Developing smart people in smart cities through education: The role of personality

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Abstract. Since 2017, Indonesia has implemented a pilot project for the Smart City Movement. Even though focused on digital technology usage, smart cities also need people with skills in the digital economy. As one of the foundational skills in the digital economy, Human Skills are vitally important and in greater demand in smart cities. This becomes a challenge as well as an opportunity for higher education. The present study relates Human Skills to graduate attributes as developed by BINUS University, called BINUS Graduate Attributes (BGA) and identifies the role of personality as an access point for developing those skills. Using questionnaires distributed through BINUS Maya and the Lumina Spark online system, we collected 2,014 participants from various majors at the undergraduate level. Out of the 24 personality qualities measured in the Lumina Spark model, *Adaptable* and *Cautious* are qualities that do not significantly correlate with those skills. Through regression analysis, it was shown that several qualities have a role in predicting each skill. The result of this study can be used for educators to modify learning methods and environments that enhance the possibility for students to develop each of these Human Skills by utilizing their personalities.

1. Introduction

The Indonesian Ministry of Communication and Information Technology has implemented a pilot project for the Smart City Movement since 2017 [1]. The movement aims to guide the cities to maximize technology usage to improve public services and accelerate the potential of each city [2]. In its first phase, the movement focused on 24 cities, e.g., Banyuwangi, Bandung, Semarang, Tangerang, Samarinda, Makassar, Jambi, Tomohon, and Mimika.

Smart cities are envisioned as the future of technology-enabled, resilient, sustainable, creative, and liveable urban human settlements [3]. Smart cities have been defined as those that have adopted digital technology into their infrastructure, governance, and workforce and are home to 'disruptive innovation' and emerging industries [4].

Even though smart cities are focused on digital technology usage, they are not only about developing technology infrastructure. Smart cities require six main indicators to succeed: Smart Economy, Smart Mobility, Smart Environment, Smart Living, Smart Governance, and Smart People [5]. Smart economy covers economic management through industry, entrepreneurship, and employees in order to prompt innovative and adaptive technology advancement. Smart Mobility covers the accessibility and convenience of public transportation

services. Smart Environment covers the development of urban cities and manufacturing with consideration of environment preservation. Smart Living covers the safety and comfort of public facilities, entertainment, and regency that might ensure citizens' quality of life. Smart Governance covers the beneficial public service, efficient public bureaucracy, and public participation in public policy-making. Lastly, the term Smart People covers citizens' future development that prompts productive, creative, and innovative impact across the physical and virtual world.

The construct of Smart People recognizes the need for effective behaviors which are key to the integration of technology-based social and infrastructure systems that might improve the quality of life, economic growth, public participation, and data-driven decision-making [1]. Smart People recognize the value and importance of people's behavior in their surroundings and the need to work positively with them in order to build support and construct opportunities intended to create a healthy working environment and a pleasant city environment conducive to a positive workforce [5].

A smart city aims to leverage data to improve the provision of goods and services, both in the public and private sectors, so it can serve as a bellwether for the broader economy [4]. Therefore, smart cities need people with skills in using digital devices and those with skills in the digital economy. According to Markow et

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al. [6], 14 new foundational skills have been needed in the digital economy. Those skills converge around three interrelated groupings: (1) Digital Building Blocks, (2) Business Enablers, and (3) Human Skills. Digital building block skills lead to data-driven decision-making and sustainable technology use, such as analyzing data, managing data, software development, computer programming, and digital security and privacy. Business enabler skills take active action in business operations, such as project management, business process, data communication, and digital design. Human skills—or soft skills—encourage intelligence, social, and creativity skills widely common for solving demands and challenges, such as critical thinking, creativity, communication, analytical skills, and collaboration [6].

In their report, Markow et al. [4] mentioned that Human Skills are vitally important and in greater demand in smart cities, because the new digital economy does not just revolve around digital skills. Indeed, creativity and analytical skills are shown to have a greater demand in smart cities. It became a challenge as well as an opportunity for the education system, especially for higher education.

Indonesian graduates need to wait for at least two years to secure decent employment with a stable salary [7]. In 2020, compared to Southeast Asian countries, youth unemployment in Indonesia reached 20% whilst the other countries only reached below 15%. Two years later, in 2022, the unemployment rate in urban Indonesia increased by 7.74% [8], including in the category of youth unemployment. The level of labor absorption is not running effectively because the skills possessed by job seekers do not match the demand for available labor [7], and as reported in Malaysia, graduates have a lack of willingness to learn, unlearn and relearn the demanded skills in the job [9].

Therefore, ensuring the importance of student soft skills development throughout in-class and off-campus activities is an essential goal for educators. It needs to be done so that students have high competitiveness and can contribute to the development of smart cities. Such preparation can be achieved by cultivating human skills aligned with competencies needed to support graduate attributes associated with Smart People.

1.1 Human skills development in education

Human Skills, regarding smart cities, play a vital role as 60% of recruitment criteria [4]. Changes in citizen needs must be taken into account in order to prepare youth readiness, especially in education. Human Skills are crucial factors needed in establishing graduate attributes for Smart People. It consists of skills highly valued in education and industry: the capability to express effective communication, creativity, analytical skills, (data-based) critical thinking, and collaboration to achieve common goals [6].

To help students succeed in their future, Markow et al. [4] encouraged educators to ensure their students are developing those skills, whether through training programs dedicated specifically to those skills or by embedding them into the curriculum. Not just that,

education must encourage students to be independently capable and motivated to increase their capacity by learning from various sources so that they can continue to develop and survive in this era of smart technology [10].

Indonesia has responded to this challenge by reforming the education policy. In 2020, the Indonesian Ministry of Education and Culture initiated the "Merdeka Belajar – Kampus Merdeka" policy. The policy gives students opportunities to improve their knowledge and competencies in the real world by facilitating the interaction between students with the communities and industries [11].

In line with Aoun's and Markow et al.'s opinions and government policy, Universitas Bina Nusantara (BINUS University) created the BINUS Graduate Attribute (BGA) framework, which is developed in each student in order to increase their competitiveness level. The BGA consists of one technical skill related to the student's field of study and eight soft skills, which are Digital & Technology Fluency, Critical & Creative Thinking, Applied Management, Growth Mindset, Initiative, Adaptability, Collaboration, and Social Awareness. BGA nurtures students to showcase the most important soft skills in today's workplace.

Related to Human Skills this study focuses on Critical & Creative Thinking, Collaboration, Applied Management, and Adaptability. We assume that Critical & Creative Thinking skill cultivate sustainable Smart City with boundless innovation and the spirit to challenge tried-and-tested methods. Collaboration skill instills the work custom to ensure psychological safety, humanity, and quality of life. Effective communication and work style in Applied Management skill creates harmony throughout various race and traits among the Smart City citizens. Then, Adaptability skills allow citizens to muster versatile responses in novel environments.

1.2 Personality as a component for human skills development

Several studies have shown that soft skills can be developed through personality-based training. Personality-based training has profoundly increased students' self-concept, emotional intelligence, and motivation [12]. Unlocking the sense of students' soft skill development, especially in entrepreneurship, worked strategically with the personality model [13]. Further, investing in career preparation can be examined through personal values and personality [14]. Personality is well-known as one of the most reliable instruments for predicting employee engagement [15], job satisfaction across occupations [16], and conflict resolution [17].

Previous studies reported personality traits that encourage citizen roles in smart city [5]. In addition to performance quality, they need fulfillment and sustainable growth in the future. Gupta et al. [5] employed big-five personality traits, yet little is known about how personality influences the behavior and reaction of students across various environments. More

importantly, Big-Five personality traits rely heavily on inherent traits.

This paper offers a beneficial-yet-humanistic insight to capture the complexities of personality in education by introducing Lumina Spark, an innovative psychometric rooted in the framework of Big-Five personality traits and Jung's model. The 24 personality qualities of Lumina Spark enabled students to excel in BGA. This personality model targets behavioral analyses so students may develop within their capacity. This includes the dominant style, hidden strength, personal preference, and offers an opportunity to explore other qualities without limiting categories. Our previous study showed that Lumina Spark profoundly differentiated between entrepreneurial and non-entrepreneurial students based on personality preferences [13].

This finding will shed light for educators to design soft skills-and-personality-based student development programs. This study aims to examine those personality qualities that significantly contribute to BGA.

2. Method

2.1 Participant

Data collection was carried out on all undergraduate students at Bina Nusantara University. Each student received a notification to fill out the BGA measurement, which consisted of 8 types of questionnaires. After filling out one of the BGA questionnaires, students get a link to fill out the Lumina Spark questionnaire.

There were 5,934 participants who filled out the questionnaire, but only 2,014 participants filled out all 8 BGA questionnaires and one personality questionnaire. Each participant who fills out all BGA questionnaires gets a personality measurement report from Lumina Learning.

Most participants who filled in completely were male from the first-year cohort.

Table 1. Participants' demographics based on gender and cohorts

Gender	Cohorts	n	%	∑	%
Female	5th year	80	8.9	900	44.7
	4th year	3	.3		
	3rd year	184	20.4		
	2nd year	158	17.6		
	1st year	475	52.8		
Male	5th year	108	9.7	1114	55.3
	4th year	1	.1		
	3rd year	291	26.1		
	2nd year	217	19.5		
	1st year	497	44.6		

2.2 Measurement

This study focuses on four soft skills in BINUS Graduate Attributes: Critical & Creative Thinking, Collaboration, Applied Management, and Adaptability. We defined critical & creative thinking as the ability to

produce, evaluate, and analyze information, explain concepts and ideas, explore the possibilities, perform, reflect, consider the alternatives, and solve problems. Collaboration was defined as the ability to explore different opposing aspects of an issue and find a solution collectively. Applied management was defined as the practical ability to build effective communication and to show excellent performance through structured and systematic planning and organizing. And last, we defined adaptability as the ability to perform appropriate cognitive, behavioral, and affective responses to uncertain and novel situations.

The four soft skills measurements were arranged using a 4-point Likert scale with response options: Strongly Disagree, Disagree, Agree, and Strongly Agree. Each measurement has very good reliability and internal consistency (see Table 2).

Table 2. Reliability and validity for soft skills measurement

Skill	Number of items	α	CIT
Critical & Creative Thinking	13	.858	.398 - .605
Collaboration	9	.747	.365 - .592
Applied Management	24	.899	.315 - .607
Adaptability	8	.711	.352 - .432

Lumina Spark, which consists of 144 items, was used to measure personality. Lumina Spark is based on trait theory and measures each of the 24 qualities on a continuum [18], as shown in Table 3.

Table 3. Definition for 24 personality qualities

Personality qualities	Definition
Accommodating	Strives for harmony, consensus, and are willing to adjust their stance in conflict.
Adaptable	Works towards an overall vision with emerging goals and tends to be easy-going.
Cautious	Prefers to stick with existing tried-and-tested methods.
Collaboration	Favors a win-win mindset and focuses on other people's needs, making them very much the team player in a group situation.
Competitive	Strives a win with their achievements and talents. They retain a strong-willed and high opinion of themselves, especially in a group.
Conceptual	Develops, creates, or merges a lot of smaller ideas to give a new, more complex perspective.
Demonstrative	Enthusiastic to share their emotions and excel at using their positivity and optimism to drive others on.
Empathetic	To be considerate and in touch with other people's feelings. They readily see the world from others' points of view and offer service.
Evidence-based	Focuses on observable facts, details, and empirical approaches to guide them in making accurate decisions.

Personality qualities	Definition
Flexible	Favors a system that allows them to move freely throughout project development. Keep commitment open-ended and enjoy working in an unstructured environment.
Imaginative	Discovers fresh ideas, possibilities, and options using a vision from what they imagine the future could hold.
Intimate	Gravitates towards one-on-one conversations. They prefer listening to other people's ideas before they disclose their own.
Logical	Engages in critical thinking about the logical and rational facets of an idea. Enjoy the process that engages their knowledge and analytical perspective.
Measured	Appears contained, serious, and controls emotion. Prefers written communication.
Observing	Prefers small groups and likes to think through all perspectives before they speak.
Practical	Adopts a realistic, efficient, and common-sense approach. Learn by doing.
Purposeful	Sets clear goals and then works diligently towards them to deliver in agreed timescales. They have high standards and a strong work ethic.
Radical	Drives change, challenges tradition, and encourages others to investigate new things.
Reliable	Favors a firm grip of self-discipline and commitment. Take time management and responsibility seriously. Consistently productive with a strong work ethic.
Sociable	Speaks in order to process their thoughts and energized by talking with others.
Spontaneous	Prompt with gut-feeling decisions to take action and is relaxed approach to their and others' time management.
Structured	works diligently with process and bureaucracy. Makes firm commitments, structuring detailed plans and schedules.
Takes charge	Takes the lead in a group and is drawn towards authority positions.
Tough	Comfortable with conflict, and courageous enough to tackle difficult conversations.

Each Lumina quality is split into three personas, 1) underlying – how people function naturally; 2) everyday – people's everyday behavior; 3) overextended – how people sometimes overextend themselves when under pressure. Because we want to see the quality used in day-to-day behavior, only the Everyday persona was used in the data processing.

3. Result and Analysis

The relationships between the four soft skills and personality were analyzed in 2 phases. First, we analyzed the correlation using the Spearman analysis technique because the data were not normally distributed.

Table 4. Correlation analysis between soft skills and personality traits

Personality traits	Soft skills[a]			
	CCT	Coll	AM	Adap
Accommodating	.068[b]	*.025*	.081[c]	.052[b]
Adaptable	*.015*	*-.031*	*-.018*	*-.030*
Cautious	.050[b]	*-.003*	*.042*	*-.016*
Collaboration	.303[c]	.343[c]	.436[c]	.350[c]
Competitive	.276[c]	.167[c]	.287[c]	.217[c]
Conceptual	.498[c]	.264[c]	.427[c]	.358[c]
Demonstrative	.228[c]	.221[c]	.330[c]	.269[c]
Empathetic	.294[c]	.277[c]	.374[c]	.293[c]
Evidence-based	.161[c]	*-.014*	.134[c]	.070[c]
Flexible	*-.014*	*-.035*	-.082[c]	*.019*
Imaginative	.427[c]	.252[c]	.383[c]	.337[c]
Intimate	.053[b]	*-.033*	*-.004*	*.004*
Logical	.244[c]	.073[c]	.184[c]	.141[c]
Measured	.286[c]	.141[c]	.281[c]	.199[c]
Observing	.343[c]	.172[c]	.312[c]	.259[c]
Practical	.057[c]	*.012*	.069[b]	.081[c]
Purposeful	.428[c]	.310[c]	.477[c]	.378[c]
Radical	.209[c]	*.042*	.121[c]	.083[c]
Reliable	.434[c]	.337[c]	.507[c]	.408[c]
Sociable	.191[c]	.273[c]	.321[c]	.292[c]
Spontaneous	-.077[c]	-.108[c]	-.152[c]	-.072[c]
Structured	.467[c]	.286[c]	.481[c]	.384[c]
Takes charge	.324[c]	.323[c]	.421[c]	.316[c]
Tough	.402[c]	.255[c]	.439[c]	.357[c]

[a] CCT = Critical & Creative Thinking | Coll = Collaboration | AMS = Applied Management | Adap = Adaptability
[b] $p < .05$
[c] $p < .001$

As mentioned in Table 4, the Spearman correlation results indicated a positive association between most of the 24 qualities and BGA. However, two qualities seemingly did not correlate with Critical & Creative Thinking skill (*Adaptable* and *Flexible*). Eight other qualities had no significant correlation with Collaboration skill (e.i, *Adaptable*, *Accommodating*, *Cautious*, *Evidence-based*, *Flexible*, *Intimate*, *Practical*, and *Radical*). Similarly, three qualities had no significant correlation with Applied Management skill (*Adaptable*, *Cautious*, and *Intimate*). Lastly, four qualities had no significant correlation with Adaptable skill (i.e. *Adaptable*, *Cautious*, *Flexible*, and *Intimate*).

In the second phase, we conducted regression analysis using the stepwise method (backward entry) to get a better predictive model with only significant predictors. In this phase, the personality traits that did not correlate significantly with the skill were not included in the analysis. The results for each skill can be seen in Table 5-8.

Based on the regression analysis, we have a model of 12 qualities that can significantly predict 45.5% of Critical & Creative Thinking skill. Although, *Evidence-*

Based does not have a significant role in predicting the skill. Meanwhile, *Cautious* has a significant negative role. The most positive qualities in predicting Critical & Creative Thinking skill are *Conceptual*, *Structured*, *Imaginative*, *Tough*, and *Observing*.

This result indicates that Critical & Creative Thinking skill can be enhanced with students' ability to identify patterns of problems, data, and possibilities. Followed by generating ideas, challenging other perspectives, and working systematically.

Table 5. Regression analysis for predicting Critical & Creative Thinking

Personality traits	β	t	p	95% CI	
				Lower	Upper
(constant)	1.316	22.593	< .001	1.202	1.430
Cautious	-.048	-4.497	< .001	-.069	-.027
Conceptual	.116	11.036	< .001	.096	.137
Empathetic	.028	2.964	.003	.009	.046
Evidence-based	.021	1.882	*.060*	-0,886	.043
Imaginative	.067	7.612	< .001	.049	.084
Logical	.028	2.923	.004	.009	.047
Observing	.060	5.867	< .001	.040	.080
Purposeful	.046	4.274	< .001	.025	.068
Reliable	.036	3.184	.001	.014	.057
Structured	.076	6.408	< .001	.053	.100
Takes charge	.016	2.324	.020	.003	.030
Tough	.061	6.293	< .001	.042	.079

Note. $F_{(12, 2001)}$ = 141.092; p < .001; adj R^2 = .455; RMSE = .261

Table 6. Regression analysis for predicting Collaboration

Personality traits	β	t	p	95% CI	
				Lower	Upper
(constant)	2.851	29.801	< .001	2.663	3.038
Collaboration	.067	3.934	< .001	.034	.101
Conceptual	.039	2.371	.018	.007	.072
Empathetic	.035	2.125	.034	.003	.067
Imaginative	.028	1.997	.046	.504	.055
Observing	.028	*1.738*	.082	-.004	.060
Purposeful	.050	3.002	.003	.017	.082
Reliable	.074	4.263	< .001	.040	.108
Sociable	.032	2.673	.008	.008	.055
Spontaneous	-.027	-2.109	.035	-.053	-.002
Takes charge	.050	4.276	< .001	.027	.073
Tough	.028	*1.807*	.071	-.002	.058

Note. $F_{(11, 2002)}$ = 44.331; p < .001; adj R^2 = .191; RMSE = .419

Based on the regression analysis, we have a model of 11 qualities that can significantly predict 19.1% of Collaboration skill. *Observing* and *Tough* do not have a significant role in predicting the Collaboration skill. Meanwhile, *Spontaneous* has a significant role but is negative. The most positive qualities in predicting Collaboration skill are *Reliable*, *Collaboration*, *Purposeful*, and *Takes Charge*.

This result indicates that Collaboration skill can be enhanced with student's quality to distribute tasks based on one's forte, meet the team's commitment; perform a consistent work ethic, encourage self and others to strive towards goals; and build a compassionate environment.

Table 7. Regression analysis for predicting Applied Management

Personality traits	β	t	p	95% CI	
				Lower	Upper
(constant)	1.425	23.924	< .001	1.309	1.542
Accommodating	-.016	-1.824	.068	-.033	.001
Collaboration	.052	5.410	< .001	.033	.071
Conceptual	.069	7.126	< .001	.050	.088
Demonstrative	.017	2.017	.044	.458	.033
Empathetic	.044	4.579	< .001	.025	.063
Imaginative	.040	4.871	< .001	.024	.056
Observing	.035	3.672	< .001	.016	.054
Purposeful	.057	5.733	< .001	.038	.077
Radical	-.022	-2.638	.008	-.039	-.006
Reliable	.056	5.456	< .001	.036	.076
Spontaneous	-.026	-3.333	< .001	-.041	-.011
Structured	.049	4.509	< .001	.028	.070
Takes charge	.042	6.208	< .001	.029	.055
Tough	.071	7.978	< .001	.054	.089

Note. $F_{(14, 1999)}$ = 143.807; p < .001; adj R^2 = .498; RMSE = .239

Based on the regression analysis above, we have a model of 14 qualities that can significantly predict almost half (49.8%) of Applied Management skill. However, *Accommodating* does not have a significant role in predicting the skill. Meanwhile, *Radical* and *spontaneous* have significant negative roles. The most positive qualities in predicting Applied Management skill are *Tough*, *Conceptual*, *Purposeful*, *Reliable*, and *Collaboration*.

This result indicates that Applied Management skill can be enhanced with students' quality to define tangible goals, develop an organized and high-standard work style, and work diligently towards the goals. Followed by communicating the goal and need unequivocally within the team. Consequently, to share well-considered opinions and to disentangle ideas and arguments from confusion.

Table 8. Regression analysis for predicting Adaptability

Personality traits	β	t	p	95% CI	
				Lower	Upper
(constant)	1.573	21.923	< .001	1.432	1.713
Accommodating	-.020	-1.844	.065	-.041	.001
Collaboration	.031	2.452	.014	.006	.055
Conceptual	.059	4.809	< .001	.035	.083
Empathetic	.036	2.934	.003	.012	.060
Evidence-based	-.021	-1.696	.090	-.045	.003
Imaginative	.056	5.413	< .001	.036	.076
Observing	.040	3.255	.001	.016	.064
Purposeful	.057	4.525	< .001	.032	.082
Radical	-.033	-3.140	.002	-.054	-.012
Reliable	.061	4.701	< .001	.036	.086
Sociable	.031	3.658	< .001	.015	.048
Structured	.042	3.062	.002	.015	.069
Takes charge	.027	3.174	.002	.010	.044
Tough	.063	5.507	< .001	.040	.085

Note. $F_{(14, 1999)}$ = 74.846; p < .001; adj R^2 = .339; RMSE = .303

Based on the regression analysis above, we have a model of 14 qualities that can significantly predict

33.9% of Adaptability skill, although the *Accommodating* and *Evidence-Based* do not have significant roles in predicting the skill. Meanwhile, *Radical* has a significant negative role. The qualities that have the most positive role in predicting Adaptability skill are *Tough*, *Reliable*, *Conceptual*, *Purposeful*, and *Imaginative*.

This result indicates that Adaptability skill can be enhanced with students' quality to identify ambiguous situations, have brainstorming sessions about emerging ideas, strive to outperform others, explore possibilities in any situation, view things in big picture thinking, and maintain their work ethic. Those qualities will guide students' adjustment of behavior, cognitive, and emotional-responses to uncertain and novel environments.

4. Discussion

As discussed above, personality traits are essential in developing human skills. This is particularly true in the context of the Smart City concept, especially for Critical & Creative Thinking, Applied Management, Collaboration, and Adaptability. Our findings suggest how students may utilize one or more traits in hand. Yet, it should also be considered that students may overextend in some traits when exerting skills.

Firstly, the excessive use of *Cautious* quality in Critical & Creative Thinking skill results in resistance to change one's stance when evaluating and analyzing information; exploring the possibilities; reflecting and considering the alternatives. Thus, students are encouraged not to rely solely on conservative and mundane methods when the situation demands critical and creative thinking. Students might need to explore different options or new matters with curiosity.

Secondly, the excessive use of *Spontaneous* quality in Collaboration skill may lead students to explore the issues impulsively. Being rash when making assumptions and reaching solutions may cause students to overlook the consequences of their actions. Indeed, spontaneous students need to be aware of their time to gather inspiration and enthusiasm. Students also ought to arrange commitments within their team beforehand.

Thirdly, the excessive use of *Spontaneous* quality in Collaboration skill might cause students to rely much on gut-feel decisions that sometimes put others off-track. Whereas being quick to target without prior notice may impede others from achieving optimal results. Students should be advised to highlight their ideas before bringing them up to the team and set an expectation of what they want to hear. Ideally, educators should encourage students to speak their ideas out loud unequivocally. Lastly, the excessive use of *Radical* quality in Collaboration and Adaptability skills provokes the implementation of change for the sake of change which might cause turmoil. Besides, making a sudden change incurs more resources and may increase uncertainty.

These findings have implications for students and universities. First, every student can actively develop strategies in developing each Human Skill by utilizing an understanding of the quality of his personality. In addition, their understanding and awareness will also help them to optimize the strength of their personality qualities, including adapting to conditions that demand the use of their weak qualities. This will make every student more prepared to face changes in the environment and society that they will encounter upon graduation, one of which is Smart City.

Second, for universities, educators may tailor each personality trait keyword into the BGA module. For instance, to encourage highly *Measured* students to harness the *Takes Charge* quality in Collaboration skill, educators ought to use phrases such as "Create a small group of … people," "Describe your role in the team and how you can help others through your role," and "Together write down your team opinion about….". Thus, enabling students to express the *Take Charge* quality through one of their top traits. This strategy also helps educators to adapt their teaching perspective.

The core learning for Smart City is to continuously expand opportunities between university and industry to match the market demands with the necessary Human Skills [6]. Some limitation to the study is worthy of reflection. Since the study focused on attributes pertaining to students attending BINUS university, it needs to be seen if the framework is transferable to other universities. Nevertheless, the findings suggest that stimulating the students' strengths in accordance with 21st century skills that are in high demand is a form of forward planning aimed to resolve youth unemployment and job absorption. It can be delivered through numerous activities, such as in-class activities, role-play, workshops, and job training. A further study can be conducted to create a personality-based soft skill development activity module. It is also desirable to assess the relevance of BGA against competencies in the workplace which will help to sharpen the content of BGA and to enhance the development of employability skills that are fit for Smart Cities. Finally, to develop a full picture of the effect, a longitudinal study will show the degree of fitness of BGA and the relevant personality qualities in students against the working performance in Smart Cities.

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