

Institutional Development

Transdisciplinary Approaches

Thank you for inviting me. Seeking and having opportunities to excel is a wonderful conference theme as this is what drives many of us and helps us to persuade colleagues that there is much we can do together to serve Pakistan. The theme also provides a big tent for conversations about what we must do to develop and excel and raises questions about choices we are making and what impact these choices have.

Let me begin by first applauding Dr. Nadeem for setting the stage for us. He has been engaging a wide audience long before this conference began. I counted some 130 webinars he has led since last January on a range of topics including economics, the emerging spectrum of ESG, politics, the arts, and the list goes on. This spectrum of topics has several connecting threads and speaks to a particular wisdom that is slowly being embraced in academia and it is this.

None of the challenges and issues we confront in society, including the pandemic, can be solved from a single disciplinary lens. Further, once we see these challenges through a transdisciplinary lens, the underlying structures and systems start to reveal themselves. Understanding systems is key and I'll speak more about cultural systems a little later, but let's start with the pressing need for educational institutions to integrate disciplinary thinking.

So far, most educational institutions use traditional approaches focused on fragmented, discipline-focused knowledge to address issues and challenges. First let's admit that traditional approaches have not worked as intended. Challenges related to wealth and social prosperity, or the flip side, inequity – in particular, the incredible gap of how women are treated in Pakistan, most interventions to counter these have barely made a difference. More recently, the eradication of disease and climate change make it obvious that we need a new lens, even if it is to ask the right questions.

At LUMS we are convinced that these grand challenges require solutions that encompass multiple expertise from across disciplines or what we can refer to as holistic approaches. Transdisciplinary approaches is the highest level of disciplinary interaction. It goes beyond *multidisciplinary* approaches where disciplines provide several perspectives on a particular issue or problem. For example, bringing together economists, humanists, and scientists to solve a problem.

Transdisciplinary approaches go further than *interdisciplinary* approaches, which involve multi-disciplinary experts in defining the problem and integrating their respective frameworks to generate solutions. According to Klein¹, *transdisciplinary* approaches not only integrate disciplines in a comprehensive framework but also require collaboration between different sectors of society and multiple stakeholders to address complex issues.

Transdisciplinary approaches are a process; they are not a means to an end. You might say all of this is obvious. Still, it's worth asking how our institutional structures must evolve to encourage these vital interactions.

A good example of transdisciplinary approaches is how universities strengthen centers of excellence. Their strength is derived when faculty break entrenched disciplinary silos and blur internal departmental boundaries. Another example is when Centers reach out through cross-disciplinary programs that directly engages communities². This appears to be what PIDE is doing.

At LUMS, Centers tackling grand challenges are focusing on energy, water and agriculture, urban planning, gender, technology and entrepreneurship. Here multiple research paradigms meet at least three conditions for transdisciplinarity. First, Centres must be led by faculty who ensure cross-appointments that reflects multiple expertise. Second, university policies must clearly develop career progression pathways at Centres that can be systematically evaluated. Third, programming needs to prepare students for 21st learning. For example, a new data science program led

¹ Klein, J.T. (1996). Unity of knowledge and transdisciplinarity: Contexts of definition, theory and the new discourse of problem solving. In International Encyclopedia of Life Support Systems (EOLSS, UK). See: <http://www.eolss.net/sample-chapters/c04/c6-49-01.pdf>

² See for example, the REACH program at the University of Toronto's [Monk School of Global Affairs](#)

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by the LUMS Water Center and an environmental science program at the Energy Center provides innovative courses that address issues about big data and climate change.

Centres are often defined by “what” questions that guide their research agendas and the challenges that define their work. They evolve by asking what choices are we willing to make today? By addressing the “why” questions, Centres reveal their philosophical stance, which tend to frame the interventions they deploy.

For example, today, we are drawn together under the mindset of development. I won’t be the first to cite the seminal work of Sen and Mahbulul Haq, and Elinor Ostrom, whose work expanded the lens of economics to include broader philosophical and anthropological notions of human development. Thirty years ago, their original framework was, and remains fitting for countries like Pakistan to address its developmental challenges. Their focus was on the richness of human life and human capability where development is a means rather than an end. While more recent efforts are shifting from economic to education-based indicators, the work of Haq and Sen remains prescient.

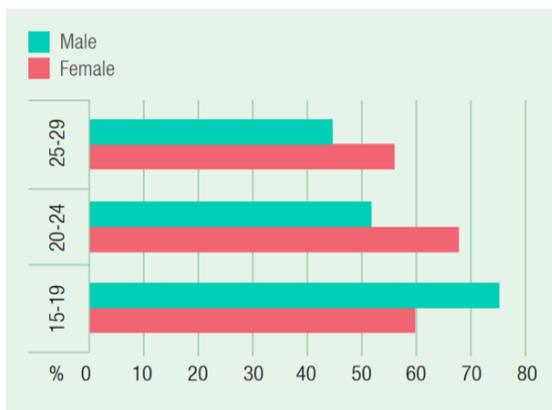
Human Development

I am a strong advocate of approaches that speak to our country’s strengths, and approaches that build on what is working well on the front lines. Approaches which value merit, integrity and resilience are likely to be sustained. One such approach is found in a comprehensive study on youth development that was commissioned by the United Nations Development Program in Pakistan³. Authored by the former VC Adil Najam and LUMS Professor Faisal Bari, this extensive report covers 81 areas where data was collected from cross-sampling of survey, focus groups and multiple media formats. It has been widely referenced for youth related policies across Pakistan.

For example, Figure A confirms what we know – that high dropout rates stem from educational environments that are not fit for purpose. But it also reveals that most youth aspire for a second chance to education. In Figure B we see that much of what we take for granted is inaccessible to our youth, including libraries, sports facilities, and the arts. This and other metrics would convince you that Pakistani youth are hopelessly behind.

Figure A

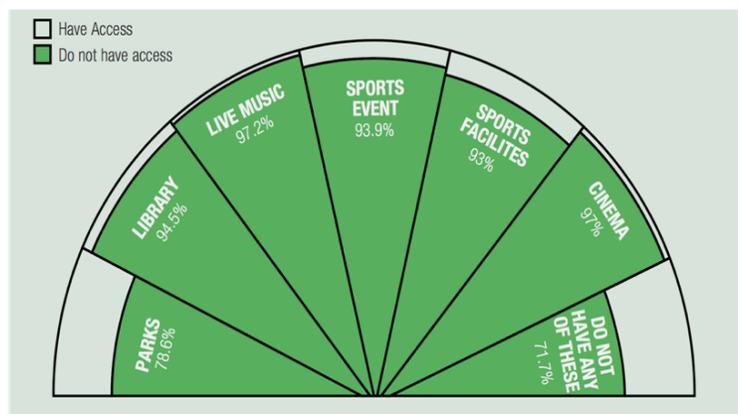
A significant portion of young dropouts aspire for a second chance to education



Source: UNDP estimates based on National Youth Perception Survey 2015.

Figure B

Majority of youth who do not have access to recreational facilities and events



Source: UNDP estimates based on National Youth Perception Survey 2015.

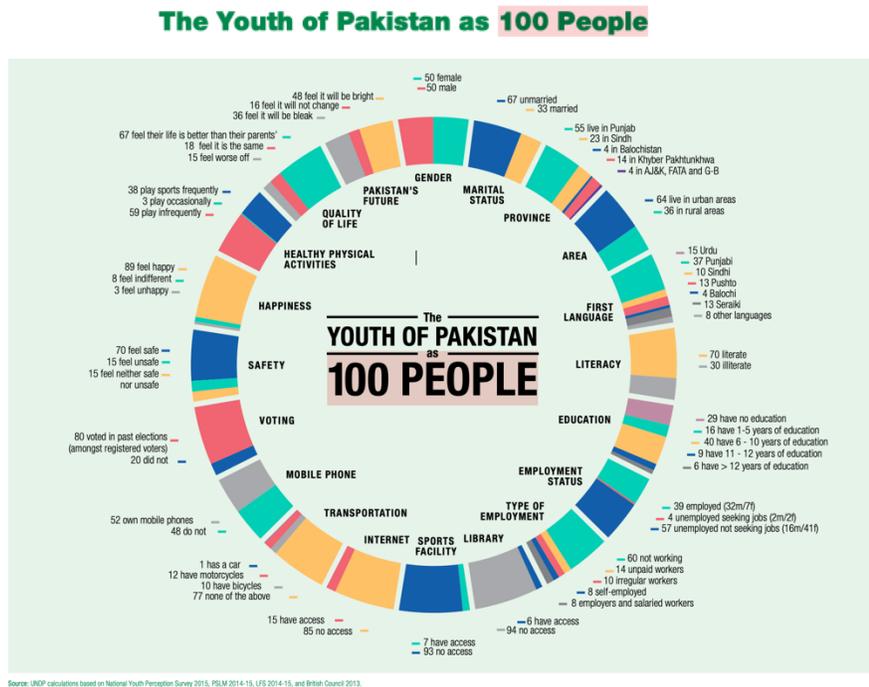
³ Najm, A., Bari, F., & Ahmad, S. (2017). Unleashing the potential of a Young Pakistan. National Human Development Report. United Nations Development Programme.

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However, listening to Pakistani youth tells us a different story. While Figure C uses self-reported data which should be discounted, it does reveal a different picture of development. Looking at some of these indicators you will be struck that if Pakistani youth are represented as one hundred people, most feel their life is better than their parents; Almost 90% of them feel happy; 70% feel safe, and a large percentage say they voted in past elections. If we work with this representative data, the youth of Pakistan do not resemble the stereotypes some would have us believe. Rather, they feel safer and better off than their parents, are certainly resilient and unwilling to give up!

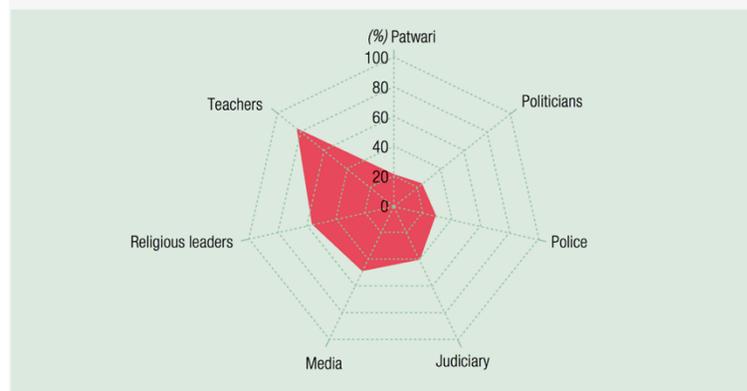
Figure C



The flip side of what our youth are learning is of course teaching, which is intensely debated in Pakistan. Despite the vilification of teachers in the media, our youth overwhelmingly trust our teachers. As Figure D shows, students trust their teachers much more than others who are said to have more influence over them. This is a sacred trust, one that is essential to intellectual and human development. Overall, while trust has waned in many other institutions – it is intact in teachers, and this opens up an opportunity for us to ensure our teachers succeed.

Figure D

Young people's trust in various public figures and institutions



Source: UNDP estimates based on National Youth Perception Survey 2015.

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It is true that generally, Pakistani teachers do not behave as western teachers do, but we must understand teachers in the context of how society treats them. We must understand our teachers in the circumstances they find themselves in. Therefore, more than anyone else, teachers deserve our encouragement, our support and our appreciation. Please join me to applaud our teachers.

Using the language of positive or substantial freedom based on Sen’s 1999 book⁴, allow me to share a successful (retrospective) intervention at LUMS. This intervention was designed to tackle a triple challenge universities face in Pakistan and beyond. The triple challenge is to support access, inclusion, and diversity on our campuses. Given the average monthly household income in Pakistan is approximately US\$220, higher education is not an option for most students even though some of the best talent lies latent in those very households. Around the world, universities offer financial aid and scholarships to recruit disadvantaged students, however, LUMS National Outreach Programme (or NOP) goes further.

The National Outreach Programme (NOP)

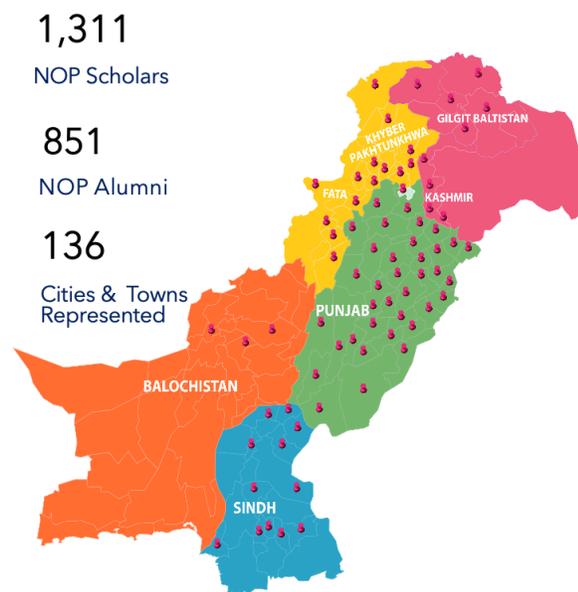
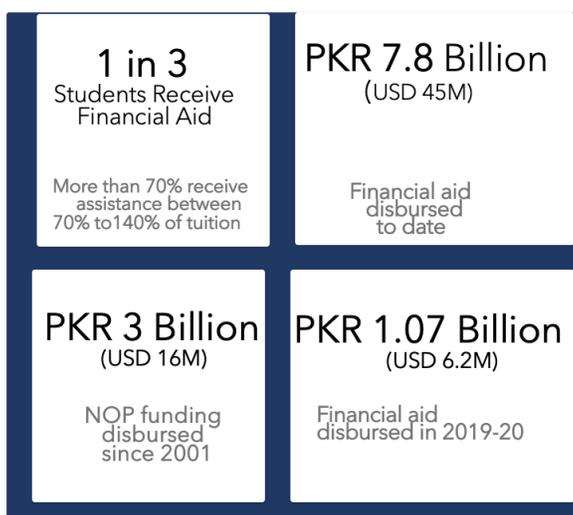
As seen in Figure E below, the NOP invites students from villages in Punjab and significant numbers from Khyber-Pakhtunistan, Sindh, Azad Kashmir, Gilgit-Baltistan and Baluchistan. This diversity makes LUMS a mosaic of Pakistanis – irrespective of location, status, or financial circumstances – who collectively speak over 70 languages and bring a rich heritage and mindset to the campus. In other words, the NOP is a microcosm of Pakistan and a mirror of the cross-cultural fabric that is representative of the nation.

This presents opportunities based on cultivating a growth mindset which contrasts the more fixed mindsets which I will return to later, that are reinforced by current education models prevalent in Pakistan. The NOP promotes this mindset where learning from feedback and learning from others are key success factors.

To date the NOP program has disbursed over Rs 3 billion to support 1,311 scholars of which 851 scholars have graduated and over 50 have received international scholarships in top universities worldwide. The possibilities for NOP graduates become endless: from pursuing academics at prestigious international institutions to becoming successful entrepreneurs and professional leaders who have given back to Pakistan with social enterprises that serve disadvantaged communities.

Figure E

Accessible Education



The NOP funds students from disadvantaged backgrounds from all over Pakistan, and won the 2021 Global CASE Platinum Award for 'Best Practices in Diversity, Equity, and Inclusion'

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For the past 21 years, LUMS has remained committed to the NOP and has offered full scholarships, boarding, transportation and a living stipend to at least a tenth of LUMS incoming students who qualify. The NOP promotes the values of merit and integrity as the greatest measure of success. While at LUMS, NOP students also acquire a passion for giving back. NOP scholars are a source of encouragement for prospective students in their communities who aspire to achieve similar milestones in their life. Our NOP experience suggests Pakistan needs many more outreach programs that promote diversity and inclusion.

Ecological Approaches

Let me introduce a different set of philosophical assumptions to describe another (prospective) intervention that speaks to experiential learning. Here I draw from my colleagues in our School of Science and Engineering to what is being referred to as an ecological perspective rooted in a holistic aspiration for development.

In a recent presentation, Dr. Abubakar Muhammad, Director of our Water Center talked about the writings of Ibn Tufail from 12th century Spain. In this story, a boy grows up on an island, completely isolated from people. He discovers cause and effect in nature, how the stars have regular movements, and then moves on the metaphysical questions until he concludes, after a 49-year journey of experiential learning, that there is a Creator, and all His creation has a purpose.

Abubakar goes on to cite the work Nobel Laureate Kazuo Ishiguro in *Klara and the Sun*, looking at our rapidly changing modern world through the eyes of an unforgettable narrator to explore a fundamental question: what does it mean to love? He makes another reference to a landmark paper on machine intelligence by Alan Turing who outlines the quest for a singularity through computing hardware and algorithmic complexity that evolves through certain tipping points.

Tying these together to frame sustainable development, our science colleagues raise three tightly interconnected questions. They ask what we mean by life in terms of its natural variations that are being coupled with *synthetic biology*, biomedical engineering etc. They also ask where engineering information through AI and other tools of scientific discovery helps our understanding of what we can know and not know. Finally, they ask what is sustainable considering human activity as the dominant influence on climate and the environment?

Their vision of ecological development is summarized as “*A living mosaic of gardens on a sub-continental scale in the 21st century in which intelligent machines act as companion gardeners to wisdom, to preserve and enhance the quality of human life in line with cultural, aspirational and spiritual traditions.*” This provides a different epistemology to address the grand challenges of our time considering renewable energy, food security and environmental preservation.

The Paradigm of Experiential Learning

Today, the dominant developmental paradigm universities and other organizations are embracing builds on the work of Sen and Haq from which The *United Nations Sustainable Development Goals* and the World Bank’s *Human Capital Index* are derived. These frameworks and indices are being used to measure impact. Still, we might ask whether we have gone far enough to articulate meta goals where human development is a part of larger narrative that can guide us.

The meta narrative draws inspiration from *Secreta Secretorum*, also known as the *Sirr al-Asrar* or The Secret Book of Secrets, which alludes to the translation of a letter from Aristotle to his student Alexander the Great. The translation addresses a range of topics including ethics, politics, astrology, alchemy, medicine, etc. Here modern scholarship is traced from 10th-century work composed in Arabic and as we can see, a broader developmental vision of the world is captured in the metaphor of a garden where humans are one of the actors in its preservation and sustainability.

With an ecological perspective in mind, the second prospective intervention at LUMS can be summarized as a flipped version of the LUMS NOP program described earlier. In other words, this time our focus is to inculcate in first-year students coming from affluent, urban areas to experience the difficult situations disadvantaged students find themselves in – again to change their world views.

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Recently, the University of Baltistan, a nascent institution nestled in the Skardu valley approached us for an institutional collaboration. To plan the intervention our team spent a week in the valley. As we approached Skardu, we had a spectacular view of the Himalayas and the second largest peak K2, identified by a puff of clouds, which the pilot announced with much delight. Unfortunately, he also noted that the peak had hardly any snow. Over the years his colleagues have noticed a reduction of snow-cover across the mountainous ranges. On the ground, the impact of climate change is palpable, and an existential threat to many of the communities. In 2019, Gilgit recorded 27 geological disasters spawned by climate change. New interventions through the Satpara dam which generates electricity and hydrology for the valley are in play.

This was the backdrop to focus our collaboration on climate change as we discussed research possibilities and courses on water management and green energy. A greater need was expressed to encourage entrepreneurship and e-commerce as well as heritage & hospitality. Interestingly, these focus areas were not only seen to provide economic prosperity for the region, but to promote a model where new interventions would be sustainable and mindful of mitigating environmental degradation. Would Skardu become the next Murree, or could it become a better Switzerland?

Both universities were weary of signing MOU's that sit on shelves, and instead favored action-oriented development plans to make our collaboration work. It's time to take collaboration seriously. For starters, we committed to a twinning program that will have 150 LUMS students paired with an equal number from the U of B students who will be co-taught with faculty from both institutions in Skardu next July. Similar faculty exchanges for research collaborations are underway.

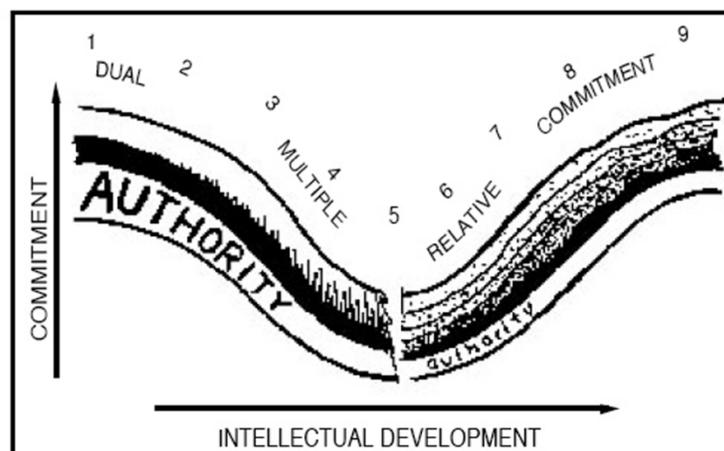
Intellectual Development

Pedagogically, the *The Perry Schema for Intellectual and Ethical Development*⁵ provides yet another theory of change underlying the learning and teaching exchange we are planning in Skardu. The audience might find this schema useful in designing their own pedagogical interventions. Figure F summarizes the stages of development along the axis depicting the level of commitment.

Figure F

Perry's Model of Intellectual Development

(Culver & Macros, 1982)



⁵ Perry, William G., Jr. (1970), *Forms of Intellectual and Ethical Development in the College Years: A Scheme* (New York: Holt, Rinehart, and Winston); reprinted November 1998; Jossey-Bass; ISBN: 0787941182

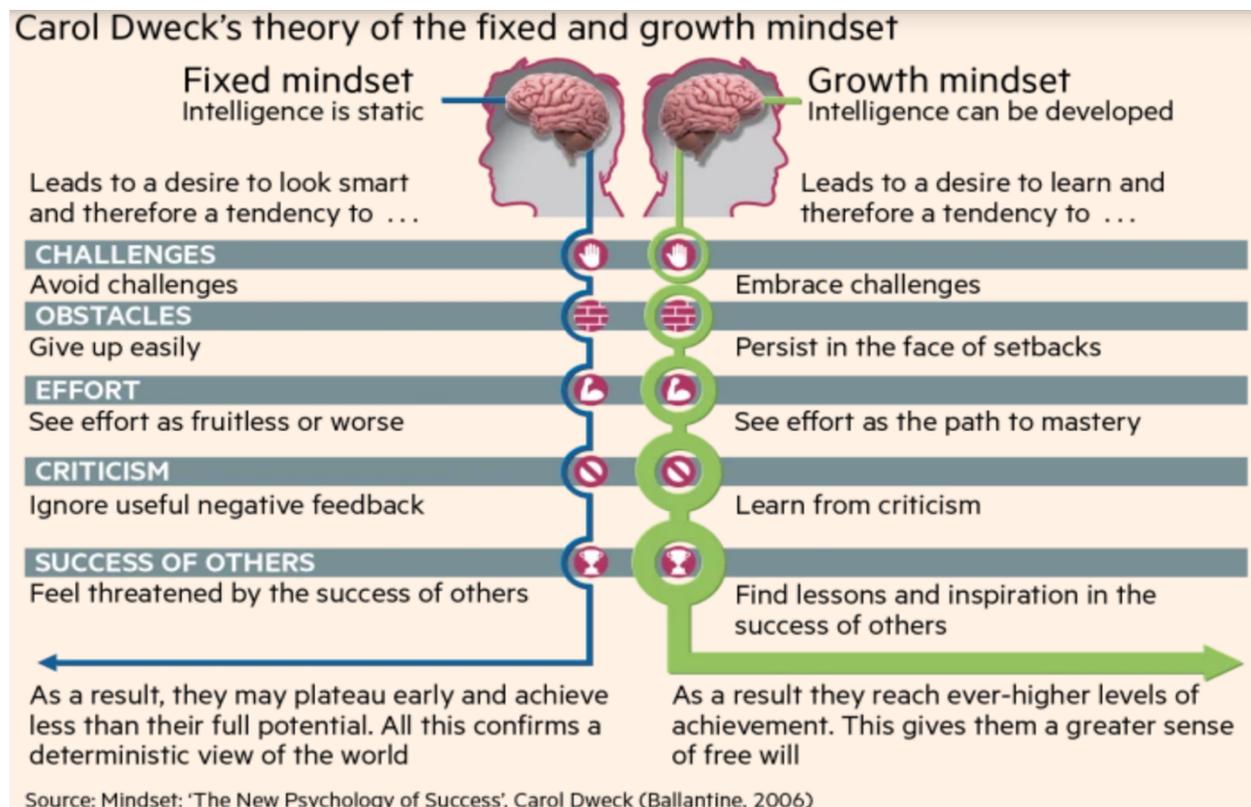
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Perry proposed that college students journey through at least four major stages of intellectual and moral development: from *dualism* where first-year students want to hear “right and wrong” answers, to *multiplicity* where different perspectives are explored, to *relativism* where “it all depends” as positions become relative, to *commitment* when students have the confidence to commit to holding positions on issues that matter.

The ruptures in development are caused by periods of confusion and sometimes failure which one can also interpret as necessary conditions for shifting perspectives. The Perry Schema can also be used to design assessments that better measure coincide with where students are at in their development.

More recently, the work of Carol Dweck⁶ on fixed and growth mindsets brings fresh insights into how intelligence can be developed through embracing challenges, persistence, effort, feedback, and inspiration (See Figure G).

Figure G



These approaches can take us into the worldviews of development from the lens of educational psychologists who are increasingly advocating perspectives couched in broader well-functioning cultural systems that encourage improvement, development and impact.

⁶ Dweck, C. S. (2014). Teachers’ mindsets: “Every student has something to teach me.” *Educational Horizons*, 93(2), 10–14. <https://doi.org/10.1177/0013175X14561420>

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Policies, Cultural Systems & Leadership

Many of us live in the policy world which rests within cultural systems that people find themselves in. Perhaps the difference between successful and unsuccessful policies rest on the underlying traditions which shape habits of the mind that comprise the cultural mindset of the department, school, or institution. Generally, faculty find themselves preserving their micro-cultures where leadership find themselves in broader meso, or mega cultures which they try to change.

I have found cultural systems where leadership values merit and integrity tend to reinforce hard work, risk-taking and innovation. As these values become pervasive, development tends to flourish. On the other hand, despite identical policies in another system, leadership that reinforces conformity and avoid challenges tends to reinforce a culture of perversion.

This might partly explain why national education policies in Pakistan, exacerbated by and weak leadership has produced such a culture. This also explains why we see a proliferation of meaningless research, plagiarism, fake and predatory journals, spurious authorship, certification without education, senseless systems for admissions and recruitment and unreliable and manipulated university rankings.

We have often heard the refrain that "culture eats strategy for breakfast". However, when policies and leadership produce perverse systems, repackaged interventions don't stand a chance. The reform agenda must dismantle fixed, deterministic systems. It must encourage questioning and creative thinking. It must balance social inclusion and yet maintain high expectations.

One big step to get started would abolish and replace the archaic point-system of recruitment with best practices followed in the rest of the world. Recruit new faculty, Heads, Deans, VCs, and Commissioners with a developmental and growth mindset. Ensure they are accountable to accomplish meaningful outcomes. Give them sufficient time to change underlying structures and systems.

Another step is to expect leadership to share power and responsibility while making transparent how scarce resources are being allocated given the hard constraints the institution finds itself in. Finally, an unwavering commitment to values such as merit and integrity does over time evolve into a different cultural mindset.

Impact

I conclude with a few thoughts about impact. We are here because of our shared belief that education is the greatest equalizer and the most powerful engine for development and societal well-being. However, it seems we leave developmental interventions to chance instead of investigating and measuring impact.

Impact assessment is not only important for determining whether we are making a difference but is also situated within institutional demands for transparency in developmental interventions. As focus shifts on outcomes-based education and there is greater demand for accountability in higher education, the need for impact assessment will become even greater.

As mentioned, while a few programs succeed at measuring impact well, most leave the assessment to chance. Christopher Knapper, a colleague and educational guru in Canada said the following about educational development: "...in terms of effects on higher education practice, we would earn at best an A for effort, but probably a D for impact..."⁷. Others indicate very little evidence of impact when it comes to developmental efforts. The same can be said for more wide-reaching interventions related to institutional or national programs, where impact assessment has not been attempted at all.

⁷ Knapper, C. (2003). Three decades of educational development. *International Journal for Academic Development*, 8(1-2), 5-9.

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If we wish to improve and develop “significant and meaningful descriptions of what and how [our] work makes a difference ... we should [not] be exempted from exploring for ourselves and others the impact of our work”⁸. To provide a roadmap to measure impact, we developed a practical “how-to” guide containing a step-by-step process to systematise what you may already be doing on an informal basis.

If you are evaluating whether the goals of your program have been met, or deciding which aspects of your program work, or considering the most efficient and effective ways to deliver your program, there are several frameworks and theories of change to guide you. Once robust indicators of impact have been developed, they can be revisited to improve any developmental intervention.

I hope some of these thoughts will resonate with you and spark conversations that will follow during this wonderful conference.

Thank you.

Dr. Arshad Ahmad
Vice Chancellor
LUMS, A Not-For-Profit University
D.H.A. Lahore Cantt. 54792
Lahore, Pakistan

Tel: +92 42 35608200

Fax: +92 42 35894550

www.lums.edu.pk



⁸ Weimer, M. (2007). Intriguing connections but not with the past. *International Journal for Academic Development*, 12(1), 5–8.