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TOP SCHOLAR



Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Scholarship 2025 Psychology

Time allowed: Three hours
Total score: 24

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

Pull out Resource Booklet 93405R from the centre of this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–23 in the correct order and that none of these pages is blank.

Do not write in the margins (XXXX). This area will be cut off when the booklet is marked.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

Make sure you have the paper Resource Booklet 93405R.

INSTRUCTIONS

You must answer ALL three questions.

The Resource Booklet contains a variety of resources based on a theme: **cognitive psychology**.

The Resource Booklet has resources that relate specifically to Questions One and Two. The resource booklet may be used, but is not required, for Question Three.

Space for planning has been provided after each question.

QUESTION ONE

Ash, an Honours student in Psychology, used the research into how language restructures cognition (**Resource A**) to plan a research study (**Resource B**) investigating whether the processing of navigation instructions is influenced by language.

Find flaws in the current design of Ash's research study, and suggest improvements.

PLANNING

P1: improving the method/before the study -sampling

P2: improving in the study itself

P3: impacts of changing this-loftus and palmer (1974 and 1977) how memory can be shaped through language

Begin your answer to **Question One** here:

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Ash's research study aims to investigate how language can reshape cognition given the conclusion of Majid and Levinson (2004) that understanding, and thus our memory and perception of an event, can be impacted by language, given how, cross-culturally, absolute frames of reference can vary. This is important as our society becomes increasingly multicultural, the impacts of terminology used and different understandings of it is important in ensuring that all members in society are able to communicate with one another to achieve productivity and contribution. Ash's current study, thus, should be improved for these outcomes to rationalise by becoming more applicable to real world contexts, and ensure greater specificity in the results so that the conclusion can be better used in order to establish solutions.

While Ash's use of a procedure accounts for the importance of having two distinct and equal groups of bilingual migrants to New Zealand, her current sampling method is ineffective in applying her results to a real world context. The current sample of 200 participants, though large enough to observe trends and prove casual relationships and differences between the two groups, the background of participants remains vague making it difficult to actually test her aim. This is because, splitting into simply 'bilingual migrant participants' and 'monolingual participants' does not exactly prove that there will be differences in the interpretation of absolute spatial language as she does not consider the time bilingual migrants have spent in New Zealand, and adapted to the language that is used to describe spatial arrangements. As both of these groups must fluently speak English, it is likely that some participants will be able to navigate through the maze given both absolute and relative language. As such, the sampling method can prevent the generalisability of the results of this study to a group where it is known that differences in language and culture can result in various cognitive understanding (how the information is paid attention to and recalled) because she is not specifically testing this, showing a reductionist view on society where the understanding of two languages cannot coexist. To improve this realistically, Ash should consider conducting a preexperimental screening test and score an individual's understanding of relative and absolute language by asking individuals to describe the meaning of certain terms, determining how interpretation of information is changed between bilingual and monolingual English speakers and then splitting them into groups based on who has scored highly and who hasn't in order to get a better gauge of where these cross-cultural misunderstandings are occurring. This improvement will thus mean that Ash can properly test how spatial memory and navigational skills will differ as understanding of English terms change. The applicability of this is further limited as she tests using a virtual maze. In everyday scenarios, individuals will not have to use cognitive resources in order to navigate a maze, instead, it is more applicable in navigating through unknown locations using navigational tools set by institutions such as Google Maps which may have different terminology to what individuals are used to understanding, and for using public transport, and then recalling how to locate these certain places or objects. As such, when testing the effect of the change in language is removed from the lived experiences of individuals, meaning that the interpretation of the findings are limited in that they may only be applied to less complex and low stakes realities. To improve this, instead of a maze, Ash could use a stimulation of a road and ask individuals to complete tasks such as locating a bus station or changing the directions of a car upon GPS-like instruction, and varying the language used such that we are able to see how this issue manifests in real life.

Secondly, the method in which the results are tested is nonspecific to one variable whereby processing the findings of the study make it difficult to establish a relationship or differences between changes in language and both spatial memory and awareness. Here, Ash uses the time taken to complete the navigation to test for spatial understanding and a recall test for each group for both conditions. However, while individuals are given an understanding of how to navigate the virtual maze and respective spatial terms (which may influence which terminology is better understood, and thus the overall data), the recall test is nonspecific. For participants who undergo the task in the second condition in absolute terms, their speed in completion may be caused by both cross-cultural differences in interpretation as given by Majid and Levinson's study, or may be affected only by the ambiguity of absolute terminology, making it hard to come to a valid conclusion that it is both the change in language across cultures that shows differing results because it may just be the language itself. As such, an improvement that should be made to better ensure the replicability of the findings, and determine what variable is influencing the other could be to introduce a control group with both cultures to ensure that differences in results are only the result of the changing language as this would show a generalised average interpretation of the language across both groups, which the actual findings can be compared to to determine how interpretation is varied. Additionally, as described earlier, the study is not grounded in real life scenarios which the findings need to be applied to. The maze, as shown by the provided image, is repetitive and monotonous, not including cues that can be found in real life scenarios which individuals can identify to confirm navigational memory. Therefore, simply asking them to recall their path is also not applicable as this would typically occur in the context of the space individuals would try to navigate with distinct cues that would enhance retrieval of memories associated with navigating the space (for instance, upon seeing a specific traffic light, individuals may know to turn left.) As previously explained, having a more realistic scenario can ensure the applicability of the findings. To establish relationships between memory and language can be to have individuals show their path by undergoing the stimulation again, and testing if they are able to navigate at a faster rate, and with the requirement of cues (counting how many directions need to be provided again). This would allow Ash to ensure that the methods of data collection for both variables are more specific, ensuring that overall, her findings reflect the complexity of language and its influence on memory.

By making her findings more applicable, generalisable, and valid (actually testing the correct variables), the impacts of her findings can be used to serve a greater purpose in society. Similar tests by Loftus and Palmer (1974) saw how memory could be influenced by changes in the language used when individuals were asked to describe a car crash, with more harsh adjectives such as "smashed" showing a greater tendency for participants to recall the vehicles colliding at a greater speed than when the word "collided" was used, showing how individual interpretation of language influences memory. While this is different to spatial memory, the similar cognitive processes are influenced by language where, in this context, changing the language used to describe navigation, with the understanding that individuals will have different interpretations of the language used, and associate their own meaning to it based on existing cultural understanding or schemas associated with navigation, can change the way in which individuals remember the path they took. For instance, if the absolute term "north" was used Arrernte may remember turning in a north direction as this is typically used in their culture, but those who speak Tzeltal may remember turning in a different way, even if they did turn north, as they have limited understanding of this term in navigation, forcing them to rationalise their memory of navigation using their own cultural understanding (Barlett's Reconstructive Theory). This can pose difficulties for all cultural groups in navigation as recall will be removed from reality for specific groups, having greater consequences outside of navigation, as Loftus and Palmer's study as well as Ash's intend to prove. By allowing for her findings to be as accurate as possible, we will be better able to identify how and why these inconsistencies may manifest in New Zealand society, encouraging the implementation of solutions that actually address the key causes of this issue while also proving that this is an issue in our society, validating the experiences of migrants of bilingual speakers for instance, in road safety this may see more relative instruction to prevent poor navigation and confusion for migrants.

Overall, Ash's study, though inherently important and necessary for real world application, is currently not applicable to society, is difficult to replicate due to nonspecific terms, and does not critically examine the complexities and influences of each variable. To better improve it by prescreening participants to better understand how culture is shaping their interpretation of language, by making the scenario more applicable to real world contexts, and changing the virtual maze test to better account for the complexity of memory recall, she can ensure that her findings will have achieve positive outcomes for New Zealand society,

QUESTION TWO

Analyse how a selection of **Resources C, D, and E** examine an issue in cognitive psychology. Provide your own insight into possible solutions, using psychological approaches.

PLANNING

P1: Resource C

Explores how memory can be improved by working memory training suggesting the brain is like a computer where stimuli is input and works like a machine to interpret it-cognitive approach.

P2: Resource D

Suggests that the issue occurs due to smartphone use, distract us and taking away our ability to pay attention to the task at hand as wtm is limited. this is a behaviourist approach due to the perceived reward to smart phone ("small pleasure") forcing individuals even though they can use it feel more stressed and tempted

P3: Resource E: Psycodynamic approach, but also suggests that memory is something that just happens to us

Begin your answer to **Question Two** here:

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Resources C, D, and E aim to investigate the issue of the fragile and limited nature of human working memory through a range of approaches. Our working memory has proven to be limited, meaning that any given time, what we choose to focus on must be selective, and while this is known, the issue of choosing what to take in can be difficult, with these difficulties classified differently by Resources C, D, and E through cognitive, behaviorist, and psychodynamic approaches to memory giving rise to a range of solutions to this issue, accounting for the holistic nature of cognitive processes.

Resource C discusses how the success of working memory training programs can change depending on different cognitive impairments such as ADHD and dyslexia, their approach, whereby they suggest that the input (working memory training devices), is ineffective when there are 'issues' in cognitive function, showing their understanding of this issue to be through a cognitive approach. In their study researchers note that, contradictory to the idea that the brain can be strengthened like a muscle through working memory training programmes (a biological approach) due to the fact that this does not account for how "simply loading up" the brain is ineffective in leading to improved working memory, because the working memory itself is limited and cannot deal with this overload of training, or relate it to real world scenarios with different inputs with cognitive processes such as "verbal skills, attention, reading or arithmetic". As such, their rejection of this statement stems from the fact that it ignores how input must be processed in the working memory before it can be stored in the long-term memory and recalled, suggesting the mind to function like a machine, or computer where input and then processing leads to a desired output. However, when impairments hinder the working memory's ability to process information, given how ADHD (attention deficit hyperactivity disorder) can make it difficult to focus on stimuli, resulting in different inputs or training methods to suit these different cognitive processes. As a result, these working memory training programmes are again ineffective, even though they are designed to help such students, because they do not account for the complexity of these cognitive processes in real life, where the information that needs to be remembered is different. Based on this approach, a solution that can be implemented to improve the working memory in real world contexts such as a classroom, can be by having more structured presentations of information such as through clear diagrams as this accounts for the limitation of working memory. Through a cognitive approach that this Resource takes, this would be valid because it reduces the amount of processing needed to understand information, and, as supported by the Cognitive Load Theory (Sweller) this means that the working memory can dedicate its limited resources to understanding more information at hand. As such, this process will allow for more of the input to be broken down, benefitting individuals with cognitive impairments such as ADHD with specifically broken down and easily identifiable information so that less effort is dedicated to improving understanding rather than filtering through the stimuli, and taken into the long-term memory with less gaps in memory that will need to be reconstructed.

However, the cognitive approach that Resource C takes does not fully consider how our attention and thus ability to take in information into the working memory with its limited resources are shaped by our experiences and emotion, reducing these cognitive processes to a machine. The behaviourist approach that Resource D takes, whereby the influences of perceived reward and punishment as well as sociocultural influences of how we learn, and the distractions which we are accustomed to in our daily lives, can shape our ability to remember. They explore the issue of how memory can be limited and is fragile by showing the difference in how groups with no exposure to mobile devices (they are completely put out of sight) and compared to those with exposure to mobile devices have a greater tendency to remember information, with an average accuracy of memory of approximately 14.2 while those with phones have an approximate average of 13. Despite being told not to use their mobile phones, in an increasingly digital world, where the consumption of short form videos and internet use, means that the perceived reward of the "small pleasure" of using their phones (Xie, et al. 2023) takes up significant working memory resources, from a behaviourist approach. As a result, their focus on the given information is limited by how much they desire to use their phones, where this is not present for those who do not have mobile phones next to them as they cannot act on this urge, and so they are ultimately able to take in less of the information provided in their working memory, and thus, less will be stored in the long-term memory. In modern setting, particularly in open plan workplaces, Dr. Gloria Mark, PHD also notes how 50% of distractions are self initiated, due to our growing tendency to consume short-form digital content, making the comparatively slower task of sustained attention on a specific piece of information much more difficult. As this has the potential to reduce productivity, as proven by Resource D where in an educational setting, participants are not able to remember as much of the content that has been taught or given to them, and make learning or daily tasks less manageable, a solution must be implemented. Examining this from a behaviourist approach where we as people have been influenced by our experiences in society and culture, as to what we perceive will reward us shows that we need to change how we reward ourselves. While taking phones away in educational settings proves a valid solution in boosting working memory as this resource shows, it is only a first step where we can use the concept of how mobile phones, which increase our tendency to feel comfortable with short form content, shape memory by introducing entertainment that sustains memory, such as reading from an early childhood stage and incorporate this with learning. This will mean that the working memory resources are not dedicated towards resisting urges and rather to take in information for a sustained amount of time.

Despite individuals having control over what we pay attention to, several theories suggest that emotions and previous memories can influence how we remember information. This is supported by Resource E which confirms that "facing difficult, frightening, and emotional events" can shape psychological stress, and thus influences we remember an event. As a result, they suggest that memory is something which may be controlled by unconscious emotions and memory, and examines this issue from a psychodynamic approach. Their presentation of the graphs where all three groups (eyewitness experts, fundamental memory experts, and 'laypeople') show a greater tendency to agree with the fact that individuals can experience stress when trying to remember something can impair memory retrieval is used to prove how unconscious desires to not remember information to its fullest impairs eyewitness testimony, and retrieval of painful memory. This can also be supported by the fact that attentional bias, from an evolutionary approach, means that we will selectively not pay attention to information that is nonthreatening, meaning that we are unlikely to remember this unattended information properly, which reveals an unconscious limitation of the working memory to threatening or more emotionally charged aspects of a stimuli or event as our working memory is limited and, to keep ourselves safe, we will actively select the most urgent parts of a stimuli. As such, these evolutionary responses that shape our memory, may have evolved into mechanisms that enable individuals to survive such as denial of certain aspects, or the central executive of memory choosing not to dedicate resources towards more stressful or triggering aspects of an event as it cannot dedicate mental resources to it and focuses more on central details which eyewitness memory and fundamental memory experts agree with, or for individuals' working memory to only focus on a certain aspect as stress and general upset takes up mental resources, which most 'laypeople' agree disagree with. While we cannot solve unconscious desires and limitations, a solution to this issue may be to address that in stressful situations an individual may be unable to properly remember information, and retrieval becomes limited due to a greater tendency to forget any details that were remembered during a stressful situation by having less reliance on eyewitness testimony. By having individuals involved in these stressful situations list their emotions, and why the memory makes them feel this way, we can see where details may have been forgotten, and why, making investigators more likely to identify where inconsistencies may lie in such scenarios, especially not only when the event itself was stressful, but being in courtrooms or in custody may be uncomfortable, so that the overall understanding of a situation is more accurate.

By critically evaluating this issue from a range of different approaches to psychology, a range of solutions can be established which provides an overall, more holistic understanding of how memory cannot only be improved by structuring learning and understanding what distracts us from properly remembering information, but also, in addressing where the limitations in memory lie, noting how our reliance on memory needs to be questioned, changing the way in which societal aspects such as the criminal justice system may function to ensure greater functionality and understanding of the complexity of the human mind.

Page 3

QUESTION THREE

Select ONE of the statements below. Use your own knowledge of psychology to address the statement, including links to debates within psychology, and provide an analysis of different sides of the argument.

- ☐ (a) Current memory models oversimplify human memory.
- ☒ (b) Learning is best explained by cognitive theories.
- ☐ (c) Your working memory capacity is the best predictor of intelligence.
- ☐ (d) Intelligence is more about adaptability than problem-solving ability.

PLANNING

P1: learning is best explained by cognitive theories:

nature v. nurture

yes, cognitive load has high applicability in today's world where resource C can show that an increased tendency increases extraneous load and we should adapt classrooms systems to be more like this (nurture) v. nature, yes we have an inherent bias towards processing info visually so incorporating several cues as exp by this theory is beneficial. But this theory does not apply to how learning actually occurs for various individuals across cultures

P2: free will v. determinism

Conditions like ADHD may limit the ability to learn, and as the theories do not account for this, it is not true, however, for instance Bandura's doll theory is highly generalisable so from a nomothetic approach it can be true

P3: holistic v. reductionist

holistic: all exp learning as a different thing, some social some not, and so can these theories of learning really be used to best explain learning, by using all of them yes, but reducing it to one fact, no

Begin your answer to **Question Three** here:

B I U     

Learning, at all stages of life remains a fundamental part of the human experience. As such by bettering our understanding of learning, and how it occurs, can have positive outcomes in development and education, ensuring that we adapt the correct structures and guidelines for all learners. Examining the statement that cognitive theories best explain learning, through a range of debates such as nature v. nurture, free will v. determinism, and reductionism v. holism shows that this is only true to an extent.

The nature v. nurture debate suggests that cognitive theories can explain learning by revealing how theories are able to show an understanding of learning as society changes. For instance, the Cognitive Load theory, developed by John Sweller, suggests that learning is able to occur at its best when extraneous load, or distractions such as confusing visuals, are reduced so that learners can focus cognitive resources on the difficulty of the task, enabling better recall and understanding. From a nurture perspective of this debate, it confirms how in today's world the theory remains relevant where Resource C shows an increasing tendency for us to become distracted by mobile phones, and how this limits our ability to recall what we have learned. This is supported by a study of 280 Pakistani students (Hussain, et al, 2024) which found that increasing short form video consumption saw a lack of attention to schoolwork, showing the relevance of the Cognitive Load theory in explaining that learning is inhibited by distractions (extraneous load), such as the rise in short form video consumption and mobile phones. This means that even though the cognitive theory was established much earlier, it still explains learning today, showing the inherent ability for cognitive theories to explain learning, supporting this statement. Similarly, the nature argument on this debate also supports this statement, whereby the Cognitive Load Theory explains why individuals may learn better with visual cues, due to the inherent ability of our brains to seek patterns visually (where the theory suggests that we are able to best learn when with visual cues and clear structure), and where the phonological loop and visiospatial sketchpad play a role in learning as we better remember information that we have learnt when both of these stores are not competing, which the Cognitive Load Theory explains as we cannot learn when we are distracted by what to pay attention to. As such, from both sides of the debate, the statement is accurate, because we can use these theories to understand how learning best occurs in the classroom as the Cognitive Load Theory can be used to support both sides of this argument. However, it ignores the fact that learning can be shaped by different cultural experiences, and distract individuals from learning, as the nurture side of this debate would consider that in more rural contexts, where cell phone use or digital resources are not always accessible as part of learning, can shape the way in which individuals learn.

From a free will v. determinism, the use of the terminology 'best explain' can be examined more critically, as the theories do not always apply to all individuals. Cognitive theories such as Bandura's Doll Experiment, which is highly replicable and understands learning to be shaped by role models, as well as the Cognitive Load Theory, are able to explain learning only from a deterministic approach as they both suggest that learning is something that we do not actively take part in as it only explains cognitive process as being active parts in shaping learning, suggesting that it is something which happens to us, and that we do not exactly have free will over what we learn, though the environment does. This is because, Bandura's Doll experiment suggests that it is the role of others that shapes how we learn, not our own understanding or willingness to accept or reject their behaviors as a learner and the Cognitive Load theory suggests that our learning is shaped by what distracts us in our environment. While it does consider the free will of an educator is establishing how a learning may occur in a classroom, the cognitive theories only explain learning as something that just happens to the learner. This is far removed from the reality of learning in modern educational contexts, where participation in group activities, discussion, and in choosing to take part in testing to consolidate knowledge and identify gaps in learning are of the learner's own free will. As the theories do not explain this, we can question if they are able to 'best explain learning' as this shows the difference in what passive learning, which can lead to poorer outcomes even if there are positive classroom role models and no distractions, for example, compared to active learning that these theories do not account for where values of curiosity and intrinsic motivation (assuming humans behave rationally to achieve self fulfilment) towards learning explain what better learning looks like. This also rejects the idea that learning occurs at older stages in life where it is a choice to develop and adapt, and our brains have formed fully allowing for less neuroplasticity, and so it is free will that will be more effective in shaping learning, although we will still be constantly learning but to a lesser degree. As a result, when examining this statement from both angles, we can perceive that the cognitive theories only partially explain learning, and therefore should not be considered the 'best' at explaining learning.

When examining the cognitive theories in relation to learning, we can see that, when learning is reduced to a single factor such as distraction in the classroom, attention to content, and how working memory is limited and therefore learners cannot take up all of the information from their surroundings, this statement is accurate. However, from a holistic sense, as each theory differs in how exactly learning occurs and how it can be improved, we see that cognitive theories are far removed from the reality of learning and therefore cannot be used to fully understand it. Learning as cognitive theories such as the Cognitive Load Theory consider, is the result of a range of factors such as our ability to pay attention, as our attention spans have dropped, in a classroom setting, and then take this selected information into a limited working memory for it to then be remembered shows how learning is the sum of several cognitive processes. From a holistic point of view, no single cognitive theory accounts for all of these factors in shaping individual's learning and also posing ethical dangers in our view of learning where it is not isolated from cognitive impairments such as ADHD or dyslexia, which are not explained in cognitive theories. As such, this poses potential harm to these learners where if their ability to learn is viewed from a reductionist lens that suggests that cognitive theories fully and properly explain how learning manifests in society, what looks like effective learning for these individuals may be rejected. This limits our understanding of learning rather than enhances it through the cognitive theories, where we must also consider that learning does not look the same across the world. For example, some cultures are more text dense, which would contradict the Cognitive Load and Mayer's Multimedia Theory of learning that suggests learning should be broken down with visual and verbal cues, but students are still able to learn in these settings. From a reductionist lens, that only views learning as something that occurs through these cognitive processes, this has no effect, and the statement remains accurate. However, if we consider learning as a whole, we realise that we are nowhere near fully understanding it as it can manifest so differently based on culture, based on just theory alone. As such, the influence of particularly Western ideology, reducing learning to a single universal experience, limits the accuracy of the statement and encourages us to question dominant attitudes in society, compelling us to research and understand the lived realities of learners as time and culture changes rather than simply accept theories which we cannot fully implement.

Overall, this concludes that the statement that cognitive theories best explain learning is actually counterproductive as it shows that theory alone, though helpful in guiding educational contexts and teaching, shows a very limited and nonapplicable view of what it means to be a learner in today's world. While these theories can be used as a first step in unlocking an understanding of learning, applying them to various contexts and seeing how, or if at all, they manifest can open our eyes to the difficulties faced by learners with unique learning needs, and how the knowledge of different cultures and lived realities of individuals can be used to enhance and add to this understanding of learning, and what successful learning looks like for all. This would make learning and educational systems more equitable and effective overtime.