

Rebuilding Challenges into Unique Process of Identity Construction, Voicing Your Own Tune of Life

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Spending long working hours on-site, crunching numbers behind computers, constructing newly-made buildings with steel and concrete, all of these might be the typical traits associated with construction engineering. “There is so much more than

that,” asserted by Karlie Collis, who is for now the Principal of Northrop Engineers in Australia, the representative for Structural College Board in Australia, and also a practitioner realizing her vision in a way of originality.



Sprouting outside the fences to reach the sky of vision

Being deeply involved in the design and documentation of large-scale multi-storey developments, Karlie steers her career to areas related residential, commercial and institutional projects, and extends her expertise to the field of modular construction. To label her accomplishments with any theoretical framing; however, is too hasty. “The main reason I landed in engineering was that I loved science and maths, but the practical side of it, I wasn’t a theoretical person that loved sitting behind the computer.” Candid and bright, Karlie points out the key temperaments to be engineers are skills of problem solving and formulating strategies to address them, which entails being attentive and creative in itself. As someone who tends to come up with solutions outside the box, Karlie embraces every event taking place during her life journey, the struggle or the bliss, all become the sporadic stars consisting constellation of her dream.

Karlie’s autobiography starts with a chapter registered with free spirit. She grew up in a regional center of New South Wales; her father was a plumber and her mother a home maker. “I was raised to not have any

barriers,” said Karlie. The principle of self-reliance was drilled to her by her mother, who expected her to be capable of maintaining her livelihood on her own, and also, to shoot for the stars. Her father was on the same side for encouraging her heading on what she wants. “Except for being a plumber,” Karlie laughed, “he wanted me to have a career with more stability, and to be honest he was right, getting into engineering gave me a very stable career.” With full support from her family, she set foot on the path toward engineering, the road not without thorns and spikes to get over for women, the minority of the sector.

Crossing the intersections of fear within and outside framework

“Sometimes we can be our own worst enemy, the inner fear that holds us back,” Karlie mentioned what she had been gone through at early stage, the uneasiness and self-doubt which can be termed as the phenomenon of “imposter syndrome.” According to its definitions, it belongs to a psychological pattern that the one fails to identify oneself to their accomplishments, feeling a persistent fear and doubt of not being qualified as others are, being “not good enough.” “I didn’t know that it had a name, and I manage to overcome it with all the positive people

around me.” Apparently, what Karlie had experienced was not limited to her personal circumstance, but the prevalent phenomenon, according to statistics, occurs more in high-achieving women.

Back to Karlie’s time when she entered engineering school, it was for women much tougher to build their identity construction. The invisibility of women’s career trajectory in engineering domain thus made female newcomers more likely to be entangled with uncertainty owing to a lack of women’s representation. To transform the liminal spaces for women in engineering industry, women’s participation and involvement are crucial. Voicing opinions and making sure that it’s being heard is what is regarded by Karlie as essential to boost one’s visibility, to build up confidence. Since engineering encompasses a range of specialties from design to project management and client liaison, it’s required strategies to elaborate one’s formulation on ideas and promote one’s self. “Women are sitting there and quietly achieving awesome things, people don’t hear about it.” To polish communication skills, Karlie joined Toastmaster, an international training organization for the purpose of promoting communication, public speaking and leadership. By adopting strategies to convey or explicate one’s ideas to foster self-image, affirmed by Karlie, is one of the

strengths that transforms women’s situatedness in the industry.

Bridging conversations with roads without bias, setting the line of equality from the get-go

Aside from being a seeker of excellence in her career, Karlie is also a single mother of a six-year-old boy, which brings its own challenges. She recalled that once she informed her clients of the designated time for the meeting to provide availability for school pick-up and drop-off, there was a nervousness in asking. It turned out that the clients showed nothing else but their understanding and were satisfied with the added value Karlie contributed to their cooperation. The concern Karlie had bear reflects how important social and working environment affect the ways people regard their working performance. Karlie started to move to modular construction when she became a single parent, the flexibility brought by the working mode of modular construction in terms of working time and methods not only enabling her to organize work and life, but also expanding her capacity to other area.

The building process of modular construction

efficiently saves manual labor for it lays focus on assembly, in which way the manufacturing can be conducted mostly off-site, rendering the working and transporting procedures more controllable. Especially for now when the global crisis of pandemic COVID-19 is uppermost in everyone's consciousness, modular construction becomes one of best solutions bringing greater mobility and adaptability. It is also environmentally sustainable in an ecological sense by utilizing recycled materials. The significance of flexibility thus becomes evident when it actually contributes to efficiency and inclusiveness of workforce. "I feel the responsibility myself at the level that I'm at in creating a culture where it's completely acceptable and expected that people bring their whole selves to work, all of those things are parts of the person." This is the work climate Karlie tends to maintain, a place of

equality where people don't have to hide their identities in order to be a qualified engineer.

To cope with the situations resulting from the outbreak of the pandemic, alternative approaches have been adopted including utilizing automation and remote working mode. The exponential growth of flexibility has proven that long working hours is not the factor directing to high-performance. Albeit the progressive transformation and rolling evolution of engineering industry, the paucity of women engineers till today has been there. This disparity can be dated back to the past about the way in which the engineering sector is delivered. "When I went through school, engineering was sold to you as, are you a person that wants to pull your toys apart and find out how they work to put them together? That didn't fit me," Karlie

said. What's behind such analogy is not only a deviation from the core value of engineering, but also the assumption entailing that the industry remains structured around masculine words. The essence of engineering is about



problem solving, and if we accentuate more on the social aspects of engineering, it can render the sector more appealing for females to relate to, Karlie pointed out.

Being an advocate for equality and diversity, every single microclimate in industry matters in the path of transformation

To be enrolled as a student majoring in engineering is one thing, to be in the workforce of the industry can be another. Karlie mentioned an anecdote about a male student who withdrew back from the field because of the sink and swim culture of the company he first began working for. “If you add that pressure to a female, the minority group in industry, it can have disastrous consequence.” Having a positive workplace culture should be the first step. Karlie was inspired and encouraged by her engineering boss when she just came out from university. His assertive attitude about “why not” has rooted deep in Karlie, reminding her to proceed with courage for breaking through. For now, she is also an advocate, who endeavors to smooth the path ahead for newcomers, assisting them along the road to reach their dream as she did. In her company,

there’s a toolbox for females about the basic things they need to know, to make them feel more grounded.

Karlie believes that by means of increasing female representation and enhancing gender parity on all levels will effectively reduce the discrepancy between what women have been promised and what they actually experience. “You can’t be what you can’t see,” Karlie stressed. She wishes she could have had other female companions at the beginning of her career for further understanding of the industry and established personal contact. Besides the explicit inequality like pay gap, sometimes it’s the implicit biases lurking in the workplace that deters women from staying in the field. Current studies have shown that there is a tendency to underestimate woman’s opinions in male-dominated industries, and Karlie has also confronted the similar situations during her career. Once she sensed the imbalance between her and other male counterparts regarding values of opinions, she would push her voice further, striking to maintain the balance between different opinions. “If we find a group of people that have all walked a different path, seeing and experiencing different things, we can come up with a better solution.” This is what Karlie believes and puts into practice, to break the limits and transform the structure of engineering sector toward diversity from within.