Original Article

Enhancing Global Sustainable Higher Education Through Sustainability Window Approach

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ABSTRACT

The sustainability window approach began as a model that could explain the way to sustainable economic development. This theory places emphasis on ecological, economic and social linkages for making comprehensive analysis and policy towards United Nation's Sustainable Development Goals. It identifies four theoretically sustainable paths; two associated with economic growth and the others requiring growth conditional or strict adherence to environmental and social criteria. Many studies confirm that higher education institutions have not been able to completely embrace the concept of sustainability window approach. The paper asserts that these are the most effective ways through which global higher education establishments can achieve sustainability: well-being of society, environmental protection, low consumption, and limited social usage. Finally, it concludes by calling on high education institutions to incorporate sustainability window and integrate it with triple bottom line and responsible management education approaches. The paper argues that in order to determine whether such a change might be suitable in different settings, it is recommended that we test this revised framework using empirical evidence.

INTRODUCTION

The Sustainability Window Approach (SUWI) is a theoretical framework of sustainable development paths Luukkanen et al., 2024). In the contemporary world, it considers the environmental and social dimensions that are central to sustainability (Luukkanen et al., 2024). It was a tool for measuring sustainability. It started with the Earth Charter in 1968 which emphasized values such as sustainable global society based on respect for life, human rights and economic justice (MacKinnon-Day et al., 2016).

It developed into a new category within Data Envelopment Analysis (DEA), which combines an intermediate approach with DEA window analysis (Zhang et al., 2018). As part of the "SusHouse" project, SUWI has successfully been tested in Europe's sustainable households; emphasizing creativity in clothing care towards sustainable development (E-Knot & Wel 2001). The theory is properly applied when modeling sustainability and assessing risks in manufacturing systems designed to respond to emerging environmental and socio-political challenges (Schneider et al., 2022). The double negative approach to sustainability theory originally aimed at identifying what is not sustainable as a means of defining safe and equitable spaces for all individuals concerned (Feitelson & Stern, 2023).

Some of the greatest contributors to this theory include but are not limited to the following: Isabel Brito, Jose Conejero, Ana Moreira, and Joao Araujo (Brito et al., 2018). Other significant contributors to this theory are: Jyrik Luukkanen, Jarmo Vehmas, Jari Kaivo-Oja, and Tadhng O'Mahony. The theory has successfully been used to define future nuclear fuel cycles, holistic engineering design method for sustainability, integration of contemporary management tools with sustainability efforts.

The SUWI strategy underscores the combination of ecological, economic, and social dimensions towards facilitating a comprehensive analysis and policy making that is in line with the United Nations Sustainable Development Objectives. This method identifies four potentially sustainable pathways; two linked to economic growth, and two requiring either growth-dependent or strict compliance with environmental and social criteria. Regarding economic growth, this means balancing the need for increasing income levels while limiting environmental destruction. When we talk about degrowth, it implies reduction in consumption as well as societal use in order to promote equality in society and ecological health. SUWI therefore advises that social well-being can be achieved by putting objective indicators into three categories: essential needs, complementary needs and desired possibilities whereby priorities are set on individual basic requirements of citizens' lives (Bakar et al., 2018). It suggests achieving social well-being by incorporating ecological factors into such systems that stress interconnectedness between people and nature for full social-ecological wellness (Nayak & Pradhan, 2023).

Specific scenario paths can be followed, including economic de growth, within strict conditions for sustainability to determine sustainable GDP change bonds leading to the minimization of environmental degradation (Luukkanen et al., 2024). Urban areas should target residential density of 50-150 persons/ha (Lohrey & Creutzig, 2016) and setting parameters for economic development within a range that meets social and environmental sustainability criteria so as to minimize in an efficient manner environmental degradation.

From the perspective of SUWI approach, reducing consumption can promote social equity and environmental health by recognizing economic-social-environmental dimensions interrelatedness. The SUWI framework identifies sustainable development paths that balance these dimensions, suggesting that both growth and de-growth can be sustainable conditionally under two chosen criteria: the first one being prioritizing the environment as well us society. Furthermore, notions of good enough consumption are only partly governed by individual preference since they are deeply embedded in social practices and cultural contexts which influence consumption patterns eventually impinging on social justice.

Bursty language is suggested by research results that indicate that wealthier countries should reduce their consumption to help address global imbalances since overconsumption in rich societies worsens disparities and causes environmental degradation.

This implies that a collective reduction of consumption could improve social equity through resource redistribution and environmental sustainability as expressed by sustainable development which calls for responsible consumption practices at all societal levels.

Social bias and ecological welfare can be developed through decreased spending by following the sustainable pathways for sustainability within the window of the sustainability, thereby balancing economic, social, and environmental aspects for long-term sustenance (Luukkanen et al., 2024). Reduced consumption may enhance social equality while also improving environmental well-being by aligning individual choices with the common good to bring about positive societal outcomes (Kennedy et al., 2015). Reducing consumption leads to fairness in society and helps address environmental challenges through embracing an approach that is consistent with sustainability concepts, individual optimization processes as well as moderating inequity sensitivity (Huang & Rust, 2011). The reduction of consumption will increase equity in society by reducing income disparities while at the same time benefitting health of environment by decreasing biosphere use (Kopp & Dorn, 2018). It encourages reflective temperance in materialist lifestyles and wise use of resources for sustainability purposes (Gogia, 2014).

SUWI's framing of reducing social use promotes environmental health and social equity, while balancing economic growth with degrowth, following strict sustainability criteria. The SUWI approach proposes sustainable pathways that combine social and environmental goals, implying that degrowth can be aligned with social sustainability if it emphasizes fair access to basic services such as healthcare and education important for enhancing equality among the citizenries. Furthermore, the Sustainable Health Equity (SHE) initiative stresses the need for addressing socioeconomic and environmental determinants of health disparities in various ways inclusive of advocating for universal access to healthcare regardless of demographics. This aligns with collective provisioning since it reduces resource depletion coupled with promoting health equity. Societies can eventually obtain a more sustainable

future characterized by a healthier environment and equitable distribution of resources through reduction in social use and sustainable practices.

Social use can be reduced to promote social justice and environmental sustainability while integrating economic, social, and environmental dimensions, facilitating equal access to healthcare services, and avoiding harming the environment. By tuning individual choices with the collective welfare through policy interventions and nudges, a reduction in social use might improve environmental health as well as support equity (Kennedy et al., 2015).

The SUWI methodology necessitates a delicate understanding of how economic growth and de-growth intertwine to achieve equilibrium that improves social welfare while minimizing environmental degradation. This paper argues that theoretically sustainable scenarios are those ones which assume only two paths of economic development and two others which adopt de-growth, based on strictly following social as well as ecological criteria. Furthermore, social welfare is inherently connected to the state of the environment; thus, failure to consider ecological factors would result in an incomplete assessment of quality of life. Indicators that can be used to encompass these dimensions must also be comprehensive enough. This episode also calls for comprehensive indicators reflecting this connection. A system thinking approach should be adopted with a view towards reconciling between sustainability and well-being resulting in win-win situations for both humankind and nature.

It is manageable to achieve this by having the parameters for economic development within a sustainable range, based on social and environmental criteria (Fomina, 2022). Integrating social dimension of well-being with environmental considerations through a transdisciplinary systems approach leads to balance of sustainable well-being in order to minimize environmental degradation. (O'Mahony, 2022). Human needs should be prioritized, equality in access to services established and resource depletion managed through need-based growth strategy (Messkoub, 2022). To achieve social wellbeing, it is important to empower local values through social innovation such as co-creation

promotion, women's employment creation and sustainability production processes. There should be initiatives such as efficient public transport system, urban green spaces/trees/plants/vegetation, renewable energies and environmental education (Paaguassu & de Cardenas, 2023).

Problem Statement

In fact, higher learning institutions (HLIs) have found it difficult to adopt a SUWI approach as. Gaps

exist in the complete incorporation of sustainability practices as seen through the growth and development of sustainability practices in higher education (Ahmad & Shashidhar, 2024). This is the problem with incorporating sustainability into higher education (Park, 2024).

CONCEPTUAL FRAMEWORK

Figure 1. How to apply SUWI theory in HEIs

Source: Author's Constructs

RESULTS

Social Well-Being and Sustainable Higher Education

Promoting sustainable higher education and social well-being plays a significant role by creating an environment that supports students' resilience, engagement, and overall wellbeing. Promoting resilience and socially conscious future leaders in higher education is consistent with Sustainable Development Goal 3 on good health and well-being (Khatri et al., 2024).

Factors like organizational identification and attachment to placement among others help boost academic satisfaction hence promoting learning relationships and sense of belongingness which are key elements to this concept of sustainability in higher education (Signore et al., 2024). By including well-being into the strategies of tertiary institutions,

can lead to better social wellness and sustainability within these universities (Walker, 2022). Social wellbeing is fostered by Higher Education through a conducive atmosphere that affects positively students as well as faculty staff. It fosters inclusive schooling by encouraging belongingness for successful academics (Bengu & Ates, 2023).

Minimizing Environmental Degradation and Sustainable Higher Education

Sustainable higher education will be built through the minimization of environmental degradation since it grows a sense of responsibility and innovation among academic institutions. By incorporating sustainability into their main objectives, colleges can effectively train students to take on the world's problems. Universities become drivers of change as they encourage sustainable habits in outreach programs, workshops, and

community interactions that raise environmental awareness. They are grounds for interdisciplinary cooperation, making pupils realize what they need in order to have any chances for solving sustainability issues. Institutions are now more than ever adopting a range of green campus efforts and operational sustainability measures that can both reduce their carbon footprints and act as teaching aids for students.

The wider concept of sustainable development, which includes social and economic aspects for holistic effects, can be supported through the reduction of environmental degradation in higher education institutions (Shetty, 2024). Green innovation and higher education's role in reducing environmental degradation leads to lower carbon emissions that contribute towards sustenance (Zheng et al., 2023). In higher education there is a need to minimize environmental degradation to promote sustainability by reducing resource consumption, implementing remote learning platforms and crafting a "carbon brain print" to instigate reforms in energy saving practices (Nagi, 2023).

Reducing Consumption and Sustainable Higher Education

To make sustainable higher education more viable, reducing consumption is essential because it encourages students and institutions to be environmentally responsible. By doing this, not only does it reduce impacts on the environment but also makes sustainability a part of everyday life in academic environments. For instance, seminars and courses that influence consumption habits for food, energy or water have proved successful. Green consumption practices can help university students reduce plastic waste by following such activities as concern for the environment and consumer novelty seeking behavior. Through increasing energy efficiency, colleges and universities can become carbon neutral institutions.

Various tactics, such as training courses and awareness creation campaigns can reduce consumption among college students thereby fostering sustainable practices that benefit both higher education institutions and the natural environment (Herrera Burstein & Goni Avila, 2004). Green consumption attitudes of university students are also influenced by consumer novelty seeking, environmental concern and other factors which can lead to sustainable plastic pollution source reduction aiding sustainability efforts in higher education. This can lead to sustainability through reducing carbon footprint via energy saving technologies like other means of conservation of power in higher institutions (Petchchedchoo et al., 2023).

Reducing Social Use and Sustainable Higher Education

Promote collaboration, foster awareness, and promote behavior changes that would be able to contribute towards sustainability by reducing social use on campuses. This multiple approach can result in better sustainability initiatives. Social network analysis may also identify and strengthen ties connecting actors involved in implementation of sustainable development projects. It is possible to improve selection of environmental indicators and resident engagement through incorporating social media into campus sustainability frameworks.

In regions that lack resources, the utilization of user-generated content in social media can be a perfect way to deal with environmental problems. These sorts of campaigns have proved that changing what students think about electricity use can make them consider it differently. With such an approach comes awareness among the population and development of sustainable practices within the student body. Even though there are lots of sustainability activities on campus, most students do not know (Sharma, 2017). Campuses with no visible sustainability initiatives but with students who don't do anything about social use reduction may not see any progress as far as their sustainability efforts are concerned.

DISCUSSIONS

Social Well-Being and Sustainable Higher Education

In accordance with sustainable development goal 3, for good health and well-being, enhancing social well-being in higher education can create resilient and empathetic future leaders (Khatri et al., 2024). This is through strengthening the student's linkages towards creating a supportive higher learning environment. Further, having strong social ties assists students to withstand academic stress and

uncertainties. Students gain empathy from social interactions which prepare them as leaders of tomorrow who understand other people's point of view.

Social well-being encourages teamwork, especially in management studies through collaboration. Pupils with high levels of social well-being are more likely to act responsibly socially in line with sustainable development goals. The well-being dimension contributes towards developing an institution wide culture that cares about these elements within education institutions, such as cognitive engagement or self-knowledge among others. In addition, the mental health promoting factor facilitates a balance between academic life strains/successes and negative aspects of both conditions among learners. Also, participating in social activities fosters the sense of belongingness crucial for successful learning. Future leaders trained where there is emphasis on social well-being can lead with compassion and accountability. As a result, education cultivates a generation of leaders dedicated to positive societal change.

Minimizing Environmental Degradation and Sustainable Higher Education

Through minimizing environmental degradation in higher education, sustainability is improved through the formation of a mindset that values sustainable practices and supports them. Minimizing environmental degradation in higher education is a key approach to developing a mindset that values sustainability. On top of this, it enables students to appreciate the part they play in ensuring sustainable academic and future professional lives. When universities integrate sustainability into their curricula, they can promote values among learners and motivate them towards taking responsible action towards their surroundings. This educational strategy complements the bigger aim of Education for Sustainable Development.

It is a sustainable college if the learners know about what it means and can put it into practice in real life situations. To establish sustainability culture, this perception is critical. Educational programs that revolve around sustainability assist students to realize how economic, social, and environmental systems are interrelated. This comprehensive approach is vital when addressing intricate concepts relating to sustainability. College education plays a vital part in shaping attitudes that support environmentally friendly practices. In colleges, future leaders and people who make decisions might be influenced by promoting sustainable activities among others. Higher educational institutions' endeavor to reduce ecological destruction not only improves sustainability but also corresponds to the objectives of education for sustainable development thus producing a cohort of people dedicated to sustainable living practices.

Reducing Consumption and Sustainable Higher Education

To advocate for sustainability, consumption reduction in higher education encourages environmentalism, impacts buyer's opinions, and supports sustainable educational initiatives for the next age group (Al-Nuaimi, 2022). Consumption reduction in higher education results into students engaging in eco-friendly practices, hence reducing environmental problems. By reducing this number, consumer attitudes are influenced which makes students know the effect of their decisions on the environment. These concepts become important when teaching about responsible consumption as students who receive sustainability lessons are more likely to consume responsibly.

Universities play a crucial role in promoting sustainable consumption through educational projects. One way of achieving this is by integrating sustainability in the curriculum to develop values and knowledge that enable students to act as agents of change. Long time behavioral changes can be achieved through educational initiatives for sustainability thereby benefiting future generations. These programs bridge the gap to sustainable consumption by equipping students with needed skills and understanding. Moreover, campus-based consumption reductions can be emulated by learners thus showing them how to apply sustainability knowledge into practice. This finally assists in building sustainable societies through nurturing responsible consumer habits among the young leaders of tomorrow.

Reducing Social Use and Sustainable Higher Education

For Lara (2012), cutting down on social consumption in higher educational institutions makes them sustainable in terms of environmental management incorporation, promotion of sustainable consciousness, and initiating of social and environmental actions for a green future. Consequently, reducing social consumption in higher education establishments has the potential to increase sustainability. This helps universities to examine their ecological and social effects. This can be achieved through embedding sustainability into the students' minds and staff as well with subsequent manifestation in terms of building an eco-awareness society by universities. By designing learning experiences that foster critical reflection about resource use, responsible pro-environmental behavior is promoted among members of the academic community.

HEIs can implement initiatives that sustainably involve the community and create a wider-spread impact. These initiatives could range from recycling programs, conserving energy to community outreach plans. Involvement in social and environmental tasks by the students helps them to recognize their role as stewards of sustainability. The practical application of sustainability concepts is improved when academic activities work with community projects. Eventually, this will equip future leaders with skills and knowledge on environment challenges hence achieving a green future in HEIs where the aspiration is to apply long-term goals for sustainability through education and engagement with communities would be seen as one of the most important actions towards a highly green future involving less social use.

CONCLUSIONS

In conclusion, fostering social well-being and sustainability within higher education institutions is crucial for producing future leaders equipped to address the complex challenges of our time. By prioritizing social well-being, institutions can cultivate empathetic, resilient, and collaborative leaders who are capable of creating positive societal change. Additionally, integrating sustainability principles into higher education curriculum and practices can empower students to become environmentally conscious citizens and agents of change.

Ultimately, a sustainable higher education environment that prioritizes both social well-being and sustainability is essential for producing future leaders who are not only academically qualified but also socially responsible and environmentally conscious. By nurturing these qualities, higher education institutions can play a vital role in shaping a more sustainable and equitable future for generations to come.

RECOMMENDATIONS

The following revised sustainability window approach should be empirically tested, both in developed and developing countries, to ascertain its applicability in various contexts.

Figure 2. Revised Sustainability Window Approach Theory
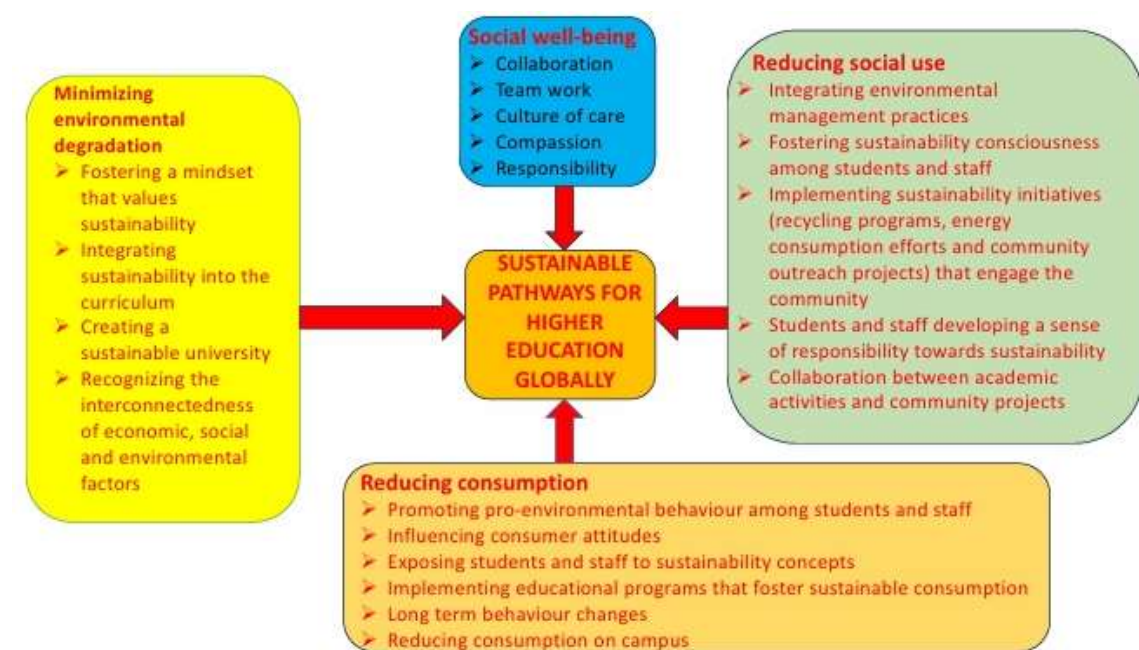
Source: Adapted from Figure 1

REFERENCES

Ahmad, P., & Shashidhar, A. (2024). Evaluation of Sustainability Practices in Higher Education: A Study on Assessment Tools GASU and AISHE. In *Global Sustainability: Trends, Challenges & Case Studies* (pp. 89-100). Cham: Springer Nature Switzerland.

Al-Nuaimi, S. R., & Al-Ghamdi, S. G. (2022). Sustainable consumption and education for sustainability in higher education. *Sustainability*, *14*(12), 7255.

Bakar, A. A., Osman, M. M., Bachok, S., & Abdullah, A. (2018). Sustainable Well-Being Objective Indicators: Basic Necessities, Complementary Needs and Desired Opportunities. *Sustainable Future for Human Security: Society, Cities and Governance*, 175-188.

Brito, I. S., Conejero, J. M., Moreira, A., & Araújo, J. (2018, May). A concern-oriented sustainability approach. In *2018 12th international conference on research challenges in information science (RCIS)* (pp. 1-12). IEEE.

Feitelson, E., & Stern, E. (2023). The double negative approach to sustainability. *Sustainable Development*, *31*(4), 2109-2121.

Fomina, V. F. (2022). Socio-ecological-economic sustainability of the northern region based on the "sustainability window" model. *Bulletin of Perm University. Series: Economics* , *17* (2), 197-220.

Gogia, J. (2014). Conscious consumption: A behavioral transformation approach for sustainable development. *Abhinav National Monthly Refereed Journal of Research in Commerce & Management*, *3*(10), 26-33.

Herrera Burstein, Y. E., & Goñi Avila, N. M. (2024). Promoting sustainable consumption among university students: a systematic literature review. *International Journal of Sustainability in Higher Education*, *25*(2), 265-288.

Huang, M. H., & Rust, R. T. (2011). Sustainability and consumption. *Journal of the academy of Marketing Science*, *39*, 40-54.

Kennedy, E. H., Cohen, M. J., & Krogman, N. T. (2015). Social practice theories and research on sustainable consumption. In *Putting sustainability into practice* (pp. 3-22). Edward Elgar Publishing.

Khatri, P., Duggal, H. K., Lim, W. M., Thomas, A., & Shiva, A. (2024). Student well-being in higher education: Scale development and validation with implications for management

education. *The International Journal of Management Education*, *22*(1), 100933.

Knot, M., & Wel, M. V. D. (2001). Creativity for sustainable development: the SusHouse approach, illustrated for clothing care. *Journal of Design Research*, *1*(2), 63-83.

Kopp, T., & Dorn, F. (2018). Social equity and ecological sustainability-can the two be achieved together?. *Available at SSRN 3294285*.

Lara, P. T. R. (2012). Sustainability in higher education institutions. *Journal of Education, Movement and Action*, 7(7), 1646-1656.

Lohrey, S., & Creutzig, F. (2016). A 'sustainability window'of urban form. *Transportation Research Part D: Transport and Environment*, *45*, 96-111.

Luukkanen, J., Vehmas, J., Kaivo-oja, J., & O'Mahony, T. (2024). Towards a General Theory of Sustainable Development: Using a Sustainability Window Approach to Explore All Possible Scenario Paths of Economic Growth and Degrowth. *Sustainability*, *16*(13), 5326.

Mackinnon-Day, P. (2016). An Artist's Anthropological Approach to Sustainability. *International Journal of Art & Design Education*, *35*(3), 307-315.

Messkoub, M. (2022). Sustainability and social policy nexus. In *Visions and Strategies for a Sustainable Economy: Theoretical and Policy Alternatives* (pp. 161-186). Cham: Springer International Publishing.

Nagi, K. (2023). How Can Higher Education Institutions in India Promote Sustainability?. *Available at SSRN 4616827*.

Nayak, P. K., & Pradhan, S. K. (2023). Interdisciplinary perspectives on social-ecological wellbeing. In *Handbook of Happiness: Reflections and Praxis from Around the World* (pp. 205-219). Singapore: Springer Nature Singapore.

O'Mahony, T. (2022). Toward sustainable wellbeing: Advances in contemporary concepts. *Frontiers in Sustainability*, *3*, 807984.

Paraguassu, E. C., & de Cardenas, A. M. C. (2023). PROMOTING QUALITY OF LIFE AND SUSTAINABILITY. *Periódicos Brasil. Pesquisa Científica*, *2*(1), 14-24.

Park, Y. (2024). Sustainable Education Practices: Voices from Higher Education Institutions.

Petchchedchoo, P., Khumboon, R., Limlawan, V., & Petcharaks, N. (2023, December). First Step to Carbon Neutrality in Higher Education: A Case Study in a Private University. In *2023 IEEE PES 15th Asia-Pacific Power and Energy Engineering Conference (APPEEC)* (pp. 1-5). IEEE.

Schneider, D., Vernim, S., Enck, T., & Reinhart, G. (2022, September). Approach towards sustainability modelling and sustainability risk assessment in manufacturing systems. In *IFIP International Conference on Advances in Production Management Systems* (pp. 440-447). Cham: Springer Nature Switzerland.

Sharma, R. (2017). Enhancing Sustainability Awareness through Social Learning Experiences on Campuses. *International Journal of Educational and Pedagogical Sciences*, *11*(11), 2427-2430.

Shetty, S. H. (2024). Higher Education Institutions as a Catalyst for Sustainability Development. In *Teaching and Learning for a Sustainable Future: Innovative Strategies and Best Practices* (pp. 1-16). IGI Global.

Signore, F., Esposito, C., Di Napoli, I., Agueli, B., Ingusci, E., Mannarini, T., ... & Fantinelli, S. (2024). Social dimensions as resources in promoting academic well-being: the case study of the University of Foggia. *Frontiers in Psychology*, *15*, 1347532.

Walker, C. T. (2022). Wellbeing in higher education: A student perspective. *Pastoral Care in Education*, *40*(3), 310-320.

Zhang, A., Li, A., & Gao, Y. (2018). Social sustainability assessment across provinces in China: An analysis of combining intermediate approach with data envelopment analysis (DEA) window analysis. *Sustainability*, *10*(3), 732.

Zheng, K., Zheng, X., Yang, Y., & Chang, J. (2023). Advancing higher education and its implication towards sustainable development: Moderate role of green innovation in BRI economies. *Heliyon*, *9*(9).

Zheng, K., Zheng, X., Yang, Y., & Chang, J. (2023).