

Tsukuba
International Conference
on Memory

Dynamic Cognitive Processes

March, 13 - 15, 2004

Epochal Tsukuba
International Congress Center
Tsukuba, Japan

Organizers: **Nobuo Ohta** (University of Tsukuba)
Colin MacLeod (University of Waterloo)

5th

Tsukuba International Conference

on Memory

Dynamic Cognitive Processes

March 13, Saturday

- Marlen Behrmann, Carnegie Mellon University, USA
- Glyn Humphreys, University of Birmingham, UK
- Paper session
- Michael Anderson, University of Oregon, USA
- Bruce Whittlesea, Simon Fraser University, Canada
- Reception

March 14, Sunday

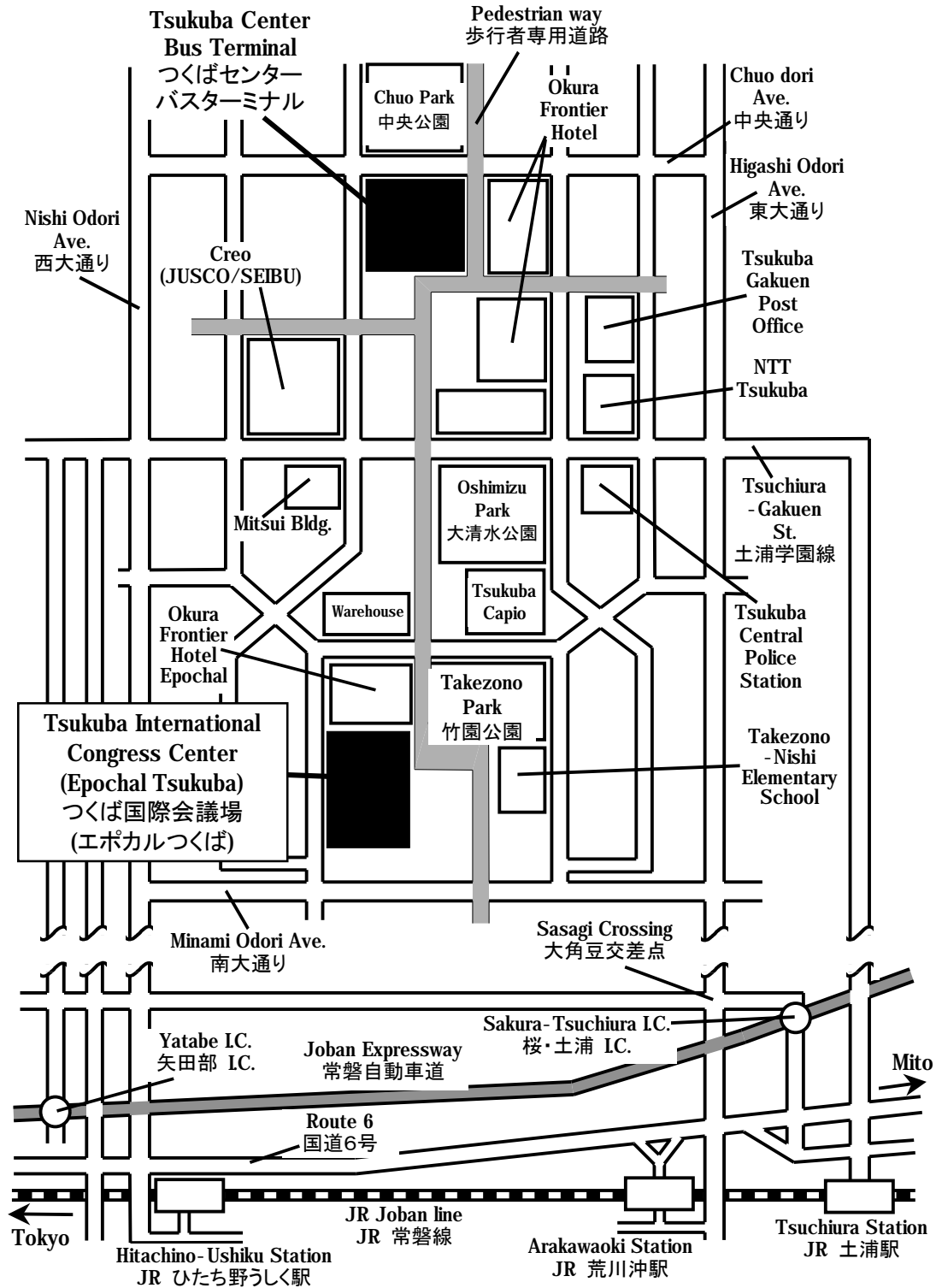
- Morris Moscovitch , University of Toronto, Canada
- Phil Merikle, University of Waterloo, Canada
- Paper session
- Hajime Otani, Central Michigan University, USA
- Suparna Rajaram, SUNY at Stony Brook, USA
- Poster session

March 15, Monday

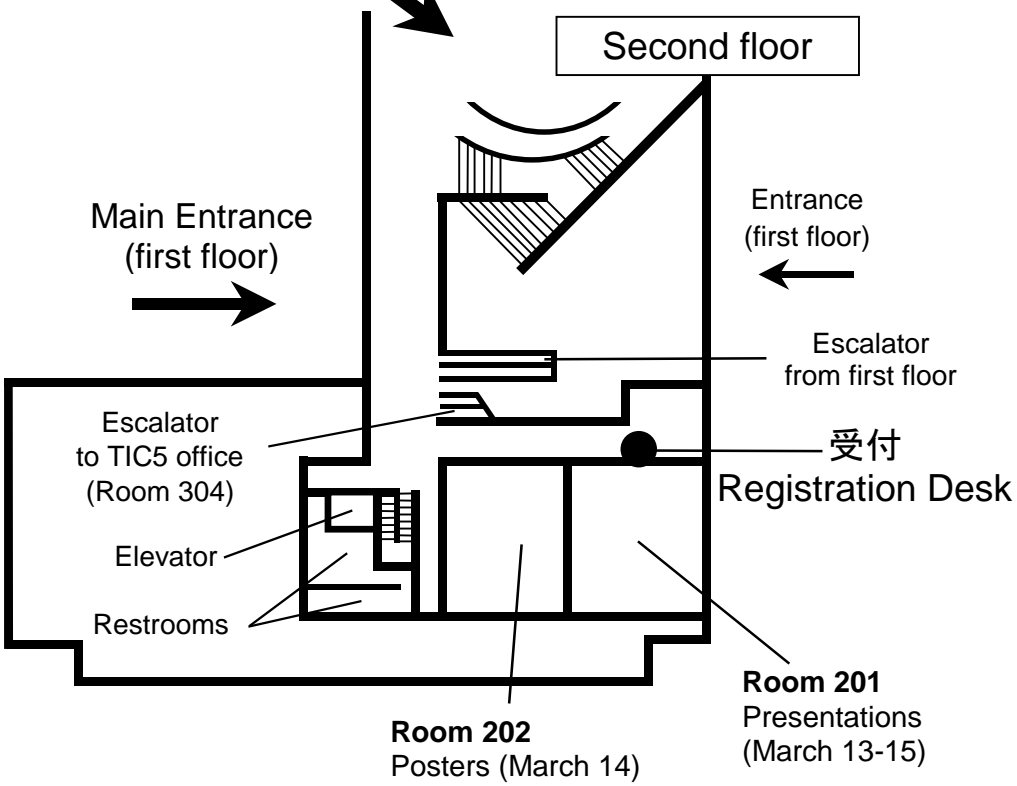
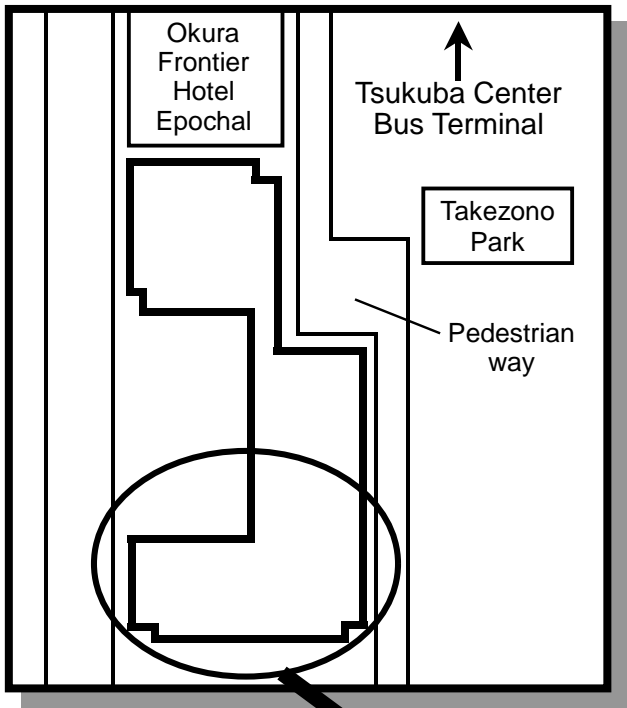
- Bob Uttil, University of Tsukuba, Japan
- Peter Graf, University of British Columbia, Canada
- Takafumi Terasawa, Okayama University, Japan
- Thomas Toppino, Villanova University, USA
- Sachiko Kinoshita, Macquarie University, Australia
- Colin MacLeod, University of Waterloo, Canada

Location

It is about a 10-minute walk to the Epochal Congress Center from the Tsukuba Center bus terminal



Conference Venue



5th Tsukuba International Conference on Memory

Saturday March 13

Chairpersons:

Nobuo Ohta (University of Tsukuba, Japan)

Colin MacLeod (University of Waterloo, Canada)

Sachiko Kinoshita (Macquarie University, Australia)

09:00 - 9:30	Registration	
9:30 - 9:45	Opening	Nobuo Ohta , University of Tsukuba
9:50 - 10:50	Speaker 1	Marlene Behrmann , Carnegie Mellon University, USA Dynamic interactions in visual perceptual organization: Evidence from behavioral and neural studies
11:00 - 12:00	Speaker 2	Glyn Humphreys , University of Birmingham, UK Visual search over time and space
12:00 - 13:30	Lunch	
13:30 - 13:45	Paper Presentation 1	Toshikatsu Fujii , Tohoku University, Japan The crucial role of the rostral parahippocampal gyrus in episodic memory encoding
13:50 - 14:05	Paper Presentation 2	Alex Fradera , University of College London, UK Relative recency of memory: Mounting evidence for contextual accounts
14:10 - 14:25	Paper Presentation 3	Kazuo Mori , Shinshu University, Japan Pre-schoolers' reports of conflicting points surreptitiously inserted into a co-witnessed event
14:40 - 15:40	Speaker 3	Michael Anderson , University of Oregon, USA Suppressing unwanted memories: Cognitive and neural systems
15:50 - 16:50	Speaker 4	Bruce Whittlesea , Simon Fraser University, Canada The devil is in the detail: A constructionist account of repetition blindness
18:00 -19:30	Reception	

5th Tsukuba International Conference on Memory

Sunday March 14

Chairpersons:

Nobuo Ohta (University of Tsukuba, Japan)

Colin MacLeod (University of Waterloo, Canada)

Sachiko Kinoshita (Macquarie University, Australia)

09:00 -09:30	Registration	
09:30 - 10:30	Speaker 5	Morris Moscovitch , University of Toronto, Canada Recent and remote memory: Interactions between hippocampus and neocortex
10:40 - 11:40	Speaker 6	Phil Merikle , University of Waterloo, Canada Memory for information perceived without awareness
11:40 - 13:00	Lunch & Poster Preparation	
13:00 - 13:15	Paper Presentation 4	Shigeru Nakamaru , Iond University, USA Producing angry program -pretext and harassment-
13:20 - 13:35	Paper Presentation 5	Yuji Itoh , Keio University, Japan Interfering and facilitating effects of verbal description on face recognition
13:40 - 13:55	Paper Presentation 6	Etsuko T. Harada , Hosei University, Japan Cognitive aging and interference from “lures” on the same screen
14:10 - 15:10	Speaker 7	Hajime Otani , Central Michigan University, USA Conscious and unconscious processes in hypermnnesia
15:20 - 16:20	Speaker 8	Suparna Rajaram , SUNY at Stony Brook, U.A. Effects of encoding deselection on long-term memory
16:20 - 16:30	Refreshments and Poster session preparation	
16:30 - 17:30	Poster Session (odd numbers)	
17:30 - 18:30	Poster Session (even numbers)	

5th Tsukuba International Conference on Memory

Monday March 15

Chairpersons:

Nobuo Ohta (University of Tsukuba, Japan)

Colin MacLeod (University of Waterloo, Canada)

Sachiko Kinoshita (Macquere University, Australia)

09:00 - 9:10	Registration	
9:10 - 10:10	Speaker 9	Bob Uttil , University of Tsukuba, Japan Age related changes in event-cued prospective memory
10:20 - 11:20	Speaker 10	Peter Graf , University of British Columbia, Canada Prospective memory retrieval: An incongruity-search hypothesis
11:30 - 12:10	Speaker 11	Takafumi Terasawa , Okayama University, Japan A cross-inhibition process in recognition judgment: A simulation model of memory and perception (UME)
12:10 - 13:00	Lunch	
13:00 - 13:35	Speaker 12	Thomas Toppino , Villanova University, USA Top-down and bottom-up processes in the perception of reversible figures
13:40 - 14:15	Speaker 13	Sachiko Kinoshita , Macquere University, Australia A model of adaptive control of response initiation in reaction time tasks
14:20 - 15:20	Speaker 14	Colin MacLeod , University of Waterloo, Canada Directed forgetting: The crucial role of rehearsal processes
15:20 - 15:30	Closing Remark	Colin MacLeod

Speaker 1: Marlene Behrmann

March 13, Saturday morning

Dynamic interactions in visual perceptual organization: Evidence from behavioral and neural studies

Marlene Behrmann

(Carnegie Mellon University, USA)

From the chaotic juxtaposition of colours and shapes that strike the retina emerges an organized and coherent visual percept of our world. Furthermore, the speed and accuracy with which this organization occurs belies the complexity of the underlying processes. I will present converging data obtained from normal and brain-damaged individuals, computational modeling and primate neurophysiology, all of which address the neural and psychological mechanisms driving perceptual organization. Specifically, I will first show that perceptual organization is not a monolithic entity, and that, instead, it consists of a multiplicity of subprocesses, some of which are instantiated earlier and some later in the visual system. I will also show that some of these processes are more critical for object and face recognition than others. The studies to be reported are neuropsychological in nature and three different patient populations will be discussed: those with acquired agnosia and prosopagnosia, those with congenital prosopagnosia and those with autism. An immediate question, which emerges then concerns the flexibility and robustness of these perceptual abilities in normal individuals. In a series of learning studies, I will show how adaptive these processes are and how they can be modified depending on the statistical contingencies of the visual environment. A similar paradigm in monkeys attests to the dynamic nature of these visual skills and, moreover, shows how the activity of neurons in the inferotemporal cortex can be modified over the course of acquiring visual representations. Taken together, this work demonstrates the power of using multiple methodologies to address a scientific question but, more importantly, sheds light on the way in which the objects of phenomenal perception are derived from the raw input and converted into long term visual representations.

Speaker 2: Glyn Humphreys

March 13, Saturday morning

Visual search over time and space

Glyn Humphreys

(University of Birmingham, UK)

Over the past five years, investigators have begun to examine how visual search operates over time as well as space. For example, studies using the preview paradigm (Watson & Humphreys, 1997) have demonstrated that items that have been in the field for around 500ms or so before new, relevant stimuli have relatively little impact on search of new items. Research in our lab suggests that there are a number of contributory factors to the lack of an effect of old items on search. This includes: (i) inhibitory marking of old locations; (ii) suppressive rejection of distractor features; (iii) suppressive rejection of distractor groups, and (iv) temporal grouping and suppression. In addition, the use of time as well as space in search recruits separate parts of a parieto-frontal network involved in both (i) directing attention to salient targets and (ii) developing a representation of old items, which may subsequently be suppressed.

Speaker 3: Michael Anderson

March 13, Saturday afternoon

Suppressing unwanted memories: Cognitive and neural systems

Michael Anderson

(University of Oregon, USA)

People are often confronted with reminders to things they would prefer not to think about. When this happens, we often attempt to put the unwanted memories out of awareness. In this talk, I review research showing that our ability to control distracting memories is accomplished by executive control mechanisms that are not limited to controlling memory. In particular, I argue that the ability to control memory is a special case of a broad class of situations thought to require executive control: response override. In response override situations, one must stop a strong habitual response to a stimulus due to situational demands. Overriding such a response is thought to be accomplished by inhibitory processes that suppress it, enabling more flexible, context sensitive control over behavior. A core theme advanced here is that inhibitory mechanisms that control overt behavior are also targeted at declarative memories to control retrieval. In support of this, I will review behavioral work on how people use inhibitory processes to control memory retrieval. Recent neuroimaging findings (Anderson et al., 2004) further establish that controlling awareness of unwanted memories is associated with increased dorsolateral prefrontal cortex activation, reduced hippocampal activation, and impaired retention of the unwanted trace and that the magnitude of activation in prefrontal cortex predicts memory suppression. These findings indicate that cognitive and neural systems that support our ability to override prepotent responses can be recruited to override declarative memory retrieval, and that this cognitive act leads to memory failure.

Speaker 5: Morris Moscovitch

March 14, Sunday morning

Recent and remote memory: Interactions between hippocampus and neocortex

Morris Moscovitch

(University of Toronto, Canada)

Evidence will be presented from behavioural studies of remote autobiographical, semantic, and spatial memory in people who are amnesic or demented, and from neuroimaging studies in normal people. The results of these studies indicate that retrieval of autobiographical memory depends on a network of left-lateralized structures which include the prefrontal cortex, retrosplenial cortex and precuneus, as well as the medial temporal lobes. Spatial memory needed to represent and navigate familiar environments which were learned long ago also depend on a similar network of structures which is represented bilaterally (or more on the right) and includes, in addition, the parietal cortex, parahippocampal gyrus and other aspects of inferior temporal cortex. Contrary to traditional theories of consolidation, the hippocampus is found to be implicated in retention and retrieval of detailed memories of autobiographical episodes. This also is true of detailed spatial information of aspects of the environment. Semantic memories, whether the gist of autobiographical episodes, or schematic topographical representations of the environment, as may be represented by schematic cognitive maps, however, can be retained and retrieved without the hippocampal complex. If time permits, data from rats will also be presented to show that differences exist even in rats between memories that are context-dependent (episodic) and context-free (semantic) in tests of spatial and non-spatial memory. A multiple trace theory of hippocampal-neocortical interaction is proposed to account for the evidence.

Speaker 4: Bruce Whittlesea

March 13, Saturday afternoon

The devil is in the detail: A constructionist account of repetition blindness

Bruce Whittlesea

(Simon Fraser University, Canada)

People have difficulty detecting repetition of a word within rapid lists, although they can report the identities of many of the list words. This repetition blindness effect has been explained through a “type/token” account, which assumes a refractory period for registering second occurrences. In contradiction of that idea, holding the time course constant, we observed release from repetition blindness when critical words were cued exogenously (Experiments 1 and 2) or endogenously (Experiment 3). Also contrary to that account, we observed that subjects can become aware of repetition without becoming aware of what repeated (Experiment 4). We present an account of on-line repetition detection and blindness based instead on construction and attribution.

Speaker 6: Phil Merikle

March 14, Sunday morning

Memory for information perceived without awareness

Philip M. Merikle

(University of Waterloo, Canada)

Stephen D. Smith

(University of Waterloo, Canada)

What is the duration of the influence of information perceived without awareness? Some studies suggest that the impact of information perceived without awareness may only last for a few seconds (e.g., Greenwald, Draine, & Abrams, 1996), whereas other studies suggest that memory for information perceived without awareness can last for hours, days or even weeks (e.g., Merikle & Daneman, 1996). To further investigate the duration of the influence of information perceived without awareness, we used a variant of the inattention blindness paradigm developed by Mack and Rock (1998). In each of three experiments, participants viewed briefly presented visual displays consisting of both a centrally located word and a peripherally located cross with unequal vertical and horizontal arms. Awareness of the words was varied by requiring participants either to read the word and then judge which arm of the cross was longer, or to judge which arm of the cross was longer and then read the word. Perception of the words was assessed by presenting the three-letter stem (e.g., pho_ __) of each word (e.g., phone) and instructing participants to complete the stem to make any word other than a word that had been presented in one of the visual displays. The assumption underlying these instructions is that success in following the instructions indicates that a word was perceived *with* awareness, whereas failure to follow the instructions indicates that a word was perceived *without* awareness. The results of the experiments showed that memory for information perceived without awareness can last for at least 32 minutes, which was the longest interval tested. In addition, the results indicate that memory for information perceived without awareness was strong following all retention intervals. These findings are consistent with the results of previous studies suggesting that memory for information perceived without awareness can last for hours or days. However, exactly how long information perceived without awareness persists in memory is yet to be determined.

Speaker 7: Hajime Otani

March 14, Sunday afternoon

Conscious and unconscious processes in hypermnesia

Hajime Otani

(Central Michigan University, USA)

Koichi Kato

(Central Michigan University, USA)

Robert Widner, Jr.,

(Minnesota State University Mankato, USA)

Memory performance increases across repeated tests despite the fact that participants are not re-exposed to study material between tests. This phenomenon is referred to as hypermnesia. Ballard (1913) was the first to demonstrate it; however, it did not attract wide attention until Erdelyi and Becker published their systematic investigation in 1974. Since then, there have been numerous experiments showing that hypermnesia is a robust phenomenon. A critical research issue centers around identification of the underlying mechanism(s) that is responsible for this memory improvement. How do we recover items that we previously fail to retrieve? On the one hand, there is ample evidence indicating that recovery of new items (i.e., reminiscence) is critically dependent upon an explicit memory process(es). For example, most studies that have demonstrated hypermnesia have used free recall tests (Erdelyi, 1996). Although cued recall has been shown to produce hypermnesia, researchers have failed to observe hypermnesia when using a recognition test unless the test is modified in such a manner that it taps the process(es) tapped by a free recall test. However, the notion that explicit memory processes are used to recover previously unrecalled items is counterintuitive because it is frequently the case that “lost” items return to consciousness if we simply wait. A good example of this is the tip-of-the-tongue in which we search for information but cannot retrieve it upon demand. However, if we wait a short period of time the sought-after information often “pops” into mind. Experiences such as these support the notion that the recovery of temporarily inaccessible information can be implicit (or unconscious). We will present findings from three studies that shed light on this issue. The first study revealed that the amount of recovery of “new” information across repeated memory retention tests is similar between young and older adults despite the decrease in explicit memory with age. The second study revealed that participants are unaware of which items are recoverable; therefore, participants appear not to be targeting their search on specific items. The third study revealed that the recovery of “new” items occurs with an implicit memory test though the amount of recovery is greater with an explicit test relative to the amount observed with an implicit memory test. Collectively, these findings support the hypothesis that recovery of temporarily inaccessible information can be implicit. We will discuss current theories of hypermnesia in light of implicit recovery processes.

Speaker 8: Suparna Rajaram

March 14, Sunday afternoon

Effects of encoding deselection on long-term memory

Suparna Rajaram

(SUNY at Stony Brook, USA)

We are constantly in situations that require us to both attend to and ignore information in our environment. There is now a substantial empirical literature that documents the effects of such simultaneous processing of information on long-term memory. These studies have led to the conclusion that that dividing attention at encoding consistently impairs explicit memory but does not hurt perceptual implicit memory. I will report studies that challenge this long-standing view.

Explicit memory is typically measured with free recall, cued recall, and recognition tasks, and more recently with the Remember-Know procedure. Perceptual implicit memory, or perceptual priming, is usually measured with word fragment completion, word stem completion, and perceptual identification tasks. Perceptual priming is known to be the most resilient form of memory and is found to be preserved even in cases of profound amnesia. Interestingly, recent studies show that stimulus deselection instantiated with the Stroop task impairs both explicit and implicit forms of memory; although significant priming occurs on perceptual implicit memory tasks, this priming is significantly decreased relative to priming obtained under encoding conditions of full attention. As such, reduced priming calls into question the resilience of perceptual implicit memory. We have proposed that decreased priming is a composite effect of two processes on a single trial: positive priming (i.e., facilitation) accrues from processing the word identity but is subsequently attenuated by negative priming (i.e., inhibition or tagging) that arises from deselecting the word to enable color naming (Rajaram, Srinivas, & Travers, 2001). I will present studies where we test this hypothesis and examine the fundamental mechanisms by which deselection impairs long-term memory. In these studies, we are investigating the influence of both encoding and retrieval factors. On one hand, we have varied the encoding conditions with the use of repetition. On the other hand, we are exploring the role of retrieval conditions by selecting memory tasks that offer different levels of retrieval support. Finally, we have also arranged the encoding conditions to enhance the processing of word identity prior to its deselection. Findings from these experiments show that deselection effects are powerful and impair memory even when the encoding and retrieval conditions are optimized. The implications of these findings for the long-term representation of information will be discussed. Specifically, these studies suggest that long-term memory is a dynamic product of facilitation and inhibition that act upon the constant influx of information in our daily lives.

Age related changes in event-cued prospective memory

Bob Uttl

(University of Tsukuba, Japan)

We rely upon prospective memory (ProM) in order to bring back to awareness previously-formed plans and intentions at the right place and time, and to enable us to act upon those plans and intentions. ProM proper is distinguished from the other similar constructs of vigilance and monitoring by stipulating that ProM proper requires that “we are aware of a plan, of which meanwhile we have not been thinking, with the additional consciousness that we had made the plan earlier” This chapter examines age-related changes in event-cued ProM proper, the relationship between ProM and retrospective memory (RetM), and the relationship between ProM, RetM, processing resources (e.g., processing speed) and sensory abilities. We report results obtained with new methods for assessing event-cued ProM proper in both visual and auditory domains. To assess visual ProM, younger and older participants were required to make A/B decisions about stimuli displayed on a computer monitor. While making decisions, they were also shown a series of pictures, with one of them defined as the ProM cue. The cue display size increased across trials until a response was made. Similarly, to assess auditory ProM, participants performed the same A/B decisions while various sounds were played through the computer speakers, with one of the sounds defined as the ProM cue. The cue size (visual) and cue loudness (auditory) at the time of response indexed ProM. The main results showed that both visual and auditory ProM declined with age and that such declines were mediated by declines in processing resources and sensory abilities.

Speaker 10: Peter Graf

March 15, Monday morning

Prospective memory retrieval: An incongruity-search hypothesis

Peter Graf

(University of British Columbia, Canada)

Prospective memory (ProM) is the ability we use for remembering intentions, plans and promises in the presence of the appropriate cues. A typical ProM task involves at least the following phases: We form an intention, retain it for a period of time, retrieve and execute it in the appropriate context and then evaluate the outcome. One hypothesis that links the first three of these phases makes the following claims: Forming an intention involves some degree of pre-processing of retrieval cues, this facilitates the retrieval phase processing of the cues and thereby results in an incongruity between the processing fluency expected for that cue and the actual fluency of processing, and in turn, this incongruity triggers an attention demanding search-for-meaning mechanism. This chapter reviews previous research that supports an incongruity-search hypothesis of ProM task performance. It also describes a series of new experiments that used various methods to trigger a retrieval-phase processing incongruity.

Speaker 11: Takafumi Terasawa

March 15, Monday morning

A cross-inhibition process in recognition judgment: A simulation model of memory and perception (UME)

Takafumi Terasawa
(Okayama University, Japan)

Nonlinear feature of familiarity

It is commonly accepted that item familiarity increases as the number of study for the item increase. This supposed linear relationship between the number of study and item familiarity can create difficulties for giving a valid explanation towards the mirror effect in recognition memory. I will present some evidence that suggests the incorrectness of the assumption in my presentation.

Cross-inhibitory mechanism in familiarity judgment

In order to explain the nonlinearity of familiarity, Terasawa (1997) has proposed the Activation-Inter-Restraint Theory (AIR theory) to account for the mechanism of familiarity judgment or recognition memory judgment, which is based on an original representation theory (spiral representation theory) that is similar to multiple trace theory (Hintzman, 1984, 1988). The representation theory postulates that human beings store only a vast amount of impulsive 0-1 patterns input from all receptors sequentially. On the basis of the representation theory, AIR theory proposes that the mechanism in familiarity judgments consists of two processes: an activation process and an inter-restraint (cross-inhibitory) process. When a certain judgment is required, a series of impulses from all receptors simultaneously activate all similar series of recorded patterns of a representation. As a result multiple parts of the representation become active and are involved in the processing. Terasawa (1997) calls these activated parts as "traces", and argues that the traces are not created until processing occurs. In addition to the activation process, the theory further posits an inter-restraint process in which each trace restrains all other traces, that is, all memory traces are mutually restrained. Furthermore, the theory predicts that each activated trace restrains the other traces according to its activation level, and the total amount of activation after the inter-restraint process is the basis for familiarity judgment. Thus, a greater total activation after the inter-restraint process leads to generating more "old" responses. In this presentation, I will explain the theory and demonstrate that the model refutes the supposed linear relationship between the familiarity and the number of study.

UME: a model of recall and perception

Terasawa (1997) proposes that all the symbolic responses given by human are "created" from the stored serial impulses patterns, and it is not necessary to have any symbols or rules in our memory representation. I would also propose an idea that recognition judgments and perceptual judgments are based on the same process; therefore, the model for recognition judgment will be able to simulate perceptual responses. Next, I utilize the AIR theory for generating perceptual sense (i.e., "what I am seeing") and also for generating recalled image, (i.e., "what I saw"). This simulation indicates that a very simple algorithm can create a symbolic pattern from non-symbolic patterns without any symbols and any encoding rules in memory.

Speaker 12: Thomas Toppino

March 15, Monday afternoon

Top-down and bottom-up processes in the perception of reversible figures

Thomas C. Toppino

(Villanova University, USA)

Gerald M. Long

(Villanova University, USA)

Reversible figures are ambiguous visual patterns that support at least two markedly different perceptual organizations. Familiar examples include the Necker cube and Boring's young woman/old woman. Although the stimulus itself remains constant during a period of continuous viewing, observers' conscious experience fluctuates, alternating between the possible interpretations.

Attempts to explain the multistable perceptual character of reversible figures traditionally have fallen into one of two theoretical camps, depending on whether they attribute perceptual reversals to bottom-up (stimulus driven) processes or to top-down (conceptually-driven) processes. In the former case, perceptual fluctuations are attributed to the alternating fatigue and recovery of competing cortical organizations. In the latter case, perception is considered to be analogous to a hypothesis-testing or problem-solving process. Phenomenal reversals are thought to reflect vacillation between potential solutions, and the underlying decisional mechanisms are believed to be influenced and controlled by high-level processes such as learning and observers' intentions.

In the present paper, we argue for a hybrid theoretical framework and consider how both bottom-up and top-down processes contribute to the fluctuations in conscious perceptual experience. The contribution of bottom-up processes is evidenced by the regular changing pattern of reversals over time, by sensitivity of reversals to stimulus characteristics and to retinal location, and by the relative independence of reversals in multiple, simultaneously-presented, figures. The contribution of top-down processes is evidenced by the influence of learning, by the effect of priming (biasing) the perception of an ambiguous figure through prior exposure to an unambiguous version of the stimulus, and by the effect of voluntary (intentional) control over the perception of a reversible figure.

By explicitly recognizing the contribution to figure reversals of both lower-level sensory processes and higher-level cognitive processes, the hybrid approach can resolve apparent conflicts in the reversible figure literature by calling attention to the fact that different viewing conditions can differentially engage top-down and bottom-up processes. As a framework for future research, it encourages work that addresses how bottom-up and top-down processes are coordinated and how their effects are integrated in determining conscious perceptual experience.

Speaker 13: Sachiko Kinoshita

March 15, Monday afternoon

A model of adaptive control of response initiation in reaction time tasks

Sachiko Kinoshita

(Macquere University, Australia)

Reaction time (RT) tasks are probably the most popular tool used by cognitive psychologists to study dynamic cognitive processes. There is a growing appreciation of the fact that in these tasks, factors external to the stimulus itself play a major role in determining the RT. One such factor is the RTs to stimuli recently experienced. In the naming (read-aloud) task, this is most strikingly demonstrated by the *blocking effect*, in which easy items are named more slowly and the hard items are named faster when presented together in a mixed block relative to when they are presented in pure blocks. Earlier studies have interpreted blocking effects in terms of domain-specific processes, for example, preferential weighting of the lexical vs. sublexical route within dual-route framework of reading. Along with Stephen Lupker, I (e.g., Kinoshita & Lupker, 2003) have reported evidence that blocking effects are a general phenomenon observed with any stimuli differing in difficulty, and not due to domain-specific processes. In this talk, I describe a computational model of blocking effects being developed in collaboration with Michael Mozer. The central tenet of the model is that there is a general control mechanism that computes a response cost which is adapted with experience. The response cost depends on both an expected error rate (which decreases with time, reflecting the accumulation of evidence over time) and a response initiation term (which increases with time, reflecting the cost of waiting). A response is initiated when a minimum in the response cost is attained, and the expected error rate depends on recent history, which explains the effects of stimuli recently experienced. The proposed model is capable of operating in real time, and can simulate dynamic, i.e., trial-by-trial, changes in RT. Although the model was based on blocking effect data using the naming task, the proposed control mechanism is not tied to temporal dynamics of specific tasks, and has been applied to account for data obtained with a binary decision task, the lexical decision task. We discuss experimental data which are better explained by the model than the alternative accounts.

Speaker 14: Colin MacLeod

March 15, Monday afternoon

Directed forgetting: The crucial role of rehearsal processes

Colin M. MacLeod

(University of Waterloo, Canada)

From the beginning, explanations of directed forgetting—the poorer memory for information we are instructed to forget (F items) than for information we are instructed to remember (R items)—have featured two classes of accounts: rehearsal and retrieval. Under a rehearsal account, the argument has consistently been that R items are selectively rehearsed more than F items. Moreover, R items receive elaborative rehearsal whereas F items receive only maintenance rehearsal. Retrieval accounts, in contrast, have been more varied, but the concept of retrieval inhibition has come to play a central role, the idea being that F items are suppressed upon instruction. Hence, F items are more difficult to recall, but not to recognize because the re-exposure required for a recognition test disinhibits the F items.

For the last 10-15 years, these two explanations have been attached to the two most common procedures in directed forgetting studies: selective rehearsal to the item method, where items are randomly assigned instructions, and retrieval inhibition to the list method, where half the list is designated as to-be-forgotten. We report experiments that demonstrate clear selective rehearsal effects in the list procedure. These include serial position analyses demonstrating different rehearsal patterns for R items and F items, as well as different effects of warning that both F items and R items will be tested. These findings are consistent with differential rehearsal in the list method. We argue that a retrieval inhibition account applied to the list procedure alone is not parsimonious, and therefore that a single selective rehearsal explanation can accommodate the principal results obtained under both procedures.

Paper session

March 13, Saturday afternoon

Chairperson: Kazuo Mori (Shinshu University, Japan)

(1) 13:30 - 13:45

The crucial role of the rostral parahippocampal gyrus in episodic memory encoding

Toshikatsu Fujii (Tohoku University, Japan)

Maki Suzuki (Tohoku University, Japan)

Keiichiro Yamaguchi (Tohoku University, Japan)

Takashi Tsukiura (National Institute of Advanced Industrial Science and Technology, Japan)

Nobuhito Abe (Tohoku University, Japan)

Masatoshi Itoh (Tohoku University, Japan)

Normal volunteers were engaged in deep or shallow processing of emotionally negative or neutral words during positron emission tomography. Deep processing, as well as negative words, resulted in significantly better recognition performance. Effect for processing level was found in the left rostral parahippocampal gyrus and left inferior frontal gyrus. Effect of emotional valence was found in the left amygdala. The parahippocampal gyrus was also affected by the emotional valence. Our results indicate that the parahippocampal gyrus has a crucial role in episodic memory encoding and that the left inferior frontal gyrus and amygdala have modulating effects on episodic memory encoding.

(2) 13:50 - 14:05

Relative recency of memory: mounting evidence for contextual accounts

Alex Fradera (University College London, England)

Jamie Ward (University College London, England)

Do accurate judgments of relative recency (JORs) of items in memory require access to temporal information, or do they rely on other contextual cues? The first set of experiments addresses these questions by varying temporal parameters (presentation rate), item-contextual information (item modality) and position-related information (proximity to start or end of list), for 54 participants, using a standard JOR list learning paradigm. Effects were found for position, limited to a list start effect, and modality, but not presentation rate. The second set of experiments addresses the positional finding, and investigates the circumstances under which these can be produced.

(3) 14:10 - 14:25

Pre-schoolers' reports of conflicting points surreptitiously inserted into a co-witnessed event

Kazuo Mori (Shinshu University, Japan)

Ryuta Takahashi (Shinshu University, Japan)

Using the MORI technique (Mori, 2003), two different versions of the same simulated criminal event animation movie were presented simultaneously to ten pairs of undergraduates and 13 pairs of six-year-old pre-schoolers. The two versions differed only in three points, such as the color of the car. The participant pairs were asked to recall what they had observed three times: just after the presentation, individually and then cooperatively, and individually again a week later. The results showed that the pre-schoolers recalled more cooperatively than individually and tended to conform to each other's opinions when surveyed a week later.

Paper session

March 14, Sunday afternoon

Chairperson: Kazuo Mori (Shinshu University, Japan)

(4) 13:00 - 13:15

Producing Angry Program - pretext and harassment-

Shigeru Nakamaru (Iond University, USA)

In this study, there dealt with pretext and alibi (biased reaction) on automatic thought in harassment by PAP. Pretext is automatic thought by harassment scripts and an automatic attention by a harassment frame. By analysis of automatic attention by memory system in harassment, there is information separated and null-input for STM by harassing frame to objective verbal contents, and to objective person's characters, then, using arbitrary (as self-rumor-process) ,to be harassing occurs to the object person, meddling on high and low pressures. There is one treatment for harassment people that reanalysis and produce pretexts for rational thought and true information.

(5) 13:20 - 13:35

Interfering and facilitating effects of verbal description on face recognition

Yuji Itoh (Keio University, Japan)

In face recognition, it is known that describing the target face deteriorates subsequent recognition and many researchers focus on the conditions and mechanisms of the interfering effect of verbalization. However, the phenomenon is not very stable and some researches reported no or facilitating effects of verbalization. In this research, a model that explains both interfering and facilitating effects of verbalization, and hence the discrepancies in the literatures, is proposed. The model assumes that verbalization causes attention shift, which is favorable for face recognition in some cases but unfavorable in others. The prediction of the model was verified through six experiments.

(6) 13:40 - 13:55

Cognitive aging and interference from "lures" on the same screen

Etsuko T. Harada (Hosei University, Japan)

Satoru Suto (Chuo University, Japan)

Although inhibitory processes are well known to be reduced with aging, little is known about effects of lures (attractive distracters) on the same screen for old people, which are ubiquitous in everyday lives. Four experiments were conducted to investigate these effects and aging, using a KANJI selection task with four candidates presented after a context sentence; the correct Kanji, a homophone (the lure), and two distracters. Results of correct rates and reaction time with simultaneous or sequential presentation of candidates indicated the serial-but-quasi-parallel processing of candidates (in Exp. 1-3), and this hypothesis was examined with eye-movement data in Exp.4.

Poster session

March 14, Sunday afternoon

Presentation time for odd numbers, 16:30 - 17:30

Presentation time for even numbers, 17:30 - 18:30

(1)

Episodic Memory Model as binding brain representations at a behavior level.

Kazuhisa Niki (Neuroscience Research Institute, National Institute of Advanced Industrial Science and Technology, Japan)

We would like to introduce a brand new episodic memory model, which is represented as the hippocampal one-shot learning mechanism of binding the brain representations at a behavior level, from the view point of brain cognitive science. This model overcomes the difficulties that all components of episodic memory must be distinguished from other memory systems, and explains many interesting features of the episodic memory including flash memory; the behavior of a dual code memory system without the specific hippocampal representation of rapid memories. Our MRI experiments proved that this kind memory system relates to the high level cognitive behavior like a problem solving and the insight. We would like to discuss that this model well explains the features of the human intelligence.

(2)

Seeking the neural basis of deception in episodic retrieval

Nobuhito Abe (Tohoku University, Japan)

Maki Suzuki (Tohoku University, Japan)

Takashi Tsukiura (AIST, Japan)

Keiichiro Yamaguchi (Tohoku University, Japan)

Masatoshi Itoh (Tohoku University, Japan)

Toshikatsu Fujii (Tohoku University, Japan)

Neural correlates of deception have yet to be fully clarified. During PET, participants were instructed to tell the truths and lies about two types of events: experienced and unexperienced. The main effect of lies was found in the left prefrontal and right anterior cingulate cortex. Further analysis showed that the left prefrontal cortex was associated with lies irrespective of whether subjects experienced the events or not. In contrast, the right anterior cingulate cortex was associated with lies about the only experienced events. These results indicate that the left prefrontal and right anterior cingulate cortex might have dissociable roles in deception.

(3)

Disappearing of memory fragments in patients with Alzheimer's disease: Evidence from longitudinal study of visual priming

Hiroko Mochizuki-Kawai (Showa University School of Medicine, National Institute of Advanced Industrial Science and Technology (AIST), Japan)

Satoshi Mochizuki (University of Tsukuba, Japan)

Akira Midorikawa (National Institute of Neuroscience (NCNP), Japan)

Katsuo Yamanaka (University of Tsukuba, Japan)

Mitsuru Kawamura (Showa University School of Medicine, Japan)

We tried to clarify long-term visual priming ability in patients with Alzheimer's disease (AD). A picture-fragment completion task was used as a visual priming task, and the patients were tested at three times, i.e., one hour, one month, and three months after the training. Normal control subjects showed priming effect three months after training, whereas the AD patients did not. The priming effect of AD declined within three months. Our results suggested that AD patients cannot retain a visual priming effect for long time due to the disappearance of the memory fragments.

(4)

Dissociable brain activations within the hippocampal complex during the recognition of words: An event-related fMRI study

Takashi Tsukiura (National Institute of Advanced Industrial Science and Technology, Japan)

Hiroko Mochizuki-Kawai (Showa University School of Medicine, Japan)

Toshikatsu Fujii (Tohoku University Graduate School of Medicine, Japan)

We examined activations of the hippocampal complex during the recognition of Words encoded with three different strategies. Subjects learned words by making a sentence using presented targets by themselves (SO), by reading a sentence consisting of targets organized by an examiner (NSO), and by simply reading targets one by one (NSNO). During fMRI, subjects recognized learned and new words (NE). The left parahippocampal activation was observed in all conditions. The right parahippocampal gyrus was activated in SO. Our results suggest that structures within the hippocampal complex may play different roles in the recognition of words encoded with different strategies.

(5)

Self-reference process and MPFC activity: A fMRI study

Takashi Nakao (Hiroshima University, Japan)

Makoto Miyatani (Hiroshima University, Japan)

Masaharu Maruishi (Hiroshima Prefectural Rehabilitation Center, Japan)

Hiroyuki Muranaka (Hiroshima Prefectural Rehabilitation Center, Japan)

Hiroshi Doujo (Hiroshima Prefectural Rehabilitation Center, Japan)

We investigated whether medial prefrontal cortex (MPFC) activity during self-referential process reflects affective-rating process which is involved in self-referential process or reflects something special process about self. Participants judged trait adjectives under four separate fMRI scan conditions (self-reference, other-reference, affective-rating, or syllable judgment). The results showed that self-reference condition yielded more MPFC activations than other conditions. We concluded that MPFC plays a prominent role in self-referential process.

(6)

Hemispheric differences in priming effects of visual similarity for animals and man-made objects

Chiharu Niki (Kyoto university, Japan)

Yoshitaka Ohigashi (Kyoto university, Japan)

We investigated hemispheric dominance of priming effects in visual similarity. In order to know whether there were any differences of priming effects between animals and man-made objects, we used picture pairs of animals and man-made objects. There were three dependent factors; category, visual similarity of prime and target, visual fields. The task was to decide whether targets were meaningful pictures or not (Object Decision Task). The results showed that although priming effects of visual similarity were found in animal condition when prime and target were presented to RVF-RVF, LVF-LVF, and LVF-RVF, the effects were not found in man-made objects condition. Since inter-hemispheric priming effects were emerged from the right hemisphere to the left, it suggests that at least regarding animal pictures, the effects of visual similarity were emerged mainly in the right hemisphere.

(7)

Event related potential for personality relevant information

Takashi Horiuchi (Tokai Women's University, Japan)

The purpose of present study is to investigate the differences between the self-judgment and the other-judgment by an event related potential experiment. A two-factor within subjects design was used. The first factor was types of orienting task condition: self-judgment, mother-judgment, and other-judgment. The second factor was types of EEG recording site: Fz, Cz, and Pz. Subjects were asked to rate trait words in one of the three ways of orienting task, and event related potentials were recorded. Event related potentials were analyzed by EPLYZER 2. A two-way ANOVA revealed that LPC(500-900ms) for self-judgment condition was less than that for other-judgment condition.

(8)

Brain activity related to recognition of memory for action sentences: A MEG study

Kouhei Masumoto (Osaka University, Japan)

Masahiko Yamaguchi (National Institute of Advanced Industrial Science and Technology, Japan)

Kouichi Sutani (National Institute of Advanced Industrial Science and Technology, Japan)

Satoru Tsuneto (Osaka University, Japan)

Mitsuo Tonoike (National Institute of Advanced Industrial Science and Technology, Japan)

This research investigated whether there are differences of brain activities related to recognition of memory for action sentences between enacted encoding and verbal encoding by using whole-head type MEG (122-channel). Subjects were eight right-handed volunteers (3 males and 5 females). Significant differences of the activities were observed at the left motor area (a period between 200 and 300ms after recognition stimuli onset) and the right supramarginal gyrus (a period between 600 and 700ms after recognition stimuli onset). The activities of both brain regions were stronger in the enacted encoding in comparison with the verbal encoding.

(9)

Remembering behavior of one's own and others'

Maki Suzuki (Tohoku University, Japan)

Keiichiro Yamaguchi (Tohoku University, Japan)

Masatoshi Itoh (Tohoku University, Japan)

Toshikatsu Fujii (Tohoku University, Japan)

We used positron emission tomography (PET) to investigate neural networks for retrieving behavior of one's own and others'. Before PET, subjects (SELF) or an examiner (OTHER) performed two types of behavior to line drawings: writing an associative word, or coloring. During PET, subjects were presented with the stimuli and judged the type of behavior he or the examiner had performed to them. Main effects of SELF and OTHER were associated with different areas within medial and basal parts of the temporal lobe. This indicates different neural networks are related to the retrieval processes of behavior of one's own and others'.

(10)

Impairment of event schema in patients with schizophrenia: An examination of their script for shopping at supermarket

Mie Matsui (Toyama Medical & Pharmaceutical University, Japan)

Tomiki Sumiyoshi (Toyama Medical & Pharmaceutical University, Japan)

Kanade Kato (Toyama Medical & Pharmaceutical University, Japan)

Hiromi Yuuki (Toyama Medical & Pharmaceutical University, Japan)

Masayoshi Kurachi (Toyama Medical & Pharmaceutical University, Japan)

The purpose of this study was to examine event schema, the conceptualization of past experience based upon script theory, in patients with schizophrenia. There were 17 patients meeting DSM-IV criteria for schizophrenia, and 17 normal individuals who consented to participate in the study. This experiment consisted of three tasks regarding shopping at supermarket; . the recall task, the frequency judgment task, and the sequencing task. Results of the present study suggest that event schemas of patients with schizophrenia are different from those of healthy normal people.

(11)

Disruptive effect of goal maintenance on stroop interference by different age groups

Masayoshi Shigemori (Railway Technical Research Institute, Japan)

Disruption of the preservation of intention to name the color of a colored word is considered to be one of the mechanisms of Stroop interference. This study verified the hypothesis and investigated the ability of different age groups to keep the said intention. For this purpose, 20 young men (aged 18 to 22) and 20 old men (aged 54 to 68), participated in a normal Stroop task, a Stroop task combined with a short-term memory task (loaded Stroop task), and a vigilance Stroop task, where the second and third tasks were intended to disrupt the maintenance of goal. When compared with the results of the first task, more intense interference was observed with the group of young men both in the second and third tasks in which goal maintenance was disrupted according to the hypothesis, while large increments of interference were observed with the group of old men only in the second task.

(12)

Age-related change of inhibition and negative priming in Stroop task

Jun Kawaguchi (Nagoya University, Japan)

Hama Watanabe (University of Tokyo, Japan)

Inhibition is important function for our cognitive processing. This study was done to examine how the change of age influenced the function of inhibition. Participants were young, middle-aged, and older people. They were given the modified Stroop task. This task included three conditions of controlled, ordinary Stroop, and negative priming. In the negative priming condition, correct answer of each trial was prepared as the same as the ignored color in the previous trial. The results showed the large Stroop interference in elderly, and that the amount of negative priming remained almost the same till fifties but became salient in seventies.

(13)

Executive control of selective attention : Stimulus exposure-duration effect in the reverse stroop task

Takashi Ideno (Waseda University, Japan)

Recent studies suggested that the importance of executive control of the selective attention in the Stroop task (Kane & Angle, 2003 ; MacLeod & MacDonald, 2000). This experiment showed that the reverse Stroop interference decreased when the target words removed from the display 120ms after stimulus onset, in comparison with the situation in which target and distracter are presented until response. The present findings extend the exposure-duration effect in the Stroop task. The findings support that executive control affects the automatic process in the (reverse) Stroop task.

(14)

A study on natural scene categorization under the high-low attention load condition

Sachio Otsuka (University of Nagoya, Japan)

Jun Kawaguchi (University of Nagoya, Japan)

This study examined whether the meaning of natural scene was processed rapidly. Li et al. (2002) suggested natural scene presented peripherally was categorized in the near absence of attention, but participants were asked to respond directly to peripheral stimuli. Hence, their results might come from attended processing of peripherally presented natural scene. We did this study to examine this possibility using negative priming paradigm (Lavie & Fox, 2000). The results showed negative priming was occurred in high attention load condition in natural scene categorization, but not in letter discrimination. This supports the idea that natural scene is processed rapidly.

(15)

Effect of perceptual load on selective attention of different modality

Miya Muroi (Nihon University, Japan)

Effect of perceptual load (Lavie, 1995) of auditory stimulus on visual task was investigated. Participants performed a flanker task and an auditory go/no-go task which decide whether to respond or not to the flanker task. The load of auditory go/no-go task was manipulated by the difficulty of discrimination between go and no-go stimulus. As a result, perceptual load of auditory go/no-go task didn't affect the performance of the flanker task. It suggests the resource which is necessary to perceive stimuli is not shared between modalities.

(16)

Role of similarity in generalization of mere exposure effect

Daisuke Tanaka (University of Tokyo, Japan)

Ayumi Yamada (Gakushuin University, Japan)

Sachiko Kiyokawa (University of Tokyo, Japan)

We examined generalization of mere exposure effect (MEE) with imaginary animal stimuli. Specifically, we examined whether positive affect generalizes to previously unseen stimuli (changed stimuli) that are similar to the exposed ones. Changed stimuli were created by changing one of three parts (ear, tail and body-pattern). The result showed that positive affect generalized only to body-pattern changed stimuli. However, it was revealed that the extent of generalization did not correspond to similarity ratings between the exposed stimuli and the changed ones. It was suggested that generalization of MEE depends on what aspects a pair of stimuli share.

(17)

The mere exposure effect is immune to interference

Shinobu Ikoma (University of Tsukuba, Japan)

Whether the mere exposure effect is immune to interference was investigated for clarifying the mechanism responsible to it. Novel melody was used in this experiment because of its susceptibility to interference. If interference decreases the mere exposure effect, explicit memory underlies the effect. If not, then implicit memory does. In case interference increases the effect, the perceptual fluency/attribution model is supported because the model regards it as a kind of memory misattribution and predicts awareness for the repeated exposure discounts it. The result was that interference showed neither increase nor decrease in the mere exposure effect.

(18)

Mere exposure effect on incidental concept formation

Ken Matsuda (Kyoto University, Japan)

Takashi Kusumi (Kyoto University, Japan)

We investigated how physical and semantic processing affects concept and preference formation. We used pictures of unfamiliar fish with 10 dimensions and considered the level of processing (form, vs. semantic), typicality of stimuli (high, medium, low), and exposure frequency (0, 1, 3, 5). Forty-eight participants were exposed to each stimulus incidentally and asked to rate the typicality, like/dislike, prettiness, nostalgia, familiarity, and recognition of each 5 minutes or 2 weeks later. The results show that stimulus typicality affected preference judgments, while the level of processing of the presented stimuli had no effect, although semantic processing promoted formation of a prototype.

(19)

Task switching and the phonological loop: Memory for task sequence in the alternating runs paradigm

Erina Saeki (Nagoya University, Japan)

Satoru Saito (Kyoto University, Japan)

We examined the role of the phonological loop in task switching using the alternating runs paradigm. Participants were required to alternate between two different tasks on every second trial in control, articulatory suppression and tapping conditions. The results showed that error rates were larger and reaction times were longer under the articulatory suppression than in the control and tapping conditions for both switch and nonswitch trials. These findings indicated that the phonological loop contributed to task performance not only in the switching trials but also in situations where the maintenance of task sequence information is required.

(20)

Negative valence of words captures attention and facilitates spatial working memory

Fumiko Gotoh (University of Tsukuba, Japan)

Tadashi Kikuchi (University of Tsukuba, Japan)

Nobuo Ohta (University of Tsukuba, Japan)

We examined whether word valence influences working memory for spatial information. On each trial, participants were presented with four color patches followed by a cue consisting of negative, neutral or positive word marking to-be-remembered location. Next, participants were required to detect a target that appeared either in the same or different location as the cue and finally to select to-be-remembered color patch among the distractors. The results showed that, for words of negative valence only, participants were faster on working memory test when their attention moved away in versus remained from the cued location during the target detection.

(21)

Separating syntactic and semantic effects of interference in short-term recall

Tsukasa Sano (University of Tsukuba, Japan)

Short-term retention of sentence information was investigated in a short-term cued recall task in which proactive interference (PI) from previous presented sentence was manipulated. In this experiment, participants were randomly presented with one-set or two-set of sentences and required to retain only a current set of sentences. On the critical two-set trials, sentence-specific PI was manipulated by varying thematic role and plausibility of verb-argument relations between current set and previous set of sentences. The results were discussed in terms of dissociation between syntactic information and semantically biasing information given by to-be-remembered sentences during retrieval in working memory.

(22)

An examination of the visuo-spatial rehearsal in working memory

Satoru Suto (Chuo University, Japan)

Muneyoshi Hyodo (Chuo University, Japan)

Although several studies have reported that rehearsal in visuo-spatial working memory is interfered with by spatial tapping task, the cause of the interference effects is not clear. We investigated the cause of these effects using dual task method. In Experiment 1 and 2, we showed that the recall of Corsi Block Task was interfered by current shifts of spatial attention on spatial tapping task and not by the planning and the control of physical movement. In Experiment 3, we showed that current shifts of spatial attention impaired the recall of Visual Span Task. These results suggested that the visuo-spatial rehearsal system depends on attention control system rather than spatial-movement system.

(23)

Age-related changes in components of working memory

Amy L. Siegenthaler (Baycrest Centre for Geriatric Care, Canada)

Bob Uttil (University of Tsukuba, Japan)

Working memory is often treated as a unitary concept; however, this term has been used in the literature to describe several quite different cognitive constructs including attention span, processing speed, processing coordination. To examine the relationship between components of working memory and aging, we administered a 3-4 hour long battery of tests including several measures of attention, processing speed and working memory to 351 healthy community-dwelling participants. Our results reveal age-related declines on all measures, but only a minimal relationship between various tasks assumed to measure working memory. We discuss implications of our findings for working memory research and for theories of cognitive aging.

(24)

Structure of cognitive abilities across the adult lifespan

Bob Uttil (University of Tsukuba, Japan)

Amy L. Siegenthaler (Baycrest Centre for Geriatric Care, Canada)

It is commonly assumed that the structure of cognitive abilities is invariant across the adult lifespan. If so, the pattern of inter-correlations between various cognitive tasks should be the same for young, middle-aged, and older adults. We investigated this assumption using the data from 351 healthy adults ranging in age from 18 to 91 years. The participants completed a 4-hour battery of cognitive and neuropsychological tasks. Structural equation modeling revealed that the pattern of inter-correlations between the cognitive tasks was similar for young, middle-aged and older adults, indicating that the structure of cognitive abilities is substantially the same across the lifespan.

(25)

Cue centrality and repetition enhance event-cued prospective memory

Bob Uttl (University of Tsukuba, Japan)

Nobuo Ohta (University of Tsukuba, Japan)

Remembering a previously-made plan in response to a cue (known as event-cued prospective memory or ProM) is enhanced by cue intrusiveness. We investigated the influence of cue repetition versus cue size, the influence of presenting a cue embedded in focus versus in the context of an ongoing task, and the relationship between different measures of ProM such as retrospective memory, and processing resources. The main findings revealed that ProM is enhanced by cue repetition independently of cue size and that ProM is better when cues are presented in the focus rather than in the context of an ongoing task.

(26)

Aging and involuntary remembering in retrospective and prospective memory tasks

Taisuke Morita (Kansai University, Japan)

This study examined age-related changes of involuntary remembering in retrospective and prospective memory tasks. Young and elderly participants were required to rate frequencies at which they experienced involuntary occurrences of memories for past events and future plans in their daily lives. The results showed that the elderly participants reported less frequent involuntary remembering of future plans than the young participants, whereas the difference was not significant between two groups in the reported frequencies of involuntary remembering of past events. On the basis of this finding, possible mechanisms for the age-related changes in involuntary remembering are discussed.

(27)

Memory-based response selection and aging

Sachiko Takahama (Institute for Human Science and Biomedical Engineering, National Institute for Advanced Industrial Science and Technology, Japan)

Takatsune Kumada (Institute for Human Science and Biomedical Engineering, National Institute for Advanced Industrial Science and Technology, Japan)

We investigated influence of aging on memory-guided visual behavior using a memory-based Simon task. In the task, when a non-color target was presented, participants were instructed to respond to the color of a target in the preceding trial, while performing a typical visual Simon task to color targets in the current trial. Older participants (60s and 70s) showed no memory-based Simon effect, whereas young participants (20s) showed the effect. In addition, sequential analyses of memory-based Simon trials showed that a position priming effect was found only in 70s in spite of trial types of the preceding trial. We will discuss mechanism of aging on memory-based response selection.

(28)

Those were happy memory: Self-control autobiographical memory

Kazuhiro Ikeda (University of Tohoku, Japan)

Yoshiaki Nihei (University of Tohoku, Japan)

Twenty-six undergraduates recounted their experience as students preparing for an entrance examination once a week for four times. In the first account, the subjects in the experimental group were asked to speak about their actual experiences in those days. In the second and the third accounts, they retold those days as being happy. In the fourth account, they were asked to talk about original experience again. The subjects in the control group were asked to talk about their original experiences for each time. The results suggest that recalling a memory as a happy experience causes a positive change on the impressions of central concepts of the experience, but not in that of the peripheral concepts.

(29)

Investigation of form-priming with single Kanji characters

Chen Bai (Tohoku University, Japan)

Syoichi Iwasaki (Tohoku University, Japan)

Previous studies have shown that studying words perceptually similar to the targets word presented in a priming test will facilitate identification of the targets, which is called Form-priming. It is theoretically important for the interpretation of underlying mechanism of priming with the information-processing framework. In the present study, Form-priming was investigated in two experiments with single Kanji characters as test materials. In Experiment 1, null Form-priming was observed with Kanji fragment identification test. In Experiment 2, Form-priming was observed with the Kanji lexicon decision test. A connectionist model is introduced to explain the priming effects obtained in the two experiments, by which priming is interpreted as a by-product of Kanji identification process.

(30)

The role of spatial and verbal working memory in imaging kanji character

Yuki Kobayashi (Kawamura Gakuen Woman's University, Japan)

Eriko Kawasaki (Kawamura Gakuen Woman's University, Japan)

This study investigated the role of visuo-spatial sketchpad and phonological loop in imaging kanji or pseudo-kanji. After kanji or pseudo-kanji were presented for three seconds, participants were required whether the presented part of character included the prior stimuli. Three kinds of secondary task were employed between the prior stimuli and target: articulatory suppression task, visual suppression task, and no secondary task. Significant interference was showed in the articulatory suppression task condition and there was no interference in other conditions. This result showed that phonological loop plays a major role in imaging any character visually.

(31)

Native-Japanese compound words: Word-formation classification data

Terry Joyce (ILCAA, Tokyo University of Foreign Studies, Japan)

In constituent-morpheme priming experiments with two-kanji Sino-Japanese compound words, Joyce (2003a, 2003b) reports positional frequency effects for verbal constituents, with reversed patterns of priming observed over high-positional-ratio (HPR) verb + complement and complement + HPR-verb conditions. Interestingly, the combination of complement + verb is also a common principle of Native-Japanese compound words, raising questions about priming for this lexical stratum. The present word-formation classification study obtained native-Japanese-speaker evaluations concerning the appropriate classification of structurally similar Native-Japanese compound words, as either noun modification (夏休み ‘summer holiday’) or complement + verb (早起 ‘getting up early’).

(32)

Does the reader's goal affect access to distant information during reading?

Ryuta Iseki (University of Tsukuba, Japan Society for the Promotion of Science, Japan)

Takeshi Suzuki (University of Tsukuba, Japan)

It was generally considered that accessing distant information during reading narrative texts was carried out by passive resonance process. While resonance process was thought to reactivate distant information without reader's goal, it was unclear how reader's goal affected resonance process. This study examined the impact of reader's goal on accessing distant information. Participants were instructed to read texts either for answering questions or for evaluating their sympathy with protagonists, which constituted different goals. As a result, reading times for target action were longer when the earlier described characteristics of protagonists were inconsistent with this target action. Reader's goal did not influence reading times significantly. So, it is suggested that resonance process is not affected by types of goal.

(33)

Phonological coding and attentional resources in reading for meaning

Maiko Takahashi (University of Tokyo, Japan)

It has been discussed that phonological coding in reading facilitates sentence comprehension. This study investigated the relation between attentional resources and phonological coding in reading for meaning. Thirty-two subjects were asked to read sentences under concurrent tapping task or articulatory suppression, which interferes phonological coding (Coltheart, et al., 1990). The subjects, whose comprehension of the sentences was impaired under articulatory suppression, showed impairment of the comprehension by the tapping task. In contrast, subjects who were not interfered by articulatory suppression weren't affected by the tapping task. It is suggested that, in reading for meaning, attentional resources interact with phonological coding.

(34)

Wayfinding with well- or poorly-written route descriptions

Akio Honda (Tohoku University, Japan)

Yoshiaki Nihei (Tohoku University, Japan)

We investigated differences in performance and mental activities in the course of wayfinding with a well- or poorly-written route description. The two route descriptions were selected from a pool of route descriptions from our previous research. Participants were asked to navigate through an unfamiliar environment using well- or poorly-written directions. The results revealed that the two groups showed different behavioral patterns for wayfinding, and that a higher level of anxiety was reported by participants who were given the poorer description. Implications for the conditions of intelligible route descriptions are discussed.

(35)

Repeated eyewitness recall and recognition : Effect of misleading information

Saeko Kamata (University of Tsukuba, Japan)

Mitsuko Hayashi (University of Tsukuba, Japan)

Nobuo Ohta (University of Tsukuba, Japan)

This study investigated effect of misleading information and hypermnesia .82 participants viewed the film about the traffic accident and were asked to answer the questionnaire including misleading information. In experiment 1, after the questionnaire, 21 participants conducted three times recognition tests immediately and another 20 participants did the same task one week later. Experiment 2 conducted three times free recall tests. 21 participants did immediately and another 20 participants did one week later. The result showed that in experiment 1, effect of misleading information was observed and the effect declined one week later. Experiment 2 wasn't affected by misleading information. Hypermnesia didn't occur both experiment 1 and 2. Performance of recognition (exp 1) declined but that of free recall (exp 2) was maintained.

(36)

New pairs of doodles for supplement of standardized set (1): An examination of recall and recognition

Masaru Takahashi (Saitama Institute of Technology, Japan)

Yuko Une (Waseda University, Japan)

Takashi Ueda (Waseda University, Japan)

Kaori Miyawaki (Waseda University, Japan)

Takehiko Nishimoto (Waseda University, Japan)

In TIC4, we presented a set of nonsensical paired pictures, called doodles for use in experiments of memory (Une et al., 2003). To extend this set, we examined validity of 25 new doodles chosen by Une et al. (2004) in recall and recognition test. 30 undergraduates were presented the pairs of doodles, and then asked to recall them. After that, participants had a cued recognition session. As a result, 16 pairs of doodles were selected to be suitable for supplement to standardized set.

(37)

Interactive effects between the recognition performance of color-form pairs and their impressions assessed by the semantic differential method

Yuiko Sakuta (Tohoku University, Japan)

Jiro Gyoba (Tohoku University, Japan)

We have found that the color-form pairs having similar impressions on Activity or Potency factor are recognized well, while the pairs containing opposite impressions on Evaluation are more memorable. In this study, the yes-no recognition paradigm was performed in order to analyze hit and false alarm rates for more precise investigation of the effect. Consequently, the pairs of positive form and negative color on Evaluation showed large d' scores with low beta values, while those of positive form with positive color indicated relatively small d' primes with high betas. These tendencies were not found for the pairs related to Activity and Potency.

(38)

Memory of physical condition as present real health

Yukihiro Itoigawa (Wisdom Inc., Japan)

Aim: Recognition on physical condition at skill of sport like Judo. Investigation: Long-term memory of 20 subjects (age: 33-75) and 45 description about development on sport. *Evident Result:* 1. 80% of subjects had memory of physical importance considering right and left at daily life. 2. People abroad said no problem at doing sport and at teaching. One had experienced bad relation with teacher, especially French teacher during interesting soccer playing as captain. 3. One Japanese woman said ignorance of teacher and importance of searching good teacher or coacher herself. She is doing yoga (66 years old). 4. One Japanese man had episodic memory of reinforcement to injured side. In respect to the evidence, the author should make content for community education guided by scientific discipline.

(39)

The effect of test replication in bizarre images

Satoshi Hoshino (University of Tsukuba, Japan)

Distinctiveness is a hypothesis to account for bizarreness effects. In contrast, item-specific and item-relational processing is a hypothesis to explain hypermnesia. This study investigates the relationship between distinctiveness and item-specific processing. Specifically, the paper investigates whether hypermnesia would be found for bizarre sentences in a mixed-list design (14 bizarre, 14 common sentences), and if so, how the pattern of reminiscences and forgetting would vary over repeated testing. The results showed that although both a bizarreness effect and hypermnesia were observed, there was not interaction between sentence type and test frequency.

(40)

New pairs of doodles for supplement of standardized set (1): Relation of paired pictures, label suitability, visual complexity, and picture name

Yuko Une (Waseda University, Japan)

Masaru Takahashi (Saitama Institute of Technology, Japan)

Takashi Ueda (Waseda University, Japan)

Kaori Miyawaki (Waseda University, Japan)

Takehiko Nishimoto (Waseda University, Japan)

In TIC4 (Une et al., 2003), we presented a set of nonsensical pictures (doodles) which is useful in cognitive experiments. In this study, we added new doodles for the extension of the set. We collected 70 pairs from the undergraduates in classes of introduction to psychology and 2 pairs from Une et al. (2003). They were measured on 4 variables; relation of paired pictures, label suitability of a single picture and of paired pictures, visual complexity, and picture name. In result, 25 pairs were chosen.

(41)

Articulatory suppression in a learning phase makes relearning easy

Takashi Sasaki (Keio University, Japan)

This study examined the effect of articulatory suppression in paired associative learning with a relearning method. In a learning phase, subjects learned word-nonword associations completely under conditions of articulatory suppression or simple tapping. After the learning phase and an interrupted task, they answered a cued recall task in a nonsuppressed condition and a relearning task in a simple tapping condition. The difference of learning conditions wasn't significant in learning trials and cued recall scores. But the subjects who learned under the simple tapping condition in the learning phase had significantly more trials in the relearning phase.

(42)

Intention to learn in sequence learning

Kaori Miyawaki (Waseda University, Japan)

This study investigated the role of intention to learn in perceptual-motor sequence learning. Participants responded spatial stimuli and color stimuli which were presented alternately. Both stimulus sequences followed repeated patterns. Half of participants were instructed to learn the spatial sequence intentionally. They learned better the color sequence than participants who were not instructed to learn any sequences. Learning of the spatial sequence in intentional-learning participants deteriorated when the spatial sequence and the color sequence were not correlated. These results indicated that learning of multiple sequences interacted with each other even when a learner intended to selectively learn one sequence.

(43)

Does the cloze test always promote superficial approach to learning?

Kou Murayama (University of Tokyo, Japan)

Some research revealed that the expectation of cloze test would promote the use of surface processing learning strategies. To clarify the relationship between the expectation of the cloze test and the surface processing strategies, 136 university students were assigned to the deep processing cloze test condition, surface processing cloze test condition, or control condition. Subjects in the deep processing cloze test condition expected the cloze test in which only deep processing learning strategies have the utility value whereas those in the surface processing cloze test condition expected the cloze test for which surface processing strategies are sufficient. Results showed that subjects in the deep processing cloze test condition increased the use of surface processing strategies as much as those in the surface processing cloze test condition.

(44)

The role of instruction at retrieval affecting the self-choice effect on memory

Tetsuji Hirano (Kwansei Gakuin University, Japan)

The self-choice effect on memory, that words which had been selected from alternatives by subject at study are better recalled than those selected by experimenter, was examined with regard to instruction at retrieval. The effect was obtained when instructed to recall only the words that had been selected (Exp. 1). However, when instructed to recall all words presented at study (Exp. 2), no effect was found for focusing upon the selected words. The fact that the effect was found in Exp. 1 but not in Exp. 2 was discussed in terms of retrieval inhibition.

(45)

The self-choice effect with third graders

Tomoyuki Watanabe (Sendai Shirayuri Women's College, Japan)

A previous study reported that the self-choice effect was not obtained with third-graders when the effect was tested in free recall (Takahashi, 1991). Two experiments in the present study demonstrated that the effect was obtained with third-graders when cued recall was utilized as retention test. The lack of the effect with third-graders was interpreted in terms of retrieval failure and use of retrieval cues, rather than encoding factors such as deficient organization or metamemory judgment for easy-to-learn items.

(46)

Self-generated elaboration and spacing effects on incidental memory

Hiroshi Toyota(Nara University of Education, Japan)

Yasuko Kikuchi(Nara University of Education, Japan)

Subjects generated answers to why questions for target sentences in a self-generated elaboration condition. They then rated the appropriateness of the answers for the why questions presented by the experimenter in an experimenter-provided elaboration condition. This procedure was followed by free recall tests. The target sentences were presented twice in either a massed or distributed presentation. A spacing effect was apparent in the self-generated elaboration condition, but in the experimenter-provided elaboration condition the effect was small. The results indicated that the spacing effect was facilitated in the self-generated elaboration because it provided a richer encoding variability than the experimenter-provided elaboration.

(47)

Influences of self-generated misinformation on memory for events

Kiyomi Okumura (Nagoya University, Japan)

Jun Kawaguchi (Nagoya University, Japan)

The present study investigated whether generating misinformation affects subsequent memory for actual events. Participants watched a videotaped event and then engaged in the first memory test, in which participants were asked to answer exaggeratedly to some questions about the event they had seen. One week later, participants recalled the details they had answered exaggeratedly more falsely than those they had answered correctly. Moreover, they were more likely to recall the wrong details even though they remembered that they had exaggerated about the details. These results suggest people sometimes report events falsely when they have exaggerated.

(48)

Structure of self-knowledge: Relation between self-concept and autobiographical memory

Michiko Sakaki (University of Tokyo, Japan Society for the Promotion of Science, Japan)

Previously, there were two mutually contradictory results concerning the relation between self-concept and autobiographical memories: While Klein and Loftus (1993) indicated that self-concept is represented independently of autobiographical memories, several researchers suggested links among them (Tshcanz & Rhodewalt, 2001; Sakaki, 2003). To clarify whether self-concept and autobiographical memories are independent mental representations, 27 participants were asked to recall their experience after they were provided with either a specific self-concept or a neutral prime. Then, we found that access to self-concept more facilitated the recall of experiences than the neutral prime, suggesting that self-concept is linked to related autobiographical memories.

(49)

The effects of repetition and dual-task on the output monitoring errors

Eriko Sugimori (Kyoto University, Japan)

Takashi Kusumi (Kyoto University, Japan)

We investigated output-monitoring errors in a modified source-monitoring paradigm. Unlike the traditional paradigm that involves two phases, learning and monitoring, the modified paradigm involves three phases, learning, enactment, and monitoring. Four experiments produced two major findings. First, compared with the traditional paradigm, the modified paradigm produced fewer monitoring errors. Second, performing a dual-task during the monitoring phase increased monitoring errors for the items that participants repeatedly enacted during the learning phase. We concluded that monitoring errors are more likely to occur when the modality of items matches between the learning and enactment phases, and when a dual-task increases processing demands during the monitoring phase.

(50)

Did I really do it, or did I only imagine doing it? Reality monitoring of memory for actions

Yuichi Kaji (Tokyo Metropolitan University, Japan)

Makiko Naka (Hokkaido University, Japan)

In order to study differences between memory for enacted actions and memory for imagined actions, we used subject performed tasks and reality monitoring paradigm. Twenty-four participants performed, imagined, or vocalized a series of actions. They were then asked to determine whether each action was performed, imagined, vocalized, or new. Enacted and imagined actions were recognized more accurately than vocalized actions. Moreover, source monitoring errors were greater for imagined actions than for enacted and vocalized actions. The results show memory for enacted actions is not only durable but also resistant to source confusion, unlike the imagined actions.

(51)

The facilitation of memorization processes by the cognitive encoding method

Keita Ochi (Tokyo Kasei University, Japan)

Yoichiro Sagara (Teikyo University, Japan)

Many researchers have been interested in the "cognitive interview", the technique that is aimed for producing more accurate information from eyewitnesses, but not in the "cognitive encoding", which is an encoding method for accurate remembering. The latter also ought to be examined more closely because it can be important technique for some professionals such as police officers. Therefore the aim of the present study was to investigate the effective strategy for cognitive encoding. In the experiment, XX subjects were presented with color slides depicting daily events and asked for trying to remember in two ways (by verbalizing objects in the pictures as much as possible, or by encoding freely, that is, as subjects like), and were tested twice (immediately after presentation / 1 month later) in a free recall and a recognition test. Finally the result was discussed.

(52)

The effect of image on repeated interview

Hiroko Kasahara (Tokyo Kasei University, Japan)

Keita Ochi (Tokyo Kasei University, Japan)

We investigated whether college students would report more wrong information or false memory in response to different interview procedure and repeated interview. Subjects were assigned to one of three groups (cognitive interview group, forced image groups, control group). Each group viewed eighteen pictures and was answered recall & recognition test. Recall & recognition test was conducted twice (immediately, a week later). Cognitive interview group and forced image group were reported more correct information than control group without increasing wrong or false information. Comparing cognitive interview group and forced image group, forced image group performed better than cognitive interview.

(53)

How many outcomes do people consider when judging subjective probability?:

Cognitive processes of information search in probability judgment

Kuninori Nakamura (Waseda University, Japan)

Recent study indicated that people consider not only focal outcome but also alternative outcomes when judging subjective probability of focal outcome. Then, how many alternative outcomes do people consider for probability judgment of focal outcome? The goal of this study was to answer this question. The results of two experiments revealed that participants searched for about two alternative outcomes for probability judgment of focal outcome. Some theoretical suggestion will be discussed in the presentation.

(54)

An examination of dual mental number line model by using single- and double-digit number comparison task

Hideaki Shimada (University of Tsukuba, Japan)

A single-digit number ("x") and a double-digit number ("yz") were presented and participants were required to select the larger number of the two. As a result, RTs in $x > y$ condition were slower than in $x < y$ condition, and RTs were not different between $x > z$ and $x < z$ conditions. These results suggest that compatibility between the magnitude of the single-digit number "x" and that of the decade of the double-digit number "y" interferes with magnitude judgment by number lengths. I propose dual mental number line model in multidigit number comparison.

(55)

The difference between implicit and explicit associative processes at study to create false memory in the DRM paradigm

Yayoi Kawasaki (Kobe College, Japan)

Hiroshi Yama (Kobe College, Japan)

The effects of implicit and explicit associative processes at study for false recognition of semantic associates were examined by manipulating exposure duration in two conditions, 20ms and 2000ms. Participants studied word lists each of which had high associates to a critical lure on the CRT individually in either condition. After learning each list, they took a recognition test and remember/know judgments. Consequently, critical lures were recognized with know responses more in 20ms, whereas with remember responses more in 2000ms. Hence it is suggested that implicit associative process makes familiarity of false memory and explicit associative process creates details of false memory.

(56)

Retrieval-induced forgetting in the DRM paradigm

Katsuya Tandoh (Hokkaido University, Japan)

Makiko Naka (Hokkaido University, Japan)

Retrieval-induced forgetting refers to the phenomenon that when some items are repeatedly recalled, subsequent recall of related items is impaired. The purpose of this study was to examine whether or not retrieval-induced forgetting occur on true and false memories using the DRM paradigm. Participants were asked to learn six DRM lists. After presentation of each list, they were engaged in either retrieval practice task in which they recalled half of the studied items or distractor tasks. They were, then, asked to recall each list. The results showed that prior testing impaired subsequent recall of related studied items, but did not influence false memories.

(57)

Does false recall for proper names in the Deese-Roediger-McDermott paradigm hardly occur because the proper name lure is conspicuous?

Akira Mukai (University of Liege, Belgium)

The transparency of false memory manipulation in the Deese-Roediger-McDermott paradigm in which people's names were used as critical lures was manipulated so as to explore its influence on false recall phenomena. The results showed that the probability of falsely recalled critical lures was significantly lower and the probability of critical lures produced on a post-recall test asking participants to report items that they had thought of but did not recall was significantly higher when they detected the false memory manipulation (but no effect on veridical recall of study items). The results were discussed in distinctiveness and encoding context of the proper name lures.

(58)

Influences of directed forgetting on false memories

Chie Hotta (Aichi University of Education, Japan)

Hidetsugu Tajika (Aichi University of Education, Japan)

Ewald Neumann (University of Canterbury, New Zealand)

The purpose of this experiment was to examine the influences of directed forgetting on false memories. Participants studied one of two types of lists consisting of interrelated items with either high or low semantic associative strength to a critical non-presented (CN) word for each list. Half of the participants were instructed to forget the 1st of 2 studied lists before studying the 2nd list (the forget condition). The remaining participants were instructed to remember both lists (the remember condition). Compared with the remember condition, recall of the 1st list in the forget condition was relatively impaired for the target words of both types of lists. This result was coupled with a significant increase in the intrusion rates for CN words, but only for the high semantic associative strength lists. The results are discussed in terms of the activation/monitoring framework.

(59)

How lies change with repetition: Verbal cues in deception detection

Taku Sato (University of Tohoku, Japan)

Yoshiaki Nihei (University of Tohoku, Japan)

We investigated how liars change their verbal features through the course of repeated statements. Ss were asked to state "the most memorable event happened yesterday", followed by a false statement distorting the information from the original statement, therefore giving the impression that some other individual is socially incompetent. Three and seven days later, Ss were asked to repeat the same false statement. We found that the liars' statements contained more "action verbs" and "modifiers", and less "nouns" and "numeral and proper nouns". These features in their dialogue changed over repeated statements.

(60)

Implicit hypermnesia using priming procedure on basis of ARP hypothesis

Mitsuko Hayashi (University of Tsukuba, Japan)

Shinya Fujioka (University of Tsukuba, Japan)

Masahiro Honda (University of Tsukuba, Japan)

Rino Ito (University of Tsukuba, Japan)

Saeko Kamata (University of Tsukuba, Japan)

The role of implicit memory in hypermnesia phenomena was investigated by priming procedure on basis of ARP hypothesis (Kazen & Solis-Macias, 1999). The 60 words were studied on the format-translation condition (the pictures of the words were drawn) or no format-translation condition (the mirror characters of the words were written). Then, word-stem priming tests were conducted three times immediately and three times one week later. Referring to Bowers & Schacter (1990), the participants were classified later into the intention group or the no-intention group according to the awareness of the experiment purpose and the intention of using the study episode. The results showed that hypermnesia occurred on the intention group (Explicit memory group), not on the no-intention group (Implicit memory group). The ARP hypothesis was not supported.

(61)

The FUMIE test: A group performance paper test to measure implicit evaluation of a concept

Rika Imada (Shinshu University, Japan)

Hisayo Yoneda (Shinshu University, Japan)

Kazuo Mori (Shinshu University, Japan)

The FUMIE test is a paper-and-pencil version of the implicit association measurement such as the IAT. Under timed conditions, subjects must classify certain evaluation words as “pleasant” or “unpleasant”. The task is repeated with a target word intermingled randomly. The examiner dictates that the word be evaluated as “pleasant” on one trial and “unpleasant” on another. The difference between the number of items completed, caused by unconscious matching of the target words with “pleasant” or “unpleasant”, measures subjects’ cognitive impairment. FUMIE Tests were administered to 260 freshmen at a teacher’s college to assess their implicit attitudes toward certain school-related concepts.

(62)

The influence of auditory information at encoding on visual perceptual identification task

Kiyoto Sakakibara (Nagoya University, Japan)

Jun Kawaguchi (Nagoya University, Japan)

We examined the effect of auditory information presented synchronously with visual stimuli at study on visual implicit memory task, using the freezing phenomenon which was the perceptual cross-modal influence from auditory modality to visual modality reported by Vroomen et al.(2000). In this study, first, participants identified a word visually presented synchronously with distinct sound or not in a rapidly changing sequence of visual and auditory distracters. The result of following perceptual identification task showed that the distinct sound produced more priming in visual perceptual identification task. This result was discussed in the context of research of modality-specific priming.

(63)

Asymmetrical effect of pleasantness and arousal on memory

Tomoe Nobata (Tokyo Kasei University, Japan)

Keita Ochi (Tokyo Kasei University, Japan)

This study was conducted to investigate the effect of pleasantness and arousal on memory. Participants watched sixty slides, rated each slides on pleasantness, arousal, and desirability of slides. Slides varied along the affective dimension of pleasantness and arousal. After watching slides and a month, they were given an incidental memory test, reported slides remembered. In result, for both immediate and delayed memory tests, positive groups were not different between high and low arousal to recall, but negative groups were recalled well as arousal was higher. These results suggest that arousal act differently in positive or negative emotion.

(64)

Enumerating affective words

Takeru Inamura (University of Tsukuba, Japan)

Akiko Fujita (University of Tsukuba, Japan)

Fumiko Gotoh (University of Tsukuba, Japan)

Tadashi Kikuchi (University of Tsukuba, Japan)

It is assumed that two different cognitive mechanisms underlie our ability to enumerate visual objects. "Subitizing" refers to automatic, rapid and accurate enumeration of four or fewer visual objects whereas "counting" refers to a slow error prone process of serially counting five or more objects. If so, valence of counted objects should influence enumeration of 5 or more objects but not enumeration of 4 or fewer objects. Participants in our study counted positive, neutral or negative words and we measured their response times. We discuss implications of our results for theoretical accounts of visual object enumeration.

(65)

The effect of emotional words on automatic and intentional memory retrieval

Tomoko Suzuki (Kyoto Women's University, Japan)

The effect of emotional value on explicit and implicit memories was analyzed through three experiments. Experiment 1 found the effect on conceptually driven explicit memory task, but not on data driven implicit memory task. Experiment 2 found the effect on conceptually driven implicit memory task, but not on data driven explicit memory task. Based on these results, Experiment 3, applying process-dissociation procedure onto word-stem completion test, suggested the effect of emotional words effect only in intentional memory retrieval, and not in automatic memory retrieval.

(66)

Recovery processes from traumatic memory: Comparison of drivers responsible for traffic accidents with the victims

Yasuhiro Kitamura (Tohoku University, Japan)

Akio Honda (Tohoku University, Japan)

Yoshiaki Nihei (Tohoku University, Japan)

In this study, we compared the processes of traumatic memory between the drivers responsible for traffic accidents and the victims. One hundred drivers who experienced traffic accidents responded to questionnaire on depression and PTSD. Additionally, we interviewed the drivers to study the mental recovery processes after the accidents. The results demonstrated that in case of drivers responsible for their accidents, the symptoms of depression and avoidance continued to remain more recognizable than in the victims even after two years. Furthermore, the recovery processes of drivers responsible for the traffic accidents differ greatly from those of the victims.

(67)

Effects of anxiety and emotionality of stimuli on the intrusion of memory to classification

Midori Inaba (Nagoya University, Japan)

Hideki Ohira (Nagoya University, Japan)

This study was performed to examine the effects of trait anxiety of subjects and emotional valence of stimuli on the ability to control the intrusion of prior learned items to categorization performance. As expected based on the previous report of the facilitated familiarity-driven recognition in high anxious group, the difference was observed in inference of memory process to classification, especially of negative stimuli. The results were discussed in terms of effects of trait anxiety and emotional valence on recognition memory and the contribution of automatic retrieval process to true and false categorization judgments.

(68)

Time and character's emotion in situation models in narrative comprehension

Hidetsugu Komeda (Kyoto University, Japan)

Takashi Kusumi (Kyoto University, Japan)

This study examined the continuity of time, causality, and character's emotion in situation models in narrative comprehension. Twenty-eight participants read a short story at their own pace. Each sentence reading times were collected. Afterwards, the participants were tested for oral recall. Appreciate and memory conditions were compared. The results of multiple-regression analyses suggested that the readers monitored the continuity of time and the character's emotion under an appreciation condition. However, they did not monitor any continuity under a memory condition. Causal continuity was not monitored under either type of condition. The oral recall results differed with the two conditions. These results suggested that readers construct a coherent situation model under an appreciate condition, but not under a memory condition.

(69)

One hundred Mona Lisas: Gender-specific encoding of memory

Yoshiaki Nihei (Tohoku University, Japan)

One hundred and fifty-one Japanese college students were asked to draw the most commonly recognizable portraits of a woman (Mona Lisa) and a man (Prince Shotoku) by memory. The results showed the similar trend as those of the experiments by Nickerson & Adams (1979). The participants demonstrated poor recall when asked to draw these portraits in spite of frequent opportunities given to see them, implying that our environments do not require us to memorize them in detail. Moreover, the results also showed that our encoding of memory is gender-specific in how each individual memorizes human figures.

(70)

Preference for faces' Gender differences in face attractiveness'

Sayako Masuda (Keio University, Japan)

180 Japanese students (110 female and 70 male) selected the best attractiveness Japanese celebrities (male and female). Four 'average faces' were constructed by digitally blending photographs of individuals of these celebrities. There are 2 male average faces from the photographs that (1) male participants judged most attractive man, and from (2) female participants judged most attractive man. And there are 2 female average faces that from the photographs that (3) males judged most attractive woman, and from (4) females judged most attractive woman. Male participants liked more masculine male face.

(71)

Differences in facial configuration between familiar and unfamiliar facial representations

Naoshi Hiraoka (Kyoto University, Japan)

Sakiko Yoshikawa (Kyoto University, Japan)

This study examined the differences in facial representations for familiar and unfamiliar faces from the viewpoint of facial features. As stimuli, we used photographs of faces whose inner or outer facial features had been manipulated to different degrees using morphing software. We asked the participants to choose the photograph that they regarded as correct from a group of photographs (veridical and transformed faces). In recognizing familiar faces, the participants selected transformed faces close to the averaged face when outer features were manipulated. The results indicate that familiar and unfamiliar facial representations differ in their outer facial features.

(72)

Delusional ideation and reasoning

Hiromi Arakawa (University of Tokyo, Japan)

Shudo Yamasaki (University of Tokyo, Japan)

Yoshihiko Tanno (University of Tokyo, Japan)

Objective: The purpose of the present study is to confirm whether the "jump-to-conclusions" (JTC) tendency, which is characteristic in delusion-prone patients, could be found in college students. *Method:* Thirty-one college students participated in the present study. We carried out Peters et al. Delusions Inventory (PDI) and probabilistic judgment tasks (Colbert and Peters, 2002). *Results:* In the probability judgement tasks, the students who had high score in PDI showed high conviction about their judgement than students who had low score. *Discussion:* JTC tendency is involved in development of delusional ideation in non-psychotic students, which may confirm spectrum hypothesis.

(73)

On the use of 'rule' in human categorization

Takashi Ueda (Waseda University, Japan)

Recent categorization literatures often emphasize we use various strategies multiply in classification. Of these strategies, a common assumption is our use of a 'rule' that can easily be described verbally. However some aspects of the rule uses still remain unclear: for example, rule formation, combination or integration of several rules, and so forth. In this study I examined how we use the rules in classification learning processes with respect to classification accuracy and reaction time. Empirical results and theoretical analyses suggested we use a certain kind of strategy that can be represented as a verbal rule.

(74)

The Monty Hall Dilemma is also difficult in Japanese

Kazuhide Miyoshi (University of Tsukuba, Japan)

Maiko Wakabayashi (University of Tsukuba, Japan)

Shinobu Ikoma (University of Tsukuba, Japan)

In the Monty Hall Dilemma(MHD), a host shows a guest three doors and the guest makes a guess as to which door has a prize. After the guest's guess, the host reveals another door as incorrect. The dilemma is whether stick with the initial decision or switch to the another alternative. The correct but counterintuitive answer is to switch. Granberg & Brown(1995) reported only 12% of the participants switched the door. Granberg(1999) also reported cross-cultural comparison of response to MHD in Brazil, China, Sweden and the U.S. students. We studied this dilemma in Japanese students. The results showed very few switched the door.

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