 15
Results of Eighteen Questions for Finding Assimilation and Accommodation (15)

Accommodation 6. Do you think that the discussion about Dayak & Kutai Culture will change your insight and get new things?
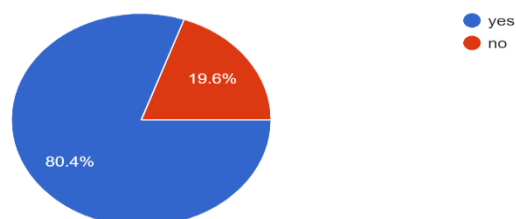57 responses

Figure 16
Results of Eighteen Questions for Finding Assimilation and Accommodation (16)

Accommodation 7. If you are involved in a discussion and you do not know about Dayak and Kutai Culture, do you feel comfort because you can abuse the information to internet?
56 responses

Data in Figure 17 demonstrate that 64.9% of students need more effort to understand Dayak & Kutai culture because it is new for them. They need to change their insight and understand the new knowledge they obtain. It indicates that students are involved in accommodation when learning new things. Lastly, Figure 18 confirms that 51.8% of students have difficulty in class discussions about

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Dayak and Kutai culture since they dismiss the point and need more clarification because it is new to them. It means they are in the accommodation process of learning. It advocates accommodation.

Figure 17
*Results of Eighteen Questions for Finding Assimilation and Accommodation (17)*

Accommodation 8. Do you think that it needs more effort to understand Dayak and Kutai Culture because it is new for you?
57 responses

- yes
- no

35.1%
64.9%
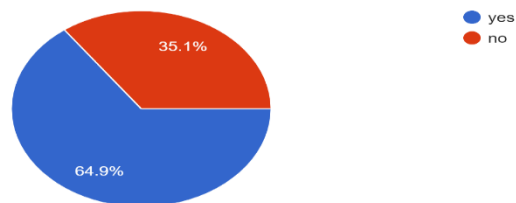
Figure 18
Results of Eighteen Questions for Finding Assimilation and Accommodation (18)

Accommodation 9. Do you find it difficult to participate in class discussions about Dayak and Kutai culture since you dismiss the point and need more clarification because it is new for you?
56 responses

- yes
- no

48.2%
51.8%
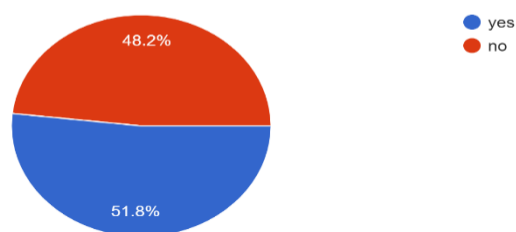
The calculation by using percentages and shown by using a table
In the data analysis technique, it has been clarified that to analyze whether schemata (assimilation and/or accommodation) influence students' writing process, including gathering and managing the ideas and information, it is calculated by using percentages and diagrams. Based on the agreement, if the answer supports or advocates the assimilation, the point of the score is 1 (one), but if it is not supporting, the point of the score is 0 (zero), and the score will be given to accommodation for 1 (one) point. It also happened to accommodation items (see Table 1). There are 9 items for assimilation and 9 items for accommodation. The following table shows the items and the results of students' answers, as well as whether they advocate assimilation or accommodation.

The formula to calculate the percentage of assimilation and/or accommodation is as follows:

$$\frac{\text{The whole score for assimilation/accommodation}}{18} \times 100\%$$

To calculate the percentage of assimilation is done by calculating the total score for assimilation, which is divided by 18 and then multiplied by 100% as follows:

$$\frac{5.5 \times 100\%}{18} = 30.56\%$$

To calculate the percentage of accommodation is done by calculating the total score for accommodation, which is divided by 18 and then multiplied by 100% as follows:

$$\frac{12.5 \times 100\%}{18} = 69.44\%$$

Table 1

Results of Students' Advocating to Assimilation and Accommodation

Assimilation/accommodation Questions Number	Supporting /Advocating to	Score for Assimilation	Score for Accommodation
Assimilation 1	Assimilation	1	0
Assimilation 2	Accommodation	0	1
Assimilation 3	Assimilation	1	0
Assimilation 4	Assimilation	1	0
Assimilation 5	Accommodation	0	1
Assimilation 6	Accommodation	0	1
Assimilation 7	Assimilation	1	0
Assimilation 8	Assimilation/accommodation	Neutral (0.5)	Neutral (0.5)
Assimilation 9	Assimilation	1	0
Accommodation 1	Accommodation	0	1
Accommodation 2	Accommodation	0	1
Accommodation 3	Accommodation	0	1
Accommodation 4	Accommodation	0	1
Accommodation 5	Accommodation	0	1
Accommodation 6	Accommodation	0	1
Accommodation 7	Accommodation	0	1
Accommodation 8	Accommodation	0	1
Accommodation 9	Accommodation	0	1
Total Score		**5.5**	**12.5**

In conclusion, the percentage of accommodation (69.44%) is higher than that of assimilation (30.56%) for this research, or accommodation has more influence or impact than assimilation. This means that students nowadays (69.44%) tend to change schemas to fit the new information. They reconstruct their knowledge by changing their existing knowledge into new knowledge they already obtained (accommodation). However, students (30.56%) still use their existing schema, which fits the new information into the pre-existing schemas (assimilation). This phenomenon occurs when the tertiary-level students of Mulawarman University perceive or adapt information while they are learning about cultures as part of the writing process (gathering and managing ideas and information).

Previous research entitled The Effectiveness of Generating Interaction between Schemata and Text (GIST) strategy toward the students' writing skill in Indramayu had a focus on implementing GIST (Generating Interaction between Schemata and Text). It is a strategy for taking notes while the students are reading and writing or putting concepts into their own words. The previous research supports the idea that schema does not always exist but needs to be generated. One way to generate ideas for this current research is by using advanced technology or using the internet to find knowledge or information.

Piaget's theory of schema is still relevant to the current conditions and situations. However, there is a change in students' habits that might cause a difference in students' learning because of the advanced technology. They can abuse information and knowledge through the internet as quickly as possible; that means whether or not having prior knowledge is not a big matter for them. In the past, students were demanded to have prior knowledge of a topic before they were involved in a discussion. Otherwise, in the present, they reduce their anxiety about knowing nothing since they can search for information and knowledge immediately by using the internet. Therefore, accommodation influences students' learning more than assimilation.

The impact of this research enables educators to implement advanced technology in the teaching and learning process, especially in teaching communicative skills to gather and manage ideas and information about culture. An individual's prior experience, including assimilation and accommodation, influences how new information is perceived, comprehended, and remembered. Since accommodation gives more influence during the process of learning, students minimize their anxiety by not being successfully involved in particular discussions because of a lack of knowledge and information since they could abuse the internet and technology. They change pre-existing schemas to fit in the new information.

CONCLUSION

It is ascertained that schema influences students' writing process, including gathering and managing ideas and information. They gather knowledge and information, manage ideas, answer critical thinking questions, and write a composition about them. Accommodation has more influence or impact than assimilation in this case. This means that students nowadays tend to change schemas to fit the new information. They reconstruct their knowledge by changing their existing knowledge into new knowledge they already obtained (accommodation). However, students still use their existing schema, which fits the new information into the pre-existing schemas (assimilation). In brief, accommodation is more dominant than assimilation in this case.

REFERENCES

AI Chat. https://deepai.org/chat. Accessed on January 4th, 2024.

Alsunbul, A. (2002). Issues relating to distance education in the Arab world. *Convergence, 35*(1), 59-80.

Anderson, R. C., & Pichert, J. W. (1978). Recall of previously unrecallable information following a shift in perspective. *Journal of Verbal Learning and Verbal Behavior, 17*(1), 1-12.

Ansari, M. (2020). *Theories: Piaget's theory of cognitive development* [Lecture series-3]. Department of Psychology, A.P.S.M. Barauni College and Darbhanga University.

Blinder, A. (2006). Offshoring: The next industrial revolution? *Foreign Affairs, 85*(2), 113-128.

Brewer, W. F., & Treyens, J. C. (1981). Role of schemata in memory for places. *Cognitive Psychology, 13*(2), 207-230. https://doi.org/10.1016/0010-0285(81)90008-6

Brown, H. D. (2004). *Language assessment: Principles and classroom practices*. Longman.

Brumann, C. (1999). Writing for culture: Why a successful concept should not be discarded [and comments and reply]. *Current Anthropology, 40*(1), 1-27. https://doi.org/10.1086/200026

Bruce, B., & Levin, J. (2001). Roles for new technologies in language arts: Inquiry, communication, construction, and expression. In J. Jenson, J. Flood, D. Lapp, & J. Squire (Eds.), *Handbook of research on teaching the English language arts* (pp. 649-657). Lawrence Erlbaum Associates.

Carley, K. (1991). A theory of group stability. *American Sociological Review, 56*(3), 331-354.

Gandhi, M.H., & Mukherji, P. (2021). *Learning theories*. In StatPearls Publishing.

Huitt, W., & Hummel, J. (2003). *Piaget's theory of cognitive development. Educational Psychology Interactive*. Valdosta State University.

McLeod, S. (2023). *Jean Piaget and his theory & stages of cognitive development*. Simply Psychology.

Mulder, M.B., Nunn, C.L., & Towner, M.C. (2006). Cultural macroevolution and the transmission of traits. *Evolutionary Anthropology, 15*(2), 52–64.

Neisser, U. (1967). *Cognitive psychology*. Appleton-Century-Crofts.

Nickerson, C.(2023). *Schema in psychology: Definition, theory & examples*. Simply Psychology.

Pankin, J.(2013). *Schema theory*. Massachusetts Institute of Technology.

Piaget, J., & Cook,M.T.(1952). *The origins of intelligence in children*. International University Press.

Piaget, J., & Inhelder,B.(1973). *Memory and intelligence*. Basic Books.

Rahmat, N.H., Othman, N.A., Muhammad, A.M., Shirin, A.A., & Arepin, M.(2019). Assimilation and accommodation: Exploring the dynamics of class discussion. *European Journal of Education Studies, 6*(1), 228-240.

Rahmat,N.H., Rahman,S.A., B,S.A., & Yunos,D.R.M.(2015). Investigating turn-taking strategies in class discussions among ESL adult learners. *English Review: Journal of English Education, 3*(2),139-145.

Rumelhart,D.E., & Ortony,A.(1977). The representation of knowledge in memory.In R.C. Anderson, R. J. Spiro,& W.E. Montague (Eds.), *Schooling and the acquisition of knowledge* (pp. 99-135). Lawrence Erlbaum Associates.

Scott,H.K., & Cogburn,M. (2021). *Piaget*. In StatPearls Publishing.

Sharp,C.(2004). Developing young children's creativity: What can we learn from research. *Topic, 32*,5-12.

Skhephe, M., Caga, N.P., & Boadzo, R.M.K.(2020). Accounting teachers' readiness for e-learning in the Fourth Industrial Revolution: A case of high schools in the Eastern Cape South Africa. *Perspectives in Education, 38*(1),43-57.

Smith,W.(2022). Piaget's schema & learning theory: 3 fascinating experiments. *PositivePsychology.com*. Retrieved from https://positivepsychology.com/piaget-schemas/