Interview 1

Interviewer: Yanni Chen

Interviewee: Qingci

Time: 30:09 mins

**Interviewer:** Could you please introduce your sleep routine over the past week, generally speaking?

**Interviewee:** Sleep routine... that's a good question. It's about the time I go to bed and wake up, generally speaking. If I have classes, I have classes at 8 AM on Mondays, Wednesdays, and Fridays, so I wake up at 7 AM every day. Last week, I went to bed around 1 AM to 2 AM. On Tuesdays and Thursdays, I have classes at 10:30 AM, so I usually wake up around 9:30 AM.

**Interviewer:** So your wake-up time depends on whether you have morning classes.

**Interviewee:** Yes, that's right.

**Interviewer:** On average, how many hours do you sleep each day?

**Interviewee:** It depends on when I have morning classes the next day. My bedtime is relatively stable, around 1 AM to 2 AM. If I need to wake up at 7 AM, it's around five to six hours of sleep. If I wake up at 9 AM, it's around seven hours.

**Interviewer:** So it's typically five to seven hours.

**Interviewee:** Yes, but on average, it's around six and a half hours.

**Interviewer:** How about on weekends? How many hours do you sleep?

**Interviewee:** If I'm sleep-deprived, I'll sleep for about ten hours. If not, I usually find around eight hours of sleep to be comfortable.

**Interviewer:** Do you have any specific sleep goals?

**Interviewee:** Strictly speaking, no. I haven't really thought about it. It depends on the workload for the week and what time I have classes the next day. My sleep is mainly determined by my tasks and specific circumstances.

**Interviewer:** Understood.

**Interviewer:** Have you experienced exceptionally good or bad sleep in the past week?

**Interviewee:** Exceptionally good sleep... well, today I slept really well. I went to bed at 9:40 PM last night and woke up at 9:50 AM today.

**Interviewer:** Almost twelve hours of sleep.

**Interviewee:** Yes, around eleven hours.

**Interviewer:** Did you sleep deeply?

**Interviewee:** Yes.

**Interviewer:** How about particularly bad sleep experiences?

**Interviewee:** A particularly bad sleep experience was last week... I believe it was on Wednesday. I only slept for four hours and forty minutes because I had to rush with assignments and had an 8 AM class the next morning.

**Interviewer:** What factors do you think affect your sleep?

**Interviewee:** If I sleep a lot the previous day and the next day doesn't involve much physical exertion, like when I sleep for ten hours on the weekend and stay home all day, I might have trouble falling asleep due to excess energy at night. Also, if I stay up too late doing homework and get excited, or if I exercise too late at night, or if I watch something and laugh for a long time, or suddenly have a strong emotional shift at night, these significant changes in emotions before bed can affect my sleep.

**Interviewer:** Does diet affect your sleep?

**Interviewee:** I try not to drink coffee after 5 PM. I have a maximum of two lattes a day. If I need a boost, I'll have two lattes and a cup of green tea. Green tea provides a better energy boost than coffee. If it's past 5 PM, it can affect my sleep.

**Interviewer:** How late do you stay up if you feel very alert before sleep?

**Interviewee:** It depends on when my emotions calm down. Generally, around 3:30 AM, I start to feel sleepy. But if I have something the next day, I might take a melatonin to force myself to sleep. Sometimes I get too excited and stay energetic until 4 or 5 AM.

**Interviewer:** So melatonin is helpful for you?

**Interviewee:** Melatonin is very helpful for me, but it does have its side effects.

**Interviewer:** What are the side effects?

**Interviewee:** After taking melatonin... although I fall asleep immediately, the quality of sleep is not as good as without it. Also, the next day, I might wake up feeling quite upset.

**Interviewer:** Have you used any technology in the past to change your sleep?

**Interviewee:** Yes, I used an app for meditation called "Calm" before.

**Interviewer**: How was the experience?

**Interviewee:** It was good, but the annual fee was quite expensive, so I stopped using it. It had a dedicated meditation for sleep, which I used daily for a while, helping me stabilize my sleep. It also had some training. Now, the annual fee was too expensive, so I didn't continue using it. Mainly, after I started using melatonin, I found it more efficient than meditation, so I gave up on meditation.

**Interviewer:** Is the meditation a course or a guided session?

**Interviewee:** Yes, it's a course. It had various courses like "deep sleep" and "deep rest," with a guide instructing you. They'd guide you to focus on your breath, on your temples, the top of your head, your chest... using this shifting of focus to calm down, and adjusting your breath to a more regular and slower pace, which helps in falling asleep more easily.

**Interviewer:** Is this guidance audio-only?

**Interviewee:** Yes, you can place your phone by your ear and follow the guidance to adjust your breath and do some movements. It also had some white noise options, and you could choose which white noise was more comfortable for you. It provided various courses as well.

**Interviewer:** How long was each session?

**Interviewee:** The duration of each session varied; I mostly used around 15 minutes.

**Interviewer:** Do you ever feel irritated that you've used certain methods but they don't work?

**Interviewee:** Sometimes when there are a lot of disturbances, this situation occurs occasionally. The purpose of this training is to make your mind stop thinking about anything in real life and focus completely on your own body. On one hand, it helps you relax and adjust your breathing, and on the other hand, it helps you concentrate your attention entirely on the act of sleeping, without being disturbed by other factors. Because you will definitely have that kind of experience... when you really want to sleep, but suddenly you remember there are some points in your homework that you could write about, and the more you think about it, the more excited and difficult it is to fall asleep... But when you get into long-term anxiety about something, like the upcoming exam... you find it hard to control yourself, and it's difficult to focus your attention on the act of sleeping. During that time, I occasionally used a 30-minute session, but later on, I mostly used melatonin to force myself to chemically fall asleep.

**Interviewer:** Understood, understood. What is it like when you can't fall asleep?

**Interviewee:** Ah... it's a different feeling every day. Sometimes it's very emotional, sometimes very anxious, and sometimes my thoughts are overly active, and I just can't calm down. I'm not someone with particularly good sleep quality, so not being able to sleep is a very normal state for me.

**Interviewer:** Have you gotten used to it?

**Interviewee:** Yes.

**Interviewer:** You mentioned earlier that you meditate... do you only use it when you can't sleep, or do you use it regularly?

**Interviewee:** During that time, it was because... we were experiencing a winter storm here, and I was in a semi-stress state, not in a good mental state. At that time, I used this meditation app along with some stress-relieving meditation courses. After forming the habit, I used this app continuously for a while, but later I forgot what interrupted this habit. After that, I didn't continue using it.

**Interviewer:** You haven't used it since then?

**Interviewee:** Right, but I usually use some other methods for better sleep... like therapeutic sleep music. Apart from that, I also listen to thunder, rain, and water sounds to fall asleep. Now I bought an aurora projection lamp, which also has the function of playing white noise, so every time I set it to the sound of a stream and then go to sleep.

**Interviewer:** Wow, sounds enjoyable... I understand. So, among all the methods you've tried, which one has been the most effective for you?

**Interviewee:** Melatonin.

**Interviewer:** Excluding chemical treatment?

**Interviewee:** Then it would be meditation.

**Interviewer:** Have you tried methods like exercising?

**Interviewee:** I've been trying, but never succeeded. I tried exercising before bed, but it made me too excited. Whether it's because of my schedule or my laziness, I haven't developed a habit of exercising that helps me fall asleep at night.

**Interviewer:** That's very normal. I'm the same way. I'm too tired when I get home at night, so it's hard to get motivated to exercise.

**Interviewer:** Do you have any sleep problems now?

**Interviewee:** Not getting enough sleep.

**Interviewer:** If you don't get enough sleep at night, how is your mood during the day?

**Interviewee:** Very bad. Not only do I feel sleepy and have poor mental condition, but sometimes I need... for example, if I have class tomorrow morning, I must make sure I'm doing something with my hands during class, like constantly taking notes, or forcing myself to raise my hand to ask questions, or chatting with my desk mate, or even opening an app and chatting with a friend... I must have some actions to make myself feel like I'm actively participating in the class, needing external stimulation. Besides, when I don't sleep well, my mood is particularly bad, and my sensitivity to external reactions decreases. It feels like there's a layer of bubble between me and the outside world, and I easily do things without thinking, like... standing on a chair to reach something and accidentally falling, not paying attention to traffic lights, walking while listening to music without paying attention to the road conditions...

**Interviewer:** So, you're living alone?

**Interviewee:** I live with my roommate, but we each have our own room.

**Interviewer:** Do you still sleep alone?

**Interviewee:** Yes.

**Interviewer:** How does sleeping alone affect your sleep quality?

**Interviewee:** My sleep quality decreases when I sleep with anyone else, except for my mom.

**Interviewer:** Why?

**Interviewee:** Because sleeping with my mom gives me a sense of security. Besides, I'm easily awakened by noises from other people; I need a quiet environment. Also, I'm sensitive to temperature when I sleep... I can be easily woken up by heat or cold. If my roommate and I have very different temperature preferences, it will have a significant negative impact on my sleep.

**Interviewer:** What do you have in your room that can contribute to your sleep quality?

**Interviewee:** That would be my aurora lamp. And I like sleeping with a pillow against my head.

**Interviewer:** One last question. If you could use an app now, and it's specifically for cultivating good sleep habits and improving your sleep, what features would you like this app to have?

**Interviewee:** First of all, it should record the time I fall asleep and wake up each day, the duration, and then it can create something like a weekly report... and record any unexpected occurrences during sleep, like waking up due to temperature, being disturbed by snoring, getting up at night... and other activities that can disrupt normal sleep. I think this kind of recording feature would be quite useful. In addition to this weekly report, there could be a check-in feature where you can set your sleep goals for each day, and you can see how you're doing each month, with some reward mechanisms... like leveling up.

**Interviewer:** If we implement a reward system, what kind would you like the most?

**Interviewee:** Rather than leveling up, the best would be if you could exchange for some fancy but not very useful things, like... unlocking new white noise elements. It's best if it can motivate me. There could be some more creative things, like meditation music. Initially, it could meet my basic requirements for white noise, but later, through continued use of the app, I could unlock more types of white noise, or other things, like lock screen wallpapers or sound backgrounds.

**Interviewee continued:** Also... you could actually incorporate those meditation courses. I really recommend trying Calm for the next one; it provides various white noise functionalities, and there are other apps that include white noise as well. You could use elements from them as a reference. You could also push some tips, like about recipes. You could specify which teas are sleep aids, which foods help improve sleep, helping users improve their dietary habits and regulate sleep, and so on.

Interview 2

Interviewer: Yanni Chen

Interviewee: Jio

Time: 22:34 mins

**Interviewer:** Could you introduce your normal sleep routine?

**Interviewee:** My sleep is in two segments because I have insomnia, as you know. When I have insomnia, I sleep from 8 a.m. to 10 a.m. If it's normal, I go to bed at 8 p.m. and wake up at 3 a.m. sharp. During insomnia, I sleep for about two to four hours. Around 2-3 a.m., I can't hold on and will fall asleep.

**Interviewer:** I see. So, if you have insomnia, you sleep an average of two hours per night. If you don't have insomnia, you sleep 7-8 hours per night. Do you have something like a sleep goal?

**Interviewee:** I don't have such a thing. If I had that, I would definitely have trouble falling asleep.

**Interviewer:** Ah, so it brings about anxiety?

**Interviewee:** Yes, this kind of planning is to be avoided as much as possible. When you close your eyes and say, "I must sleep at this particular time today," congratulations, you won't sleep. But it's a psychological suggestion.

**Interviewer:** I understand. Could you please talk about the best and worst sleep you had last week?

**Interviewee:** Let me see... The best sleep last week was probably when I went to bed at 11 p.m. and woke up at 6 a.m., feeling refreshed. The worst one was when I went to bed at 10 p.m. and woke up at 1 a.m.

**Interviewer:** How did you feel upon waking up?

**Interviewee:** After waking up, I felt very tired, like I hadn't entered deep sleep. Although I had slept for about three hours, I felt tired and kept dreaming.

**Interviewer:** So, when you don't sleep well, you dream more?

**Interviewee:** One important aspect of not sleeping well for me is having more dreams, and they are often nightmares.

**Interviewer:** What kind of dreams?

**Interviewee:** Nightmares have no pattern. At the peak of my nightmare experiences, I would dream of killing and arson every day. It's better now, with no specific patterns.

**Interviewer:** When you have your best sleep and wake up feeling refreshed, what does that feel like?

**Interviewee:** It feels like I'm not tired, and my heart isn't racing.

**Interviewer:** Do you feel energized?

**Interviewee:** No. I have a mental illness; how could I possibly feel energized?

Off-topic question: What are your current symptoms?

**Interviewee:** Depression.

**Interviewer:** So when you say you sleep well, does it mean you sleep deeply and don't dream much?

**Interviewee:** I don't sleep deeply. Specifically, it means I can be easily awakened by various small disturbances.

**Interviewer:** What factors might affect your sleep quality?

**Interviewee:** Exams, assignments, deadlines, stressors, and minor irritations. When my comfort towel disappears. Anxiety. This kind of anxiety, once it happens, significantly affects me. Also, physical factors like headaches, rheumatism, and so on.

**Interviewer:** Earlier, you mentioned feeling very tired. Is this tiredness constant throughout the day?

**Interviewee:** No, if I sleep well, I don't feel tired.

**Interviewer:** And you prefer a very quiet environment, right?

**Interviewee:** Yes. It can rain, there can be white noise, but no voices. White noise is fine.

**Interviewer:** Do you have any temperature preferences?

**Interviewee:** None.

**Interviewee:** Once, I was just falling asleep in the dorm, and my roommate and a group of friends were outside making noise, toasting and all... I couldn't accept such a sleep environment.

**Interviewee:** Yes, exactly. I'm very sensitive to noise.

**Interviewer:** Have you used any technology to improve your sleep quality?

**Interviewee:** White noise, yes. White noise is the only effective tool I've used. Besides that, I haven't found anything else useful. Listening to white noise helps me fall asleep. Some stable, consistent sounds can cover the sudden noises for me, and then I can sleep.

**Interviewer:** I understand. So, it shifts your focus?

**Interviewee:** Yes.

**Interviewer:** What is your biggest sleep issue at the moment?

**Interviewee:** Anxiety. This has been going on for five or six years.

**Interviewer:** Are you currently taking any medication?

**Interviewee:** No, I don't take medication anymore. I rely on willpower alone. The side effects of the medication were too severe. If I continue taking it, I can't maintain a normal life; it would make me sleep for twelve hours straight.

**Interviewer:** Do you have any methods to alleviate your anxiety?

**Interviewee:** I don't. I just endure it. Because many small things can cause anxiety, as long as you are working or studying.

**Interviewer:** So, what's currently the biggest source of stress for you?

**Interviewee**: It's not that there's a particular source of stress, but in my current condition, even a minor accident triggers that nameless anxiety in me. I can't control my emotions. This is my problem. Things that a normal person should be able to suppress and control, I can't.

**Interviewer:** You're unwell, it's normal.

**Interviewee:** Yes, it's an issue with anxiety disorder.

**Interviewer:** Are you still living with roommates?

**Interviewee:** No, I've moved out. I've stabilized a lot after moving out and can now go without medication. I live alone now.

**Interviewer:** Do you have roommates?

**Interviewee:** No, I'm alone.

**Interviewer:** You mentioned your condition has improved. What aspect of your current environment has contributed to this improvement?

**Interviewee:** Firstly, I sleep alone, so there's no noise created by others. Also, no one is moving around while I'm sleeping. Moreover, I have to keep the lights on when I sleep because I have claustrophobia. If I don't have the lights on, I can't sleep.

**Interviewer:** In short, you can sleep freely when you sleep alone, just the way you want.

**Interviewer:** If we were to design an app to help you improve sleep quality and fall asleep more easily, what features do you think you would like?

**Interviewee:** I think white noise is still very useful. I've tried so many apps, and in the end, the most useful function for me is still white noise. Next would be... even though I had it before, I don't need it now. You know some people experience sleep apnea, and for a period, the medication I was taking would make me experience sleep apnea while sleeping. After that, I was afraid to sleep. During that time, I found the monitoring function of a smartwatch quite good. Also, I think gradually awakening alarms... because I believe the feeling of being awake will affect your next sleep. At least a good waking experience won't make you fear sleep. If designing a watch, I think monitoring heart rate and breathing is valuable. Besides that, I don't think pure statistics are useful. Because I used to have sleep apnea, and if this watch can't detect your breathing, it will wake you up by vibration.

**Interviewer:** Alright, I've finished my questions. Thank you so much, I appreciate your participation!

Interview 3

Interviewer: Yanni

Interviewee: Mengxing

Time: 18:58

**Interviewer:** Could you talk about your general sleep schedule over the past few weeks?

**Interviewee:** In school, I usually... usually go to bed around midnight and wake up at six.

**Interviewer:** Is it generally flexible around this time?

**Interviewee:** Yes, the bedtime can vary, but the wake-up time remains the same. The latest I go to bed is around two to three in the morning.

**Interviewer:** How many hours do you sleep in a day?

**Interviewee:** A little over six hours. It's not enough for me.

**Interviewer:** If you could, how many hours would you like to sleep?

**Interviewee:** If possible... naturally waking up, I should get around nine hours of sleep.

**Interviewer:** So, that's your sleep goal?

**Interviewee:** Yes.

**Interviewer:** Did you experience particularly good or bad sleep last week?

**Interviewee:** Well... I didn't feel particularly good, but it wasn't particularly bad either. Because I have to wake up early for school, I don't sleep very late. However, since I live with roommates, they make noise in the morning, so I can't sleep for a very long time even if I want to.

**Interviewer:** Do you dream at night?

**Interviewee:** I do, but it's not too bad. Maybe three to five times a week. I feel it depends on the kind of dreams I have—if they're good dreams, I feel a bit better.

**Interviewer:** Do you think there are other factors that affect your sleep quality?

**Interviewee:** Noise, and my roommates' different living habits. If I want to sleep early, it's not really possible. Also... if there are study tasks to complete, I'll procrastinate and not feel like sleeping.

**Interviewer:** Does this kind of studying cause anxiety or stress?

**Interviewee:** It's irritating, and not sleeping well makes me feel not so great. But the impact is not so great that it affects my daily life significantly.

**Interviewer:** Have you ever experienced insomnia?

**Interviewee:** No.

**Interviewer:** Assuming that you slept really well at night, how would you feel the next morning?

**Interviewee:** If I slept really well, I would feel very clear-headed and bright. When doing things the next day, I feel my focus and productivity would improve.

**Interviewer:** Have you experienced difficulty falling asleep?

**Interviewee:** Because I wake up late during breaks, but if I have to adjust my schedule suddenly, I find it hard to fall asleep. Also, if there's something in my life the next day that excites or thrills me, I find it very hard to fall asleep. For example, when I went to a comic convention before, I didn't sleep the entire night.

**Interviewer:** Have you used any software to improve your sleep quality?

**Interviewee:** I haven't used those specialized apps, but I have played sleep-inducing music on video apps before. I think that might have a little effect, helping me get into a state of sleep.

**Interviewer:** Do you like this approach?

**Interviewee:** Well... I actually don't use it much.

**Interviewer:** So generally, you rely on falling asleep naturally?

**Interviewee:** Yes.

**Interviewer:** You mentioned earlier that you live with roommates at school. How many roommates do you have in total?

**Interviewee:** Three. We have bunk beds and study desks in our dorm. The dorm is also quite old.

**Interviewer:** Suppose you could modify your dorm to help you fall asleep more quickly at night. What would you add to it?

**Interviewee:** I think a bed curtain is important, mainly because it blocks out light.

**Interviewer:** Anything else?

**Interviewee:** I think if it's just modifying the bed, there's nothing else. The environment of this dorm is quite old and small.

**Interviewer:** Do you have any temperature requirements when you sleep?

**Interviewee:** During summer, we use air conditioning, and during winter, we use a heater. It can't be too cold or too hot, or else I won't be able to sleep.

**Interviewer:** One last question: if you could use an app to help you fall asleep, what features would you want this app to have?

**Interviewee:** There are smartwatches on the market that monitor sleep stages... I think they're quite useful. It could also have additional features to monitor sleep states. For example, some people talk in their sleep, but they're not aware of it...

**Interviewer:** I'm done with the questions! Thank you very much for participating!