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Laugh and Laughter as Adaptation in Human Beings: Past and Present

INTRODUCTION

In the process of human evolution as a species of social mammals, the biggest adaptive problems have been how to maintain their group and to rise in rank in their group hierarchy. Solving an adaptive problem raises the probability to survive and succeed in reproduction. In this chapter, humor and laughter is discussed in the context of social adaptation. Laughter is triggered by the detection of a discrepancy. A discrepancy is the difference between what is predicted and/or expected and the actual state. A discrepancy cannot be serious to cause laugh and laughter. If it is implicitly expected to be resolved, then it is likely to give rise to laughter with a positive feeling. When laughter is shared by a group of people, it functions to connect people and foster friendly relationships. When the prediction is based on scientific knowledge, intellectual curiosity is usually aroused by the discrepancy. On the other hand, the laughter becomes derisive (ridicule or mocking) when the discrepancy is between a social norm and an actual behavior. The ridicule functions to establish one's supremacy over the target individual. This function has been adaptive in the society of dominance hierarchy. It is because if one ridicules the target individual, it implies that he or she is superior to the target individual. In this sense, a self-deprecating laugh or humor is more likely to be accepted by others because it means that the laugher has no ambition to be superior to others.

ADAPTIVE PROBLEMS OF SOCIAL ANIMALS

Homo sapiens are primates, and thus have evolved as a social mammal. There are two kinds of benefits of grouping for adaptation. The first is that it becomes easier for animals to protect themselves, not only from predators, but also from other groups of the same species. For example, muskoxen are known for their clever defense against wolves or other predators. When they see predators, muskoxen run together for circle defensive formation so that they all try to face the threatening predators. Predators cannot attack them because of the risk to be injured by their big horn. Another example is that of chimpanzees making an extra effort to warn group members that seem ignorant of danger. The more the group members, the more likely they detect a predator. Generally, bigger groups have an advantage not only in defense against predators, but also in the conflict against human enemies. Out-group members are potential or actual rivals of a group, because they compete for the same resources in the hunter-gather society. Hence, smaller groups have been less likely to survive in the

history of evolution.

The second benefit is that grouping makes it possible to do what an individual cannot do alone. For example, it is more beneficial and effective to hunt in a group than to hunt alone, as shown in the example of mammoth hunters. Furthermore, after the Cultural Big Bang about 50,000 years ago, the bigger the social groups, the more effectively cultural products, resulting from cultural and scientific innovations, are transmitted to each other. These are expected to cause social and scientific development. After coexisting with *Homo sapiens*, Neanderthals became extinct about 30,000 years ago in Europe. The reason for this was thought to be the intellectual inferiority of Neanderthals, but it is now believed to be because of their small group size (e.g., Shipman, 2015). The development of new hunting technologies among the *Homo sapiens* was enhanced through mutual interaction within their large social groups. This was of greater advantage for them to get resources in the Ice Age Europe. On the contrary, the Neanderthals' lack of ability to develop such hunting technology led to their extinction.

However, the costs of maintaining a big group are high. The group has to maintain harmony so that the group members do not fight each other and the group is divided into a few smaller groups. Members have to understand each other in order to maintain their group. When a group consists of only two individuals, it is only one whom each member has to understand. When the group has three individuals, each member needs not only to understand the other two individuals, but also the relationship between the two, as this is important to keep the group together. In this way, the number of inferences increases exponentially with the number of group members.

Homo sapiens have taken two evolutionary strategies to solve this adaptive problem. The first is mindreading, also called theory of mind. Theory of mind (ToM) is an ability to attribute other's behavior to his or her mental states: beliefs, intents, desires, emotions, and knowledge (Baron-Cohen, 1995). The term "theory" means that people have a theory to explain other's behavior supposing that humans have a "mind." This has made it possible for *Homo sapiens* to have mutual understanding, and thus helps them to maintain group harmony.

The second strategy is the growth of cognitive capacity which is biologically supported by the neo-cortex. As mentioned, the more the group members, the more the cognitive processing to understand the relations among members. Dunbar (1996) was able to show an association between the size ratio of the neo-cortex to the brain and

social group size among living primates. According to his data, the number of group members is about two in prosimian, about two to four in Macaca, about 10 to 20 in gorilla and chimpanzee. According to this rule of the proportion of the neo-cortex, the optimal group size for Homo sapiens is about 150. People in the contemporary world may have many more acquaintances but the number of persons each individual interacts with to some extent at a certain point of time may be around 150.

However, Homo sapiens can construct big organizations such as companies, political parties, governments, and nations, beyond the number of 150. What makes it possible for humans to construct these big organizations are language, religion, institutions such as the legal system, and laughter, which is the topic of this chapter. Dunbar (1996, 2014) proposed that one of the most frequent ways by which chimpanzees make interpersonal relationships stronger is grooming. It seems to be very comfortable for chimpanzees to be groomed by other individuals. This reciprocity is important to keep friendly relationships between individuals. The one which is groomed by another individual grooms it in return. This reciprocity of grooming is effective to enhance the friendly relationships between individuals and thus to keep the group harmony. However, its demerit is that it takes too long.

The “time budget model” theory that Dunbar (2014) proposes that one of the biggest problems for each species of animal is how each individual invests time for many kinds of behaviors: Foraging, eating, sleeping, mating, fostering, etc. Primates as a social mammal have to invest time for keeping good relationships with their group members. But, it is not adaptive to take too long time for reciprocal grooming, because they also need the time for foraging and many kinds of behaviors.

According to Dunbar (2014), language evolved so that this adaptive problem could be overcome. Language is a much more effective way for Homo sapiens to communicate their friendly will to others through mindreading. Another instrument to build stronger relationships among group members is religion. Despite the many hypotheses about the origin of religion, most researchers agree that religion, with its function of organizing a group, brought adaptive advantage to the evolution of Homo sapiens (e.g., Wade, 2009). For example, a religion that encourages people to worship the spirit of their ancestors makes it possible to organize them into a tight-knit group. In another case, a shaman, who is believed to transmit the message of god, can employ trance-inducing techniques with music and dance, to incite many people to have visionary ecstasy, and to provide people a sense of togetherness.

Like religion, to laugh together also makes people experience a sense of

togetherness (e.g., Curseu & Fodor, 2016; Fine & De Soucey, 2005). For example, when you laugh at a comedy with your friends, it makes your relationship with your friends better. However, laughter is different from religion in the sense that it needs a target or a victim. If the target of the laughter with your friends is your group member and your laughter is regarded as a ridicule laugh or mocking laugh, it is possible that the target becomes degraded in the group. Otherwise, it is possible that the target comes to refuse his or her good friendly relationships with you.

LAUGH AND LAUGHTER IN THE FRAME OF DUAL PROCESS THEORY

Table 1. The contrast between System 1 and System 2.

| System 2 | | System 1 |
|----------------------------------|---|---|
| Evolved only in humans | Evolved as a social mammal | Evolved for adaptive responses to natural environment |
| General system | Social exchange module Theory of mind module | Naïve physics module Naïve biology module |
| Features of cognitive processing | | |
| High capacity demand | | Low capacity demand |
| Rule-based | | Associative |
| Analytic | | Holistic |
| Sequential | | Parallel |
| Controlled | | Automatic |
| Relatively slow | | Relatively fast |
| Domain-general | | Domain-specific |
| Normative rationality | | Evolutional rationality |

Dual process theorists (Evans, 2010; Stanovich, 2009) propose two kinds of subsystems, one of which processes heuristic thought and the other which processes analytic thought. The former is called System 1 and the latter System 2. Most dual process theorists agree that the distinction between the two subsystems is in their cognitive capacity. The processing of System 1 does not require large cognitive capacity, whereas System 2 does. The characteristics of each system are shown in Table 1.

Stanovich (2004) called System 1 the autonomous set of systems (TASS), because it consists of a set of modules. He described System 1 with a metaphor used by evolutionary psychologists that the mind is like a Swiss army knife (Tooby & Cosmides,

1992). A Swiss army knife is useful in so many situations because it has a large number of components (bottle opener, knife, toothpick, cork-screw, and so on) each of which is well designed for solving a specific problem. Each component corresponds to a module. The term “module” was introduced by Fodor (1983), who made a distinction between modular processes (System 1) and central processes (System 2). Fodor’s characterization of a module was that it is innate, fast, domain-specific, and informationally encapsulated, with particular inputs and shallow output. If an input process is encapsulated and modular, the information in this process is not affected by a person’s beliefs. Therefore, it is adaptive in saving limited capacity and in describing the world adequately without interference of beliefs. According to Fodor, input processes are modular, and the information that is sent from these processes to a central process is used in constructing a belief. The “module” can be interpreted as a unit of functioning and adaptive processing; thus, it is directly shaped by natural selection.

Several modules have been proposed, which can be grouped into two. The first group is assumed to have evolved in response to the natural environment. The second group is inferred to have evolved as social mammal-like primates (e.g., Cummins, 1998). Two typical modules of the first group are listed in Table 1. The naïve physics module is innate and responds to basic physical phenomena such as free fall and bounce of object and gives an intuitive understanding for these (Spelke, 1988). The term “naïve” means that people (laypersons) do not have specialist knowledge on physics but they intuitively understand everyday physical phenomena. The naïve biology module corresponds to our understanding of biological phenomena (Keil, 1989). For example, even a very young child can understand the distinction between dead and alive objects and knows that the dead cannot return to life.

Two important modules are picked up from the second group in this chapter. The ToM module is already mentioned in the former section. This evolved in the environment of social interaction (e.g., Baron-Cohen, 1995; Leslie, 1992). The ToM module makes it possible for each individual to explain others’ behavior in terms of their mind, and is the basis for mindreading. However, the ToM subsystem actually works with the cognitive capacity of System 2 in the real world (e.g., Carlson, Moses, & Claxton, 2004). The executive function of System 2 helps ToM work adaptively in the contemporary world. A social exchange helps people not only in the sense that the exchange itself makes their relationships stronger, as in mutual grooming, but also in the sense that it enhances the division of labor. One of the primitive styles of division of labor is a barter trade. If each individual produces what he or she is good at making and

barter for surplus, production is efficient. The social exchange module, which is thought to have evolved through social interaction, is triggered when individuals are in social transaction. A significant adaptive problem is how individuals are not cheated by the other party in this transaction. Hence, the module is sensitive to possible cheating (e.g., Cosmides, 1989).

There are other modules which are not presented in this chapter. Each module functions like one of the blades of a Swiss army knife. This idea is summarized as the massive modularity hypothesis, proposed by evolutionary psychologists, which says that the human mind consists of many modules (Tooby & Cosmides, 1992; Sperber, 1994). However, dual process theorists hypothesize that System 2 controls the modules as a general-purpose system (Evans, 2010; Stanovich, 2009).

Is there a “laugh” module in the human mind then? No psychologists have proposed this module up to the present time. Laugh or laughter can be initiated by the recognition of a discrepancy (Deckers & Kizer, 1973; McGhee, 1979), but it is not only laugh or laughter that is caused by this recognition. Hence the process from the recognition of a discrepancy to the response of laugh or laughter is not modular. Rather, the most typical response to a discrepancy is curiosity. Curiosity arises automatically; hence this may be called the “curiosity” module. However, its modularity is weak, as it is not this module but a different one that detects a discrepancy. For example, the discrepancy of a strange motion of a ball with the law of free fall is detected by the naïve physics module. This detection creates a curiosity to know why. If the ball moves like an animal and if you are watching the motion with your friend, you may laugh at the motion with your friend. However, whether you laugh or not depends upon the context. Laugh or laughter is not modular in this sense.

The assumption that the trigger of laughter is the detection of discrepancy is also confirmed by studies of primates. For example, in their view of evolution, Gervais and Wilson (2005) pointed out that a discrepancy is likely to trigger primates’ facial muscle movement of pleasure, called the Duchenne display.

SOCIAL FUNCTIONS OF LAUGH AND LAUGHTER

What are the conditions for whether the detection of a discrepancy causes curiosity and/or laughter? Table 2 shows the classification of responses after the detection of a discrepancy. When the target is a human, one of the important features of laugh or laughter is that this has a function of making human relationships stronger (e.g., Curseu & Fodor, 2016; Fine & De Soucey, 2005). The process from detection to laughter includes mindreading of the people who are expected to detect the discrepancy of a

target and to laugh together. For example, when you watch a performance of a comedian, detect a discrepancy between his movement and what people usually make and, find that his performance is funny, and realize through mindreading that almost all of the audience thinks that his performance is funny, you may want to laugh at the performance and expect most of the audience to laugh as you do. This is contagious laughter (Martine & Gray, 1996; Provine, 1992). This shared laughter is very likely to build a harmonious relationship between the members of the audience. Therefore, it is an important factor whether you detect a discrepancy alone, or with others to whom your laugh or laughter is infectious. Furthermore, if you and the audience feel negatively towards the comedian, you may have a mocking laugh at him.

Table 2. The classification of responses to a discrepancy.

| Target | Situation | Valence | Response |
|--------------------------------------|-----------|----------|-----------------------------|
| Human | Alone | Positive | Affective worry |
| | | Negative | Laughing with the target |
| | Infection | Positive | Disguise |
| | | Negative | Shared affective laughter |
| Man-made object (artifact) | Alone | Positive | Shared laughter of ridicule |
| | | Negative | Affective curiosity |
| | Infection | Positive | Disguised curiosity |
| | | Negative | Shared laughter |
| Object of animistic projection | Alone | Positive | Shared laughter of ridicule |
| | | Negative | Affective curiosity |
| | Infection | Positive | Disguised curiosity |
| | | Negative | Shared laughter |
| Physical object | Alone | Positive | Shared disguised curiosity |
| | | Negative | Curiosity |
| | Infection | Positive | Disguised curiosity |
| | | Negative | Shared curiosity |
| | | Negative | Shared disguised curiosity |

Mindreading is applied not only to those who detect the same discrepancy, but also to the individual (target) who causes a discrepancy in some cases. For example, when you find that your friend leaves his zipper down, you may laugh at him. Your laughter indicates to him that something is wrong, and he may notice his error. Then he

may laugh at his blunder (discrepancy), and you and your friend laugh together. It is likely that this makes the friendship between you and your friend stronger. However, this is the case only if you and your friend are on good terms. If not, he is likely to feel insulted by your laugh and get angry. Therefore, it is an important factor whether the target has positive or negative relationships with you.

Some discrepancies evoke the emotion of anger. A typical discrepancy which the social exchange module detects is the consequence that a receiver gives nothing in return for what he or she is given. It is cheating, in short. It is very likely that this discrepancy, recognized by the cheater-detection device in the social exchange module, evokes anger in the cheated individual (Cosmides, 1989). However, it is also possible that the receiver accidentally forgets giving something back. For example, your friend may accidentally not give you a present on your birthday although you gave him a gift for his. He forgot your birthday. However, if neither you nor your friend wishes to end the relationship between you, you may laugh and forgive him, accepting his apology, because his mistake is attributed to his forgetful nature. Your laughter shows that you are not angry with him. This is another example for laughter preserving group harmony.

Although the origin of laugh and/or laughter lie in the process of human or primate evolution, humans use it differently according to the situation. These differences are shown in Table 2. Besides humans, three other kinds of targets may be added: man-made objects (artifact), objects of animistic projection such as a doll, and physical objects. The case where the target is human has already been discussed above. If the target is a man-made object, people's responses are very similar to those when the target is human. People may read the intention of the creator who made it and if they find a discrepancy in it with their friends, they may laugh at the object and/or its creator with their friends. If the discrepancy is positive their shared laughter may include admiration for the creator, whereas if it is negative, they may have shared ridicule of the creator. When people detect a discrepancy in an object of animistic projection such as a cat, and if they experience it alone, it is only results in curiosity. However, for example, if you and your partner see a cute cat go flying in the air after her failed attempt to climb on the bed, you may share a laugh over the cat. However, if you find a cockroach in your kitchen (cockroaches should not be there!), you and your partner may have shared disguised curiosity and cry "How did this cockroach come into the kitchen?" Finally, a physical object does not usually cause a laugh.

The "time budget model" theory (Dunbar, 2014) assumes that humans have evolved many kinds of strategies as social mammals, to preserve their group harmony

and keep their group cohesive with less investment. Laughter can be regarded as one of the strategies in the sense that it enhances group harmony. However, it is not a direct product of System 1. This product can be under the control of System 2, which is used either for affective laugh or ridicule. Laugh can be an insult if used for ridicule. In the first place, laughter is one of the consequences after detecting a discrepancy. Therefore, people have to be careful not always to express laughter automatically after detecting a discrepancy. They need to engage in deliberate thinking before expressing laughter.

LAUGH AND LAUGHTER IN THE DOMINANCE HIERARCHY

As mentioned earlier, while laughter is one of the effective strategies to preserve group harmony, and thus helps *Homo sapiens* save time for other activities, it can also be an aggressive insult against an individual to point out that his or her action deviates from societal norms. This aggressive ridicule or mocking laugh can also be adaptive in a society of dominance hierarchy (Weisfeld & Dillon, 2012). Dominance hierarchy arises when members of a social group interact, to create a ranking system. As a social mammal, take primates for example, group members are likely to compete for access to limited resources and mating opportunities. The dominance hierarchy system is a strategy to avoid group members fighting each time they meet, by fixing an order of priority for eating and mating.

However, it is a disadvantage for lower-ranking members to survive and reproduce in the dominance hierarchy regime. If an individual tries to take food before his or her higher-ranking members, it is very likely that he or she is attacked by them, or even killed in the worst case. Therefore, he or she has two strategies. Both of the strategies are based on ToM, which evolved to solve the adaptive problems in the dominance hierarchy system (Cummins, 1998). One is to cheat the higher-ranking members. For example, Menzel (1974) reported cheating by a young male chimpanzee. He was young and small and thus his ranking was low. He did not want his food to be found by his foraging competitors whose ranking was higher than his. He hid his food in his cache, but gazed at another place as if he hid his food there. In short, he knew that his competitors thought that something to eat was hidden in the place he was gazing at.

The second strategy is to align with each other. Even a lower-ranking member, if he or she aligns with other group members, can resist pressure from a higher-ranking member. Furthermore, it is possible for him or her to beat a higher-ranking member with the help of his or her allies and thus to rise in rank in the group. He or she can become a winner in the dominance hierarchy. This alignment is possible because he or

she can perform mindreading of other members and establish trust relationships with them. In short, it is supported by the theory of mid module.

Correspondingly, higher-ranking members also have two adaptive problems in the dominance hierarchy group. Their adaptive problems are, first, not to be cheated by their lower-ranking members and second, not to be overturned by lower-ranking members in their group. The strategies to solve both problems require mindreading abilities. In the first case, they need to be able to use mindreading to detect those who try to cheat them. In the second case, an effective strategy is to establish alignments with other group members. This is almost the same strategy which the lower-ranking members adopt against pressure from the higher-ranking members.

Laughter brings three kinds of benefits in this alignment. First, it strengthens the alignment among both higher-ranking members and lower-ranking members, as mentioned in this section. Laughter creates a positive group atmosphere (Curseu & Fodor, 2016). Second, if the target of laughter is a rival in the ranking system, the laughter not only strengthens the laugher's alignment with his or her sympathizers, but also shows that the target should be ridiculed in the group. The ridicule is effective in degrading the ranking of the rival (Weisfeld & Dillon, 2012). It is also likely that when one is ridiculed, his or her self-esteem is degraded. Third, laughter is more polished and sophisticated than a violent attack. Even if you ridiculed someone, it is possible that people will not regard you as one who is uncultured, rough, and violent. An individual who is regarded as violent is likely to be kicked out of his or her group, from a long-term perspective. People believe that humor reflects one's intelligence. This will be discussed in the next section.

Finally, the reason why self-deprecating humor is funny is discussed within the frame of the dominance hierarchy hypothesis (e.g., Greengross & Miller, 2008). Self-deprecating humor shows a discrepancy between the general human tendency to wish to be expected and what is actually performed. This discrepancy may cause curiosity in those who do not know self-deprecating comedy. However, it is much more likely that it causes laughter among those who are watching the performance, and the performer is also caught in the whirlpool of laughter. Even if people have no explicit hierarchy of dominance in contemporary society, *Homo sapiens* inherit this system, being one of the primate species. Hence, self-deprecating humor reassures people that the performer has no intention to raise his or her ranking status.

LAUGH AND LAUGHTER IN THE CONTEMPORARY WORLD

Humor as a Measure of Intelligence

Although a “laugh” module is not thought to exist, it does not mean that laughter is free from evolutionary adaptation. As mentioned earlier, laughter has many adaptive functions for Homo sapiens as a social mammal. On the other hand, it is also true that people are required to have high intelligence to understand and produce humor for laughter in the contemporary world. The modern times can be described through many points of views: prosperity, mass media society, information technology, collapse of traditional community, and so on. The historic turning point for modern prosperity was the industrial revolution of the 18th century. The industrial revolution facilitated division of labor. Generally, division of labor relies on specialization, which makes production efficient. It is plausible that the social exchange module has contributed to division of labor and is the base for the creation of this large, modern economic system.

Humor which makes people laugh can be a measure of the performer’s intellectual ability in this modern world. We are in the modern society in which information levels are high, as both the cause and consequence of prosperity. As mentioned previously, an individual who shows a discrepancy can be a target of laughter and hence his or her ranking position is likely to be degraded. However, after new media such as the television spreads trends, comedians come to compete for laughter. Since varied kinds of humor have been created by many comedians, people do not laugh at commonplace humor. Therefore, in this modern society, humor can be a measure of intelligence and creativity. Greengross and Miller (2011) reported that humor is strongly related to high intelligence and thus leads to successful mating. Furthermore, Kellner and Benedek (2017) found that the ability to be humorous is predicted not only by intelligence, but also creativity.

Actually, in order to make people laugh, you have to consider many factors. You need to know the common sense which people have and to understand how people detect discrepancy. These require higher levels of intelligence. Furthermore, you have to take care so that your humor (or joke) does not hurt anybody. This requires emotional intelligence.

Furthermore, humor can be an indirect criticism and thus is regarded as a gentle strategy for criticism. You are viewed as a considerate person if you criticize someone with humor in place of an aggressive direct attack. That is, you are regarded as a highly intelligent individual. For example, irony is one of the most indirect criticisms. You can give a target person an inkling of his or her unsuitable behavior (“discrepancy” in other words) using irony. The use of irony entails indirectly conveyed beliefs and attitudes

that constitute the speaker's intended meaning. The development of understanding irony is associated with the development of ToM (Filippova & Astington, 2008). People have to read the speaker's intention when understanding irony.

Laugh and Laughter in the Frame of Contemporary Communication

Although laugh, laughter, and humor have been adaptive, as repeatedly mentioned in this chapter, the risks attached with these are increasing in the modern world.

Generally, people use the contextual background to understand humor. Whether the pointing out of a discrepancy is understood as humor depends on the context which people share, like common knowledge. For example, many people may have an experience of being puzzled by a joke of a comedian abroad. It is because they do not share the common sense with the people in the country and thus, are not able to detect the discrepancy pointed out by the comedian. In short, the context is unavailable to the listener to understand what is expected in the specific culture. The term "context" is theorized by Hall (1976). He introduced "context" as a dominant cultural dimension to explore the relationships between culture and communication. He defines context as the relevant information about or stimuli to the target. The dimension of context provides a framework that enables people to comprehend communication forms ranging from purely nonverbal, such as hand gestures, body language, facial expressions, and tone of voice, to purely verbal aspects, such as written text or spoken words, with the ultimate aim of achieving meaning. Hall and Hall (1990) integrated three main concepts: context, information, and meaning. These combined concepts encapsulate context as a system of meaning for information exchange between people. Context is embedded in information with the purpose of creating meanings from a message.

Hall (1976) also proposed a dimension between a high-context culture and a low-context culture. People in a high-context culture can interpret messages from others without full descriptions, because implicitly shared information is available for their interpretation. Such shared information is further facilitated by the established relationships among the members in a group. Conversely, people in a low-context culture need explicitly expressed words for communication because they cannot use implicitly shared information as much as those in a high-context culture. Hence, they rely on content-dependent communication, which is direct and explicit. Generally, Westerners are said to be in a low-context culture, whereas Easterners are in a high-context culture (Hall, 1976; Yama & Zakaria, 2019).

The division of labor supports modern prosperity. However, it has brought about the collapse of the traditional community everywhere in the contemporary world. In the

process of industrialization, many people left their traditional communities for cities, to get a good paying job. People, particularly young people, have not been satisfied with traditional living such as agriculture. As a result of this move, more anonymous communities have been born in city areas in many industrial countries after World War II. People live in an apartment or a house in emerging residential areas, and hence human relationships in a local community are not as strong as they used to be. People do not know the cultural background of each other. Within a low-context culture, they have to be mindful of their communication so that they can convey their message despite the different cultural backgrounds. However, if they stick to their traditional communication style which they adopted in their traditional community, such as in a high-context culture, they fail to be successful at communicating. In short, although people rely upon context less, they have not yet created a lower-context culture which is suitable for modern times.

Globalization caused by industrialization has made it difficult for people to communicate successfully. The golden rule “Do unto others as you would have others do unto you” (the Gospel of Matthew 7:12) does not work while communicating with others from different cultural backgrounds. This is also the case in laughter and humor. The rule that others laugh at a joke which you laugh at does not work in modern society. It is possible that people with different cultural backgrounds understand a discrepancy in different ways.

Furthermore, laugh and laughter can be very risky where context is not available but people believe it to be. As shown in Table 2, laugh and laughter works differently in different conditions. If the one who causes a discrepancy has a different cultural background from yourself, you have to be very careful before you laugh at the person. Even if you intend to do him a favor by laughing at his mistake and you expect that he or she will laugh with you, there is a possibility for him or her to regard your laughter as ridicule or insult. He or she may have grown up in a culture where people regard laughter as vulgar and insulting in most cases. His or her culture may have a social norm that one should not laugh at a person unless they are very close to them. This risk also applies when you expect your laughter at a target person to be shared by other people in such a cultural society. It is possible that you will be judged as an impolite person and your laughter will not be infectious.

Although it has been mentioned that a self-deprecating joke is likely to be favored in view of the dominance hierarchy, it is possible that this joke is not accepted in a cultural society where what people say is likely to be interpreted literally. For

example, when you exclaim what an idiot you are, you may expect that your listeners will laugh at you in a friendly manner. However, if they understand your message literally, they may think that you have recognized yourself to be an idiot, and may feel very sorry for you as a miserable person. In another case, some self-deprecating jokes are not acceptable if they can hurt someone else. For example, when a pushing-forty, single, good-looking actress says in a self-deprecating manner “I cannot get married anyway,” many people may smile at her joke. However, it is likely that her joke may hurt single women who choose their single life for their own sake, interpret her joke as presupposing that a single life is miserable, and find it unpleasant. Self-deprecating jokes were acceptable as a sign of no will to raise one’s ranking position in the dominance hierarchy. However, in this contemporary world of information society, even a self-deprecating joke or humor is not acceptable in some cases.

On the other hand, it is less often that your mocking laugh is misunderstood to be a friendly laugh. How is the misunderstanding biased? Generally, in the process of creating a low-context culture, people come to be sensitive to behaviors which are potentially insulting. Hence, jokes which used to be acceptable can be impolite these days, as shown in the example of the single actress. Now, people know that they cannot adopt the communication style which was common in traditional communities, to communication in the modern world. In the process of industrialization and collapse of traditional communities, people know that it is always uncertain whether their message can be understood by others as they intended. Hence, even if they create a new community in their school, company, and place of residence, their relationships are ad hoc and not as close as they were in traditional communities.

As a consequence, people participate in community activities, apart from their job, less than they used to. Putnam (2000) describes this as decrease in social capital. Social capital refers to the factors of effectively functioning social groups, such as interpersonal relationships, a shared sense of identity, a shared understanding, shared norms, shared values, trust, cooperation, and reciprocity. Those who work for a company and are satisfied with their income usually do not feel the need for social capital. However, when they need someone’s help because of unemployment, disease, trouble with others, and so on, it is social capital that can help them. If they have rich social capital, it is more likely that they can resolve these difficulties. Furthermore, those who have rich social capital are generally more likely to have good mental health (Almedom, 2005). This effect is parallel to the fact that humor, laugh, and laughter are effective to keep human mental health better (Martin, 2001).

CONCLUSION

Laugh, laughter, and humor can be regarded as a strategy of Homo sapiens to preserve their groups in harmony. However, there is likely not a “laugh” module in System 1, which is assumed to be an evolutionarily older system. Laugh and laughter are not modular. Rather, these are triggered by the detection of a discrepancy, by a module of System 1. For example, the naïve physics module detects a steel ball which is rising. This motion is against the law of free fall, and thus is a discrepancy. Laughter may arise if you think of the ball as a small animal (animistic projection), and if you are watching this motion with your friend, you think that your friend finds it funny, and expect that your laughter is infectious to your friend.

Therefore, although laugh, laughter, and humor are not direct products of System 1, akin to religion, they contribute to group harmony and allow Homo Sapiens to save time for other activities. However, because their trigger is the detection of a discrepancy, they can also arise from ridicule and/or insult. Both positive and negative functions of laughter are adaptive in the dominance hierarchy that primates, as social mammals, have. The positive function is useful when members want to align together. Their alliance is of advantage for raising their ranking within the group. The negative function of ridicule or insult is effective when a member tries to degrade the ranking of his or her rival. In this sense, self-deprecating humor which comedians often use is accepted because it shows that the user has no ambition to raise his or her ranking in the group.

The modern world is characterized by the collapse of traditional communities and people are now less able to rely on context when communicating with others. Therefore, a high skill in humor is required to catch people in a whirlpool of laughter. Hence, people who use a high level of humor are not only regarded as intelligent, but also actually are. Laugh and laughter can also be risky in this modern world, as people are sensitive not to hurt others. Even self-deprecating humor comes under criticism sometimes. This happens when the discrepancy which the comedian points out is shared by the listener, who feels like he or she has been insulted by the comedian.

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