

Serial Reproduction: An Experimental Simulation of Cultural Dynamics

Yoshihisa Kashima¹ and Victoria Wai-Lan Yeung²

(¹ Department of Psychology, The University of Melbourne, Australia) (² Hokkaido University)

Abstract: The method of serial reproduction is an experimental method by which to investigate social psychological processes involved in cultural dynamics, namely, the formation, maintenance and transformation of culture over time. In particular, it is useful for examining how cultural information is transmitted through social networks, what type of cultural information is likely to diffuse through social networks, and how it is transformed as it travels from one person to another. This paper outlines its methodological strengths and weaknesses, discusses the theoretical framework in which the method is embedded, and outlines an example of its systematic use in a research program about cultural stereotypes. Finally, the paper concludes with discussions about future research directions with regard to potential cultural differences in cultural dynamics as well as interaction between cultural dynamics and social network processes.

Key words: stereotypes; culture; cultural dynamics; communication; serial reproduction

Serial reproduction is an experimental method in which a stimulus is transmitted *serially* from one person to another in a communication chain, and transformation of the stimulus is observed over the *reproductions*. It is akin to a game called Chinese Whispers, in which a word or a phrase is passed on in whispers from one person to another in a communication chain. The result is often a dramatic transformation in what is transmitted from the beginning to the end. The serial reproduction method is a more systematic and controlled use of this idea in psychological research. It is particularly useful for examining the types of information that are likely to spread through informal social networks and that can potentially become part of a culture. For this reason, it has been used in various investigations of *cultural dynamics*, namely, the formation, maintenance, and transformation of culture over time. In this paper, we describe the method and discuss its methodological strengths and

limitations. In addition, we provide a theoretical framework in which this method is embedded, outlines an example of its systematic use in a programmatic investigation of cultural dynamics of stereotypes, and points to future research directions.

The Method of Serial Reproduction

The method of serial reproduction was widely used in the 1940s and 1950s, but as psychology began to place a stronger emphasis on cognitive factors in the 1960s onwards, it became less popular and came to be used only sporadically (e.g., Haque & Sabir, 1975). However, it has seen a revival. In 2000, three papers (Bangarter, 2000; Kashima, 2000a; Thompson, Judd, & Park, 2000) appeared in social psychology journals, which used this method to investigate the *unintended* transformation of information as it circulates among people through social networks. These researchers demonstrated that as each person communicates information that he or she has received from others, the information changed little by little although each communicator had no clear intention to change the information one way or the other. Each change was relatively small, individually variable and often random, and was not

Received date: 2008-10-03

Correspondence concerning this article should be addressed to Yoshihisa Kashima, Department of Psychology, The University of Melbourne, Parkville, Victoria 3010, Australia. E-mail: ykashima@unimelb.edu.au

easily detected if only one step of communication was examined. Nonetheless, when cumulated through serial reproductions, these small changes added up to a systematic modification of the original information.

The method of serial reproduction is best illustrated with examples of its early uses.

Example 1: Bartlett (1920)

A British psychologist, Frederick Bartlett (1920, 1932), is typically credited to be the first to use this method in experiments. He was interested in *cultural diffusion*, namely, transmission of cultural information from its place of origin to another culture. For instance, in one of his experiments, he used an American Indian story of “The War of the Ghosts” as a stimulus. A doyen of American anthropology, Franz Boaz, collected this short folktale, which contains a series of mystical events: A young man goes along with “ghosts” in a canoe to a battle where he is shot although he does not feel anything. He then returns to his village, tells the tale, and falls silent. “Something black” comes out of his mouth, his face becomes contorted, and he dies. Bartlett gave this to mostly English people, who are unfamiliar with American Indian cultures, and asked them to write the story from memory for others, who in turn would reproduce the story for others, and so on in a serial reproduction chain. He then observed the transformation of the story as it was reproduced from one person to another. The original story’s elements were changed and the overall story was transformed to become a form that was more familiar to the reproducing participants. For instance, a canoe became a boat, “something black” became the spirit, and the young man’s mystical, if fatal, adventure became a young warrior’s battle story. Bartlett called this transformation *conventionalization*. That is, culturally unfamiliar objects and events are transformed into something more familiar and conventional.

Example 2: Allport and Postman (1947)

Another prominent example is Allport and Postman (1947), who used serial reproduction in

their research on rumor transmission. This is the transmission of information *within* a culture in contrast to Bartlett’s use of it in information transmission *across* cultures. In one instance, they used a picture of a White man in overalls holding a razor against a well dressed Black man as a stimulus for a serial reproduction study. This scene clearly contradicted the then widely shared stereotypes of the race relationship in the United States, where African Americans occupied a lower social economic status than European Americans, and the former would be more likely to engage in a robbery or assault against the latter. In line with Bartlett’s work, Allport and Postman too observed something like conventionalization. As the story was transmitted along a serial reproduction chain, the razor often changed hands. It was said that a Black man was holding a razor against a White man. This version of the story is erroneous, though more in line with the “conventional wisdom” of the time.

Investigating Cultural Dynamics with Serial Reproduction

The method of serial reproduction can be construed as an experimental simulation of cultural dynamics. Kashima (2000b) characterized cultural dynamics as “the process by which context-specific practices can generate stability and change in culture (p. 23)” and asked as its central question how “individuals’ particular meaning-making activities can collectively generate something enduring (perhaps not always, but at least sometimes), which may be conceptualized as a system of meaning? (p. 22)” In other words, cultural dynamics is concerned with how people’s everyday activities contribute to the production and reproduction of culture and its eventual transformation. It is very much about micro-macro dynamics, undoubtedly a perennial question in social sciences.

One approach to this question is a broad meta-theory called *neo-diffusionism*, which underlies a number of theories of cultural evolution (for a review, see Kashima, Peters, & Whelan, 2008). It takes the view that culture is transformed

as a consequence of diffusion of cultural information within a population. It is easiest to explain its gist by using an analogy. Genes carry genetic information, genes are transmitted by sexual reproduction, and biological evolution can be understood as the changing distribution of genes in a population. Analogously, cultural information is thought to be transmitted through social interaction and its diffusion and changing distribution in a population can be conceptualized as determining the course of cultural evolution. If this analogy is carried further, the difference between macro historical cultural trends and micro social psychological processes is analogous to macro-level of biological evolution and micro-biology of genetic transmission. Obviously, social scientific investigations of cultural dynamics require systematic observations of macro-level historical trends; however, serial reproduction provides a method that enables us to examine micro-level social psychological processes that underpin the macro-level cultural transformation.

There are potentially many types of cultural dynamics; however, one is well exemplified by Allport and Postman. This is the case of *within culture diffusion* in which people involved in serial reproductions all share similar cultural backgrounds. They more or less share a similar culture, a set of meaningfully related ideas and practices. Here, information introduced to serial reproduction chains is new, but not so completely new that it is difficult to comprehend it given the shared culture. So, for instance, information about the event of a White man's holdup of a Black man is new, and perhaps *unexpected*, but it can be understood by using the concepts widely available and accessible in the culture. In many ways, the new information can be thought of as an instance or an exemplar of culturally available categories (e.g., Kashima, 2000a; Thompson et al., 2000). General findings are that culturally unexpected information tends to be dropped and culturally expected (i.e., stereotypical) information tends to remain.

A more applied instance of within culture diffusion is mass media-based public campaigns

(e.g., health promotion and disease prevention). In these cases, it is important to diagnose what information is likely to spread through a population if disseminated through mass media such as newspaper, TV channels, and the like. Provided that one of the ways to improve the effectiveness of mass media-based public campaigns is via word of the mouth dissemination of the relevant information, the method of serial reproduction may be able to complement other types of communication research methods to plan public campaign strategies.

A second class of cultural dynamics is *between culture diffusion*, exemplified by the Bartlett example. Here, "new" information is more *unfamiliar* than *unexpected*, typically falling outside the scope of people's ordinary cultural knowledge. For the participants involved in Bartlett's experiments in the early 20th century England, American Indian customs and artifacts (e.g., canoes) were not part of their cultural knowledge. His experiments showed how culturally unfamiliar information is transformed and diffused through informal communications. This type of cultural dynamics occurs when foreign cultural information (e.g., customs and practices from the Amazon river in Brazil are introduced to China) or when a novel scientific discovery or a technological invention (e.g., the invention of a genetic technology is reported in mass media; Bangarter, 2000) is introduced to a population, a likely scenario in today's globalizing and technologically fast changing world. This process is more likely to involve analogical or metaphorical inferences where familiar cultural knowledge is used as an analogy to understand and communicate the unfamiliar. Unfamiliar information that was somehow made familiar tends to remain in serial reproductions (i.e., conventionalization).

Between culture diffusion of information can be thought of as a process of cultural transmission in which there exists a point where people with one cultural background transmits information to others with a different cultural background. That is,

cultural information is transmitted from one person to another within a culture; however, the latter then transmits it to a person from a different cultural background, who in turn transmits it to others in his or her own cultural background. At this point of *cross-cultural diffusion*, where cultural information traverses across a cultural boundary, the process of cultural transmission is likely to be difficult and error-prone. Bartlett (1923) discussed some of the implications of these processes (see Kashima, 2000c, for a brief review of Bartlett's cultural psychology). We will discuss these issues later in the section on Theoretical Background.

Methodological Considerations

The method of serial reproduction can be used to simulate transmission of a variety of cultural information. It may be visual, auditory, textual, behavioral, or any combinations of them, and the mode of reproduction could involve drawing, speaking, writing, gesturing, or any other forms (see Bartlett, 1932, for a variety of examples). Information can be factual or fictional, expository or narrative, or any other. Reproductions can be transmitted from one person to another directly in a face-to-face conversation or without direct contact by a hand written or electronic text (e.g., email, SMS) or even by a video tape. Generally, a stimulus can take any form as long as it can be reproduced in an interpersonally transmissible form. A serial reproduction chain typically involves more than two or three people, and sometimes as many as ten. There is no restriction or standard; researchers can use as many people as they need to observe the phenomenon of their interest. From our past experience, at least three people in a chain may be needed to observe trajectories of transmitted information.

We will outline the steps involved in the implementation of the serial reproduction paradigm using Lyons and Kashima (2003) as an illustration. The main purpose of this research was to investigate the role of shared cultural information in serial reproduction. In particular, a main hypothesis was that people in the serial reproduction chains tend to

transmit information that is consistent with the culture that they share. There were four steps: (1) experimental simulation of "shared culture", (2) construction of a stimulus for serial reproduction, (3) experimental procedure, and (4) data coding and analysis.

Experimental Simulation of "Shared Culture"

Under most circumstances, when a sample of participants is recruited for serial reproduction experiments, they have a shared culture, within which serial reproductions occur. In this case, culture becomes a background variable that is controlled and constant in the experiment. However, if a researcher wishes to investigate the effect of shared culture – what happens if people shared a certain "new" culture? – it becomes necessary to experimentally construct the new culture. In Lyons and Kashima (2003), we experimentally created a fictitious group of people called, *Jamayans*. Obviously, no participants had heard about them and had any idea about what these people were like. We constructed a fictitious "anthropological report" and some pictures of the island on which they are purported to live. The textual and visual information was combined to give some generally coherent impressions about them.

We constructed two opposite versions of the report. One version portrayed the group as aggressive and warlike, whereas the other version, as calm and peace loving. In this research, we were interested in investigating the effect of information's *consistency* with a shared culture. Therefore, we wished to generalize our findings to culture generally, rather than any particular content of the culture. To achieve this, it was important to show that we can obtain similar findings regardless of the content. That is, we wished to show that, whether the Jamayans are commonly believed to be warlike or peace loving, as long as information is consistent with the shared beliefs about the Jamayans, it is likely to be transmitted across serial reproduction chains. To do this, the provision of replications was necessary. To simulate a "shared

culture”, we gave the same information to all participants in a given serial reproduction chain before they were shown a stimulus story, which they were told to reproduce.

Stimulus Construction

Any stimulus can be used for serial reproduction experiments. For instance, Bartlett (1932) reported the use of fictional stories, expository writings, and pictures and hand drawings. In Lyons and Kashima (2003), we were interested in the serial reproduction of *narratives*. Thus, we constructed a story about Jai, a Jamayan man, whose behaviors were sometimes consistent and other times inconsistent with the culture. More specifically, the story was written, so that it had six different components, which are typically found in narratives: introduction (introducing a protagonist and describing a setting; e.g., Jai is a young Jamayan man), initiating event (some events occur that require some resolution by the protagonist; e.g., Jai disobeys his village rules and a bear threatens him), initial response (the protagonist’s first reaction; e.g., Jai is frightened), attempt (the protagonist’s attempt to resolve the problem; e.g., Jai distracted the bear), consequences (consequences of the protagonist’s actions; e.g., Jai managed to escape the bear), and conclusion (some concluding statements; e.g., Jai made sure to obey the village rules). Each component contained two descriptions of Jai’s calm and peace loving behaviors, and two other descriptions of his aggressive and warlike behaviors.

Note that the same behavioral descriptions (aggressive and peace loving) acted as either culture consistent or inconsistent depending on the content of the simulated culture. In the condition where participants were given the aggressive (vs. peace loving) Jamayan portrait, aggressive behavioral descriptions were *culture consistent* (vs. *inconsistent*) information, whereas peace loving behavioral descriptions were *culture inconsistent* (vs. *consistent*) information. This design ensured that all participants received the same stimulus

information at the beginning, so that any differences between experimental conditions can be attributed to the manipulations, and not to the story content.

In order to ensure that participants would perceive the stimulus in the desired manner, it is important to conduct a pilot study with a small group of approximately 10 to 20 participants who are different from, but belong to the same population as, those who participate in the main experiment. They can be given the stimulus and asked to rate it on the relevant dimensions. In the case of Lyons and Kashima (2003), first, 10 participants were given the aggressive version and another group of 10 participants, the peace loving version; they were all asked to read the same story used for the main experiment; and they were then provided with a list of Jai’s behaviors, and asked to rate them as to whether they thought the behavioral descriptions were typical or atypical of the Jamayans. The behavioral descriptions that were rated as consistently typical or atypical (i.e., small standard deviations and high or low means) were retained for the experiment. Sometimes the story content may need to be slightly modified to achieve the desired stimulus.

Experimental Procedure

Participants usually receive instructions about their task like below (taken from Lyons & Kashima, 2003, p. 993):

Often in life people tell us stories about all kinds of people and events. Sometimes, we retell these stories to other people, perhaps at a party or in conversation with a friend. This task involves reading a story and then retelling the story in writing to another student. Of course, it is up to you as to how you write the story and what you choose to say, but your story will be read by another student. That student will only read your story and will never know what the original story was like. They will then tell your story to a third student, who will do the same, and so on. This means that everyone will be reading each other’s stories and retelling them to other students.

These instructions should be modified to suit the experimental purpose. For instance, we do not know what the effect is of telling people that others who read their reproductions will be reproducing their stories for someone else. It is also possible to introduce manipulations via instructions. For instance, some chains of participants can be told to be as accurate as possible in their reproductions, while the other chains can be told to imagine themselves to be gossiping about the protagonist with their friends. Nonetheless, it is advisable to keep the same instructions, and not to mix different instructions, for a given chain.

Participants in the first position of a serial reproduction chain receive the original stimulus. Depending on the nature of the stimulus, the stimulus exposure time may be varied. In our experiments using stories, we have typically told our participants to read a story twice at their own pace. Of course, the number of times they read a stimulus can be once, or three times; the reading time can be self-paced or paced by the experimenter (e.g., eight seconds per sentence). We have typically included a brief distractor task (approximately five minutes, but it can be much longer) before we obtained reproductions. Transmitted cultural information can be observed by capturing face-to-face interactions by audio-visual recording or by recording hand written communications. In the case of the latter, it is usually advisable for the experimenter to retype the hand written reproductions. Depending on the experimental objectives, this retyping can be verbatim or can be somewhat modified. However, even if a verbatim reproduction is retyped, some obvious grammatical mistakes and awkward expressions may be modified to improve the comprehension of subsequent participants. A participant in the second position onwards receives a reproduction of the participant in the previous position of the same chain as a stimulus; as suggested earlier, it is advisable to keep the instructions and other experimental setting the same for the same chain. After a reproduction is obtained,

it is possible to obtain further information from each participant by administering a questionnaire or some other methods.

When written communications were used, we typically recruited a desired number of the first position participants first, run them through the experimental procedure, and then recruited the second position participants and randomly assigned them to the chains. The third position participants were recruited after the second position participants were all completed and then again randomly assigned to the chains. This would be impossible if face-to-face communication chains are desired. Nonetheless, in terms of data collection, most conventional methods traditionally used in social psychology can be used without modification.

Data Coding and Analyses

The content of the reproductions can be analyzed by content analysis or by other discourse analytic techniques. We have typically used at least two independent coders. Ideally, they should be blind to the hypotheses, but often this is difficult to achieve because the experimenter is typically a coder. Nonetheless, coders should be blind to the conditions in which the reproduction was collected. This is very important to ensure that no experimenter biases would color the results. The coders should be given some training – they should be familiar with the original stimulus, given a clear instruction about the criteria for coding, and given an example or two to code and discuss their decision processes as they code the reproductions. This would be useful to ensure that their coding is reliable.

It is usually advisable to do the coding in two steps. First, the coders go through all the reproductions and decide which aspects of the reproductions are relevant for the study. For instance, different coders can pick different sentences in a reproduced story as relevant for the study; one coder may think one sentence is relevant, but the other coder may not. After this first step, the coders can meet to reach a consensus about which

information is relevant for the study. Second, the coders can go over the consensus list and independently code each of the relevant aspects. We have typically coded reproductions as to whether they are reproduction of the original information (old), modifications of the original information (modified), or completely new information (new). Although not many modified or new items are introduced, they could sometimes give valuable information. In order to compute intercoder reliability, different indices can be used. We have typically used either the percentage of agreement between coders (about 70% or more is desirable) or Cohen's kappa (about .7 or above is desirable). The coders then meet to discuss any discrepancies between their coding decisions and reach a consensus. This agreed upon coding is used for subsequent data analyses.

Data can be analyzed using parametric or non-parametric statistical techniques. However, one complication is the fact that a series of transmissions through a serial reproduction chain – the first person's reproduction, which is transmitted to and reproduced by a second person, and this is again transmitted to and reproduced by a third person, and so on – creates dependencies among those reproductions. These data points cannot be treated as independent observations. Consequently, repeated measures analysis of variance (ANOVA) or other related techniques need to be employed for data analysis. In fact, the serial reproduction method could produce auto-correlated data structures, and technically speaking, aggregating serial reproductions across chains could present further statistical complications and time-series data analyses may be more appropriate data analytic techniques (Heath, 2000). However, these non-linear dynamical issues are yet to be explored to the best of our knowledge.

One implication of the dependencies within a serial reproduction chain is that it is most convenient to treat each chain as a unit of analysis in an experimental design. For instance, if gender differences are to be explored, it is more convenient to use all male chains and all female chains, and

treat the gender composition as a between-chain factor in an ANOVA. Likewise, if effects of attitudes in cultural dynamics are to be examined, it is easier to prescreen participants and construct chains with similar attitudes (e.g., all pro attitude vs. all anti attitude chains). Similarly, when effects of a situational characteristic on cultural dynamics are to be explored (e.g., salience of values, contexts, functions), serial reproduction chains should be constructed and randomly assigned to the conditions that are designed to manipulate the situational characteristic (see for examples, Clark & Kashima, 2007; Lyons & Kashima, 2003). It is not impossible to analyze data derived from serial reproduction chains that consist of participants with mixed personal or situational characteristics by using multi-level analysis for instance; however, unless the variation in these characteristics itself is being manipulated (see Lyons & Kashima's, 2003, manipulation of actual sharedness of culture, for instance) they would typically present unnecessary complications in our view.

Limitations

Despite its strengths, it is important to recognize some limitations of the method of serial reproduction as experimental simulations of cultural dynamics. One class of major limitations is its external and ecological validity. Because the serial reproduction method is difficult to use in a field setting and most likely used in experimental laboratories, the type of likely participants is limited (most likely to be students or other people who live in a controlled environment such as hospitals). This tends to limit the external validity of the method across population and different settings. The method can be used with a considerable number of people, for instance, ten or twenty; however, it is obviously unrealistic to use it with hundreds or thousands of participants. Furthermore, it is not easy to examine what type of information is transmitted spontaneously within the setting in which people usually live. That is, cultural transmission is likely to be prompted by

experimenters in the serial reproduction experiments although it is not impossible to examine people's spontaneous communication with some imaginative experimental procedures. Because cultural transmission mainly takes place in spontaneous social interaction, this sets a limit to the ecological validity of the serial reproduction method.

Another main limitation is that serial reproductions only provide insights into the micro-processes of cultural dynamics, namely, how individuals transmit cultural information and what types of information are likely to become prevalent in a culture. However, generalization of the results obtained from serial reproduction experiments to macro-processes of cultural dynamics – cultural evolutions over historical periods – can be achieved through a great deal of caution and careful theorizing. The gap between micro social psychological processes and macro cultural evolution cannot be traversed so easily. We suggest that systematic theorizing and perhaps formal modeling (e.g., McElreath & Boyd, 2007) or large scale computer simulations (e.g., Miller & Page, 2007) would be required to achieve theoretically principled generalizations of empirical findings from the method of serial reproduction.

Theoretical Background

In making use of the method of serial reproduction to investigate cultural dynamics, researchers need to be aware that the method is not theory free. It embodies some theoretical assumptions. First, its fundamental assumption is that the process of cultural transmission and diffusion occurs through social networks. To put it differently, important cultural information with significant social implications is assumed to be transmitted and acquired through interactions between people who have meaningful interpersonal relationships. This is not to deny the cultural significance of mass media and formal education. Clearly, they are important; however, we contend

that it is when cultural information disseminated through the media and education is grounded and consolidated in the process of interpersonal interaction and turned into shared reality (Hardin & Higgins, 1996) that it shapes their culture and society. In this section, this theoretical assumption is explicated further.

Grounding Model of Interpersonal Cultural Transmission

How does interpersonal cultural transmission take place? Based on a psycholinguist, Herbert Clark's (1996) theory of language use, Kashima, Klein, and A. Clark (2007) argued that *grounding* is fundamental to cultural transmission. According to the grounding model, cultural information is transmitted from a person to others through a collaborative process called grounding, which is coordinated among all those who are involved in the episode of cultural transmission. Here, a fundamental unit of analysis is a situated activity in which people – those who transmit and those who receive cultural information – actively participate. It is temporally bounded with a starting point and an end point. At the start, people estimate their *common ground*, that is, the information that they *actually* share and *assume* that they share, based on their beliefs or knowledge about each other and their group memberships (e.g., men know about certain things more than women etc.). People make *contributions* to their common ground.

One contribution involves at least two steps:

(1) *presentation*, where person who holds cultural information presents the cultural information;

(2) *acceptance*, where people who do not hold the cultural information accept the cultural information by giving evidence that they have understood what the presenter meant by displaying various nonverbal behaviors such as nodding or verbal behaviors such as “A ha,” “OK,” or “Yes, I see,” to the extent that is sufficient for the current purpose.

When a presentation and an acceptance are exchanged, the cultural information is added to their common ground. The coordinated manner in which people engage in these activities is called grounding. In this way, cultural transmission occurs through a series of such contributions to common ground through grounding activities. Each participant then learns some aspects of the common ground, but not necessarily all of it. Whatever is stored in each person's memory becomes part of his or her cultural knowledge.

It is important to note that cultural transmission can occur only if there is some initial common ground. So, even those who share no language can transmit some cultural information just like Robinson Crusoe and his Friday by making use of their shared information. Those who have more shared information – knowing what words refer to what objects – can use it to communicate more information. Those who share the same language can use it to communicate even more new information. Generally speaking, the greater is the common ground, the more cultural information is likely transmitted more accurately and efficiently. So, when cultural information diffuses within a culture (within culture diffusion), there is sizable common ground among people, and therefore they have a large amount of resources to further transmit new cultural information. When information diffuses across cultural boundaries (between culture diffusion), cultural transmission is more difficult.

One important implication of this model is that cultural transmission is unlikely to be perfect. Those who receive new cultural information are likely to encode and retain only some parts of the information. This results in a phenomenon called *distributed cognition*, where complete information about an activity is not shared by everyone involved in the activity. Another implication is that, because people acquire cultural information from a series of specific episodes of social interaction, their cultural knowledge is by necessity a generalization from a number of such social interaction episodes. To put it differently, people must learn their culture largely

by induction. This process is assumed to be a general process of social category learning, which can be understood within a *parallel distributed processing* (PDP) framework such as the Tensor Product Model (TPM), according to Kashima, Woolcock, and Kashima (2000).

Situated-Functional Account of Communication Content

What type of information is likely to be grounded in interpersonal interaction? According to the situated-functional account of communication content (A. Clark & Kashima, 2007), this can be summarized in three fundamental postulates:

(1) There are two fundamental functions of communication in interpersonal social interaction: task performance and regulation of social relationships (e.g., Clark, 1996; McGrath, 1984). The importance of these functions varies depending on the situation.

(2) Information is seen to serve the task performance and relationship regulation functions differently depending on the situation.

(3) The likelihood that information is grounded depends on the extent to which it is seen to serve the situationally important functions.

To put it more simply, information is likely culturally transmitted when it is seen to help people achieve their task goals and regulate their interpersonal relationships in the communication situation.

Obviously, task goals and social relationships vary a great deal depending on the people involved and the context in which they are interacting. Although we know relatively little about what information is likely to spread under what circumstances (for a brief review of available literature, see Kashima, 2008), some specific implications can be spelt out. Whether given cultural information is likely to be transmitted depends on (a) whether it is *relevant* to the common ground, and (b) if so, whether it is *consistent* or *inconsistent* with the common ground. First, information that is relevant to the common ground

is likely to serve both task performance and relationship regulation functions. Therefore, it is more likely to be grounded than information irrelevant to the common ground. This explains why unfamiliar information tends to drop out in serial reproductions (see between culture diffusion).

Second, information consistent or inconsistent with the common ground presents a dilemma in the grounding process according to A. Clark and Kashima (2007). On the one hand, information that is consistent with common ground tends to be more easily groundable (less likely to be questioned or disputed, and more likely to be understood and agreed by all), and therefore tends to be *social connective*, that is, to enhance or maintain existing social relationships; however, information inconsistent to common ground tends to jeopardize this. On the other hand, information inconsistent with common ground tends to be *informative* – an important aspect of the task performance function. Information that is consistent with common ground basically confirms the common ground, and therefore it does not add anything new. However, information inconsistent to it would add to the common ground and may even significantly alter it. Which type of information – information consistent or inconsistent with common ground – is more likely to be grounded depends on the relative importance of the social connectivity and informativeness functions.

Cultural Stereotypes: A Case Study in Cultural Dynamics

Stereotypes provide an interesting case study for the investigation of cultural dynamics. By stereotypes, we mean ideations about social groups, which describe the groups' physical appearances, psychological characteristics, and behavioral patterns that are commonly ascribed to their members and widely distributed within a society. Stereotypes can have harmful social consequences because they often, though not always, represent negative and prejudiced overgeneralizations about those groups of people that they purport to describe. They can become a basis on which discrimination

and unfair treatment are directed to some groups of people. However, stereotypes are widely distributed within a society and therefore often provide common ground for most people involved in social interaction in a variety of situations. The situated-functional account of communication content suggests that the type of information likely perceived to be useful for performing a large number of tasks and for regulating a variety of interpersonal relationships in a large number of situations is likely to spread through social networks, and therefore to have significant impact on cultural dynamics. In other words, stereotypes can be thought of as significant cultural resources that help us transmit cultural information.

How are stereotypes formed and maintained in a society? Let us start with a thought experiment. Suppose that some people in your society (ingroup members) encounter some members of a different social group (outgroup). They may be youngsters from a neighboring community, tourists visiting your city, or foreign business people negotiating deals in your business sector. To be sure, those ingroup members are bound to have different experiences with the outgroup members – people are different, circumstances are different, and the whole dynamics are likely different. Nonetheless, given a similar intergroup context is at play across these encounters, it is quite possible or even likely that these encounters are similar to each other (Oakes, Haslam, & Turner, 1994). When these episodes are cumulated in your ingroup members' memories, you would form impressions about the outgroup (Kashima, Woolcock, & Kashima, 2000).

By then, the *knowledge* about the intergroup relationship between your ingroup and this outgroup may become widely distributed in your society. Even if you do not have had direct encounters with members of the outgroup, you have some ideas about the relationship between your community and the tourists visiting your city, for instance. They might be good customers for your ingroup, but perhaps bring bad influences to your community. When this knowledge is actually shared and

perceived to be shared, it becomes part of common ground (grounding model of cultural transmission). Suppose that some people who had direct outgroup encounters gossip about their experiences to you. According to the situated-functional account of communication content, information that is relevant with common ground – the wide spread knowledge about the intergroup context in this case – is likely to be grounded. If a social connective function is important (and when you are gossiping, this is likely to be the case), information that is consistent with the intergroup context is likely to spread. When group impressions that are consistent with the intergroup context are communicated to others, they tend to become more extreme or polarized – positive impressions become more positive, and negative impressions, more negative – and more homogeneous – less variability in impressions (Thompson et al., 2000). When such polarized and unambiguous impressions are communicated through social networks, they become more widespread and widely shared within a broader society. Indeed, the characteristics that can be more easily communicated and in fact talked about tend to become the content of widely distributed stereotypes (Schaller, Conway, & Tanchuk, 2002).

Once the stereotype content is actually widely distributed in your society and you think, believe, or assume that it is, you would surmise that your acquaintances and even strangers are likely to know the stereotype. In having conversations about the group with them, you are likely to assume the stereotype is part of your common ground with these people (grounding model of cultural transmission). At this point, the wide spread stereotype begins to be a significant influence on the cultural transmission activities in its own right. Again, according to the situated-functional account, information that is consistent with the shared stereotype (stereotype consistent or SC information) is more likely to be grounded than information inconsistent with it (stereotype inconsistent or SI information), when social connective functions are important. Of course, this does not mean that SI

information is not grounded. In fact, the likelihood of grounding SC information decreases when there is a strong need to be informative (Lyons & Kashima, 2003) or when SC information is unlikely to serve a social connectivity function (Lyons & Kashima, 2003; Clark & Kashima, 2007).

The net result is that when the social connectivity function is important, SC information is likely to be grounded in social interaction. Provided that people tend to feel a shared social identity when they have shared knowledge (Brown & Levinson, 1987), the grounding of SC information may be serving a broad social integration function within the community – strengthening people's identifications with their own community and their sense of common ties – without people necessarily intending to do so. Nonetheless, a potentially negative side effect of all this is that stereotypes that are believed to be widely distributed in a community can be maintained simply because people believe the stereotypes are shared within their community *regardless of* whether there is a real intergroup basis for the stereotypes. In other words, culturally shared stereotypes may perpetuate themselves even in the absence of the corresponding social reality.

Future Research Directions

There are at least two pressing issues that are yet to be addressed when using the method of serial reproduction: cultural dynamics and network dynamics, and cultural differences in cultural dynamics. We touch on them briefly below.

Cultural Dynamics and Network Dynamics

One important issue is concerned with the relationship between cultural dynamics and social networks. As we have emphasized from the start, the method of serial reproduction is couched on the fundamental assumption that cultural transmission and diffusion of social significance occurs through social networks. However, the past serial reproduction research has typically used a particular type of social network structure called a chain

among strangers. This immediately raises two questions.

First, does the type of *network ties* – the type of interpersonal relationships – that are involved in a serial reproduction chain make a difference? The situated-functional account of communication content suggests it does. According to this view, there may be two different types of cultural dynamics of stereotypes as a function of the type of social network links (Lyons, Clark, Kashima & Kurz, 2008). One type occurs among acquaintances that are linked with each other through what social network researchers call weak ties (Granovetter, 1973). These are people who know each other without necessarily being close to each other. They include one's acquaintances at work or neighbors that one may greet in the street without having established interpersonal relationships. Here, social connectivity functions are more important than informativeness functions; people may exchange gossip that is peppered with stereotype consistent information, which is likely to serve to maintain their relationships. SC information may flow through this sphere of social interaction. The other type occurs among close friends and relatives, or what are often called strong ties (Granovetter, 1973). Here, social connectivity functions are clearly important, but informativeness functions may be equally important. Here, there is a greater chance that stereotype inconsistent information is transmitted because it is likely more informative.

As a result, there may develop some dissociation between the kind of information transmitted among people within a close circle of friends and relatives connected via strong ties and that transmitted among people connected through weak ties. Given that people are likely to have both weak and strong social network ties, they may form an impression that their close friends have balanced views about an outgroup with both stereotype consistent and inconsistent beliefs about the group, whereas the greater community is more stereotyped because they typically exchange stereotype consistent information with their acquaintances in

the same community. This impression of dissociation between attitudes held within one's close circle and the wider community norm is called pluralistic ignorance (Miller & McFarland, 1987) and it is often reported with regard to stereotypes (e.g., Bowen & Bourgeois, 2001; for an example in an Asian context, see Tam, Lau, & Chiu, 2004). This process may end up maintaining the stereotype by fostering people's misperceptions of widespread cultural stereotypes even in the absence of that inside the close circle.

Second, does the *network configuration* – structure of social networks – make a difference? Most studies adopting the serial reproduction method used a *chain*, but there are many other network structures that are known to exist widely in many human communities. One example is a *star* where there is one person who is connected to all others, who are, nevertheless, not connected to each other. A *triangle* means that three people are all connected to each other. A *square* consists of four people each of whom is connected to his or her adjacent neighbors, but not connected to the fourth person. These local configurations can structure the flow of cultural information through broader social networks in which these local configurations are embedded. There are a number of sophisticated attempts at characterizing social networks and a structural position within networks (e.g., Wasserman & Faust, 1994; for a useful introduction, see Butts, 2008) and mathematical models are available for describing and estimating the prevalence of such local configurations within a network (e.g., Pattison & Robins, 2002). There is no research that examines the effect of network configurations on cultural dynamics to our best knowledge.

Not only do social networks affect cultural dynamics, but information diffusion can reciprocally contribute to network dynamics – the formation, maintenance, and transformation of social networks. In other words, the type of information transmitted between people can affect the local network structure around them. Although

there has been some literature on gossip and its social functions (for a recent review, see Foster, 2004), Peters and Kashima (2007) recently began to explore the more specific question about the effect of social talk – transmission of cultural information – on the formation and maintenance of social network structures. They theorized that when emotionally charged cultural information about a target individual or group is transmitted from one person to another, this can result in what they called an *emotion sharing* – sharing of the same emotional reaction to the target. Peters and Kashima found that emotion sharing tends to strengthen the interpersonal connection between the transmitter and the receiver, and also their joint relationship with the target. For instance, shared anger towards the target strengthened their relationship with each other, and their tendency to act against the third party, thus shaping the triadic social network among the transmitter, the receiver, and the target.

Potential Cultural Differences in Cultural Dynamics

Another important issue is the possibility that the process of cultural dynamics might differ across cultures. The past research using the method of serial reproduction has been conducted within Western-European cultural context. Results repeatedly showed that Western-European participants tend to communicate more stereotype consistent (SC) than stereotype inconsistent (SI) information towards the end of the communication chain. Nevertheless, it is unclear whether people in non-Western, such as East-Asian, cultural context would also exhibit the same cultural dynamics. We speculate that even though people from both Eastern and Western cultures may communicate more SC than SI information in the long run, a cultural difference might emerge in *early* positions of the communication chain. That is, Westerners may communicate more SI than SC information (see Kashima, 2000a), while Easterners may communicate more SC than SI information. There are at least two reasons for such a conjecture.

The first reason is that people from the two cultures may have different communication motives. Whereas Westerners may have an *accuracy* motive (i.e., emphasizing the informativeness function), Easterners may have a *relational* motive (i.e., emphasizing the social connectivity function). As we mentioned earlier, an emphasis on the social connective function would prioritize SC information; and an emphasis on the informativeness function would prioritize SI information. If Easterners are more likely to have a relational motive, and Western-Europeans, an accuracy motive, East-Asians might use more SC and less SI information than Westerners.

There are theoretical and empirical reasons for suspecting that Easterners and Westerners may have different motives. First, Easterners and Westerners are said to have different motives in dealing with everyday interaction generally (Ting-Toomey, 1985). For example, Westerners tend to use logical reasoning to confront and uncover the truth, while Easterners use preventive strategy to maintain harmonious relationships. Second, Westerners prefer to use a low-context communication style, which emphasizes the transmission of direct, open, accurate and unambiguous messages; while Easterners prefer to use a high-context communication style, which emphasizes the transmission of indirect, interpersonally sensitive and implicitly shared information (Park & Kim, 2008; Holtgraves, 1997; see also Hall, 1976; Ting-Toomey, 1985; Gudykunst & Ting-Toomey, 1988, 1996). These notions suggest an Eastern emphasis on social connectivity and SC information, and a Western emphasis on informativeness and SI information.

In fact, considerable evidence exists that people (mainly Westerners) who were motivated to be accurate spent more time in discussing SI information (Ruscher, 1998; Ruscher & Hammer, 1994; Ruscher, Hammer & Hammer, 1996; Stern, Marr, Millar & Cole, 1984), used more SI information to form an accurate impression of the target (Stangor & McMillan, 1992; Rojahn & Pettigrew, 1992), and used more SI information in impression judgments

(Fiske, Neuberg, Beattie & Milberg, 1987; Goodwin, Gubin, Fiske & Yzerbyt, 2000).

The second reason for a cultural difference in initial communication is Easterners and Westerners might differ in which of SC or SI information is more *informative*. Even if Westerners and Easterners both hold an accuracy motive, they may have different perceptions of whether SC or SI information is more informative. Easterners may regard information about an individual that is typical of the group membership (i.e., SC information) as informative; in contrast, Westerners may regard information that is unique to an individual (i.e., SI information) as informative. Literature suggests that Easterners and Westerners may have different foci when understanding social reality (Triandis, 1988, 1995; Hofstede, 1980; Oyserman, Coon & Kimmelmeier, 2002). Easterners focus more on *group-based* information; and Westerners, on *individual-based* information, in predicting other's behavior (Gudykunst & Nishida, 1986), and in agency attribution (Miller, 1984; Morris & Peng, 1994; Kashima et al., 2005; Menon, Morris, Chiu & Hong, 1999). Easterners also see social groups as more cohesive and homogenous entities. They treat group membership as more diagnostic of the individual, and they stereotype more than Westerners (Spencer-Rodgers, Williams, Hamilton, Peng & Wang, 2007; also see Spencer-Rodgers, Hamilton & Sherman, 2007). Following this, it is reasonable to expect that *group-focus* Easterners would perceive *group-based* (SC) information as more informative in reflecting the true characteristics of the individual. This is because group-based information can verify that the individual indeed possesses the characteristics of the group and is therefore more diagnostic of the individual. On the other hand, Westerners would perceive *individual-based* (SI) information as more informative in reflecting the true characteristics of the individual. This is because individual-based information is unique to the individual, and is useful to distinguish the individual from the group, thus is more diagnostic of the individual.

It should be noted that although the above conjecture emphasizes different reasons, either communication motives or interpretations of informativeness, they lead to the same prediction: Easterners would more readily communicate SC information more, and SI information less, than Westerners in initial positions of the communication chains. This speculation has been supported by a recent preliminary study by Yeung and Kashima (under review). They investigated the communication of Asian-Australians and European-Australians in the first position of communication chain and found that Asian-Australians communicated more SC and less SI information than European-Australians.

Concluding Comments

The method of serial reproduction is a useful experimental paradigm to investigate micro social psychological processes involved in cultural dynamics, the formation, maintenance, and transformation of culture over time. It has a wide range of potential use with a variety of cultural information – anything from visual or auditory information to textual or behavioral – and may be used to investigate what type of information is likely to spread through social networks within a population. It is useful for theory development and testing as well as for applied research in cultural dynamics. When it is complemented by other research methods such as formal modeling, computer simulations, and population surveys, it is likely to provide a useful tool for the investigation of the production and reproduction of culture.

References

- Allport, G. W. & Postman, L. F. (1947). *The psychology of rumor*. New York: Russell & Russell.
- Bangarter, A. (2000). Transformation between scientific and social representations of conception: The method of serial reproduction. *British Journal of Social Psychology*, 39, 521–535.
- Bartlett, F. C. (1920). Some experiments on the reproduction of folk-stories. *Folklore*, 31, 30–47.
- Bartlett, F. C. (1923). *Psychology and primitive culture*. Cambridge, UK: Cambridge University Press.
- Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology*. Cambridge, UK: Cambridge University Press.

- Bowen, A. M., & Bourgeois, M. J. (2001). Attitudes toward lesbian, gay, and bisexual college students: The contribution of pluralistic ignorance, dynamic social impact, and contact theories. *Journal of American College Health*, 50, 91–96.
- Brown, P., & Levinson, S. C. (1987). *Politeness: Some universals in language usage*. Cambridge: Cambridge University Press.
- Butts, C. J. (2008). Social network analysis: A methodological introduction. *Asian Journal of Social Psychology*, 11, 13–41.
- Clark, H. H. (1996). *Using language*. NY: Cambridge University Press.
- Clark, A. E., & Kashima, Y. (2007). Stereotypes help people connect with others in the community: A situated functional analysis of the stereotype consistency bias in communication. *Journal of Personality and Social Psychology*, 93, 1028–1039.
- Fiske, S. T., Neuberg, S. L., Beattie, A. E., & Milberg, S. J. (1987). Category-Based and Attribute-Based Reactions to others: Some Informational Conditions of Stereotyping and Individuating Processes. *Journal of Experimental Social Psychology*, 23, 399–427.
- Foster, E. K. (2004). Research on gossip: Taxonomy, methods, and future directions. *Review of General Psychology*, 8, 78–99.
- Goodwin, S. A., Gubin, A., Fiske, S. T., & Yzerbyt, V. Y. (2000). Power Can Bias Impression Processes: Stereotyping Subordinates by Default and by Design. *Group Processes and Intergroup Relations*, 3(3), 227–256.
- Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360–1380.
- Gudykunst, W. B., & Nishida, T. (1986). The influence of cultural variability on perceptions of communication behavior associated with relationship terms. *Human Communication Research*, 13, 147–166.
- Gudykunst, W. B., & Ting-Toomey, S. (1988). *Culture and interpersonal communication*. Newbury Park, CA: Sage.
- Gudykunst, W. B., & Ting-Toomey, S. (1996). Communication in personal relationships across cultures: An introduction. In W. B. Gudykunst, S. Ting-Toomey & T. Nishida (Eds.), *Communication in personal relationships across cultures* (pp. 1–16). Thousand Oaks London New Delhi: Sage Publication.
- Hall, E. T. (1976). *Beyond culture*. New York: Anchor Press.
- Haque, A. & Sabir, M. (1975). The image of the Indian army and its effects on social remembering. *Pakistan Journal of Psychology*, 8, 55–61.
- Hardin, C., & Higgins, E. T. (1996). Shared reality: How social verification makes the subjective objective. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 28–84). NY: Guilford Press.
- Heath, R. A. (2000). *Nonlinear dynamics: Techniques and applications in psychology*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Holtgraves, T. (1997). Styles of language use: Individual and cultural variability in conversational indirectness. *Journal of Personality and Social Psychology*, 73, 624–637.
- Hofstede, G. (1980). *Culture's consequences*. Beverly Hills, CA: Sage.
- Kashima, Y. (2000a). Maintaining cultural stereotypes in the serial reproduction of narratives. *Personality and Social Psychology Bulletin*, 26, 594–604.
- Kashima, Y. (2000b). Conceptions of culture and person in psychology. *Journal of Cross-Cultural Psychology*, 31, 14–32.
- Kashima, Y. (2000c). Recovering Bartlett's social psychology of cultural dynamics. *European Journal of Social Psychology*, 30, 383–403.
- Kashima, Y. (2008). A Social Psychology of Cultural Dynamics: Examining How Cultures Are Formed, Maintained, and Transformed. *Social and Personality Psychology Compass* 2/1, 107–120.
- Kashima, Y., Kashima, E. S., Chiu, C. Y., Farsides, T., Gelfand, M., Hong, Y. Y., Kim, U., Strack, F., Werth, L., Yuki, M., Yzerbyt, V. (2005). Culture, essentialism, and agency: are individuals universally believed to be more real entities than groups? *European Journal of Social Psychology*, 35, 147–169.
- Kashima, Y., Klein, O., & Clark, A. (2007). Grounding: Sharing information in social interaction. In K. Fiedler (Ed.), *Social communication* (pp. 27–77). New York: Psychology Press.
- Kashima, Y., Peters, K. & Whelan, J. (2008). Culture, narrative, and human agency. In R. M. Sorrentino & S. Yamaguchi (Eds.), *Handbook of motivation and cognition across cultures* (pp. 393–421). San Diego, CA: Academic Press.
- Kashima, Y., Woolcock, J., & Kashima, E. (2000). Group impressions as dynamic configurations: the tensor product model of group impression formation and change. *Psychological Review*, 107(4), 914–942.
- Lyons, A., Clark, A., Kashima, Y., & Kurz, T. (2008). Cultural dynamics of stereotypes: Social network processes and the perpetuation of stereotypes. In Y. Kashima, K. Fiedler, & P. Freytag (Eds.), *Stereotype dynamics* (pp. 59–92). Mahwah, NJ: Lawrence Erlbaum Associates.
- Lyons, A., & Kashima, Y. (2003). How are stereotypes maintained through communication? The influence of stereotype sharedness. *Journal of Personality and Social Psychology*, 85, 989–1005.
- McElreath, R. & Boyd, R. (2007). *Mathematical models of social evolution*. Chicago, IL: University of Chicago Press.
- McGrath, J. E. (1984). *Groups: Interaction and performance*. Englewood Cliffs, NJ: Prentice-Hall.
- Menon, T., Morris, M. L., Chiu, C. Y., & Hong, Y. Y. (1999). Culture and the construal of agency: Attribution to individual versus group dispositions. *Journal of Personality and Social Psychology*, 76, 701–717.
- Miller, J. G. (1984). Culture and the development of everyday social explanation. *Journal of Personality and Social Psychology*, 46, 961–978.
- Miller, D. T., & McFarland, C. (1987). Pluralistic ignorance: When similarity is interpreted as dissimilarity. *Journal of Personality and Social Psychology*, 53, 298–305.
- Miller, J. H. & Page, S. E. (2007). *Complex adaptive systems*. Princeton, NJ: Princeton University Press.
- Morris, M. W., & Peng, K. P. (1994). Culture and cause: American and Chinese attributions for social and physical events. *Journal of Personality and Social Psychology*, 67, 949–971.
- Oakes, P. J., Haslam, S. A., & Turner, J. C. (1994). *Stereotyping and social reality*. Oxford, UK: Blackwell.
- Oyserman, D., Coon, H. M., & Klemmemeier, M. (2002). Rethinking individualism and collectivism: evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin*, 128, 3–72.
- Park, S. Y., & Kim, B. S. K. (2008). Asian and European American Cultural Values and Communication Styles Among Asian-American and European American College Students. *Cultural Diversity and Ethnic Minority Psychology*, 14, 1, 47–56.
- Pattison, P. & Robins, G. (2002). Neighborhood-based models for social networks. *Sociological Methodology*, 32, 301–337.
- Peters, K. & Kashima, Y. (2007). From social talk to social action: Shaping the social triad with emotion sharing. *Journal of Personality and Social Psychology*, 93, 780–797.
- Rojahn, K., & Pettigrew, T. F. (1992). Memory for schema-relevant information: A meta-analytic resolution. *British Journal of Social Psychology*, 31, 81–109.
- Ruscher, J. B. (1998). Prejudice and Stereotyping in everyday communication. *Advances in Experimental Social Psychology*, 30, 241–307.

- Ruscher, J. B., & Hammer, E. D. (1994). Revising disrupted impressions through conversation. *Journal of Personality and Social Psychology*, 66, 530–541.
- Ruscher, J. B., Hammer, E. Y., & Hammer, E. D. (1996). Forming shared impressions through conversation: An adaptation of the Continuum Model. *Personality and Social Psychology Bulletin*, 22, 705–720.
- Schaller, M., Conway, L. G., III, & Tanchuk, T. L. (2002). Selective pressures on the once and future contents of ethnic stereotypes: Effects of the communicability of traits. *Journal of Personality and Social Psychology*, 46, 190–207.
- Spencer-Rodgers, J., Hamilton, D. L., & Sherman, S. J. (2007). The central role of entitativity in stereotypes of social categories and task groups. *Journal of Personality and Social Psychology*, 92, 369–388.
- Spencer-Rodgers, J., Williams, M. J., Hamilton, D. L., Peng, K. P., & Wang, L. (2007). Culture and group perception: Dispositional and stereotypic inferences about novel and national groups. *Journal of Personality and Social Psychology*, 93, 525–543.
- Stangor, C., & McMillan, D. (1992). Memory for expectancy-congruent and Expectancy-incongruent information: A review of the social and social developmental literatures. *Psychological Bulletin*, 111, 42–61.
- Stern, L. D., Marr, S. S., Millar, M. G., & Cole, E. (1984). Processing time and the recall of inconsistent behaviors of individuals and groups. *Journal of Personality and Social Psychology*, 47, 253–262.
- Tam, K. P., Lau, I. Y. M., & Chiu, C. Y. (2004). Biases in the perceived prevalence and motives of severe acute respiratory syndrome prevention behaviors among Chinese high school students in Hong Kong. *Asian Journal of Social Psychology*, 7, 67–81.
- Thompson, M. C., Judd, C. M., & Park, B. (2000). The consequences of communicating social stereotypes. *Journal of Experimental Social Psychology*, 36, 567–599.
- Ting-Toomey, S. (1985). Toward a theory of conflict and culture. In W. B. Gudykunst, L. P. Stewart, & S. Ting-Toomey, S. (Eds.), *Communication, culture, and organizational processes*. Beverly Hills, London New Delhi: Sage Publications.
- Triandis, H. C. (1988). Collectivism vs. individualism: A reconceptualization of a basic concept in cross-cultural psychology. In G. Verma & C. Bagley (Eds.), *Cross-cultural studies of personality, attitudes, and cognition* (pp. 60–95). London: Macmillan.
- Triandis, H. C. (1995). *Individualism and collectivism*. Boulder, CO: Westview.
- Wasserman, S., & Faust, K. (1994). *Social network analysis*. Cambridge, UK: Cambridge University Press.
- Yeung, W. L. V., & Kashim, Y. (under review). Culture and stereotype communication: Are people from Eastern cultures more stereotypical in communication?

系列再生法：实验模拟文化动态

Yoshihisa Kashima¹ and Victoria Wai-Lan Yeung²

(¹ Department of Psychology, The University of Melbourne, Australia) (² Hokkaido University)

摘要 系列再生法是一种用来探讨文化动态中的社会心理过程之实验方法。所谓文化动态是指文化如何形成、维持，以及如何随着时间而变化。此方法特别有利于以下研究：文化讯息是如何透过社会网络被传播、什么类型的文化讯息较可能透过社会网络被传播，以及文化讯息由一个人传到另一个人的过程中，是如何转化的。本文概述了系列再生实验方法的优点及缺点，讨论此方法的理论架构，并举例展诉如何有系统地应用此法，做有关文化刻板印象的研究。最后，本文讨论未来的研究方向，如文化动态的潜在文化差异，以及文化动态与社会网络之间的互动过程。

关键词 刻板印象；文化；文化动态；沟通；系列再生法

分类号 B841; B849:C91