座FORUM

Attain the Ultimate in "*Sitting Down*"

Report

2012.11.30(fri)

Think on Sitting

TS TECH Co., Ltd.

"Za" Forum:
Attain the Ultimate in *"Sitting Down"*

As part of events to mark the 50th anniversary of TS TECH, in 2011 we launched the *"Za"* Forum, a unique event based on the theme of *"attaining the ultimate in 'sitting down'"* On Friday November 30, 2012, held the forum to the public for the first time, in Nihonbashi, Tokyo.

Around 260 members including the public who applied to take part attended the forum, which was divided into two sessions featuring an introduction to our *"Za"* initiatives and a panel discussion. Together with the experts from various different fields, the event provided the ideal opportunity to explore the future of *"sitting down"*.

"Za" = Sitting

Details

Venue	Nihonbashi Mitsui Hall 5F, Coredo Muromachi, 2-2-1 Nihonbashi-Muromachi, Chuo-ku, Tokyo (entrance on 4F)
Organizer	TS TECH Co. Ltd.
Participation	By prior application (free entry)

Schedule

▸ **Session 1 : Presentations (14:00-14:35)**

- **Introduction** About the Forum (Toshio Komeji, President, TS TECH)
- **Speech** *"Za"* Initiatives at TS TECH (Yutaka Kizawa, Manager, Testing and Research Section, Development and Testing Department, TS TECH)
- **Presentations** TS TECH Zalabo's Proposals for *"Maximum Comfort in the Minimum Space"* (Zalabo students)

▸ **Break : 14:35-14:45**

▸ **Session 2 : Panel Discussion "The Future of Sitting Down" (14:45-16:15)**

Shunji Yamanaka (product designer/professor at Keio University)
Kundo Koyama (broadcast writer/playwright)
Toshiyuki Sawaguchi (neuroscientist)
Yumi Yoshida (car lifestyle essayist)
Naoki Sakai (industrial designer/professor at Keio University)

- Q&A

Contents

Cheesecakes at the reception after the forum, featuring the all-important character *"Za"*

TOSHIO KOMEJI

President, TS TECH

Holding the Forum

TS TECH produces nearly six million products every year, including car seats, interior parts and seats for motorcycles, across 12 different countries around the world. We are a manufacturer whom specialized in car seat and interior supplying to Honda, Suzuki and numbers of other auto and motorcycle manufacturers.

100 years of vehicle seats

With a history spanning over a century, automobiles have evolved dramatically. At the same time, vehicle seats have continued to evolve in areas such as safety and comfort.

Seats are now equipped with sensors that can detect the position and weight of the occupant. Other advances include side airbags, occupant position-detection systems, and features that minimizes the impact or rear collisions on the occupant's neck. All of these features are designed to support safety.

Occupant position-detection systems lowers the risk of airbags injuring occupants. For example, the side airbag will not deploy if they detect that a child is sitting in the passenger seat and has fallen asleep leaning against the area around the airbag. Sensors can also detect the seat position and the occupant's physique, enabling systems to control the inflation speed and size of the airbag with in the steering wheel. Active headrests meanwhile are designed to minimize the impact on the occupant's neck if their vehicle is hit from behind.

Seats are equipped with various capabilities that improve comfort as well as safety, including air-conditioned or heated seats, depending on whether it is hot or cold, and power-assisted seats that can maintain the occupant's posture to prevent tiredness or adjust the position of the seat to suit the shape of their body. So-called "*comfort arrangement*" systems such as these are also fitted to passenger and rear seats.

These days, vehicle seats have become modular components that combine functionality in terms of both safety and comfort.

The defining characteristics of vehicle seats

We sit on various different things in our everyday lives, from benches in public spaces to seats in vehicles. However, there is one key characteristic that sets vehicle seats apart. Can you think what it is?

Office chairs and such other seats allows the occupant a certain amount of freedom, for instance to stand up whenever they want or cross their legs however when you're sitting in the driver's seat, your movements are fairly limited. When driving a long distance, you might have to maintain the same posture for two hours or more.

Unlike other seats and chairs, vehicle seats are working seats. They have to enable the occupant to drive their vehicle while seated and being unable to move their body for certain amount of time. A vehicle seat cannot cause the occupant to feel discomfort in the back or posterior after 10 or 20 minutes, or leave them feeling tired after an hour.

We have always tried to produce seats with an emphasis on sustained comfort, so that the occupants can remain seated for two hours without moving and still not feel tired. Passengers on trains and airplanes also have to remain seated for periods of over an hour in some cases, as do audience members in cinemas and theaters. If the seat they are sitting on is excessively uncomfortable, it will become a major annoyance.

The culture of sitting down

Sitting down is part of mankind's culture. When a person sits down, they create a "*space*" for themselves. There are various different spaces like that, but today we will be focusing on seats, particularly within moving spaces inside the vehicles.

Every seat occupies an extremely important position, as a part of the interface between the occupant and their vehicle. During our panel discussion today, we will be taking a closer look at seats with experts from various related fields and from other fields, extending beyond the bounds of industry and academia. It would be great if we could get your recognition and a wide range of opinions. We hope you would provide some interest to seats which you usually use without thinking.

Creating the ideal seat

Before we get to the panel discussion, we will take a look at some of our ideas on the road to create the ideal seat. The system through which we develop seats is divided into three processes. First of these is driving assistance, the second is preventive safety, and the third is collision safety, in the unfortunate event of an accident. We strive to develop the necessary functions in each of these three zones, working both independently and in partnership with auto manufacturers.

We are constantly conducting research in each of these zones, from driving support to collision safety, to ensure that we provide customers with complete satisfaction and safety, integrated into the safety of their seats and vehicle itself. We believe that creating world-leading seats in all of these zones are our mission, and also our way of contributing to society.

Other essentials, in addition to safety and comfort

We want to hear what people in various different fields think about the real appeal of seats from the point of view of the culture of "*sitting down*", something that we sometimes struggle to grasp as a component manufacturer. We develop and manufacture seats as automotive components, with a focus on safety and comfort. Customers out there in the real world however might be interested in more than just safety and comfort.

Having always developed seats with an emphasis on safety and comfort, today we want to ask what we can do to make seats even more attractive. Simply said, we hope that people in various different fields will tell us what they consider to be the real appeal of seats, so that one day customers will tell us that they chose their vehicle based on the seats.

Speech

YUTAKA KIZAWA

Manager, Experiment and Research Section
Development and Testing Department, TS TECH

"*Za*" Initiatives at TS TECH

We are striving to create the ideal seat here at TS TECH,
a seat that achieves the basic requirements of the safety and the comfort
whilst which would also relieve stress in all situations

Aiming to create a stress-free seats

The most significant cause of stress inside a vehicle is tiredness. There are a number of factors that cause tiredness, including stuffiness, vibrations, heat or cold, handling, and strain from acceleration or deceleration. Of these, most concern for users are tiredness and pressure. If you're driving for a long period of time, it means that you are maintaining the same posture for a long period, which inevitably places more strain on your body. At the same time, pressure also contributes to tiredness. Based on a worldwide survey conducted independently by TS TECH, we have found that tiredness is a particularly serious problem in the area around the lower back and posterior.

So we asked ourselves, could the seat itself provide a posture that prevents tiredness?

What is the ideal posture when "*sitting down*"?

We began that process by setting ourselves the goal of defining the ideal posture when "*sitting down*". We decided to focus on two points, neutrality of the intervertebral discs and neutrality of the skeletal muscles in specific. Neutrality of the intervertebral discs means that there is no strain on the intervertebral discs along the occupant's back. Neutrality of the skeletal muscles means that there is no expansion or contraction of the skeletal muscles as the body grows weaker, as seen in zero gravity environments. We defined the ideal posture as having the correct balance between these two forms of neutrality.

However, it is difficult to drive the vehicles with this ideal posture.

Recreating the position of the back in a zero gravity environment

We set out to develop a seat that would recreate the ideal shape for the back.

In our quest for the ideal posture to prevent tiredness, we worked on analyzing and indexing tiredness based on biometrics, and studied the correlation between lower back pain and the ideal posture. When you are sitting down, a line forms from your upper to lower back. Having measured the shape of that line using sensors, we found that there was a closer correlation with the time taken to experience back pain than deviation from the ideal posture. We then measured hip back pain by placing pressure sensors on the seat, enabling us to map the pressure distribution on the occupant's posterior. Based on the idea that the pressure distribution would help to prevent tiredness, factored in the distribution of pain or discomfort, we found that there was a correlation between the pressure ratio when sitting down and the time taken to experience tiredness.

We also ran biometric tests to demonstrate the reliability of our products. We then measured the angle of the pelvis while sitting for a long period of time. Having mapped the correlation between the extent of lower back pain and movement of the pelvis, we indexed and verified the results.

We also measured pressure on the ischial area, and then mapped and indexed the correlation between ischial pressure and the time taken to experience hip pain. We took physiological measurements to objectively evaluate tiredness too. We measured blood flow in the calves and toes while sitting for a long period of time, and then mapped and indexed the correlation between the reduction in blood flow and the extent of hip pain.

By combining all of these biometric and physiological measurements, we developed our own unique theory on how to provide the ideal posture, and established a method of maintaining the surface of the seat in line with the body based on three key points, the height of the ninth thoracic vertebra, the height of the sacrum and the tuberosity of the ischium. Having developed a seat that recreates the ideal shape for the back, we then incorporated that into our products.

Highly acclaimed all over the world

Our products have been highly acclaimed by customers all over the world, even finishing first in a 2012 survey for seat quality and customer satisfaction in the US. This is down to the fact that we have continued to develop safety and comfort assessment technologies, and to launch new products. As a result, we are one step closer to creating the ultimate seat that is stress-free in every respect.

Taking development into the positive

Creating stress-free seats are negative in a sense however, our goals for the future extend beyond that. We are starting to develop seats that will proactively provide seats in comfort, by making occupants feel comfortable from the moment they sat down and making them feel even better as time passes. We are effectively taking development into the positive side.

We launched one of the results of that process in a sample exhibit at the 2011 Tokyo Motor Show. We are determined to provide comfort unlike anything seen before, and will keep on working to create new ways of "*sitting down*" in the future.

[Zalabo Students, Team A]

Aibou Seat (buddy seat)

Team A Representative/
Electrical Device Development Section, New Product Development Department

Soichiro Tanaka

Kenichi Niitsuma / Kensuke Mizoi / Ai Furuta / Chihiro Muto / Takeshi Ito

Zalabo Team A's Proposal for "*Maximum Comfort in the Minimum Space*"

The mission that we undertook was to "*offer a new value for a compact car seat*". Specifically, we proceeded with research in response to the question of "*how to provide maximum comfort in the minimum space while sitting down*".

The proposal that we in Team A came up is "*Aibou Seat*" (buddy seat).

"*Aibou*" (buddy) means someone who understands you well, who helps you and sometimes makes you feel relaxed. The first step in our research was to ask whether a vehicle seat could fulfill a similarly intimate role. Our idea was to create a seat that would feel closer to the occupant, like a buddy.

Essentially, the Aibou Seat would be a seat that understands you the moment you sit down.

With that in mind, we decided to focus on personal authentication technology. There are numbers of forms of personal authentication technology these days, such as password and fingerprint authentication. In recent years, technology has even been established to authenticate individuals based on DNA or image recognition.

Of the various authentication technologies, we decided to focus on skeletal authentication. As your skeleton itself has its own patterns, it can be compared against other forms of personal authentication to identify differences between individuals. It is also possible to infer differences such as posture, age group, gender and height.

Seats are the parts of vehicles that come into closest contact with the occupants. The idea of using seats as sensors was the specific concept at the heart of this project, and a way of opening up new possibilities. In other words, we were trying to come up with a way of using seats, as the parts that come into closest contact with the vehicle's occupants, to authenticate skeletons belonging to different individuals and identify individuals.

As we wanted to create a seat that was like a buddy, we needed it to do more than merely authenticate and identify individuals based on their skeletons.

In Team A, we came up with the concept of a unique seat-based personal support system, combining skeletal authentication technology with another technology, the correction technology. We all have different skeletons, but they can also grow or become distorted as a result of physical growth or changes in our lifestyles. We therefore decided to equip our seat with a correction system, to help individuals to maintain their own ideal posture.

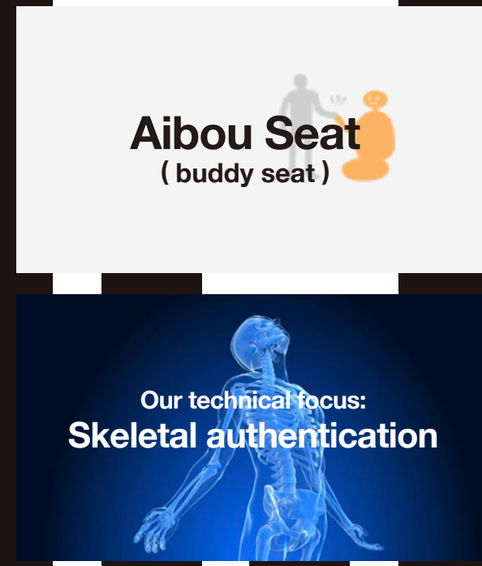
The moment you sit down, the seat understands you.

A distorted skeleton can have a serious impact on your health. With that in mind, our aim was to provide an ideal posture and gradually correct the occupant's posture while driving on a daily basis, so that they can keep their body in good shape.

As well as establishing skeletal authentication and correction systems, there are countless other technical issues that would need to be addressed in order to actually produce the Aibou Seat. We have started to tackle fundamental steps on the road towards turning our ideas into reality. We are currently gathering basic data, in response to questions such as what spinal data is required on an individual basis, where the reference points should be, how wide the measurement range should be, and how high the accuracy would be.

If we could turn the idea of the Aibou Seat into a reality in the future, it would provide new levels of comfort throughout our everyday lives, not just while driving.

We want to equip seats with skeletal authentication and correction technologies, to make seats feel closer to the occupant, and to provide a sense of security as a result of that closeness. That is the Aibou Seat, and that is Team A's proposal.



[Zalabo Students, Team B]

Gyutto! Seat (hug seat)

Team B Representative/
Environmental Section , Corporate Social Responsibility (CSR) Department

Noriko Tanabe

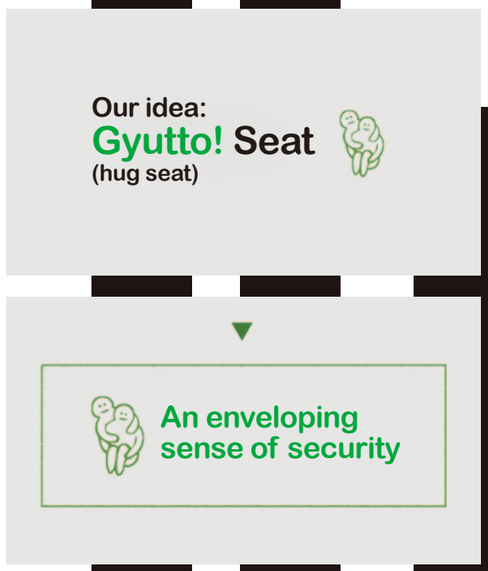
Satoshi Fujita / Wataru Takayasu / Akimitsu Kurihara
Mitsuru Shiraishi / Aiko Tetsutome

Zalabo Team B's Proposal for *"Maximum Comfort in the Minimum Space"*

Having been given our mission, to "*offer a new value for a compact car seat*", we in Team B began to hear the true thoughts of users about compact cars.

A negative image then emerged, revolving particularly around the word "*small*". However, when we heard more about the word "*small*" from the users, they started to come up with some positive points. Having a limited amount of space means that people, and their pets, are always close together. The level of intimacy you get with a small car can create a sense of relief. In a larger, more luxurious car, you feel a sense of distance between yourself and other occupants. We realized that maintaining the right sense of distance is extremely important. There is a feeling that you only get within a smaller space of a certain size. It also feels good to be physically cocooned inside a small space like that. We decided that these were feelings that we should try to tap into.

As we continued with our interviews, observations and discussions, we became increasingly confident that the inescapable quality of being "*small*" could actually be seen as a positive rather than a negative, as it provides a sense of comfort and relief. As a result, we came up with the idea of turning "*small*" into an appealing feature, aimed at offering maximum comfort in the minimum space.



Our idea was the Gyutto! Seat (hug seat).

What we wanted to achieve was a seat that would closely envelop the occupant's body, thereby creating the ideal sense of distance. We were also aiming to create a sense of relief through that feeling of being enveloped. We envisioned a more lightweight seat in order to make the most of the limited space too, given that the seat is also stored in the floor and roof of the vehicle compactly. The seat itself is a piece of fabric that pulls down from the roof of the vehicle, like a roller blind. When the occupant sits on it, the seat then changes shape to suit the occupant's body, effectively enveloping them. As each occupant is enveloped in their own seat, it is possible maintain the right sense of distance between the occupants.

The key feature of the Gyutto! Seat is its simplicity, with the user being enveloped by just a single piece of fabric.

To make this idea work in reality, we would need to work on a number of technical elements. A normal seat is made up of many different parts. We have set ourselves the challenge of reassessing that complex structure and creating a simple structure that will turn the very concept of a seat on its head, using just one piece of fabric if possible. To create that "*gyutto*" feeling of being hugged, and to ensure safety, a certain amount of pressure is need to be applied to the occupant's body. As we envision the seat having a highly adhesive composition, we will also need to use a material that resolves issues such as body temperature and moisture control.

The proposal we have come up with in Team B is for an entirely new type of seat that would require the development of a multi-functional smart material. We intend to continue with technical development and to keep on incorporating new ideas into our seat, tackling issues such as how to recreate that feeling of being enveloped as simply as possible, which materials would be the most suitable for such a vehicle seat, how we would ensure safety, how the interior of vehicles would actually be laid out, and how to develop a structure that will maintain the integrity of the materials.

An entirely new type of seat requiring the development of a smart material

Through these new challenges, we believe that the Gyutto! Seat could be extended to various other scenarios in which people want a personal sense of relief within a limited space, including cinemas, airplanes, or just day-to-day on the train.

A simple seat that envelops the occupant with one piece of fabric – Please keep an eye out for the Gyutto! Seat in the future!

Panel Discussion
Talk Session

[Special Panel Discussion]

"The Future of Sitting Down"

Shunji Yamanaka (product designer / professor at Keio University)
Kundo Koyama (broadcast writer/playwright)
Toshiyuki Sawaguchi (neuroscientist)
Yumi Yoshida (car lifestyle essayist)
Naoki Sakai (concepter / professor at Keio University)

What is the future of *"sitting down?"*

For our special panel discussion, we invited an illustrious group of five guest speakers to talk about *"The Future of Sitting Down."* Together, they explored the philosophy and science behind *"sitting down,"* including questions such as what it means to *"sit down"* and what vehicle seats should be like in the future.

Naoki Sakai (NS): I have prepared four questions to ask you. The first one sounds almost like a Zen riddle, but here we go. What does it mean to "*sit down*"?

Shunji Yamanaka (SY): The act of sitting down is simply a posture, so it depends on what you do while you're sitting down. These are popular chairs, but they don't often find themselves on stage being sat on, because of their deep, sloping seats. They are probably better suited to taking it easy than engaging serious discussion (laughter).

Kundo Koyama (KK): Personally, I see sitting down as the essence of life itself. Rosanjin Kitaoji coined the phrase "*zahen shiyu*," meaning everything around you is your teacher and friend when you're sitting down. I love that phrase and always try to remember it as my motto in life. Sitting down has a profound meaning, as a reflection of your life and how you live it.

NS: Moving on to the next question, what is a vehicle seat? What qualities should a vehicle seat have?

SY: If we're thinking about vehicle seats, let us first think about what vehicle is. I know vehicles are changing all the time, but I think that's still a valid question. Some would say that a vehicle is a tool to get you from point A to point B as efficiently as possible. Others might feel that a vehicle is a tool that extends your own physical abilities, so that you can enjoy going around. As we bring robotics into the mix as a new element, we are likely to see different ways of interacting with machines in the future too. That suggests that we may need to rethink the question "*what is a seat?* "

Toshiyuki Sawaguchi (TS): I think vehicle seats should increase brain functions. Neuroscience is yet to produce any data indicating that the sitting down is good for the brain. We have data showing that people used to walk around 13 kilometers a day. So in evolutionary terms, sitting down has a short history. However, viewed from a different angle there is a possibility that seats could be good for the brain. Wouldn't it be great if sitting in a vehicle seat made you cleverer? I ride a motorcycle myself. It has been proven that brain functions increase before and after riding on a motorcycle, so the seat must also be a crucial part of that.

There is definitely scope to create a seat that could increase brain functions while driving, while also preventing aging and dementia, so I think that's the direction in which we should be heading.

Yumi Yoshida (YY): As the only woman up here on stage, I think I can offer a unique female perspective. Personally, I spend most of my waking hours sitting down. I'm out test-driving new cars during the day, and then sit down to write up articles when I get home. The test-drive locations tends to be far away, so I'm sitting down while travelling too, whether it's on an airplane or a train. One common complaint amongst most women in my profession is that they tend to gain weight in the lower part of their body. I don't have any medical knowledge to back this up, but I assume that sitting down for long period of time must have something to do with that. It would be great if we could make a seat that would solve that problem. I think it would sell well too, because women would immediately get on board.

NS: As we reassess our attitudes towards compact cars, and develop even smaller vehicles, the number of small cars on the road is actually increasing. With that in mind, what should seats be like in the modern era? That is my third question.

KK: Most commercial airplanes are identical, from low-cost carriers (LCC) through to ANA's all-business class services, meaning that the class and price of your ticket varies depends on your seat. However, cars just have one body so there is no distinction between classes. We are effectively moving towards a situation whereby small cars are regarded as economy class and large cars as first class. To me, it seems odd in the modern era. Surely we could have first class small cars too. Maybe we could pay an extra ¥100,000 or so to upgrade to better quality seats. Taking it a step further, cars could be sold without seats, so that we could all personalize the seats to suit our own tastes. These days, I think people are starting to regard seats as being even more important than the car's engine.

NS: That's an interesting point.

TS: This is just my own suggestion, but given the limited space available inside a small car, I think it would be good if we could change the position of the seats in relation to one another to suit different situations. You could move closer to loved ones, because the sense of relief you get from that proximity releases hormones in the brain, or move away from people you may not like as much.

Naoki Sakai

Concepter / professor at Keio University

Having enrolled on a design course at the Kyoto City University of Arts, Naoki Sakai decided to move to the United States. He established Tattoo Company in San Francisco and found great success selling tattoo t-shirts. He returned to Japan in 1973 and established Water Studio. His designs for the Nissan Be-1 and PAO, launched in 1987 in 1989 respectively, triggered a new wave of *"future-retro"* design. In 1988, he produced the Olympus O-Product, a product that turned preconceived notions about cameras on their head. The O-Product was selected to appear in an exhibition at MoMA in 1995, and was later added to the museum's permanent collection. Sakai established the design company Water Design Scope (later renamed WATER DESIGN) in 2004 and has worked on countless products since then. He has been a professor at Keio University's Shonan Fujisawa Campus (SFC) since 2008. Major publications include *"Design Insight."*

Shunji Yamanaka

Product designer / professor at Keio University

Born in Aichi prefecture in 1957, Shunji Yamanaka graduated from the University of Tokyo Department of Mechanical Engineering (Faculty of Engineering) in 1982 and went to work at the Nissan Motor's Design Centre. Having set up as a freelance designer in 1987, he worked as an associate professor at the University of Tokyo from 1991 to 1994, at which point he established Leading Edge Design. As a designer, Yamanaka's work has ranged from wristwatches to railway cars and a whole host of other industrial products. As an engineer meanwhile, he is involved in the fields of robotics and communications technology. He has been a Professor at Keio University since April 2008.

SY: I think you have both touched on a really important point there. Small cars are actually something very personal. Large cars are multi-purpose vehicles, designed to carry numerous passengers, whole families and heavy luggage. I think the future of small cars depends on not trying to fit in lots of people. That way, cars could be more compact and offer greater freedom. It would create more freedom of choice in small cars too, rather than just equipping them with all the same features as a large car. I think there is more scope for freedom with seats in a small car.

NS: The concept of luxury cars has already came up a number of times. Although there are companies that have actually produced such cars, which they haven't been as successful as expected. Why is that so?

SY: The concept of small luxury cars is widely understood. It's not as if there aren't any companies that could make them. However, within the confines of mass production, industry is regarded as a system of making products in large quantities in order to make money. The concept of producing small, luxury cars just doesn't fit within that system. That's why we have gone for so long without anyone making such cars. Tying that back in with the future, the way in which we make products is already changing at a rapid pace, so maybe companies will start to make and sell products based on more personal, specialized values, rather than relying on mass production and retailers. If that happens, then I imagine that small cars could be right at the cutting edge, precisely because they are small.

YY: As more and more people are focusing on fuel efficiency these days, seats are becoming smaller and lighter in an effort to improve fuel consumption. Looking from the rear seats, cars' front seats are starting to resemble sloped shoulders. You sometimes see seats that are a bit over the top too. I get a luxurious impression from the seat which is in contact with my body a lot when I get in a car. The weight of the door when you get in the car is another key factor. Does it feel heavy or light? Does it sound right when the door being closed? Things like that. In terms of the rank or position of a car, I don't think that everyone wants seats that seem reasonable to them, even in a small car. People use their cars in different ways too, and in different situations. It would be great to be able to choose different seats for different purposes, if you use your car a lot, or just for going into town, or if you want something a bit more fashionable.

NS: Let's stay with the theme of small luxuries for little longer. People are happy to spend money on chairs, but the reality is that compact luxury cars haven't done very well so far. Why is that so?

KK: It's probably because the market is driven by car manufacturers who makes too many cars. Mineaki Saito, the former president of Hermes, used to drive a Citroen. He designed the interior himself and had the seats covered in Hermes leather. It looked amazing. If cars were produced by drivers who have a discerning eye, or are relatively close to consumers, I think people would get on board with it. I mean people other than designers. I'm sure that people who work in hotels or other people who structures spaces would come up with some interesting ideas if they turned their attention to cars.

NS: My fourth question is quite a broad one. What do you think sitting down will be like in the future? How do you envision the future? What direction do you think the evolution of seats will take?

TS: As I mentioned earlier, I think it's a question of increasing brain functions. We know that the position of your neck and jaw is extremely important when you're sitting down. As well as blood flow, what else happens when we sit down? What about before and after we sit down? We need to carry out tests to determine that in the future, focusing particularly on factors unique to cars. The brain functions required to drive a car deteriorate with age. If we could come up with a seat that increases brain functions, I think that would be a major breakthrough in an aging society in Japan.

SY: Vehicle seat development is focused on preventing tiredness and ensuring safety. It doesn't really extend to the brain, apart from making sure that it doesn't hit anything in a collision. What you have just been saying could provide a fresh perspective, as a new way to approach the interior space inside cars.

TS: The amount of blood flowing to your brain varies depending on the position of your skeleton, particularly the angle of your neck. Reducing the flow of blood to the brain causes aging, so in that respect alone, developing a seat that improves blood flow would have an equivalent effect on brain activity. It's not good for you to get a stiff neck, because it puts pressure on the blood vessels leading to your brain. It would be great if a seat could alleviate that stiffness when you sit down. Merely changing your posture alters your blood flow. It would be amazing if we could get blood flow to increase when sitting down, rather than being reduced due to aging. Increasing the amount of blood flowing to the brain would help improve drivers' judgment in the event of an accident too, so it would be good for everything.

Yumi Yoshida

Car and lifestyle essayist

Having won more than ten titles at beauty contests while studying at college, including Miss Shibuya, Miss Checker Motors and Runner-up Miss Etude, Yumi Yoshida began working as a full-time model after graduating. She ended up working mainly in the motor industry, due in part to her diminutive stature for a model, and has been featuring in the "*Subete Series*" of motoring magazine Motor Fan separate volume for 18 years. She has also worked as an assistant host on shows such as "*GT Championship,*" the popular racing show on TV Tokyo. While continuing her modeling career, Yoshida spent three years working as a safe driving instructor at Nissan Driving Park from 1998. She then started writing about cars and related subjects from her own unique perspective, as a "*car and lifestyle essayist.*" As well as writing for magazines, including women's magazines as well as the motoring press, her wide-ranging activities currently include TV, radio and various other events.

Kundo Koyama

Broadcast writer / playwright

Currently working as a professor at Tohoku University of Art & Design, Kundo Koyama was born in Amakusa, Kumamoto prefecture, in 1964. He has worked as a broadcast writer since he was a student at Nihon University College of Art, and has had a hand in many groundbreaking shows, including "*Walk to Canossa,*" "*Iron Chef*" and "*World Heritage.*" His first attempt at screenwriting was the 2008 movie "Departures," which won the 60th Yomiuri Prize for Drama, the Best Foreign Language Film at the 81st Academy Awards, and Best writing at the 32nd Awards of the Japanese Academy.

Toshiyuki Sawaguchi

Neuroscientist

Born in Tokyo in 1959, Toshiyuki Sawaguchi went on to graduate from the Department of Biological Sciences at the Hokkaido University School of Science. Having completed a doctoral program at the Kyoto University Graduate School of Science, he went on to work as a research fellow at the Yale School of Medicine, a research assistant at the Primate Research Institute Kyoto University, assistant professor at the Hokkaido University Faculty of Letters, and a professor at the Hokkaido University Graduate School of Medicine, before being appointed as Director of the Humanity Neuroscience Institute in 2006. He has also worked as professor at the Musashino Gakuin University Faculty of International Communication since 2011. Specializing in cognitive neuroscience and primatology, Sawaguchi's research focuses primarily on the frontal association area (prefrontal area). He has also appeared on a number of entertainment shows on TV, where he has become popular for the expert timing of his scientific comments.

TS: We could do that, as you have been saying, it would presumably improve driving too. From the point of view of the brain, it would change the driver's field of vision. I can definitely imagine hearing catchphrases such as "*improved brain function seats*" or "*aging prevention seats*" in the future.

NS: That's enough academic talk for now. Kundo Koyama, what do you think?

KK: I am always telling my employees and students to establish a clear picture of themselves if you get stuck yourself. If you only ever think about yourself, your world becomes narrower. It's important to get experts together to talk about the subject of "*sitting down*," like we are doing today, but I think we might come up with more new ideas on the subject if we were to look at other areas as well. An expert in sitting down might think that a heated seat would be a great idea. You don't have heated chairs in your living room do you? You have under-floor heating system. Is comfort really that important if you only use your car for five minutes at a time? In reality, consumers might be just as happy with a simple seat to lean against, making it easier to get out of the car. I think it's unwise to focus exclusively on comfort.

NS: That applies to chairs too. Chairs come in various different types, whether they're hard, soft or just ordinary.

SY: With mass production, it's all about making lots of cars in order to drive down costs. The whole idea of lumping cars together, regardless of whether they're used for long or short journeys, designed to carry more or fewer people, or targeted at the wealthy, is flawed. As you have suggested, drivers could just stand up or lean against a bar if they're only using their car for short distances. The challenge for the future will be to break away from the system of mass production built up by the auto industry, by personalizing cars and using them in different ways. As someone loosely connected with the industry, I understand Mr. Koyama talked about such repeatedly.

NS: Let's end our discussion here.

TS TECH Co.,Ltd.

"*Za*" Forum

Organizer: TS TECH Co., Ltd.
Inquiries: "*Za*" Forum Office　forum@suwaru.jp